

June 2018

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Seaways

The International Journal of The Nautical Institute

Safety on board

Creating a habit that sticks **p04**

When to challenge?

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An end to dangerously weighted lines **p14**

Playing your part

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Cover picture: Harry Gale FNI

Seaways

The International Journal of The Nautical Institute

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Diary

What's on?

Emergency LNG STS forum 13 June

Trinity House, London

<https://www.nautinst.org/en/events/agm-2018/index.cfm>

This Emergency LNG STS forum is provided as part of our commitment to enhancing best practice and awareness within the industry. The agenda covers lessons learnt and best practice surrounding emergency and conventional STS operations, including contingency planning, safety precautions and how to manage the safe transfer of LNG during a time crucial event.

The event is free of charge to delegates. To register for attendance, please contact Louis.stephens-ramsden@lngsts.com or Michael.Redpath@lngsts.com

04 June

Navigation Assessors Course

Rotterdam – location TBA

Contact: susie.stiles@nautinst.org

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11 June

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London – location TBA

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13 June

Emergency LNG STS forum

1000, Trinity House, London, UK

Free of charge

Contact: Michael.Redpath@lngsts.com

14 June

Navigation Assessors Course

Denmark – location TBA

Contact: susie.stiles@nautinst.org

Discount available for NI members

London Shipping Law Centre lecture

1730, Middle Temple Hall, London EC4Y 9AT

£60

Contact: shipping@shippinglbc.com

18 June

Navigation Assessors Course

Glasgow – location TBA

Contact: susie.stiles@nautinst.org

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25 June

IHMA Congress

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<https://maritime.knect365.com/ihma-global-port-and-marine-operations/>

04 July

AGM

Solent Branch

1630, Mayflower Park, Southampton

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Captain John Lloyd FNI Chief Executive

Focus

Sharing the opportunity

“It is so important to ensure our members, sponsors and other stakeholders are fully informed about the contribution The Nautical Institute makes to the maritime community.”

I would like to open with a big thank you for the questions and feedback members have given to me related to the annual report of activities in the May edition of *Seaways*. This really is one of our key lines of communication and I have been pleased to see the interest the report has generated.

The Nautical Institute has been engaged globally in promoting safety and best practice and I understand how important it is to ensure our members, sponsors and other stakeholders are fully informed about the contribution we make to the maritime community. I would appreciate your help in spreading this message. With this in mind I am proud to present to you a new document developed by our publications team that looks at 2017 in review. Entitled *'Making a Difference'* the brochure will be available to download from our website in early June.

Please read it and discuss with your friends – we have a good message to share!

Part of our global outreach is achieved through our magazine *The Navigator*. Developed in conjunction with the Royal Institute of Navigation and distributed to many thousands of ships three times a year, it has been a key enabler in engaging with navigators across the industry. I am delighted this work will continue well into at least 2020 thanks to the ongoing and generous support from IFAN – the International Federation for Aids to Navigation – and Trinity House. Both organisations have recently affirmed their ongoing support for the project. On behalf of the NI and all of the readership, I thank both organisations for their generosity, without which this amazing publication would not be possible.

This issue concentrates on the relationship between the vessel and VTS, and was produced with the cooperation of the International Association of Lighthouse Authorities. I am very pleased that our Memorandum of Understanding and strong relationship with IALA have enabled us to engage in a member survey about the provision Aids to Navigation. With hundreds of responses, we have been able to provide useful feedback that will inform future developments. Please see the detailed article in this edition of *Seaways*.

It is always a pleasure to welcome visitors to the headquarters of The Nautical Institute. Just recently we were pleased to greet a delegation from Poland that included Captain Adam Weintrit and 12 of the

cadets from his maritime academy. They were in London to attend the IMO High Level Forum that was also supported by colleagues from The Nautical Institute. We are delighted to be at the heart of this decision-making body and pleased our technical expertise and professionalism is regularly called upon during the sessions there.

On the subject of cadets, please join me in welcoming 197 cadets from the South Africa International Maritime Institute who have joined The Nautical Institute as student members. Another 17 cadets recently joined from the California Maritime Academy. We hope they will enjoy their membership, actively engage with our organisation and contribute to *Seaways* with news of their voyages. We salute the work of local Members and Fellows in supporting these initiatives and I look to all the Branch leaders to encourage participation from younger mariners. We have halved the membership rates for students this year – so please make sure they are aware of the opportunity to join us.

Continuing with the theme of good news, I was pleased to join some of the Dynamic Positioning team at an awards ceremony in London recently. The Nautical Institute received an award for 'Excellence in Export' for our e-assessments. Against stiff international competition, we were able to demonstrate that our world-wide network of training providers has benefitted from the innovation of our online assessments for the DP qualifications. The online assessments were developed under strategic direction from the Dynamic Positioning Training Executive Group (DPTEG), a group of leading industry stakeholders that guide and direct our DP training scheme. The assessments are co-ordinated from HQ and have resulted in a more robust assessment of trainee DPOs while data capture and analysis enables us to see which parts of the syllabus are best understood and where weaknesses lie. My congratulations and thanks to the development and administration teams.

At the time of going to press we are in the final stages of preparation for Malta and so a full report to follow in July.

With my very best wishes to you and a reminder of my email address should you wish to get in touch: sec@nautinst.org

John

Third officer's column

How we can stick with safety

Is there any method to make the crew stick with safety, to make safety a habit for them? I asked my Chief Officer during the evening handover of watch some years ago.

'Carrot and stick, mate, only way,' was the answer I got. I tried to argue, but the Chief Mate was certain and did not want to change his opinion. He had sound arguments, and any amount of personal experience. He gave me examples showing that all methods to implement safety on board came back to one idea: reward and punishment. If the crew do not follow safety procedures, they should be punished; if they follow them, then rewarded.

Despite this, I started to think that there should be another way to implement safety on board: training, raising awareness, use of other incentives to follow safety rules, regulations and procedures. Carrot and stick surely cannot be the only route to safety.

Recently I read the article 'PPE Paradox', by Captain Nippin Anand (*Seaways*, December 2017). He describes a typical recurring situation, the crew member without a helmet in the engine room. The HSE officer on board applied the usual carrot and stick, with the usual results: warning, arguments, conflict situation and stress. The crew member managed to put his point of view to the HSE officer, explaining why he did not see the common sense in wearing a helmet in the engine room. Could that situation have been avoided? And was there any way the crew member could have been persuaded to wear his helmet in the engine room?

Finding a solution

That article inspired me to look for alternative solutions. I found one possibility in a book by Sean D Young: *Stick with It: A Scientifically Proven Process for Changing Your Life – for Good*. Young is a medical school professor at the University of California, Los Angeles (UCLA). The book is based on Young's PhD research, and starts from the premise that every individual has a core personality that doesn't change much throughout their life. In order to create lasting change, you don't need to change who you are as a person. You just need to understand how to create a process that fits who you are.

Let's assume that safety is a behaviour, and therefore something which individuals can change. Can we make a positive, lasting change to safety on board by changing our behaviour? Conventional wisdom and methods seem to be unable to bring this about. Crew members still do not wear hard hats and other PPE; they still fail to follow safety rules, procedures, regulations; they remain unwilling to report unsafe acts, conditions, and near misses.

The reasons for unsafe behaviour vary, depending on the particular person, the prevailing conditions and the situation. Even if a lasting change in safety is achievable, this does not mean that everybody will be safe, as we cannot completely rule out errors and unpredictable conditions. However, Young suggests it is possible to make some safety behaviour a habit and to create positive, lasting change.

Young classifies behaviour into three distinct types, which he defines as automatic, burning, and common behaviours - A, B and C types. *'Think of these three behaviours as different types of problems, requiring different types of solutions. Changing A, B and C behaviours requires different tools and processes. The difference between A, B and C behaviours lies in how much conscious control people have over them. In general, the more*

conscious thought goes into a behaviour, the easier it is to change. There are two steps to the process for creating lasting change. First, identify whether the behaviour you are trying to change is what I call an A, B or C behaviour. Next, harness the forces needed to change that type of behaviour,' he explains. In short, you need to:

- Define the behaviour you want to create or change;
- Identify the behaviour type (A, B or C);
- Apply the forces needed to create or change that type of behaviour.

Behaviour types

Young classifies the three types of behaviour as follows:

A – AUTOMATIC

Does the behaviour happen without you realising what you were doing at the time; in other words, you are doing it without being aware of yourself? If so, then it is probably an automatic behaviour. Examples at sea may include:

- Using the wrong knots;
- Unsafe use of stepladders;
- Leaving items unsecured;
- Not holding rails and tools properly;
- Not cleaning filters in dryers.

These are unconscious processes.

B- BURNING

Is it something you are aware of but feel powerless to stop? If so, then it is probably a 'burning' behaviour. Examples include:

- Removing PPE on the worksite (eg taking off helmets in the engine room – we all know we should not remove them, but they are so annoying and uncomfortable that we still do it);
- Consciously leaving things unsecured when we know they may fall, but still take a chance;
- Entering the open tank without SCBA, because you see a casualty;
- Leaving crucial equipment unattended during operations (winches, davits, cranes, booms, pumps, motors).

C – COMMON

Is the risky behaviour something you are aware of, but are having a difficult time feeling motivated enough to change? Then it is probably a common behaviour. These include:

- Not intervening in critical situations;
- Skipping risk assessments (formal or informal);
- Not reporting hazards and unsafe conditions;
- Not wearing appropriate PPE;
- Not attending training sessions;
- Not participating in safety initiatives.

From this, we see that failure to wear a helmet, handling something unsafely, and taking shortcuts are not the same behaviour - and they should be treated differently.

Be specific

Some behaviours may appear to fall into more than one group. However, different behaviour types demand different tactics to tackle them, so you need to be very specific about what it is you want to change. 'I want to wear a helmet when I start work in the engine room' is

not the same issue as 'I want keep a helmet on at all times in the engine room'. The more specific you are, the more chance there will be that you choose the right tactic.

If you are describing the behaviour you want to change with words such as 'unconsciously' or 'automatically', it is probably an A behaviour. If you are using words or phrases like 'obsessed with', 'urge', 'compulsive', or 'burning desire', it is probably a B behaviour. If 'motivated', 'tired' or 'bored' feature, it is probably a C behaviour.

Forces for change

Now you have identified the behaviour you want to change, look at the ways in which you can change it. There are seven forces which can be used to change behaviour, though not all of them apply in every case:

- **Stepladders:** Take really small steps, using the model of steps, goals, and dreams;
- **Community:** Be around people who are doing what you want to be doing. Social support and social competition foster change;
- **Important:** To ensure change lasts, make sure it is really important to you;
- **Easy:** People will do something if it is easier for them to do than to avoid;
- **Neurohacks:** Our minds play tricks on us. Use these tricks to your advantage;
- **Captivating:** People keep doing things if they are rewarded with things they need;
- **Ingrained:** Do things over and over again. The brain rewards people for being repetitive;

Note that while all of these forces are effective for tackling common behaviours, fewer of them are effective in tackling 'burning' behaviour, and fewer still for 'automatic' behaviour. That is why it is so important to determine exactly which behaviour should be changed. The image opposite shows which forces are most suited to tackling each behaviour.

Practical moves

How might these forces be applied in practice? Imagine you are planning goals to improve your reporting statistics for the year. This is a type 'C' behaviour, so all seven forces apply. Your strategy might look something like this:

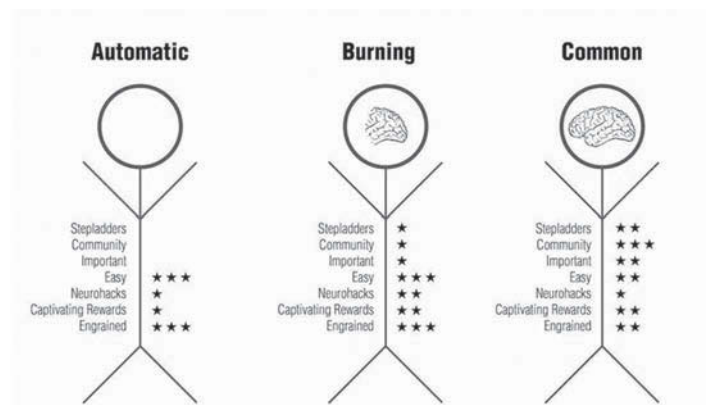
- **Stepladders:** Start with little steps. Monitor conditions every day – what is unsafe? Then make at least one report per week (provided that it is necessary and appropriate!), gradually increasing the quantity and quality of reports;
- **Community:** Contact your colleagues on board or on other vessels. Create a reporting challenge, volunteer for the ship safety committee or participate in safety-related discussions on Nautical Institute forums;
- **Important:** Read more about the importance of reporting for avoiding incidents; chat with your safety officer;
- **Easy:** Ask about permanent access to the SMS and the computer for reporting from your supervisor in a convenient time for you;
- **Neurohacks:** Put a note as a reminder on your desk or laptop a note, eg 'Write a report', or make it a temporary password to your personal or working login. On our vessel we have a media safety system with monitors to remind us of this quarter's safety campaign;
- **Captivating:** Allow yourself some incentive at the end of a successful week;
- **Ingrained:** Do not stop, keep on reporting.

Creating change that lasts

Experience has shown that the 'carrot and stick' approach is particularly ineffective in the case of automatic behaviour. A scare can be a good motivator for behaviour change – but only in the short term. In the longer term, fear simply pushes the individual into reactive mode, triggering denial and avoidance of the troublesome topic. In the same way, over a longer period a reward becomes commonplace and is no longer effective

in modifying behaviour. Sanctions and rewards therefore may not always create lasting change and may even be counter-productive.

So where does that leave us in terms of our problem with helmets? It is well known that a standard helmet is not comfortable to wear when working in a hot and noisy engine room. Logically, we may conclude that removing or not wearing helmets in the engine room represents A or B type behaviour, since most of the time people remove them unconsciously or are just unwilling to wear them. Here is a case where we should concentrate on making things 'easy': make the helmets ergonomically fit for purpose. Instil in crew members the habit of wearing them not just in the engine room, but also in other working spaces, even if this is just a recommendation. 'Captivating rewards' could take the form of appreciation shown by colleagues. For a 'neurohack', display posters of spanners on the engine deck, at the entrances to the engine room or in other prominent places.



Emphasising the 'importance' of wearing a helmet will have less effect compared with other forces, as everybody already knows that helmets are important, yet they still fail to wear or they remove them. In the same way, punishment for not wearing helmets is unlikely to work well in this case.

Making progress

Technical progress and science keep developing. Despite the conservatism of the maritime industry, we can – and should – turn to the most recent science to improve and implement positive development within the industry. We should not be content to stick with old methods, but should try to look for improvements that can drive positive lasting change for the whole industry. That said, of course, it is clear that all methods described in this article must only be used in line with existing safety systems and methods. They are intended as a useful tool to improve personal performance and productivity, and are not for use alone. 🌐

Mental models in confined waters

Sharing planned intervals for timely challenge and response

Antonio Di Lieto – Hans Hederström – Peter Listrup – Ravi Nijjer

Accidents in confined waters are often the result of intentions and actions not being challenged in due time, despite all formal bridge resource management tools being applied. So, what is missing? How can we ensure that the level of information exchanged on the bridge is detailed enough to enable unambiguous and timely challenge and response?

In order to meet these challenges, a new concept is required for navigation and manoeuvring in confined waters. By defining critical navigational elements (ie cross-track distance, speed, rate of turn, drift angle etc.) in terms of **an interval of values** – rather than single values – we can remove any ambiguity about when it is appropriate to challenge whoever is conning the vessel.

This concept addresses many concerns raised by safety investigators around the world. In its accident report M12W0207, investigating a vessel striking a coal terminal, the Transportation Safety Board of Canada maintained that *‘the absence of a detailed, mutually agreed-upon passage plan deprives bridge team members of the means to effectively monitor a vessel’s progress, compromising the principles of bridge resource management’*.

Critical navigational elements should be identified and specified by:

- **An interval of planned values** that represent normal operations. If everything goes according to plan, none of these values will be exceeded.
- **No-go area/values** that cannot be exceeded (ie non-navigable waters, breakwaters, speeds beyond or below which it is impossible to control the vessel). If the no-go value is exceeded then the ship is either aground or has had an allision or collision.
- **The reserve**: the difference between planned values/areas and no-go values/areas. This represents the safety margin available for a specific critical element. The reserve can be used intentionally in order to adapt to unplanned situations, such as traffic or changes in environmental conditions. It may also be used unintentionally due to conning errors.

For this concept to work effectively, critical navigational elements must be agreed and shared in due time before navigating in confined waters. The analysis of real world data from ships’ sensors and high fidelity simulators are essential tools to define the critical elements of a challenging manoeuvre in such a level of detail.

It is important to keep the number of critical elements as low as possible. Applying the concept of the interval of values to all possible navigational elements in confined waters may defeat the overall aim of the concept itself, which is to prevent accidents caused by intentions and/or actions not being challenged in due time.

