May 2018 www.nautinst.org

Seaways

The International Journal of The Nautical Institute

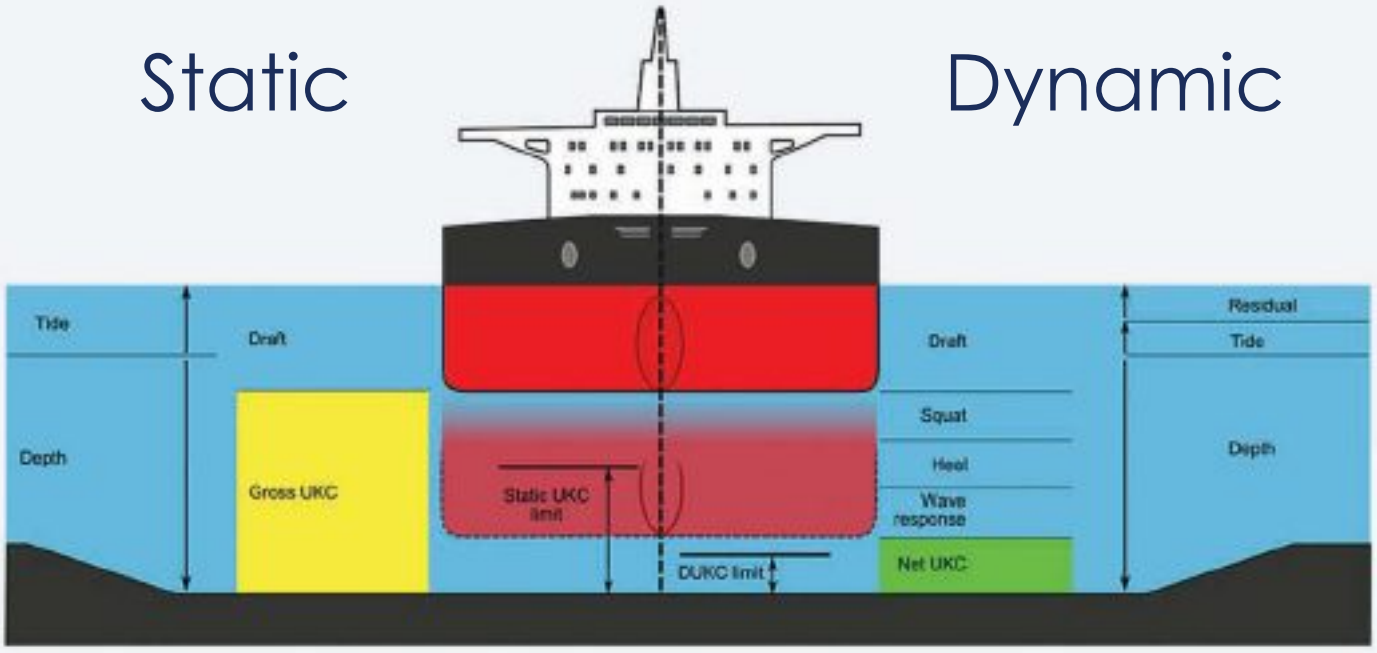
The Nautical Institute around the world

The Nautical Institute

Safer & Smarter Under-keel Clearance

Traditional "static" UKC rules are:
Inefficient 95% of the time
Overly risky 1% of the time
Just right 4% of the time.

Static



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OMC INTERNATIONAL

p10

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USCG

Seaways
The International Journal of The Nautical Institute

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Diary

What's on?

NI AGM & technical seminar 23-24 May

Cavalieri Art Hotel, Malta
https://www.nautinst.org/en/events/agm-2018/index.cfm

This high level seminar will discuss key issues in the maritime industry, with speakers including industry leaders, front line practitioners, and ministerial representation from the Government of Malta and flag registries.

A gala dinner will follow day one of the seminar at the impressive Malta Maritime Museum. Tickets for this event are still available and prices start at only £52 for NI members.

To take advantage of the discounts available for events listed in the Diary section, please log in to www.nautinst.org using your membership details and click on 'Event Discounts'

14 May

RINA and PIANC – Ships & Ports
0900, 1 Great George St, SW1P 3AA, London
https://www.ice.org.uk/events/ships-and-ports-london

16 May

HR & Crew Management Summit
Singapore
www.wplgroup.com/aci
15% discount for NI members

16-17 May

Unmanned Maritime Systems conference
London, UK
www.umsconference.com/nautinst
£100 discount for NI members

17 May

The 21st Century Seafarer
NW England & N Wales Branch
1700, Fleetwood Nautical Campus, FY7 8JZ
http://www.ninw.org.uk
sec@ninw.org.uk

23-24 May

Crew Connect Europe
0900, Radisson Blu, Hamburg
https://maritime.knect365.