Case studies – using the reserve intentionally

In Figure 1, the ‘critical element’ is the ship’s position, which is specified by the planned corridor either side of the ship’s track. Ship A is leaving the planned corridor and entering the reserve as a result of an alteration of course to starboard. The reserve here is being used intentionally – and quite correctly. Indeed, the reserve can and should be used as soon as the person conning believes it is reasonable to do so, for example to avoid impeding the passage of a ship constrained by its draught.

The person conning should make the bridge team aware of their intention to use the reserve by using the **thinking aloud** technique. This technique is based on verbalising – **before** the action is initiated – the intended action, the reason behind it and the expected outcome. In this way the critical elements are made available for either confirmation or challenge by other team members.

With reference to Ship A, an example of thinking aloud could be:

- Plan: *‘I intend to alter course to starboard’*
- Reason: *‘To avoid impeding the passage of Ship B, which is constrained by its draught’*
- Outcome: *‘I will navigate outside the planned corridor with a cross-track distance not more than 200m right of the track’*.

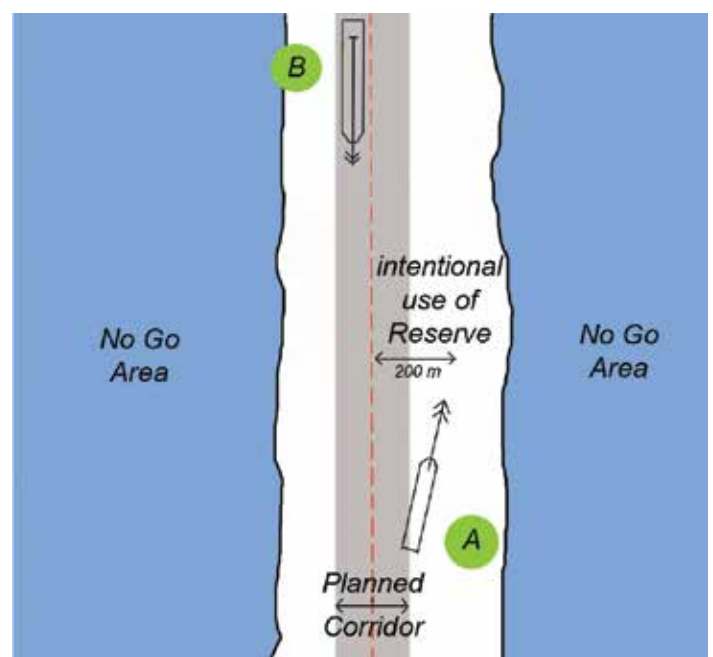


Figure 1: Intended use of the reserve to avoid impeding another ship

Another example of use of the reserve is the need to slow speed over ground when approaching another vessel at a difficult bend in a tidal river (Figure 2). Vessel 1 has the tidal stream against it, and may need to slow down to 3 knots until Vessel 2 has passed clear. This may take the speed over ground outside the interval of planned values – say between 5 to 6 knots – but such reduction would certainly be considered a reasonable use of the reserve.

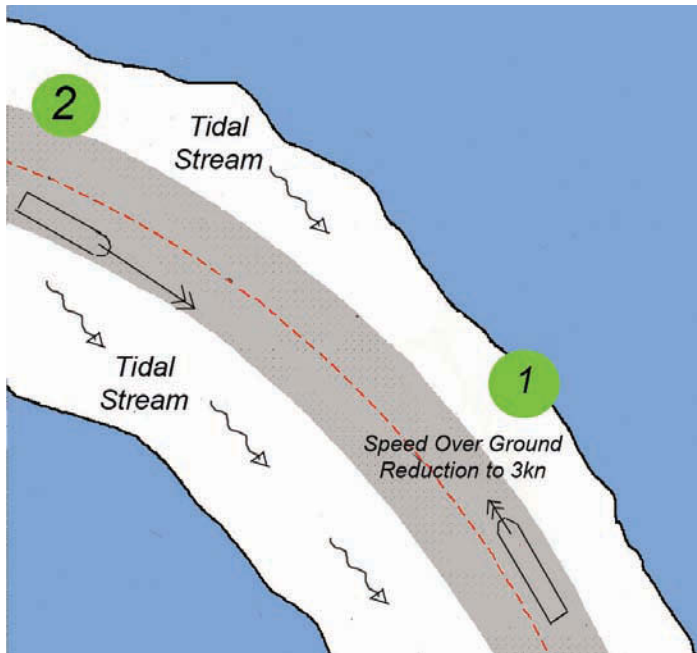


Figure 2: Intended use of the reserve when slowing down in a tidal river

This shows that reserves need not apply to spatial values only. For example, the drift angle could be used as a critical navigational element by defining an interval of planned (normal) values and an extreme value, which – once exceeded – will cause an unacceptable swept path in a narrow channel. All drift angle values outside the normal interval, but still within the extreme one, make up a safety margin to use only under abnormal or emergency conditions.

Unplanned use of the reserve – when to challenge

This planning methodology aims to allow the flexibility a shiphandler needs to manoeuvre without being constrained by unrealistically strict parameters. At the same time, it removes any ambiguity about whether it is appropriate to challenge whoever is conning the vessel.

Let us consider the unintended use of the reserve (see Figure 3).

When the ship is in Position 1, the cross-track distance (measured from the conning position) is right of track. The entire ship is within the **planned corridor**, without using the reserve. When the ship is in Position 2, the cross-track distance is zero (conning position on track), but the stern is on the edge of the planned corridor. When the ship is in Position 3, the cross-track distance is only slightly left of track – but the ship's port quarter is well within the reserve, with not much space left before the stern of the vessel crosses the safety contour and enters the no-go area.

In principle, critical elements planned according to this concept can be used as a baseline not only for thinking aloud, but also for **challenge and response**.

Before turning, the person conning would express their intentions as follows:

- **Plan:** 'I intend to turn keeping the conning position right of track.'
- **Reason:** 'Because I want to keep the port quarter within the planned corridor.'

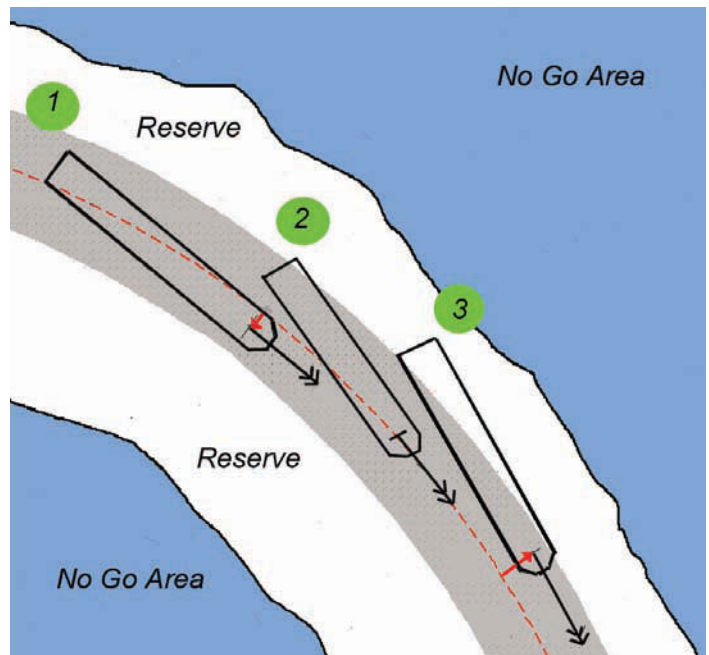


Figure 3: Unintended use of the reserve - a basis for timely challenge

- **Outcome:** 'The cross-track distance will be between 0 and 40m right of track.'

Now let us assume that the ship is drifting into Position 2 due to an unexpected current, and the person conning is not acting promptly on it. As soon as it is apparent that the cross-track distance will move left of track, any other team member should intervene by probing – 'What is your intention?' – and/or alerting, 'The cross-track distance is now zero and the port quarter is going outside the corridor.'

If the response to probing and alerting does not satisfy the team member who has concerns, then the challenge needs to be expressed using words that raise attention such as 'I suggest' or 'I recommend'. The following expression would constitute an outcome-based challenge:

'I recommend bringing the conning position right of track as initially planned.'

Outcome-based challenge

It is important that any challenge focuses on the outcome rather than on the specific action needed to control the ship. This is to avoid the person conning becoming fixated on the specific instructions given by the person challenging, especially if the challenger has more authority within the team. If the challenge included specific instructions, it could lead to a situation where the person with the conn waits for the next instruction before acting. This could mean a 'de facto', but not formal, taking over of the conn.

To avoid distractions and to retain the level of communication essential on the bridge – especially during critical navigational phases – any challenge should be timely and triggered by the intended or potential use of the reserve.

Planning an interval of values is particularly useful for berthing/unberthing manoeuvres. For example, the ship's heading could be one of the critical elements during the approach to the berth. Expressing this as an interval between two headings – rather than a single heading value – would define the interval of reasonable angles of approach to the berth. An example of this situation is shown in Figure 4.

If the heading is outside the interval of planned values, suggesting that the person with the conn should adjust the ship's heading may be more convenient than offering specific instructions on how to achieve the end result. If the outcome-based challenge is made in due time it

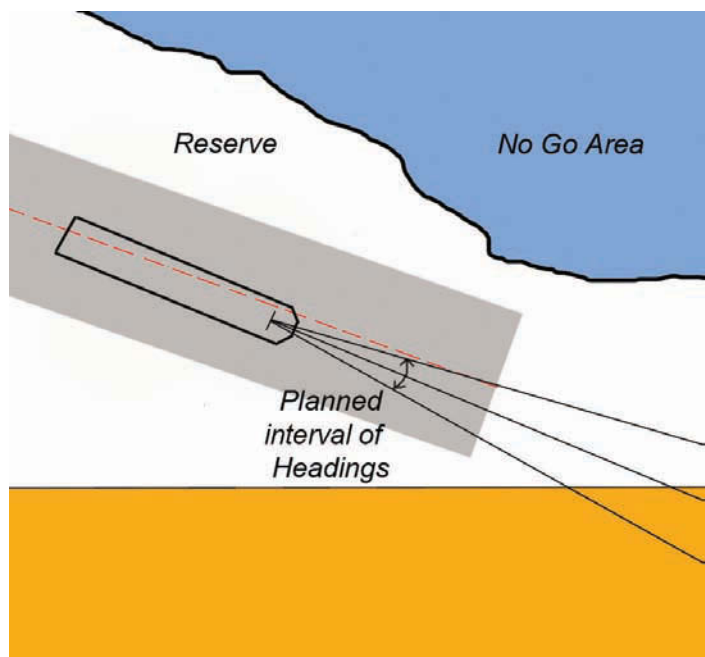


Figure 4: Planning an interval of headings to approach a berth

may be possible to let the shiphandler give orders as independently as possible.

Defining critical navigation elements in terms of interval values allows bridge team members to share detailed mental models more effectively and to present **essential, timely** and **unambiguous** challenges and responses. By no means is the concept meant to constrain shiphandling within fixed limits. On the contrary, using an interval of planned values (rather than single values) and permitting any reasonable use of the reserve allows the necessary flexibility and discretion to handle a vessel in confined waters. 🌐



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- Marine Consultants ● Surveyors ● Inspectors
- Marine Managers ● Superintendents
- Shipmasters preparing for navigation assessments

This course consists of two parts:

Part A: Classroom sessions during the dates below. Attendees will be awarded a Certificate of Completion after the classroom session.

Part B: An onboard assessment will be assigned. The Nautical Institute Navigation Assessors Certificate will be awarded to delegates who have completed both Part A and Part B.

The Navigation Assessor Course compliments The Nautical Institute's specialist publication *Navigation Assessments: A guide to best practice*. Each course attendee will receive a complimentary copy worth £40.

Fees: NI member: £750 (+VAT)

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DENMARK: 14-15 JUNE 2018

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AtoNs – a view from the bridge

While there is widespread acceptance for digital AtoNs, NI members are clear that they are only a supplement to physical objects



David Patraiko FNI
Director of Projects

In January 2018 The Nautical Institute reached out to its seagoing members via *Seaways* to seek information on the use of physical aids to navigation (AtoN), virtual aids to navigation (VAtoN) and vessel traffic services (VTS).

Responses from this survey were presented to the International Association of Lighthouses (IALA) at its biennial conference in May. The survey suggested that mariners are largely happy with the level of service provided by the physical aids to navigation. They welcome VAtoN but primarily to complement the physical aids, not to replace them. There is, however, a significant (40%) lack of confidence in vessel traffic service. Given the predicted growth of VTS and VTS-like services, The Nautical Institute, IALA and other stakeholders need to address the underlying causes of this lack of confidence in both operations and training.

It is only by seeking feedback of this kind that the efforts on both sea and shore towards ensuring safety can be improved. The Nautical Institute considers that developing and supporting this links to a key part of its mission.

Setting up the survey

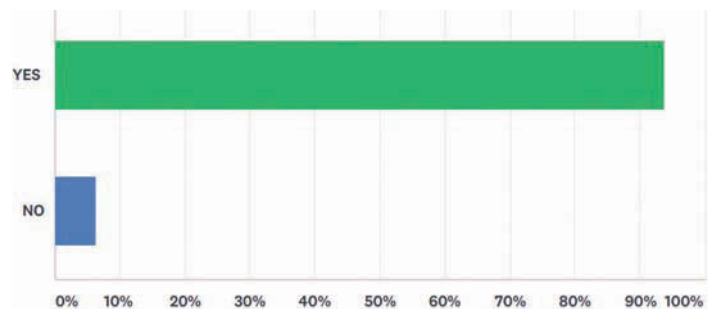
In anticipation of the conference, the NI offered to seek feedback from mariners on some key services provided by lighthouse authorities – thereby offering ‘a view from the bridge’.

Working in collaboration with IALA, The Nautical Institute developed a questionnaire, which was posted online using the Survey Monkey platform. Further questionnaires were sent to the NI’s SeaGoing Correspondence Group (SGCG) and a number of mariners were interviewed in person. The online questionnaire had 63 respondents, with a high level of written feedback, which is summarised here. The full raw data from this exercise has been provided to the IALA leadership for further exploration and analysis.

In all, the information provided in this paper represents the feedback from about 200 mariners from a fairly wide geographic area, including the feedback from NI staff with recent sea experience.

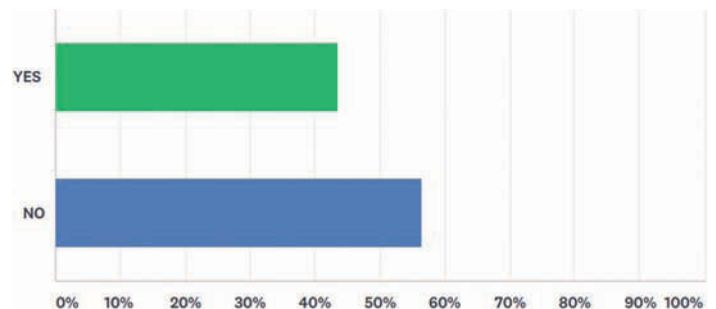
Physical AtoNs

Q1 Are the colour, shape or placement of buoys and beacons effective?



In answer to this question 94% of respondents replied positively. While this should be seen as a justification and praise for the good work of AtoN authorities around the world, comments included calls for better lighting and even suggestions of using more prominent, possibly fluorescent, paint. The most common comments related to the confusion of cardinal marks where discoloration due to wear or solar panels created the illusion of the wrong markings, and top marks not being clear at a distance.

Q2 Are there any improvements which could be made to buoys or beacons?

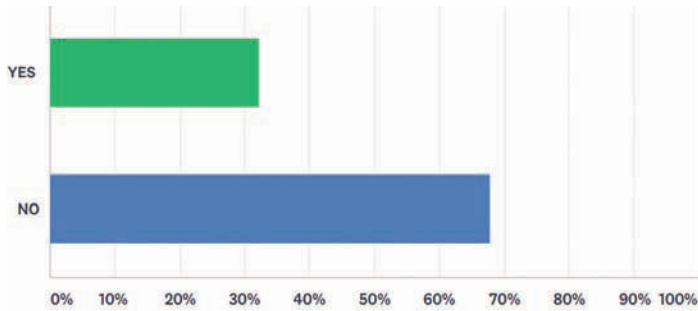


Improvements can always be made. However, most of the mariners who responded were realistic about the cost/benefit arguments.

Some of the more popular issues were a preference for the use of beacons rather than buoys in tricky areas, particularly where landmarks and radar conspicuous objects are not available. This recognises that mariners, rightly, do not rely on floating objects for position-fixing and want a backup to GNSS systems.

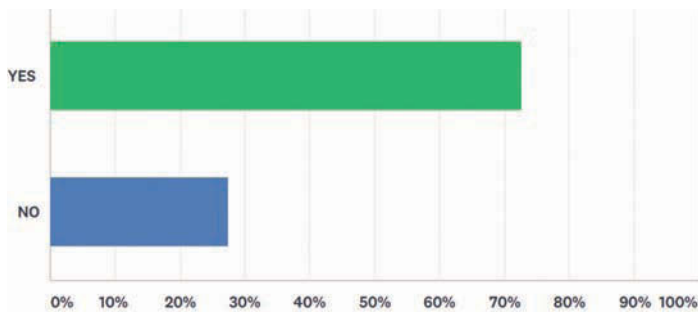
Predictably, there were a few calls for there to be only one IALA region, rather than A and B. In the past the NI has questioned members on that specific issue and found that a large proportion of our members are content with Regions A and B, given the disruption that any change would cause.

Q3 Are there particularly bad areas?



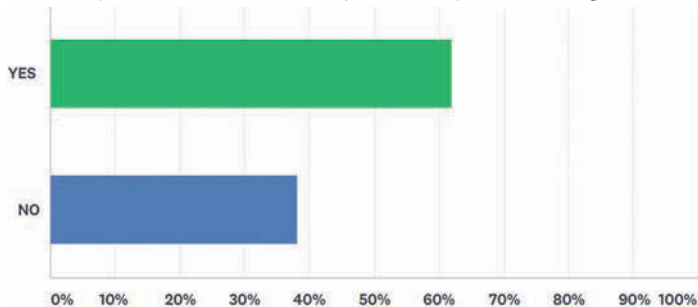
This is a subjective question that lacks academic rigour, but both the NI and IALA felt it might be useful. So as to not ‘name and shame’ the areas criticised, the detailed answers have been given to the IALA leadership to use in a responsible way. As might be expected, most (but not all) of the areas identified as problematic are associated with countries with struggling economies. In these areas common comments were about ‘dirty’ aids where the colour was not apparent, aids off station or missing altogether, and lights not working.

Q4 Are background lights a problem?



There was strong confirmation that background lights are still a problem, and one that may be getting worse. This may be due to increased populations around busy ports and the whiteness of modern lights. Many specific areas were identified and these references have been passed to IALA.

Q5 Have you observed the use of sequenced or synchronised lights?

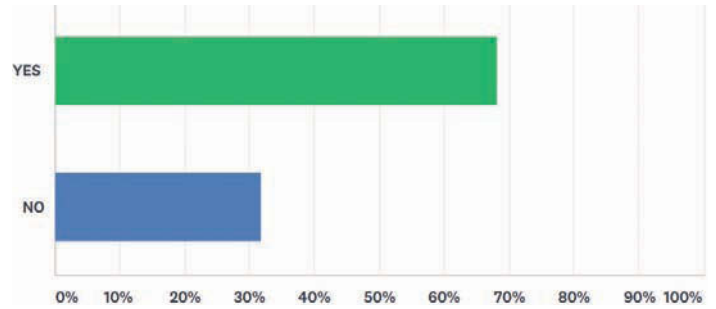


Those who had observed the use of sequenced or synchronised lights on fairways or channel buoys were very impressed with their performance, particularly in areas with high background lights. Some areas highlighted included Australia and the Great Belt in Denmark.

Given the wide range of fairway types and lighting solutions, mariners were keen that ‘user involvement’ was kept high.

One comment read ‘The rhythm can be mesmerising and the lights can be confused and a sense of distance mistaken’. In general, however, the use of sequenced or synchronised lights received superlatives such as ‘huge improvement’, ‘definitely good’, ‘great’, ‘absolutely’ and ‘makes it much easier to identify where the safe water is’.

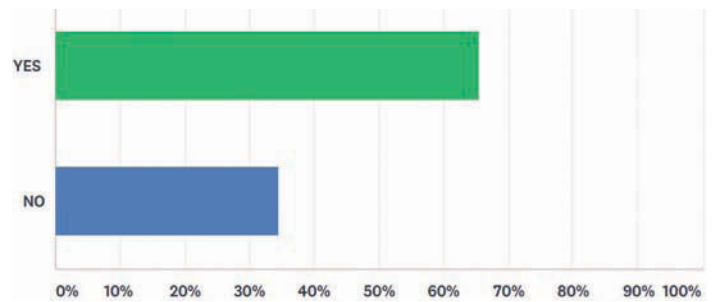
Q6 Radar conspicuity



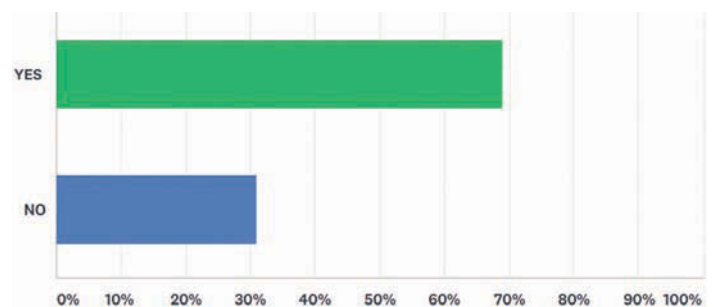
When asked if they were satisfied with the ability of radar to detect buoys or beacons either with or without racons, 68% replied yes. This led to a passionate discussion about the value of being able to make a positive identification of an AtoN either at a distance or among other objects or traffic, particularly in areas busy with fishing or leisure craft. This led on to a discussion about the different benefits of racons and AIS for buoys and beacons. The overall conclusion was that mariners certainly need to have a better understanding of the difference between racons and AIS and their relative strengths and weaknesses. This might be an area of joint interest to IALA and the NI.

Virtual aids to navigation

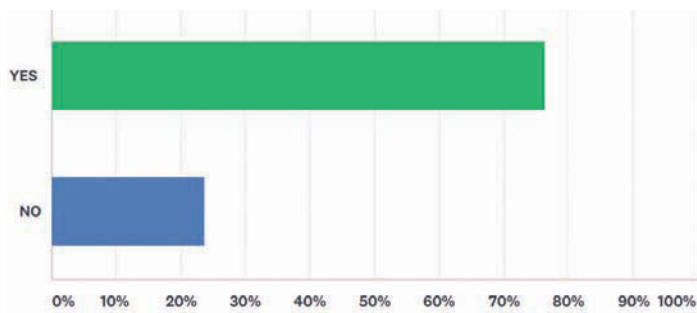
Q7 Have you observed Virtual AtoN?



Q8 Have you been made aware of the symbols and their meanings?



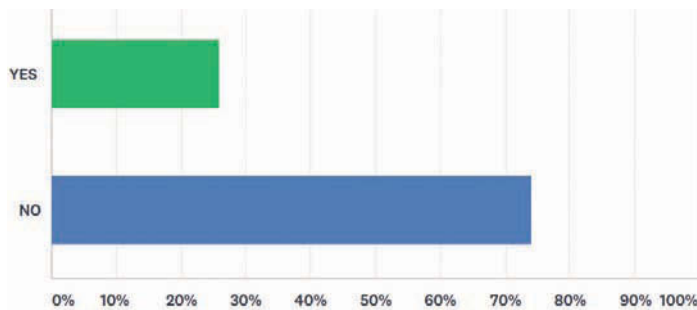
Q9 Are the symbols/messages clear?



It would seem that although most VAtON are self-explanatory and mariners can get further details from clicking on the symbol, there appear to be no standard training materials on VAtON use, in contrast to the IALA AtoN posters that can be found hanging prominently in classrooms around the world.

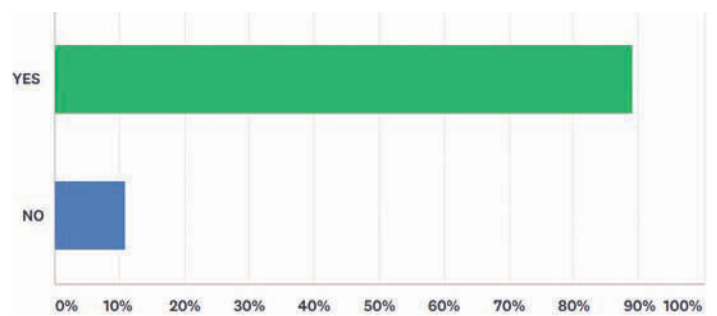
Mariners have also commented that the transmission/display of lines and areas would be more useful than a virtual buoy. For example, displaying a 'no-go area' on a chart is more obvious than using virtual cardinal marks, and there can be some confusion when a mariner can look out the window and expect to see a real cardinal mark but not a virtual one. The same could apply to an alternative channel, which might be better illustrated by a track line rather than a series of virtual buoys. The NI believes more needs to be done to get feedback from mariners to establish the best practices for VAtON.

Q10 Are there display issues?



It seems that there are still some display issues. Mariners identified problems with the lack of system integration, and some mentioned older equipment that is unable to display AIS. Human element issues that were raised focused on the management of information on both radar and ECDIS, where it was all too easy to overload a screen with data and information leading to poor decision support. This is not necessarily the fault of VAtON, but may apply to navigation systems in general. The NI is fully aware of this issue and is trying to work with industry partners to arrive at a better understanding of information use on board and to influence design and training.

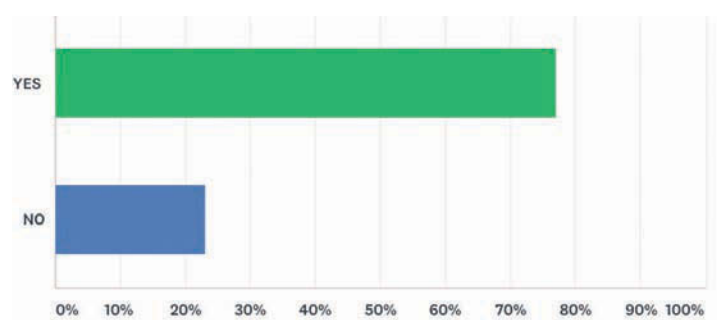
Q11 and Q12 Is VAtON a useful item in the mix of AtoN, and do you have suggestions for improvement?



While mariners find VAtON an accepted tool for improving the safety of navigation, they regard them as augmenting physical AtoN rather than replacing them. Comments were made about possible additional uses such as highlighting preferred anchorages or areas of potential congestion. Further comments were made about a need for better understanding of the strengths and weaknesses of VAtON, in particular about its relationship to GNSS, and the importance of not using VAtON as secondary positioning to GNSS.

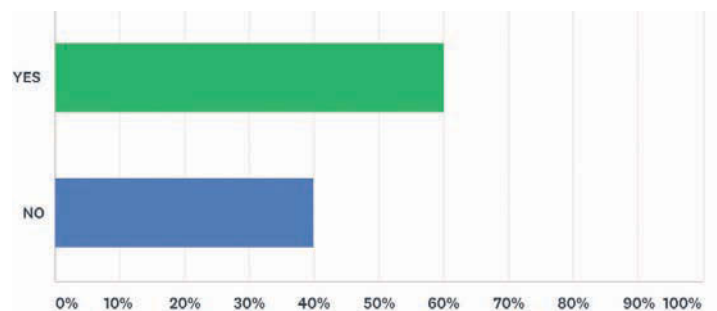
VTS

Q13 Awareness of the types of VTS



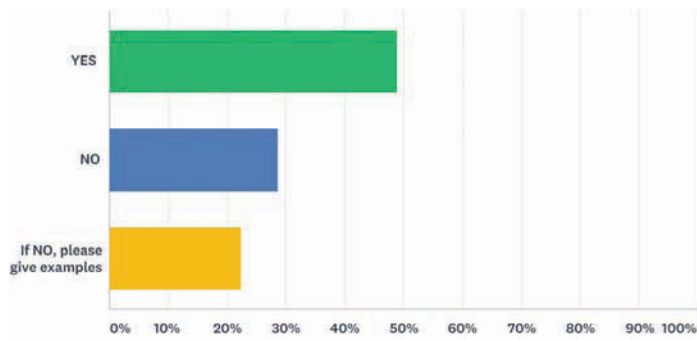
Three-quarters of mariners were aware that there are three levels of VTS (INS, TOS, NAS), which is good, though it leaves room for improvement. As VTS and VTS-like services expand around the world, it is essential that all navigating officers understand the role that they play and the limitations of the services. There is clearly scope for the NI, IALA and others to increase awareness of these services. The NI hopes that its most recent issue of *The Navigator*, which focused on VTS and has a distribution of 100,000 paper copies, will increase this level of understanding.

Q14 Are you confident in the services provided by each level of VTS?



From the Institute's perspective, this is the most worrying statistic. Despite all the work of IALA and its member authorities, 40% of mariners are 'not confident' in the services provided. Given the importance of VTS services in safeguarding navigation and the environment and the growth of VTS-type services, this is an area that will need to be addressed.

Q15 Is VTS harmonised?



Given IALA's remit of 'harmonisation,' the statistic that only 49% of mariners recognise that VTS is harmonised globally is also worrying and in need of addressing. It also helps to explain why there is such a lack of confidence in VTS services.

One disparity is the type of information requested by each VTS even within a common national area. We hope that over time eNavigation and the focus on single windows will reduce the amount of variation.

The other issue of concern is the reported variance in VTS operator skills, understanding and ability to provide a value added service. Not surprisingly, there were reported issues with spoken language, but also a lack of VTSO understanding of the environment within which mariners work.

Next steps

IALA and its members have put great effort into establishing standards and harmonisation in VTS operations, not least of which is the V103 standard for training. However, there is clearly room for improvement both in VTS and on board ships. The NI are more than willing to work with IALA to bring better harmonisation and greater confidence to the business of VTS.

As the use of VTS and VTS-like services increases around the world to address issues of safety, security, environmental protection and efficiency, the relationship between bridge teams and VTSOs needs to be monitored and engaged in a culture of continual improvement. Feedback from both ship and shore operators will be essential to improving this relationship. 🌐

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Dangerously weighted heaving lines

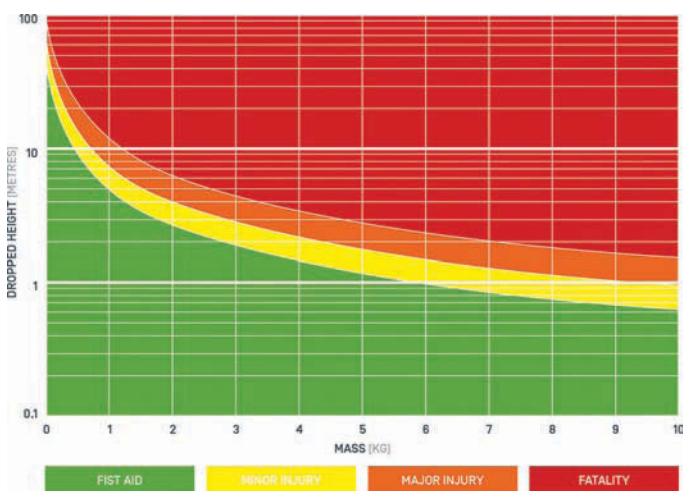
A frequent – and frequently unacknowledged – problem that needs to be tackled

Capt Scott Baker AFNI
Head of Marine Standards – Svitzer Europe

The practice of using unconventional, dangerous heaving lines is an endemic and perennial problem in the maritime industry. Ships' crews use a multitude of items to weight heaving lines. These range from bolts, nuts, threaded bar, even shackles (see MARS 201643), to sector-specific objects, such as container twistlocks and vehicle wheel chocks. This practice is not acceptable and introduces the potential for serious injury if a crew member aboard a tug or mooring boat, a linesman or a shore worker is struck by such an object during mooring operations, or if the weighted end hits a member of the vessel's mooring party when the heaving line is thrown back.

A recent MARS report (MARS 201835) highlighted a near miss involving a 'dropped object'. The graph below, which appeared in that report, clearly indicates the ratio between an object's weight and the distance it falls in relation to potential outcome of hitting an individual. Large modern container ships have bow heights of more than 10 metres. Coupled with the weight of an average dangerously weighted heaving line (approximately 1kg), it is clear that an injury (or worse) could be experienced.

Some of the items removed by tug crews in recent years have clearly been manufactured for the purpose, which means that chandlers are supplying these items to ships' crews. Whether homemade or purchased, it is clear that users have adapted to their environment and suppliers have evolved to supply their customers. Some flag states have even specified protective cages for tugs under their construction rules to protect the tug crews from dangerously weighted heaving lines. This seems to be missing the point.



Why do ships' crews do this?

There may be many reasons why crews weight heaving lines. Clearly, they are not inventing this array of dangerous weighting devices on purpose to harm tug crews and linesmen. It is more likely that crews have struggled to reach their targets over time during mooring operations and when taking towlines due to high winds – or perhaps more fundamentally, because some vessels are now so big that the height and distances involved make the use of a standard monkey's fist simply prohibitive. Weighting monkey's fists fitted to the end of heaving lines with pieces of scrap metal or sand, or attaching a heavy item such as a shackle will clearly assist the line to travel a greater distance when thrown. From one perspective, it's simply a means to an end.

In the towage industry, another worrying trend has emerged: the use of thicker, heavier messenger lines as heaving lines. These lines can be between 24–28mm in diameter. When coiled and falling from a height, they present as much of a hazard as a dangerously weighted heaving line. Because such lines are not easy to throw great distances, they tend to be used when the tug is positioned more or less beneath the ship, allowing the crew to throw the line on to the tug's deck.

Stakeholder activity

A brief online search reveals a plethora of articles, notices and updates on this topic, all with similar messages. The loss-prevention departments of all the major protection and indemnity (P&I) clubs have focused at one time or another on this topic. There is no shortage of guidance and alerts out there, yet the message appears not to be getting through to the right people.

The Code of Safe Working Practices for Merchant Seamen (COSWP), a best practice publication that can be found on the bookshelves of most well-managed vessels, has been updated to reflect the issues surrounding weighted heaving lines. It provides clear guidance on the matter. COSWP 26.3.5 states:

“To prevent personal injury to those receiving heaving lines, the “monkey's fist” should be made with rope only and must not contain added weighting material. Safe alternatives include a small high-visibility soft pouch, filled with fast-draining pea shingle or similar, with a weight of not more than 0.5kg. Under no circumstances is a line to be weighted by items such as shackles, bolts or nuts, or twist locks.”

Administrations such as the UK Maritime & Coastguard Agency have long had alerts in place, reiterating COSWP Chapter 26. The MCA has issued a warning that ‘Vessels using dangerously weighted heaving lines in the UK may be subject to prosecution.’ In support of this alert, the UK Administration is to be informed immediately after any incident involving dangerously weighted heaving lines. An alert could initiate a priority one (P1) inspection under the Paris MoU on Port State Control.

Harbour authorities, too, have acted to highlight this unacceptable practice. Like the UK MCA, they have issued notices warning of the potential penalties for the use of dangerously weighted heaving lines.

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Based on IMO Model Course 3.11, this course introduces the processes and procedures to support a marine casualty investigation in accordance with IMO Assembly Resolution A.849(20) and the Code for the Investigation of Marine Casualties and Incidents.

Content includes:

- How and why to carry out an investigation
- How to collect evidence
- Essential interview techniques
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Fees: NI member: £750 (+VAT)

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Many harbour authorities have instructed mooring teams to cut off weighted heaving lines and ‘any added appendages’ used during mooring operations. Items removed are retained as evidence in the event of any legal action against the vessel.

And still the problem persists.

Education

Given the persistence of this issue, education must form a key part of resolving the problem. But where do we start? Nautical colleges around the world could play a crucial part in informing their students, both officers and seafarers. In the first instance, there is need to increase awareness of the risk posed by what many crew members believe to be an innocent act. Perhaps harbour authorities and tug operators could liaise more effectively with nautical colleges to provide a ‘real-life’ lecture on this matter. Perhaps they should focus on best practice, with a reminder of the potential consequences, both for the injured party and the perpetrator?

Onboard management

After the tug master-pilot information exchange, the tug master often asks the pilot for confirmation from the Master of the assisted ship that weighted heaving lines will not be used. And moments later there is a loud bang on the deck of the tug as another dangerous line is thrown down. Anecdotally, when Masters are questioned by harbour officials after the event, they claim ignorance of the presence or use of any illicit form of heaving line.

Admittedly, the reduction in vessel manning does not help. There is as much to do as ever, but with fewer crew. But this in no way alleviates the need for line managers on board to ensure they understand the regulations and/or industry best practice. When was the last time that the Master discussed this with the Chief Officer? The latter, in turn, trains the junior deck officers and the bosun, who finally manage their respective deck teams during mooring deck operations. It is my contention that few, if any, of these fundamental management conversations take place. And yet, deck officers are the first and the last line of defence against the use of dangerously weighted heaving lines.

Management at all levels must take ownership in a bid to tackle this issue, and ship owners, managers and operators must also play their part.

Practical dilemmas

At the risk of delivering a mixed message, there are specific situations when, with adequate planning, and an appropriate level of communication, the use of a weighted line might be justified. Slowly lowering a weighted line in a controlled manner has been common practice in some areas. This is preferable to recent reports of an entirely unweighted heaving line (without even a monkey’s fist) flailing uselessly in the breeze as the tug positioned itself right under the bow of a ship – in the very position where the tug would like to spend the least amount of time!



Above: Approved weight.
Below: Illegal weights - and the consequences



What next?

The maritime industry must face up to this problem. This article is a call both to those affected by dangerously weighted heaving lines to continue reporting incidents by the appropriate means, including MARS, and to the officers and crews out there who can influence and ultimately eradicate this practice.

Next time you are preparing a heaving line or are in charge of a mooring party, think about the dangers it may pose to those on the receiving end – and use a monkey’s fist or appropriate alternative.

If a weighted heaving line is used, don’t be surprised if the line returns to the vessel without the weight! Most ports prohibit the use of additional heavy material, and vessels may be inspected or fined for breaching local regulations if a weighted end is used.

Before throwing a heaving line, the vessel’s mooring party should alert the linesmen, mooring boat and/or tug crew and anyone else in the vicinity that a line is about to be thrown. The operation should only proceed if the area where the heaving line will land is clear of personnel.

Communication and planning is everything.

MSF 5029 Rev 10/14

SAFETY BULLETIN

No. 2

DANGEROUSLY WEIGHTED SHIPS HEAVING LINES

There have been several instances where dangerously weighted heaving lines, including the use of monkey’s fists with additional weights inserted into them, have been used resulting in serious injury. Further guidance is contained in Ch 26 section 26.3.5 in the 2015 edition of the Code of Safe Working Practices for Merchant Seafarers.

X

X

X

✓

✓

Vessels using dangerously weighted heaving lines in the UK may be subject to prosecution

To arrange a subscription to future Safety Bulletins go to <https://www.gov.uk/government/publications/maritime-and-coastguard-agency-mca-safety-bulletins> For further information please contact Ship Safety Branch, Maritime & Coastguard Agency Tel: +44 (0) 2380 329 100
 Issued: 28 September 2015



Mariners' Alerting and Reporting Scheme

MARS Report No. 308 June 2018

MARS 201836

Approaching port, CPP stuck at 50% ahead

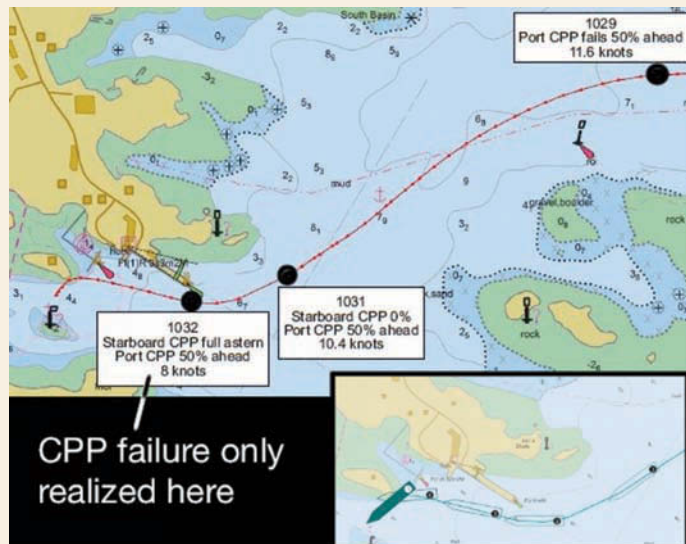
As edited from official MAIB report 20-2017

➔ As the ferry approached the port the Master took the con from the OOW. With a little more than 3 nautical miles to go the Master started reducing the pitch on both controllable-pitch propellers (CPPs), as was his practice on this arrival. He monitored the CPP pitch indicators on the starboard wing console and saw the pitch on both propellers start to reduce. The reduction in pitch was also observed by the third officer at the centre console. The Master was satisfied that the transfer of pitch control to the wing had been successful, and he transferred control of the steering and bow thruster to the starboard wing console.

The ferry was now making about 10kt, and the Master set the port CPP to 0% and then to 70% astern. The Master did not look at the pitch indicators at this point because he was confident he had control at the starboard wing console. However, he soon noticed that the ferry's speed was not reducing as quickly as he expected, so he set the starboard CPP to 0% pitch.

The Master initially thought that the ferry's slow response to the pitch adjustments was due to the ferry's trim. The OOW looked at the CPP indicators on the centre console and saw that the pitch on the port CPP was still at 50% ahead. He immediately advised the Master, who set both the port and starboard CPPs to 100% pitch astern. The starboard CPP pitch moved to 100% astern but the port CPP pitch remained at 50% ahead.

The ferry was now less than 200 metres off the pier breakwater, its bow starting to swing to starboard due to the twisting moment of the propellers. To counteract the swing, the Master set the bow thrusters to 100% thrust bow to port. At this point the Master decided against using the anchors to slow the vessel in view of the relatively high speed and the risk to the forward mooring party.



Meanwhile, the engine room was informed that the port CPP was 'stuck ahead'. Engineers made various checks and one engineer went to place the port CPP into local control. With the ferry's speed now about 8kt the swing to starboard had been stopped and the vessel was approximately 30 metres to the south of the pier and heading towards a set of small vessel mooring pontoons 70 metres ahead. At about this time, the port CPP pitch was set to zero using a local lever on the port shaft gearbox.

The vessel's speed reduced to about 5kt and the ferry's bow was swinging to port. As it did so, it ran over the outer mooring pontoons, causing some of the pontoons to overturn. Seconds later the ferry gently grounded and stopped in the water.

Some of the official report's findings were:

- Pivotal to the mechanical failure was the lack of service instructions on board the vessel concerning the actuator's inspection and maintenance for reference by the service personnel.
- The pitch control system had not been upgraded to incorporate a pitch deviation alarm and/or an automatic clutch-out capability as recommended by its manufacturer.
- It took the bridge team two minutes to realise that control of the port CPP had been lost. By then, the ferry was less than 200m from the pier roundhead and was still making 10kt.
- The ferry's speed when approaching the port was too fast to stop the ferry in safe water.

Lessons learned

- For emergencies, practise, practise, practise. In this case, the ferry's teams were not sufficiently prepared or practised to deal quickly and effectively with the loss of pitch control in the confined waters off this arrival port.
- Changing desired thrust on the motors, as when giving helm orders, has immediate and important consequences. Always confirm to see if your desired input is actually being applied.
- Even if you are confident of the manoeuvre and the ship's capabilities, put in a safety factor that will work in your favour if things go awry. One of the easiest – slow down.

MARS 201837

Bent ship's crane

➔ The Master of a bulk carrier, newly arrived on board, noticed the starboard provision crane was not straight but slightly bent upward. A closer inspection showed cracks on the paint surfaces of the stoppers. Additionally, limit switches were found in disrepair; the crane had obviously been misused.



Visit www.nautinst.org/MARS for online database

It appears that the damage had occurred some time earlier but had not been reported.

Lessons learned

- Limit switches should always be operational and tests should be done by a competent person in line with the vessel's PMS.
- Within a strong safety culture, immediate and transparent reporting of incidents should be the norm.
- Leaving equipment in less than optimum state endangers crew and is negligent behaviour.
- Crane operators need to be given the proper training before they use lifting equipment.

■ **Editor's note:** We recently received this note from another NI member: "I sailed for 16 years and have now been working in ports for the last 10 years. During my sailing, I never noticed that the limit switches of the cranes were tested even once, although I started getting this done at least once during my contract.

"I have many times seen accidents happening in the port because the limit switches had not been tested or the setting of the limit switches was wrong or they were bypassed. At times, I have even noticed that the crane limit switch is missing altogether.

All ships are reminded that many accidents occur due to faulty or wrongly set limit switches and these must be tested regularly."

MARS 201838

Ship accommodation ladders with improvised secondary means of support

Australian Maritime Safety Authority – Marine Notice 13/2017

➔ The Australian Maritime Safety Authority (AMSA) notes that, although there are no requirements under SOLAS regulation II-1/3-9 for the rigging of secondary means of support to accommodation ladders and no standards in MSC.1/Circ1331 for the construction, maintenance and operational testing of those arrangements, rigging of a secondary means of support to accommodation ladders, particularly where the accommodation ladder is suspended, has become common practice in some Australian ports.

AMSA has observed that secondary means of support arrangements have consisted of the following:



Unapproved secondary means of support tied to non-loading bearing part of accommodation ladder and vessel structure

- Steel wire, synthetic or natural fibre ropes tied or otherwise connected to the accommodation ladder and a part of the vessel's structure
- Synthetic or natural fibre rope roved through pulley blocks and connected to the accommodation ladder hoisting arrangements or part of vessel's structure
- Steel chains or wire ropes with or without a bridle connected to a part of the vessel's structure or suspended from the vessel's stores crane or bunker hose davit.

According to AMSA, in many cases the secondary means of support are inadequate for their intended purpose and in fact introduce unacceptable hazards and risks. The inadequacies include:

- Connections to vessel's cranes or davits with insufficient safe working limit (SWL)
- Attachments to non-load-bearing parts of the accommodation ladder and vessel structure
- Inadequate tensile strength of ropes, wires, pulleys and fittings.

Additionally, some arrangements are not easily adjustable and add a further risk to safety when the accommodation ladder is lowered or raised to compensate for draught changes or due to tidal variation.

There are often no policies, procedures or instructions contained in the safety management system for the use and maintenance of the secondary means of support arrangements and crew have been unable to demonstrate proficiency in the use of these arrangements. AMSA has noted several incidents and accidents due to these improvised methods.

Lessons learned

- If a secondary means of support is desired, a risk assessment should be undertaken on board in line with the vessel's safety management system.
- Procedures for the fitting, maintenance and operation of the secondary means of support arrangements should be included in safety management system procedures and crew should be inducted and trained in the use of these arrangements.
- Good seamanship and reasonable judgement is a standard in itself.

MARS 201839

Collision averted by 100m

As edited from the Swedish Accident Investigation Authority report RS 2017:04e

➔ In darkness and early morning hours, a container vessel departed port with a pilot on board. The Master and the OOW were also on the bridge. At that same time, a tanker was inbound in ballast. The cargo tanks were not gas-freed and there was no inert gas system on board. Both vessels were due to arrive in the area where the compulsory pilotage limit is located at around the same time. The plan was to have the pilot on the outbound container vessel change to the inbound tanker near that location.

Once the container vessel arrived at the compulsory pilotage line, the Master, on the advice of the pilot, began reducing speed prior to the pilot's disembarkation. The pilot called up the inbound tanker to inform them of this.

Before disembarking, the pilot instructed the Master "...Nine knots it should be, and you change course to 156°. I will go down. All the best, bye bye." The pilot then left the bridge with the OOW, going down to where the able seaman (the lookout) had rigged the pilot ladder. The Master was alone on the bridge, steering using autopilot. He went on to the port bridge wing to monitor the pilot's disembarkation.

Later, the Master of the container ship stated that he understood the tanker was to wait at the pilot boarding point just over 1 nm to the south; his understanding was that there would be no problem in meeting the inbound tanker port to port.

Meanwhile on the tanker, the Master was also alone on the bridge, as both the OOW and the lookout were down by the pilot ladder preparing to receive the pilot. He kept the vessel somewhat to starboard in the fairway and altered speed so that the pilot would be able to board outside the compulsory pilotage line, but after having passed the pilot boarding point. He saw that the container vessel was reducing speed and turning to port. The Master felt that both the situation and the distance were normal at this stage.

By the time the pilot had boarded the pilot boat, the container vessel was heading 150°. The distance between the vessels was now 0.5nm.

The inbound tanker's Master called the pilot boat:

Tanker Master: 'As soon as I am clear of the container vessel I will come a little to port in order to get on the leeward side.'

Pilot: 'Yes, that's fine.'

Tanker Master: 'He has not come back to his heading yet. We have to wait a little.'

The pilot, still on the pilot boat, then called the Master of the container ship.

Pilot: 'Do you come back to southerly course now?'

Container ship Master: 'Yes, I will go back, but I am very close here to the other vessel. I will just turn around.'

Pilot: 'Yes, that's my point; you are getting very close so you should go starboard now.'

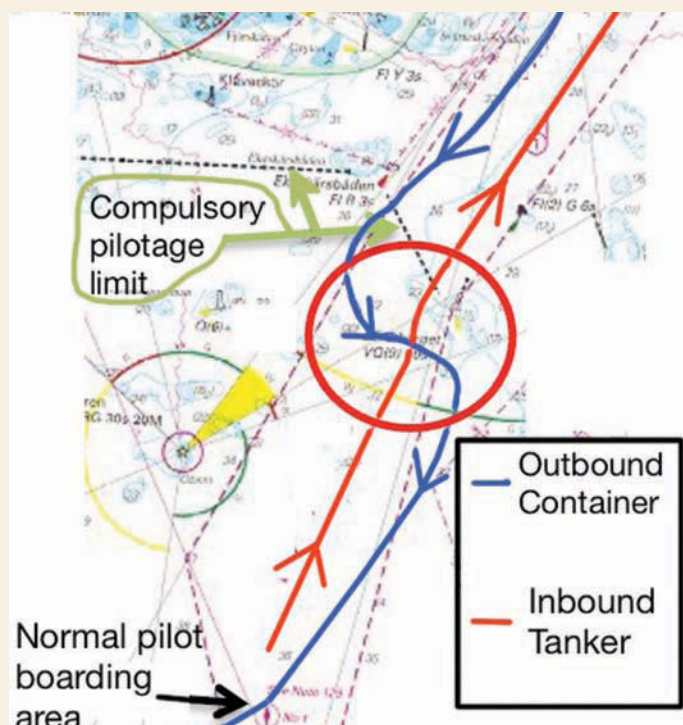
There was silence from the Master for about five seconds.

Container ship Master: 'Yes, I will do that. One moment, I will just go ahead a little bit and then I turn to the south.'

Pilot: 'Yes, but you plan to go astern of the tanker, astern of tanker, correct?'

Container ship Master: 'That's correct.' [This is not heard on the VHF channel, but is heard on container vessel's VDR.]

Radar recordings show that container vessel initially turned a little to starboard after the pilot had disembarked. According to the Master, he perceived the proximity situation with tanker as critical and decided to turn to port instead, increasing speed at the same time, choosing a starboard to starboard meeting instead of port to port because, in his opinion, the situation now called for this action.



The Master on the tanker, who also was alone on the bridge, noticed that the container ship was turning to port, which he had not been expecting. The speed (7.4kt) had been set for pilot embarkation. He switched over to manual steering, set the engine to full astern and the bow thruster to full port in order to counteract the vessel's natural turn to starboard due to the propellers' turning moment.

Meanwhile on the container vessel, the OOW arrived back on the bridge and the Master told him to take the helm. The tanker continued running its engine full astern and the bow propeller full to port while the container vessel increased speed and passed just ahead of the tanker, at about 100m.

Lessons learned

- If you change the agreed plan, make sure you tell the other party. In this case the Master of the container vessel changed the plan without notice and only the vigilance and actions of the tanker Master averted disaster.

- Under-manning may leave the bridge with insufficient persons at critical times.

■ **Editor's note:** Had this incident resulted in a collision there would almost certainly have been a major explosion as the tanker was empty but not gas-free or under inert atmosphere. The tanker had no inert gas system due to its size and year of build. It is beyond comprehension that smaller tankers (less than 20,000dwt, or newbuilds as of 1 Jan 2016 of less than 8,000dwt) are still exempt from the SOLAS requirement to have an inert gas system. To quote OCIMF, '...the principle of basing inert gas requirements on vessel DWT does not adequately recognise the risks posed by flammable oil cargoes or the proven safety benefits of carrying such cargoes under inert conditions.'

MARS 201840

Lifeboat gripe cam indented

As edited from Marine Safety Forum Safety Alert 18-02

➔ Crew were intent on lowering the lifeboat. Initially the davits failed to lower as the gripe cam remained secured. To complete the lowering, the fall wires were tensioned using the manual hoisting handle. This reduced the force between the davit arm pin and the gripe cam, allowing the gripe cam to be manually moved clear. The lifeboat was then lowered normally.

After investigation, it was found that an indentation had been worn on the face of the gripe cam due to oxidation and long, continuous contact from the davit pin. This resulted in the davit arm pin being engaged in the cam rather than moving the cam arm away as the davit was lowered. The cam consequently acted as a hook, preventing the davit arm from moving from the stowed position. The wear had not been identified during previous routine weekly lifeboat lowering exercises.



Lessons learned

- Check, recheck and re-recheck your safety gear.

Thank you to all our Nautical Affiliates for their continued support



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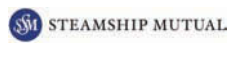
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Occupational health – a regulator’s perspective

The industry as a whole needs to look at improving onboard health. Some measures are already in place, but there is more that could be done

Doug Barrow

Director, UK Ship Register, Maritime & Coastguard Agency

I read with great interest Chris Chafer’s article in the January issue of *Seaways* about addressing occupational health in the maritime industry. He discussed many significant issues that should concern all of us. Although he focused quite understandably on mental health, physical health is also a critical factor in the overall wellbeing of seafarers. Indeed, one frequently affects the other and we need to address these issues holistically.

Matters affecting physical health have long received high-profile attention in the media, particularly where personal lifestyle can adversely affect health and wellbeing. One would hope that this now looms large in the consciousness of the general population, although to a casual observer this may appear optimistic!

However, mental health and wellbeing has, until recently, received far less public attention. Moreover, mental health issues historically have been taboo, not discussed openly outside the health professions. People contending with mental health issues are often stigmatised, even ridiculed or feared. Fortunately, thanks to the sterling efforts of enlightened health professionals, politicians and [those who have suffered mental illness] this situation is beginning to change. Our understanding and awareness are increasing, support networks are developing and empathy is improving. This is to be warmly welcomed – especially given that about one person in four will encounter poor mental health at some stage in their life. A mental health challenge is hardly a rarity; it can affect any of us at any time.

The maritime industry

So, if this is the picture in the general population, how are we affected specifically in the maritime industry. More importantly, what can and should we do about it?

Seafaring has always been a hard profession with long hours, mentally and physically demanding work and long tours of duty away from family and friends. It’s a combination that’s likely to challenge even the most mentally robust.

Modern pressures have not helped, including:

- Low crew numbers
- Reduced onboard socialising
- Increased workload
- The dehumanising effect of automation
- Connectivity frustrations (both too much and too little)
- Criminalisation
- Short port turnarounds
- Micro-management

- Poor ship-shore interaction
- Increased fatigue and stress
- Abandonment and poor living and working conditions
- Increasing restrictions on the very thing that is supposed to help improve wellbeing in the first place – shore leave.

We need to take this issue seriously for many very sound reasons.

First (as a regulatory body), there is the legal perspective. The Maritime Labour Convention obliges us as a ratifying state to publish guidance on occupational health and safety, and to promote health protection and health promotion on board the ships that fly our flag. All UK social partners fully support international efforts to raise standards of work and living conditions on board.

“ Looking after crew wellbeing is an investment, not a cost. ”

Second, the ethical perspective. Good employers take seriously their responsibility of duty of care to their employees and look after their wellbeing as far as practical. That is especially important in a safety-critical industry that has more than the average number of risks and hazards. We shouldn’t put our seafarers in situations we wouldn’t want to be in ourselves.

Finally, there is the business perspective. It is widely recognised that seafarers who are mentally and physically healthy and alert are operationally more effective, productive and safer. Accidents reduce, staff retention improves, high-calibre crew are attracted, reputations remain intact, the recruitment and training burden reduces, and organisational resilience improves. In short, looking after crew wellbeing is an investment, not a cost.

Developing a modern approach

The UK Ship Register is increasingly concerned at the mounting body of evidence highlighting the growth of poor wellbeing among seafarers, particularly mental health and suicide.

We need to be responsive not only to the needs of shipowners, but also to those serving on our vessels. Indeed, the two go hand in hand and are mutually beneficial. Our approach has two main threads.

First, we can address the regulatory components by keeping regulations under review, ensuring they remain fit for purpose and are enforced fairly and effectively. We need to maintain a fair and proportionate balance between regulatory burden and protection. In

the UK we have a consultative and regulatory procedure that generally meets this proportionality test. We engage effectively with our partners at IMO and ILO to develop effective, well-balanced international regulation and maintain effective dialogue with our social partners.

However, the non-regulatory approach can also be very effective, in particular, the development and adoption of best practice across industry.

The Maritime & Coastguard Agency has produced a quantity of guidance over the years, based on quality research, aimed at shipowners and seafarers alike to engage them in health, wellbeing and other human element issues. However, we believe we can be more effective still, and start to make a significant difference to seafarer wellbeing. We are working with partners to develop a comprehensive and holistic approach that will address issues both at a strategic organisational level and at the practical level for seafarers and shoreside support staff.

This is a positive step forward in the development of long-term best practice for improving health and wellbeing at sea. This should be a shared concern between company and seafarer. While companies can establish policies, procedures and support mechanisms and comply with the relevant regulations and best practice, the effectiveness also depends on the co-operation of individual seafarers.

A key component in developing safer, healthier, more effective working practices is developing a better understanding of people – how we think, behave, work; why we do what we do; why we mostly perform satisfactorily but why sometimes we make mistakes, and what we can

do about it. We need to revise cultural perceptions about accidents and how we treat people when things go wrong, to move away from the blame game and towards a culture of fair-minded accountability. Not all bad outcomes should attract culpability!

We need to focus our efforts on developing people-centred equipment, tools, work practices and procedures that meet the real needs of the operator. These must be underpinned by a fair-minded culture to make work more effective and efficient, safer, less arduous and less stressful. Our publication *Being human in safety critical organisations* explains this in detail with practical tips and guidance.

Such an effective understanding of normal human behaviour and needs, embraced as ‘business as usual’ will make work more efficient, productive, safe and more human. It will also contribute significantly to improved seafarer wellbeing. It’s a win-win. 🌐

For further information about MCA information and guidance on Health and Safety, Wellbeing and Human Element contact: human.element@mcga.gov.uk



The NI Harbour Master Certificate Scheme

A deeper understanding of the Harbour Master's role opens up new opportunities

Maneesh Varma

AFNI

The role of Harbour Master is a challenging one – and no two ports will offer identical challenges. As a service industry, ports have to meet the ever-changing demands of their users. The increase in size and specialisation of ships, the growth of cargo handling facilities and the increase of navigational restraints poses constant challenges to the Harbour Master, who has to ensure safe and efficient functioning of the port. The Harbour Master's responsibility is complex, hard to map and still growing. Does that sound like an exciting opportunity to further your career?

Why do we need a scheme?

We all have come across colleagues or employees who are frustrated by slow career progression. They may lack motivation as a result. On the other hand, the shortage of skilled seafarers to take up harbour jobs is a matter of concern for harbour authorities. That means they must increasingly provide training and mentoring for non-seafarers who wish to take up the role of Harbour Master.

As part of The Nautical Institute's strategic plan to promote CPD for our members and others in the marine industry, we have developed a self-study scheme that gives a practical introduction to the role and responsibilities of the Harbour Master.

What does it involve?

There is no entry requirement for joining the scheme, and students study at their own pace. The scheme has been specially designed to be relevant to any jurisdiction, and allows students to carry out their own research and use their own initiative. The scheme also provides for extra support and guidance for those who have difficulty.

Students have to complete assignments in each of the following sections:

Statutory requirements and limitations of the position in the context of the country or region chosen.

Pilotage: Understanding pilotage and the statutory requirements of practical marine operations in the port.

Development: The requirements and need for capital expenditure in ports.

Emergencies: A practical understanding of possible emergencies and the response options.

Safety: A good general knowledge of the pertinent safety legislation in the chosen jurisdiction and a basic understanding of investigation procedures.

Media and Publicity: Media management, public relations and communication.

In addition, students will have to submit an in-depth case study, chosen in agreement with the assessor.

The assignments are submitted by email and feedback is provided by the NI-approved assessors for each individual submission. After successful completion of the Harbour Master Certificate Scheme, the student will have a better understanding of a Harbour Master's duties and be in a strong position to develop their career in this area.

The cost of the Harbour Master Scheme is £650 + VAT and P&P where applicable. A 30% discount is available for NI members.

For more information, enquiries, or to sign up for the scheme, please email: harbourmaster@nautinst.org

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David Patraiko FNI rounds up the latest news, releases and events affecting the maritime professional throughout the world

MLC starts a new chapter

➔ A new amendment to the Maritime Labour Convention (MLC) 2006 was agreed at the third meeting of the Special Tripartite Committee of the International Labour Organization (ILO) in Geneva, Switzerland.

When it enters into force, the amendment will address a potential contractual gap for seafarers held captive on or off a ship as a result of an act of piracy or armed robbery against ships.

The new amendment ensures that seafarers' wages and other contractual entitlements will continue to be paid during the entire period of captivity. This will provide the families with the necessary means of survival while their loved ones are held hostage.

Dave Heindel, chair of the

ITF seafarers' section and spokesperson for the seafarers' group at the ILO session, said: 'This result has been a critical step forward for seafarer protections. With the agreement of the shipowners and member states, we managed to secure an amendment on wage protections, a resolution on shore leave, one on crew abandonment and one for the inland navigation sector, which will provide a way forward for our colleagues working on tugs and inland equipment. Overall, I believe the week was successful for all in the maritime sector.'

'The MLC has entered a new chapter today. We have always known how challenging this would be to propose such an amendment and we are pleased that the

seafarers' position has been recognised by the social partners and governments, as a necessary instrument to provide seafarers with greater protection.'

The amendment will now be submitted to the next session of the International Labour Conference for adoption.

The Seafarers Group and the Ship Owners Group have jointly submitted three resolutions to draw governments' attention to other vital welfare issues including the facilitation of shore leave for seafarers and seafarer abandonment.

Improving port calls – via app

➔ The Port of Rotterdam Authority recently presented the first version of its new digital application, Pronto. It claims that the app is a major step forward in improving the efficiency of port calls, allowing visiting vessels to cut their waiting time by an average of 20%.

The application enables capacity at the port's terminals to be utilised more effectively. It also permits the precise planning and co-ordination of a range of vessel services, including bunkering, servicing and maintenance and provisioning.

'Pronto is a good example of how the Port Authority uses new digital solutions to raise the efficiency of processes in the port,' says Port Authority CFO Paul Smits. 'Pronto is based on international standards and offers

shipping companies, agents, service providers and operators a joint platform for the exchange of port call-related information. The application allows all users to optimally plan, execute and monitor activities throughout the entire port call.

'The uniform mutual exchange of standardised data allows port calls to be planned more effectively and efficiently and rounded off in a shorter period of time. Pronto was extensively tested over the past year during the development phase. We will now be making it available to members of the port community – either in exchange for data or for a fee.'

Shell was one of the parties that participated in the pilot in Rotterdam last year. According

to Shell's Ed Barsingerhorn (GM Shipping & Maritime, Europe & Africa), 'It is essential that all parties involved in the process, including terminal and agent, work closely together and share relevant data. When we exchange time stamp data not only in Rotterdam but also between ports, the improvement potential increases significantly. Ships can sail optimally laden and arrive just in time through better planning.'

ITOPF Handbook released

➔ The International Tanker Owners' Pollution Federation (ITOPF) has published its 2018/19 Handbook. It contains a wealth of valuable information and guidance for those likely to have to manage spills of oil and chemicals from

ships. Updated annually, it features information on ITOPF's technical and information services, oil spill statistics, the fate and effects of marine oil spills, clean-up techniques and compensation.

Copies may be downloaded as a PDF from www.itopf.com

Piracy in Asia

➔ Levels of piracy and armed robbery against ships in Asia reduced in January–April 2018 compared with the same period in 2017. ReCAAP reported a decrease of 32% in the number of attacks and attempted attacks, from 31 incidents between 1 January and 30 April in 2017 to 21 incidents over the same period in 2018. None of the incidents involved abduction of crew in the Sulu-Celebes Seas and no ships were hijacked for theft of oil cargo in April 2018.

An incident in the eastbound lane of the traffic separation scheme of the Singapore Strait on 21 April 2018 was a matter of some concern. This was the first actual incident reported in the Straits of Malacca and Singapore (SOMS) since two failed attempted boardings in January 2018.

A total of three incidents – one actual and two attempted – were reported in SOMS during the first four months of 2018 compared with one attempted incident reported during January–April 2017.

The ReCAAP ISC advises ships transiting SOMS to exercise enhanced vigilance, maintain look-out for suspicious approach by boats, report all incidents to the nearest coastal states and flag state immediately, keep abreast of the latest situation and implement preventive measures recommended in the Regional Guide to Counter Piracy and Armed Robbery against Ships in Asia. The full report can be found at www.recaap.org



Who's new at the NI?

Captain Maneesh Varma AFNI, Training and Accreditation Development Officer

When did you first hear about The Nautical Institute?

I first heard about the NI working onboard as a Chief Officer. My Captain was a member and told me about it, so I decided to join on his recommendation. This was so many years ago that I joined with a paper application!

Tell us more about your maritime career

I started my career at sea in 1982 as a deck cadet on training ship *Rajendra*. I was offered a scholarship to join Scindia Steam Navigation, also as deck cadet. I then worked with various shipping companies and gained command in 1999 with Maersk. One of my most memorable journeys was through the ports of Scandinavia as there is so much natural beauty.

I came ashore in 2003 as I decided to work on professional development full time. I moved from India to London to study for my MSc at Cass Business School. After my studies, I did a short stint with P&O ports in Mumbai as a manager.

I came back to England in 2006 and joined Warsash as a senior lecturer in simulation. In this role I developed and delivered bespoke training on the simulator and was involved in many research projects. In 2012 I joined a commercial establishment as commercial manager in London. But after three years, my passion for teaching had me move to work at Lowestoft College / Liverpool John Moores University as a senior lecturer in simulation. I really enjoy passing on my knowledge, mentoring and knowing that I am contributing to cleaner seas and safer ships. What was great about teaching was seeing the cadets progress in their career and being passionate about the industry.

What are you going to be working on for us here at NIHQ?

I am working on developing new short courses, professional development and schemes. I work to enhance the existing courses and schemes, and want to start an online/digital portfolio of courses and innovative shiphandling training. I am keen to see the NI become more digital with the help of my two assistant managers Sonata Fernandes and Susie Stiles.

I am also looking forward to meeting members and networking and publicising the courses. Members need to know the value of these CPD activities and I enjoy getting their feedback and seeing how our services have enhanced their career.

What are you looking forward to seeing happen in the maritime industry?

I am keen to see the next developments in autonomous shipping and how training standards will develop to accommodate autonomy. Autonomy is an exciting and challenging development for both operators and the legal side.

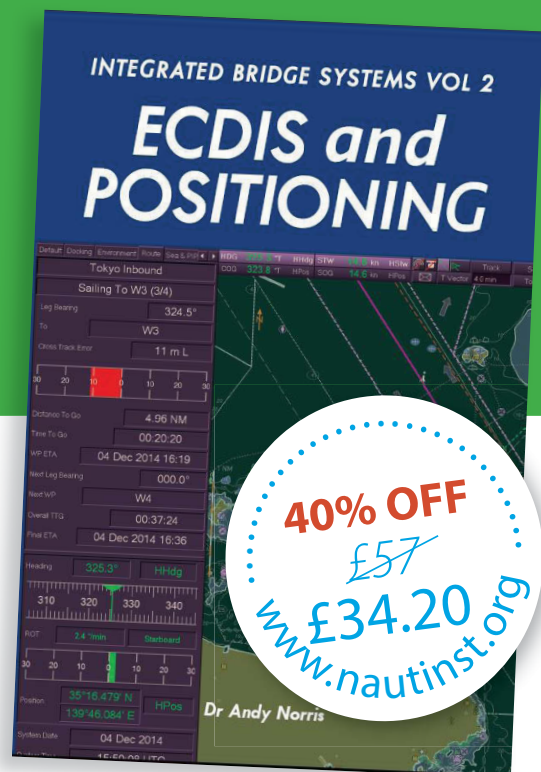
I would also like to see the reduction of the industry's carbon footprint and obviously making the seas safer and cleaner.

The NI is a platform where we take the initiative to develop professional development and help bridge any gaps in seafarer skills as we are always in consultation with seafarers and current stakeholders of the industry. 🌐



BOOK OF THE MONTH: ECDIS and Positioning

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THE FUTURE OF MARITIME PROFESSIONALS

➔ Getting a ship from A to B is not just about technical skills. The thousands of mariners at sea today face a range of soft issues and people issues. What is important to today's mariner is different from what mattered most to the mariners of 40 years ago, delegates to the latest conference held by the Institute's London Branch were told. The two-day event in Bristol, chaired by David 'Duke' Snider FNI, President of The Nautical Institute, focused on the effects on today's seafarer of regulations, enforcement of conventions, technology, connectivity, social isolation and mental health.

ISM, SMS and the human element

'The cumulative effects of changing operational demands affects seafarers and safety management processes degrade until the workload becomes unmanageable,' said Joanne Stokes, Principal Human Factors Consultant at Lloyd's Register, in the opening address.

'Regulations such as MLC, STCW 2010 and OPA are designed to support seafarers, but different flag states have different interpretations of the regulations and conventions, and exceptions can cause confusion,' she continued. Advances in technology with increased monitoring requirements may lead to deskilling of seafarers. She emphasised that human factors must be taken into consideration at the design stage.

Delegates were told that the human element was not sufficiently considered when developing the International Safety Management (ISM) Code and SMS. Ville Patrikainen, Safety Management Manager at P&O Ferries, asked whether these codes were fit for purpose? 'The guidelines are good, but why are they so complex now?' he said. 'We have layer on top of layer in the SMS and it seems to have lost sight of the end-user with procedures becoming user-unfriendly.' He proposed that a full review or rewrite of the SMS is needed. It should be simplified by making it more visual and taking into consideration human element issues.

Building on the theme of the ISM Code and SMS, Andrew Bell, Marine Manager at Stephenson Harwood LLP, said that SMS must set out procedures that are appropriate to the equipment used. SMS should not duplicate regulations. However, as regulations are increasing in quantity and complexity, the SMS must be constantly updated to take this into account.

The SMS is increasingly influenced by third parties, particularly in the tanker and chemical trades, Bell said. He added that it is difficult to convince charterers to change inspection intervals. The side effects of too many



Andrew Bell



Jamie Simpson



Joanna Stokes



Ville Patrikainen

inspections and vetting are 'inspection-weary' crews. As checklists become more complex and further removed from reality, seafarers lose ownership of the SMS. Andrew concluded that companies need to try harder to ensure that their SMS remains connected to the seafarers who use it.

Coping with conventions

Jamie Simpson, Master of a roll-on/roll-off passenger vessel (ro-pax), gave a glimpse of the problems posed by regulations and conventions in his overview of six months in the life of a shortsea ro-pax vessel. From annual drydock preparations, ensuring that contractors meet requirements of SMS etc. to follow up inspections, annual risk assessments and other factors when back in service, the ship's staff are placed under considerable pressure. For example, 37 items must be completed and be made available for renewal of the sanitary certificate. Jamie explained the procedure to be carried out if an incident occurs on board, which may involve police, flag state investigators, port state control officers and reports to various organisations, who may be from two or more countries.

Internal and external audits carried out for compliance with ISM, the International Ship and Port Facility Security (ISPS) Code and the Maritime Labour Convention (MLC) require substantial onboard resources. Jamie asked if these were a useful tool for the seafarer or just a tick box exercise. He concluded that operating 363 days a year on a 24-hour operation with a two-hour turnaround in port puts the ship's staff under strain. Form filling takes a large amount of time, yet much of this work is merely repetitive. Checklists are good guidance for cross-checking, but are not always needed. There is a problem of resources, and we have to find a balance between being the Master and the manager of the vessel, he said.

Some discussion took place on how all the different auditors and inspectors coming on board could be managed more effectively. Better communication between owner, inspector and the ship to co-ordinate visits would be a start. The ship operator has most of the information, but some companies operate a 'silo' system in the office and have no cross-referencing between departments when dealing with the ship.

Shipowners and seafarers should be aware of the cumulative effects of fatigue. It is quality of rest, not quantity, which is important, so there has to be sufficient 'downtime' after finishing work to allow the brain to slow down.

Wellness on board

'A happy ship is a safe ship – mentally and physically well crew are likely to be alert, effective, productive and safe,' said Julie Carlton, Seafarer Safety and Health Manager at the Maritime and Coastguard Agency (MCA). The MCA has a responsibility to provide information to seafarers to allow them to take charge of their own wellbeing through health and safety regulations, the MLC and research and guidance.

There is an increasing awareness of mental health problems in seafarers, and the MCA plans to produce a best practices guide on well-being and to tackle 'modern slavery' on board vessels arriving in UK waters.

Julie finished saying that 'well-being is not an optional extra, it should be integral to the seafaring profession'. Asked about the suicide rate among seafarers, Julie said that previous studies had shown that it was above the national average. However, there are no recent statistics, and this would be an area to focus on in a new study. She emphasised that a 30-minute assessment for a fitness medical certificate may not be sufficient for a doctor to be able to uncover a seafarer's underlying mental health issues.

Connectivity

Connectivity is integral to modern seafaring and to care and welfare at sea, said Dr Olivia Swift of Royal Holloway, University of London. Connectivity is fundamental to the well-being of the seafarer, enabling regular support from home, maintaining social bonds and reducing stress and mental ill health. Seafarers are more likely to suffer depression and be physically inactive as a result of social isolation. Olivia was cautiously optimistic about the way this is being managed, as there have been striking improvements in connectivity for seafarers over the past three years, but it remains limited and cost is still high. There is a need to even out connectivity across ships and companies and build on the MLC as the regulatory framework for internet access standards and requirements.

The SeafarerHelp programme managed by ISWAN provides emotional support to seafarers. Roger Harris, executive director of ISWAN, noted that mental health cases are increasing. He said: 'We will all experience some form of anxiety, stress or depression in our lives, and there is an increasing awareness of importance of mental wellbeing. To combat these issues, companies can look at the factors that cause stress, improve social interaction and give support to seafarers who have mental health issues.'

Sophia Bullard, Crew Health Director at the UK P&I Club, examined the people claims received by the club and noted that claims for crew mental health are treated just like any other crew illness claims. Many of these are due



Olivia Swift



Roger Harris



Sophia Bullard



Julie Carlton

to the lifestyle of the individual. The claim is not just about financial costs, as the consequences can be devastating for individuals and family. Sophia also noted the increasing number of issues relating to mental health, including suicide, received by the club, but emphasised that the overall number is still small. The club advocates practical steps that can be taken using the acronym SAVE:

SUPPORT by implementing a company-wide mental health policy and programme

AWARE of triggers and notice the symptoms

VALUE the crew's continued contribution

EDUCATE through material provided by SeafarerHelp and other organisations.

In the discussion session it was noted that the differences in culture and language on board may make cadets feel particularly isolated. Mentoring is important, as is creating social interaction on board, but what works for one may not work for all. A scattergun approach – getting lots of ideas out there and find which one works for you – may be effective. While we need to break down the stigma of mental health issues, recognising the symptoms and dealing with them in the same way that we deal with physical health problems, we must not overburden seafarers with warning signs that may not be relevant.

Building a better environment

Summing up, the chairman said that we have to adjust to cultural differences and be aware of the factors contributing to the physical and mental wellness of mariners to ensure that they are at their best level of physical and mental connectivity. Through awareness we can build a better environment that makes it safer for all of us to go to sea and come home again.

He closed by saying: 'Conferences and seminars like this one contribute to our knowledge and to find solutions to the issues in the industry.'

A selection of the presentations from this conference will be made available on The Nautical Institute website over the next few months.

Harry Gale FNI



AUTONOMOUS AND REMOTE CONTROLLED SHIPS – WHO IS IN COMMAND?

➔ The topic of autonomous ships and the concept of command is attracting a great deal of attention as the sector rapidly develops. The Master Mariners of Canada (MMC), Maritimes Division engaged industry, government, Classification Societies, Marine Insurance, P & I, Academia and Labour to explore the opportunities and challenges ahead.

Coping with change

Keynote speaker, Captain John Lloyd, FNI, CEO of The Nautical Institute, updated attendees on the NI's position with regard to autonomous shipping. Change is always a fear, given the uncertainty of the unknown and unexpected. However, change is nothing new to mariners, who have already coped with the changes from sail to steam, coal, oil and now clean fuels. It offers an opportunity to improve conditions as well as efficiencies.

Changes in technology have made changes in interpretation or application of rules. UNCLOS is based on the principles of having a master and a crew, which begs the question how can the interpretation of this law be crafted in a way with respect to the development of different management and operation of ships? To date, there is no precedent on manning with regard to technology.

The challenge will be getting the IMO and national governments to create a positive environment, and for marine insurance to assess the risks. Society will be challenged by the loss of economic opportunities hence governments will have to find alternative sources of employment.

While we are currently facing a time of challenge and difficulty, we also have an unparalleled opportunity to improve efficiency, safety, and have a positive impact on environmental protection.

Developments in technology

Mr Nick Burchill, Subsea Sales Manager Kongsberg Maritime, gave an overview of changes in technology from sensors to dynamic positioning systems for ships. Autonomous ships will contribute to nine of the UN's 17 sustainability goals, he said. There will certainly still be work for mariners, and ships will still have crews – but some work will be in new places. In the event of fully unmanned ships, highly qualified operators will work in control centres. It will be a different space for traditional mariners, with crews onboard but reduced.

He looked in some detail at Kongsberg's 'Kongifai', a predictive technology supporting data driven decisions, for example in vessel maintenance. Combined with 'sensor fusion' – that is, using inputs from different sensors and historical information from other vessels – it can provide the basis for intelligent, safe

and cost saving decisions. After all, even VTS is just data unless something is done with it.

A key benefit of automation is optimising energy. Even with people in control the entire time, humans will be able to relinquish some existing procedures, he said.

Captain Angus McDonald, FNI, Master Mariners of Canada gave an overview of current pilot projects already underway in Europe and Asia, and the IMO's scoping exercise to formulate a new regulatory framework, including the integration of unmanned vessels into maritime law.

Under UNCLOS, there is a qualified master who performs duties and responsibilities onboard ship. Can the person controlling the ship from a remote centre be the master, and can the flag state impose criminal responsibility on the person controlling the ship? The conventional definition of a master focuses on the hierarchy onboard. If there is no such hierarchy, will UNCLOS look instead to the owner or manager of the autonomous ship or to the person controlling the ship under the COLREGS? Cyber security will be another issue with the possibility of hackers / pirates gaining control of the ship and diverting it to another location.

Policy and regulatory environment

Mr Scott Kennedy, Special Advisor, Transport Canada (TC), Marine Safety explained what Canada is doing in terms of managing Maritime Autonomous Surface Ships (MASS). These ships must be as safe or safer than manned ships before they are permitted to operate. Particular concerns in Canada are ice, protection of the marine environment and protection of marine animals.

Canada is leading the legal review committee at IMO, which has defined the levels of autonomy as follows:

- 1 Manual with automated processes and decision support; crew onboard making technical decisions with equipment operating;
- 2 Crew onboard but remotely operated;
- 3 No crew onboard but remotely controlled; an operator somewhere carrying out remote operations;
- 4 Completely autonomous using artificial intelligence.

There may also be further sub categories.

The level of autonomy on any given ship could change during the voyage, with the ship being manned during certain periods of the voyage and unmanned during others.

Some regulatory challenges include jurisdictional issues, navigation and COLREGS, crew and seafarers, protection of the environment, construction and technical

considerations, liability and compensation and marine insurance, cyber security and anti-terrorism. The function of regulation should not hinder technological development.

Under UNCLOS, there is a right of innocent passage, but states have the right to ban certain ships from their ports and inland waters. It is important that there is international collaboration to avoid regional barriers.

Interested international organisations include international governmental organisations (UN, IMO, ITU, and ILO), international standards organisations (ISO, IALA, IEC) and industry NGOs.

Learning to adapt

Mr James Covill, Team Leader Applied Technology Group, Martec, Lloyds Register began his presentation by stating that autonomous ships will save money and time. The key challenges are:

- The rapid advances in technology;
- Integration of autonomous ships with existing assets;
- Social acceptance of autonomous ships.

There is a clear gap between autonomy levels where there is significant human participation and those where there is significant automation. Autonomy can deal with complexity of management operations safely and more efficiently than people. In fact, there are many operations that are already automated. The big question is how to ensure that autonomous vessels can recognise and modify behaviour in response to changes in the environment.

Lloyds Register already has a code for unmanned ships, which allows for certification of novel and emerging technologies. The code is then transformed into rules. However, regulations are always behind technology. Mr Covill suggests that regulations should go along with emergent technology and learn to manage the risk, not to avoid it.

Autonomous shipping and pilotage

Captain Andrew Rae, VP Canadian Marine Pilots Association and a current Halifax Pilot, said it is not yet clear what effect autonomous shipping will have on pilotage. Pilots are integral to safety and efficiency in marine transport. As such, pilotage is part of the discussions on autonomous shipping at national and international levels.

In Canada, the Pilotage Act Review 2017/18, led by Marc Grégoire, stated that autonomous and unmanned vessels were 'too futuristic' to propose amendments to the Act at this time. Mr Grégoire proposes that the Act be reviewed at least every ten years.

Pilots are responsible to the Master for the safe navigation of the ship. In an unmanned

ship, who are the pilots responsible to? There is a clear possibility of transfer of human error from the ship to the shore. We still get ECDIS 'jumps' in pilotage waters, and we stress the need for 'eyes' onboard to ensure the vessel does not automatically 'jump' to the new position and go aground.

The issue of greatest concern is cyber security, followed by reliability of communications, legal and liability issues, quality of software, risk assessment and public acceptance, opposition from seafarers and their unions, regulatory issues, technical feasibility, training and reskilling and economic feasibility according to a recent survey of mariners conducted by Nautilus Federation.

Legal challenges

Mr Will Moreira QC presented both sessions, as our first speaker, Mr Matthew Williams, was unfortunately delayed. Mr Moreira started by outlining elements of the legal issues concerning autonomous vessels. There is a particular issue with the COLREGS requirement to maintain a look out both by 'sight and sound'. Other laws may require generous interpretation. For example, under Hague-Visby Art.111, Rule 1: a carrier must 'exercise due diligence to, (a) make the ship seaworthy, (b) properly man, equip and supply the ship...' which raises the question of seaworthiness. Would STCW have any relevance for autonomous ships? Regulation is taking a long time in relation to the pace of changes in technology. The alternative to IMO regulations, possibly unilateral regulation of the flag state, but the problem is whether the flag state regulations will be considered by other flag states?

UNCLOS and the CSA each refer to the ability to deny a vessel into a state's internal waters. Could autonomous vessels experience issues if a port or coastal state asserts that the mere presence of unmanned vessels leads to safety concerns? This also raises the question of whether autonomous vessels have the right of innocent passage or transit passage.

The Canadian Marine Lawyers Associations suggests that onshore controllers / overseers will not be treated as the equivalent of the 'Master' in existing maritime law, as a Master cannot meet the obligations under existing legislation without operating the vessel while onboard. A new regulatory regime is needed, rather than forcing an ill fit between autonomous vessels and the current framework.

Mr Moreira then went on to look at the P&I angle. The advantages to owners of autonomous shipping are that the absence of crew is said to save 40% -45% operating costs, not in just direct wages and benefit costs, but in the absence of accommodation space and crew comfort systems, which means more space for cargo. Likewise, the absence of traditional

superstructure would mean lower wind resistance and fuel cost savings.

However, there could also be economic disadvantages. According to a survey carried out by the Fraser-Nash Consultancy in February 2018: 'Removal of crew welfare systems is offset by growth in other systems (communications, control, propulsion) due to the increased need for redundancy. Necessary duplication of systems increases initial capital procurement costs and costs testing and commissioning, especially of automated safety-critical systems.'

It is misleading to suggest that the removal of human beings on ships will remove human error, Moreira said. However, what can certainly be reduced is the impact of human fatigue and injury and death of the crew onboard. It diminishes the exposure of human beings to risk.

There followed a very lively Q & A panel discussion.

Dr Aldo Chircop, JDS, Canada Research Chair in Marine Environmental Law at the Schulich School of Law, Dalhousie University wrapped up the session with the following points:

- Regulatory challenges – the most common theme in comments. Will regulators respond sufficiently, proactively and embrace change?
- The shipping industry has over 50 conventions and protocols and over 160 codes and guidelines. It is one of the most regulated industries in the world.
- There is a plethora of instruments. This highlights the need for IMO to take a comprehensively systematic approach, which will need to embark on a long term regulatory agenda.
- We have so much faith in algorithms, but can algorithms replace human judgments? Particularly in the area of safety issues, judgment is the key.

For more detailed information, the presentations can be found on the Master Mariners of Canada website www.mastermariners.ca

Capt Patrick Gates, MM, MNI



(L to R) Captains John Lloyd, FNI, Angus McDonald FNI and Patrick Gates MNI at the symposium



 A round-up of news and events from NI branches across the world.
Send your updates to gh@nautinst.org

SOUTH WEST OF ENGLAND BRANCH

Stability of the pure car carrier

→ John Waite, Director Marine Investigations & Survey Services, spoke to the branch on aspects of the stability of the pure car carrier (PCC).

His talk was divided into five sections:

- Features of design
- Types of casualty
- Regulatory environment
- Impact of new regulations
- Risks and conclusion.

Important design features are the large open horizontal spaces (without subdivision) on the continuous enclosed decks, which run the length of the vessel. Vehicle access is via large stern, side and/or bow doors, and internal ramps or lifts. Externally, there are clear visual indications of the vessel type – the high, slab sided appearance with minimum draught. Importantly, the fine hull form results in a big variation in stability depending on draught and trim. A large-diameter rounded bilge over the parallel mid body gives a slowly increasing GZ curve, and this proves to be important when considering the mid-range stability curves.

Rapid turnarounds in port are a major operational constraint. Cargo planning typically takes place ashore, necessitating a specialised operational practice. John also discussed the securing arrangements for the vehicles. Issues here include lack of accurate weights and longitudinal centre of gravity (LCG) of the cars, heavy vehicles and project cargo.

Factors in car carrier casualties

There are six main types of casualty:

- Instability caused by high sides and minimum draught, variations in draught and trim
- Mismanaged loading, exacerbated by angle of loll, heavy cargo on upper decks, nothing on lower decks
- Cargo shift, which, if amplified by parametric rolling and poor lashing practice, this may result in the vessel capsizing

- Fire risk is exacerbated by large open spaces and quantities of fuel – a car catches fire on board a car carrier every two months
- Collision – if this results in ingress of water, rapid loss of stability and capsize may follow
- Grounding or stranding both raise concerns surrounding salvage, in particular the removal of fuel and cargo.

John stressed the common factors in loss of stability incidents, using the MAIB report into the *Hoegh Osaka* as a case study. In this case, factors included a lack of control of ballast and fuel amounts on board because gauges were not working, no regular soundings were taken, and transfers of ballast, water and fuel were estimated. Additionally, because the cargo plans were prepared ashore by a cargo superintendent, and because of poor liaison, there was a lack of control of the weights coming on board. Misdeclared cargo weights and a change in the load sequence all led to a loss of control of the loading and of the calculated stability of the ship.

The inability to assess stability quickly, combined with the practice on *Hoegh Osaka* of computing the departure stability only after the vessel had sailed, meant there was a lack of awareness that the vessel had a minimum metacentric height (GM) and possibly an angle of loll. John stressed that a very fine hull shape means there is rapid change in the stability characteristics with increasing trim and draught. In particular, there is a dramatic change with the immersion of the transom stern.

The Pilot and Master of the *Hoegh Osaka* both remarked that the ship adopted a 7° list when the side stern ramp (or bridge) was raised. However, the Chief Officer stated that the vessel was within the stability requirements. During the discussion following the presentation, it was surmised that although the draughts were taken, the aft draught marks were almost unreadable because of the aft construction.

Updating the regulations

At present, pure car carriers (PCCs) are subject to IMO requirements when engaged in international trade. There are no additional requirements for stability or damage stability for PCCs, as there are for ro-ro ferries. However, there are additional requirements for fire prevention, detection and control.

John suggested that there should be a new approach to gauging the stability on PCCs. Stability indicators based on the raising of the offset stern or side ramps could give an immediate indication of adequacy. This quick and simple check would provide a useful ball-park figure for stability and could be incorporated into the departure checks. Stability monitors based on roll period would be another possibility. These simple ready reckoners to help assess stability should not replace formal assessment, but in some cases they would provide early indication that stability was potentially inadequate.

Learning from mistakes

Summing up, John said that at present we rely on crew competence to operate PCCs that may have poor stability characteristics – despite the fact that cargo planning is not performed by the ship's officers.

Casualty investigation is a vital tool in increasing awareness of operational risks. It is imperative that the analysis matches the actual circumstances of an incident. Non-compliance with regulation is not an indication of cause, and risk management is not achieved by compliance with regulation. The data in the ship stability booklet should not be relied upon as being accurate.

Members and visitors then engaged in a lively question and answer session, which also raised some interesting points concerned with the specialised training and attitudes of the personnel engaged in this particular trade.

Capt Robert Hone FNI

SOLENT BRANCH

Autonomous vessels – a real revolution

→ Professor Andy Norris FRIN FNI gave an enlightening talk on the development and introduction of autonomous vessels at a joint meeting held at the Warsash Maritime Academy.

The first thing to understand is that 'autonomous' does not necessarily mean 'unmanned', although unmanned vessels are currently a possibility on some services. Professor Norris explained that operating autonomy is already in use in some modern

applications. For example, Rolls-Royce and tug owner Svitzer have already introduced an autonomous tug. The audience was shown how the tug can be controlled from a shore base with a layout similar to a tug wheelhouse, with a view outside to allow control. Thus, while the vessel had autonomous control, at this stage of development that control is still provided by a human.

The presentation continued with an outline of the work being undertaken at IMO and by the UK Maritime Autonomous Systems Regulatory Working Group (MASRWG). The number of issues needing IMO attention is extensive,

including the Collision Regulations, safety at sea and equipment limitations. Andy also highlighted the November 2017 publication of the Industry Code of Practice for MASS (Maritime Autonomous Surface Ships) by MASRWG through Maritime UK.

As might be expected, the opportunities for maritime and technical lawyers were explored and highlighted. This led into audience participation, which developed into a very lively debate. One question left unanswered was 'Who goes to jail in the event of a casualty?'

John Noble FNI

SOUTH WEST OF ENGLAND

Seamanship seminar

→ The Branch seminar on seamanship has been some time in genesis, said Captain Robert Hone, Honorary Secretary of the South West Branch of The Nautical Institute, introducing the evening's speakers. Shiphandling and seamanship has been highlighted as a priority area in The Nautical Institute's current Strategic Plan, and the aim of the seminar was to develop an understanding of what is meant by seamanship today.

The seminar consisted of five short talks followed by a discussion session open to the floor.



The speakers' panel. L-R: Lt Cdr Jake Dray, Simon Jinks, Phil Pryor, Paul Willerton and Ben Williams



What is seamanship in the twenty-first century?

Paul Willerton FNI gave a presentation titled 'What is seamanship – thoughts of an ageing mariner'. He acknowledged that the topic was not original and had been discussed by Her Majesty's Inspectors of Education 40 years ago. He defined seamanship as being 'the integration of those physical and mental skills required to conduct a vessel safely and efficiently throughout a voyage using appropriate technology and within relevant legal regimes'.

The RN definition

Lieutenant Commander Jake Dray, Officer in Charge of the Royal Navy School of Seamanship at HMS *Raleigh* stated that the Royal Navy considered seamanship in two areas: deck work and bridge work. In preparation for the seminar he had asked trainees what they

considered to be good seamanship. Answers included 'a keen eye', 'doing stuff with pride', and 'having a competent team through good leadership'. He considered that seamanship is no less important today than in the seventeenth century, but 'Technology allows us to get into trouble earlier'.

On the water and in the classroom

Simon Jinks, of SeaRegs Training, gave a reflective contribution on training people in the small boat sector. The philosophy of SeaRegs Training is to focus training on the water, where situational awareness combined with boat handling skills is paramount. Classroom training helps provide the underpinning knowledge of seamanship and overcomes the problem of over-reliance on systems. Seamanship recognises the critical importance of developing appraisal, skills and experience combined with responsibility. The role of mentoring is also of great importance.

Gaining practical skills

Ben Williams, skipper of the training ship *Tectona*, described how the ship is used to encourage teambuilding skills. He considers that 'seamanship is built up through experience and particularly the experience of exercising responsibility'.

Ben is not only skipper of the TS *Tectona*, but also is in his final year of a degree programme at Plymouth University. For his final-year dissertation he is researching the future development of training in the leisure and commercial sectors. He believes that small boat seamanship undertaken at an early stage in training is critically important and observes that apparently 'well qualified' individuals can lack practical skills and experience – ie seamanship. Based on many sea trips in command of TS *Tectona*, he considers that seamanship concerns an 'appreciation of the elements and an understanding of a ship's actions in different circumstances'.

Keeping requirements up to date

Phil Pryor of Western Maritime Training was the final speaker. He focused on the requirements of the mandatory Efficient Deck Hand (EDH) certificate course, a course that is undertaken by all deck trainees, including cadets. The course teaches certain technical skills associated with seamanship.

In a 10-minute presentation Phil commented that the course was 'woefully outdated'. It requires trainees to be able to 'wire splice' when in practice health and safety regulations do not allow manual wire splicing. Likewise the course includes the rigging of a bosun's chair, once commonly used, but no longer permitted

today. He also considered that authorities place greater focus on modern health and safety regulations and ensure that trainees have the ability to fully understand an audit trail and individual accountability. He was pleased to learn that there are moves afoot to review the EDH syllabus.

Phil's final comment concerned disparities in the quality of knowledge transfer. He suggested that seamanship training can be a lottery, with trainees having different experiences as a result of the variable quality of ship's officers involved in mentoring.

Comments from the floor

The individual talks were followed by discussion and comment from the floor. These were many and varied. A sample of significant comments are given below.

'Seamanship skills are being lost to those outside the industry, particularly in the operation of container ships.'

'British young people do not see the shipping industry to be one that they want to be part of, particularly due to the lack of British seafarers.'

'The small boat sector offers good opportunities where seamanship skills are well employed.'

'Good seamanship comes from experience – experience comes from good seamanship.'

'Ship communications can be difficult even on ships with small crews. The numbers of British seafarers on ships entering Plymouth port are very few. Despite the work of the IMO, multinational crews can have very different standards.'

'IMO has limited seafarer expertise. The representation of The Nautical Institute at the IMO provides very valuable input.'

'Trainers at sea are not trained – therefore how can they train the trainee?'

'Seamanship is defined as a skill and a mindset.'

'The proven systems of seamanship training of the past, as typified on the cadet training ships of the past, are missing. Could they be restored in a modern setting? If so, who would pay?'

It was noted that the tall ship *Stavros Niarchos* formerly operated by the Tall Ships Youth Trust has recently been sold. Built in 2000, she had berths for 48 trainees, giving them an opportunity to learn and exercise seamanship skills. While it is expected that the *Stavros Niarchos* will be replaced by a smaller schooner, it was felt that this was an opportunity lost by the UK shipping industry to provide seamanship training.

**Paul G Wright MNM FNI and
Captain Bob Hone FNI**

IRELAND BRANCH

AGM and S-Mode update

➔ As part of the Ireland Branch AGM, Richard Doherty, Deputy Secretary-General and Chief Technical Officer of Comité International Radio-Maritime (CIRM), gave a presentation on S-Mode and the bridge display of the future. This included an update on CIRM's activities, the organisation's background and its structure.

Richard's presentation provided considerable background information on the S-Mode story so far, centring on the key elements of developing equipment and design. The original concept of S-Mode was that it should be a fully standardised independent mode of operation. Achieving this was impractical, however, considering the multitude of systems and designers, each one wishing to maintain their brand identity, and the diverse range of user preferences.

This led to an impasse in the development of S-Mode and the need to rethink the direction of the concept. CIRM considered that, although the original proposals were valid, a fully standardised mode of operation is impractical and unnecessary.

In order to move forward, an informal correspondence group was established in 2016 with the goal of developing draft guidelines for

submission to the IMO. The main purpose of the guidelines was to standardise design, reduce variance in navigation systems, minimise the burden of familiarisation and enable end-users to interpret information accurately and react decisively.

The process of gaining agreement among all parties before making the formal submission was of considerable complexity. Work included establishing user forums to make sure the primary users of the equipment had a voice. Richard reiterated the importance of navigating officers in formulating the S-Mode standard. One way that navigators can assist is by completing the online survey published on the Institute's website, which can be found at <https://www.nautinst.org/en/forums/index.cfm>

During the Q&A session there was a dynamic interaction with the attendees. It was suggested that there is a need to have type-specific training for all personnel using equipment. This proposal was roundly dismissed by other attendees, with some members commenting that this type of training is not working with ECDIS.

Steve Malone MNI



Richard Doherty CIRM Deirdre Lane, Ireland Branch Chair and Richard Doherty, CIRM



Nautical Institute members attending the Ireland Branch AGM

WESTERN AUSTRALIA BRANCH

Managing Fatigue in the Workforce

➔ In support of The Nautical Institute's 2016-2020 Strategic Plan, the Western Australia Branch held an information session on the topic of 'Managing Fatigue in the Workforce' in the centre of Perth. The event featured a diverse range of professionals and experts representing a cross section of the maritime industry.

The afternoon opened with an address from Andrew Bennet of Shell Australia on the topic of 'Managing Fatigue at Shell's Assets'. This was followed by a presentation from Carlo de Meglio of the Australian Maritime Safety Authority on 'A risk based approach to fatigue management and fleet performance'.

Gemma Maisey of Circadian Australia presented on 'Digital Analytics: Enhancing Alertness, Safety and Sustainable Performance', a topic which generated considerable discussion. Following an intermission, Woodside Energy's Soudhi Eshraghi gave a presentation on 'Woodside's Fatigue Management' and the tools it had developed to assist its pilots. Rounding out the afternoon was Rory Main, a Fremantle Pilot, whose presentation on 'Fatigue and Pilotage' gave an overview of legislation and studies affecting the industry.

The event was opened to the broader community and attracted attendees not only from the maritime sector but from across the industry who had an interest in fatigue management. The Nautical Institute Western Australia branch would like to thank all speakers and attendees for making this such a worthwhile event.



Soudhi Eshraghi



Carlo de Meglio



Gemma Maisey



Letters

JOIN THE CONVERSATION

Send your views and opinions to us at editor@nautinst.org, write to us at 202 Lambeth Road, London SE1 7LQ, UK or become part of our online community:



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Ice Navigator research

→ Further to the recent article on polar navigation in *Seaways* March 2018, 'Polar Care', I am writing to enquire if any Nautical Institute members who are ice navigators would be interested in participating in research on ice navigators.

I am a mature student currently researching the topic of ice

navigators and ice pilots as part of a Master's programme with the Marine Learning Alliance College and University of Plymouth. My final year dissertation research is focused on gaining an insight into the knowledge and skills related to ice navigation, as well as obtaining an overview of the profile and experience of current

ice navigators worldwide.

I am looking to build on the little existing research on the human element, in particular on training and skills in this specific area of seafaring. I have designed a questionnaire for deck officers with ice navigation experience. Any members who are interested in taking part can find an online

copy at <https://surveyhero.com/c/c9543640>

Any members who are interested in finding more about my research are kindly invited to email me. Thank you.

Natacha Southwell

Grenoble, France

natacha.southwell@postgrad.plymouth.ac.uk

Chartered Master Mariner concerns

→ The April committee meeting of the North West England & North Wales Branch discussed Peter McArthur's presentation on the Chartered Master Mariner scheme and the subsequent report in *Seaways*, written by our secretary Derek Gallagher.

It has been suggested I respond to some of the items raised in Peter McArthur's presentation. I am writing this with the knowledge of the NW Branch.

Peter said: 'Under STCW, the term Master Mariner is not defined.'

This is incorrect. Taking a new Master's licence issued on 3 March this year as an example, it states quite clearly the capacity is

Master and not Class 1. Similarly, a recently issued Class 2 certificate refers to an officer as Chief Mate. To downgrade those of us that actually go to sea and command as no longer being Master Mariners, in order to promote an award that requires no Master Mariner's licence nor any substantial command experience, is something that I find very difficult to understand.

Peter went on to say that 'the CMM will be the elite of the industry, will be those used and regarded as experts in legal circles.'

I have been a Master for 28 years, spent 25% of my life standing in command on various

ships, sailing through war zones and pirate zones at times, and to be told basically I am second best was difficult to swallow. As another of the committee pointed out, it will not matter how many letters you have after your name, if you haven't got the experience your opinion is null and void and a barrister will destroy any testimony.

For many years we had two distinct groups in the marine industry: those who go to sea and those ashore who support the sea staff. Those ashore were senior Masters and Chief Engineers who had experience and knowledge to support effectively. Now, especially

with the introduction of ISM, we have those who go to sea and those ashore, often with no or little sea knowledge, who feel the need to tell the sea staff how to sail the ship. Since the CMM requires no Master's qualification and no command experience, this is of considerable concern.

Those of us at sea in command don't need it. ISM is quite specific, as are all the other protocols. 'Notwithstanding, nothing shall over-rule the authority and responsibility of the Master.'

That is the only recognition we need.

Captain Ian Hodge M.M.

CMarTech, FIMarEST, MRIN, MNI

Bribery in port

→ A ship in our port was loading to the marks (about 40,000t) using the mechanical ship loader and conveyor belt system. The port had advised the vessel to monitor the draughts regularly, that the port's weighing may not be very accurate, and that the belt capacity was 250 tonnes.

During trimming (loading the last 1,000 tonnes of cargo), it was observed that nobody from the vessel was monitoring the draughts closely. The port repeatedly told the Chief Officer to monitor the draughts

personally, but the Chief Officer did not listen. When the draughts were finally checked the vessel was overloaded by about 300 tonnes.

The Chief Officer and Master initially tried to blame the port for this. Later, they started insisting that there was no overloading, and insisted that they wanted the pilot to sail. They claimed that since the vessel was in the tropical zone, it was not overloaded.

I informed them that we were in the summer zone (we were in middle of summer), then made the Chief Officer understand that we

wanted to see the loadline chart.

After waiting for 30 minutes, the loadline chart had still not been brought to us. I started looking for it myself, found one on the bridge, and told the Master that since the vessel was overloaded according to the chart, it was not allowed to sail out from the berth.

During the entire period, there was no sign of worry in the body language of either Chief Officer or Master. The Master then requested me to come to his cabin; and in the cabin, he put a couple of \$100 notes in my pocket. I was shocked

by this, returned the money and walked off the ship, telling the vessel to unload the excess cargo.

The vessel was finally allowed to sail out after discharging the excess cargo.

This underlines the importance of continuous monitoring of the jetty side draught and offshore midship draught during trimming and quantity loading.

Name and membership number supplied



The Nautical Institute LinkedIn forum



JOIN THE CONVERSATION

The Nautical Institute has a lively discussion group on LinkedIn
<http://www.linkedin.com/groups/Nautical-Institute-1107227>

THIS MONTH, NICK CHUBB ASKS: SHOULD SEAFARERS LEARN TO CODE?

It's impossible to deny that the operation of ships is becoming more and more technical. From integrated bridge systems to multi-fuel propulsion systems, the burden on seafarers to understand ever-more complex onboard systems is increasing.

Because of the isolated nature of ships, it's important that the crew

operating them are able to understand, operate, troubleshoot and, if necessary, fix the systems that keep the ship safely running.

As ships become more complex and hi-tech, should seafarers of the future be learning to code?

THE INSTITUTE'S LINKEDIN COMMUNITY RESPONDED:

→ Are you serious? There are only 24 hours in a day, in which it's already a struggle to keep up with ISM, ISPS, MLC, SEEMP, voyage reports and ah yes, let's not forget, loading/discharging, sailing the vessel from A to B, maintenance etc, etc.

→ How about providing reasonably priced permanent internet access? How about putting computers on board ships that are not three generations behind? Any Sat-C system operates on Windows 3.11, ECDIS systems operate on Windows 2000. In 2018! So before demanding more skills, kindly provide decent tools first.

→ More and more technology is not the solution for a safer environment at sea.

→ How come the practical 'hands-on' skills required to sail a ship around the world and deliver cargoes has become so darn complicated? I suspect that the feeling of satisfaction of a voyage well done is, sadly, becoming a relic of the past.

→ Do you mean coding or programming? The difference is massive! Everybody can glue some codes together to make a funny figure jump up and down. To make a program to slow down or stop the main engine due to stress or some other reason is quite another cup of tea. If a person is able to do the latter why would he prefer to be an immensely stressed and over-controlled and underpaid seafarer?

→ As a Master Mariner with a degree in computer science the idea horrifies me. Ships are becoming more technical and more reliant on sophisticated software. From my perspective this is where the problem lies. The quality of the software rolled out for maritime use is truly rubbish.

Until the maritime user community (note user not purchaser) demands better quality software this problem is likely to continue. The thought of a Third Mate attempting to implement a 'quality' code-test-debug cycle on glitching software in a time-critical situation brings me out in a cold sweat. In the light of today's developments the industry made an enormous mistake when it took the two electro-technical specialists off ships and replaced them with a

six-week training course for engineers. Let's not repeat the same mistake by drawing the focus of our Deck Officers away from the complex role they perform now.

→ We all accept that life at sea is continually evolving, but there are limits to how much you can expect people to be capable of. I have this year witnessed people literally falling asleep on the job because of the workload currently expected from them. So it's a no from me!

→ Some networking, equipment and NMEA code knowledge would help. However, the whole issue would be solved by hiring a professional programmer 24/7 with skills to fix maritime equipment/computing and IT problems liable to accrue on a modern vessel. But it will of course require some new rules set by IMO. A shipowner alone wouldn't hire anybody if not forced to do so.

→ IT professionals who do the coding of nautical equipment should first learn to do a good system analysis. Lots of software which is to be used on nautical platforms is written for an office environment without any nautical experience/insight.

→ A bit more time to learn basic skills would be more help. And less proliferation of duplicate compliance paperwork. One year's seetime for deck officers, and six months for engineers, is a joke.

→ In my recent experiences with automation in dredge system, the installation was more complex than what was required to do the job. The systems were not integrated, with little or no manual bypass when the system fails even with a minor problem. Most technology on ships is what you get – now make it work.

→ It would be good for ships' officers to understand fundamental IT architecture, what it can and cannot do, as well as its strengths and vulnerabilities. In a similar way, the deck and engineering departments must understand each other's roles and the capabilities of the systems for which they are responsible, but this does not make them competent users of those systems.

Given the availability of affordable 24/7 internet there is no barrier to shore-based IT,

particularly software support.

This said, there must be protocols in place to protect against malware and the latest 'system update' crashing the system. Software support must work with the ship team. System update in the middle of a docking manoeuvre – I don't think so.

→ Coding is not something you want a non-specialist to be performing. Especially with system-critical equipment.

→ The problem is that people who know a little about a lot rather than a lot about a little often think they can make things better by fiddling. I was Master on a coastal tanker fitted with an email system which, like all things then, was fairly temperamental. The Mate decided he could make it work better. Unfortunately, he couldn't and it cost the company three days of Radio Holland time to get the thing operational. I say leave people to their knitting – and coding isn't a seafarer's knitting

→ I believe the winning strategy will be remotely located sys-admins with broadband connections. This approach is widely used in the IT sector and has proved its usefulness. Moreover, most of the systems have embedded software architecture, starting with the integrated bridge and finishing with ME engine controllers.

→ Think about the end-user who is in command or at least has the conn of a \$100 million asset and is responsible for the lives and livelihoods of around 21 people on board, not to mention the cargo, possible pollution incidents etc, just for starters.

→ A lot of systems on my ship have 'remote access'. If ship staff get stuck with a problem, the shore-based service engineer can remotely access the system via satellite internet and advise what to do. It would be a good idea for ETOs to do a more comprehensive IT course as more and more systems are computer-controlled, but there is no need to learn to code.

This report attempts to give a representative summary of the discussion – it is not possible to include all comments. To see the discussion in full, please visit LinkedIn.

 Representing The Nautical Institute to the maritime industry and beyond

Winners of 'Excellence in Export' Award at the 2018 International e-Assessment Awards



The Nautical Institute has been named the winner of the Excellence in Export award in the 2018 annual e-Assessment Awards for its online DP assessments. The awards honour organisations that seek to innovate in the way examinations are conducted

CHIRP award

CHIRP Maritime, headed by Captain Jeff Parfitt AFNI, was awarded 'Team of the Year 2018' at the Lloyd's Register Foundation international conference in London. It was a significant accolade, given that the 10 other competitors included The Alan Turing Institute and the RNLI.

News from Plymouth

The appeal for the Merchant Navy Monument on Plymouth Hoe has already raised £130,000 of the £160,000 required for the project. Find out more about the project at: www.mnmonument.uk

Indian National Maritime Day



The NI celebrating Indian National Maritime Day at the Indian High Commission in London
Training and Accreditation Development Officer
Captain Maneesh Varma AFNI and the Deputy Indian High Commissioner (I)



The NI and the younger generation



NI President Captain Duke Snider FNI made a presentation to junior officers conducting their final phase of training at the Royal Canadian Navy's Fleet School Pacific. Captain Snider discussed The Nautical Institute's Ice Navigator Scheme and described his recent experiences in the Antarctic aboard the USCGC *Polar Star*



Students from NAFC Marine Centre making use of a complimentary *Alert! Compendium* last month

The Nautical Institute's Bridget Hogan with Teresa Peacock of Spinnaker and Winnie Sorensen of Wenford People at Southwark cathedral for a service marking the 200th anniversary of the Sailor's Society





New members

The Nominations Committee has nominated the following for election by Council:

Associate Fellow

Bhasin, S Captain/Manager (AUS - NSW)
Chapuz Hernandez, V Captain/Master (Mexico)
Dong, Y Mr/Director (China P.R. (Mainland))
Kahlon, S S Captain/Account Director (UAE)
Kumar, N Captain/Fleet Crew Manager (India)
Lodder, T Mr/Managing Director (Netherlands)
Maniatis, C Captain/DPA (GRC/Hellenic)
Mason, S E Captain/Master (U.S. Gulf (Houston))
McMurray, P Mr/Business Development Manager (UK/London)
Rajput, S Captain/Master (Pakistan)
Saklawski, P Mr/Master (Poland)
Storvik, R A Captain/Captain / DPO (France (South))
Trapanese, R Captain/CEO (Italy)
Yanto, H Mr/Master (Indonesia)

Upgrade to Associate Fellow

DCosta, A K Captain/Marine Surveyor (AUS - VIC)
Gangadharan, S M Captain/Master (India (South West))
Garcia-Bernal, R R Dr/Principal Advisor (Chile)
Myles, M D R Mr/Trainee Solicitor (UK/NE England)
Pillay, J J Captain/Master (India (South))
Rudd, J Captain/Master (UK/Bristol Channel)
Ruto, W K Captain/Harbour Master (Kenya)
Tindale, S J Mr/Master (UK/London)
Webster, J M Captain/Freelance Instructor (UK/SW England)

Member

Baptiste, G D Captain/Master (U.S. Pacific Coast (C))
Bennett, J R Mr/2nd Officer (AUS - NSW)
Bramendra, S Mr/2nd Officer (Sri Lanka)
Caporn, C Z Mr/2nd Officer/JDPO (AUS - WA)

Diaz Gomez, J I Mr/2nd Officer (Mexico)
Fettes, J A Mr/3rd Officer (UK/Humber)
Fisher, J Mr/OOW (UK/NW Eng. & N Wales)
Gawne, P Captain/Deputy DPA (UK/London)
Goncalves, J P Mr/Director (Mozambique)
Gwanzuwang, S Mr/Principal (UK/Lanka)
Islam, M S Captain/University Lecturer (UK/NW Eng. & N Wales)
Kaushalya, W H G Mr/Sub Lt (Sri Lanka)
Kazaryan, A Capt/Master/SDPO (Russia)
Lakmal, S B S Captain/1st Officer (Sri Lanka)
Lamri, A Captain/Marine Surveyor (UAE)
Mallawaarachchi, R T Mr/3rd Officer (Sri Lanka)
Mann, J C Mr/Vessel Master (AUS - NSW)
Premarathne, I S Lt/Lieutenant (Sri Lanka)
Sekundyak, O Capt/Master SDPO (Ukraine)

Shaikh, M Captain/Operations Officer (AUS - WA)
Sharpe, T P Captain/Master Mariner (AUS - SA)
Silva, L J Mr/Chief Officer (Sri Lanka)
Singh, T Mr/SDPO (AUS - QLD)
Stitt, J P Mr/Captain (U.S. Gulf (Florida))
Thorkildshoej, P N Captain/DP Course Manager (Faroe Islands)
Thum, B S Captain/DP Master (Singapore)
Tkach, D Mr/Master (Ukraine)
Valecha, S Mr/SDPO (India (North))
Welch, B A W Mr/2nd Officer (UK/Humber)

Upgrade to Member

Miny, G Mr/3rd Officer (Belgium)
Todd, D Mr/3rd Officer (New Zealand)

Associate Member

Cumming, J D Mr/Officer Cadet (UK/Solent)
Zolotukhin, V Mr/Deck Cadet (Ukraine)

*Signifies members who have rejoined

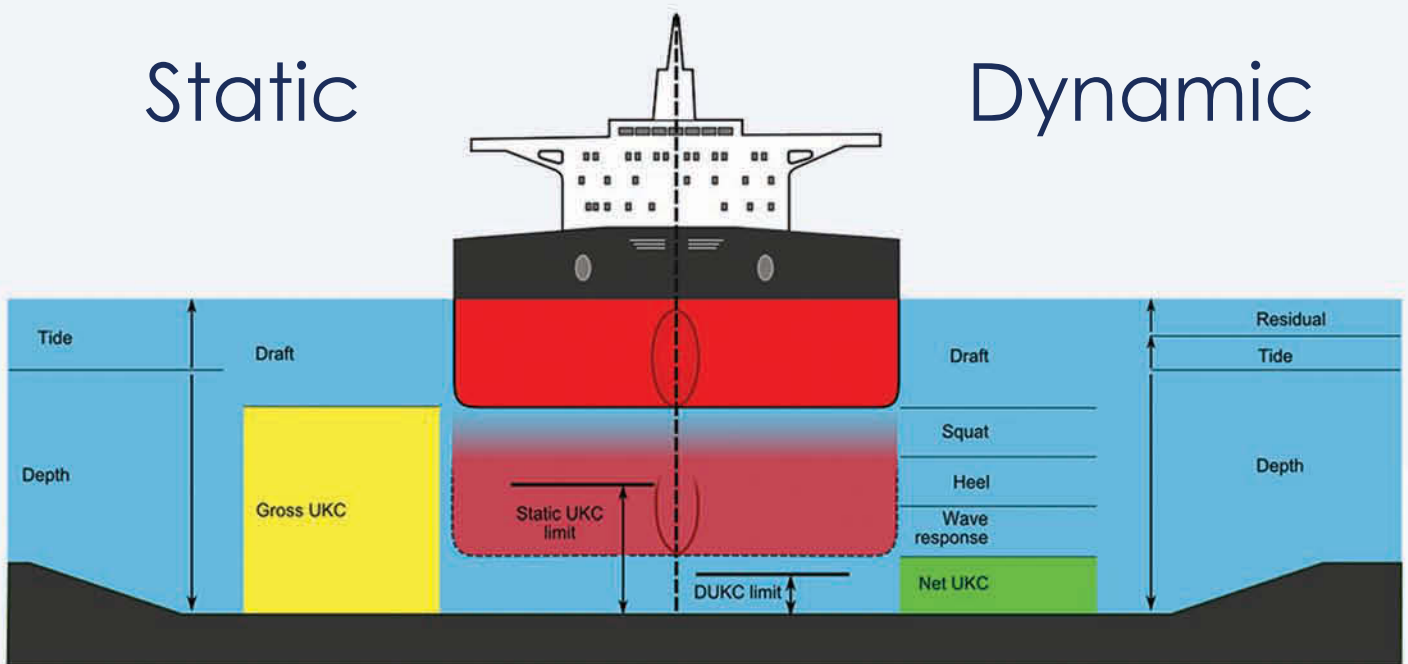
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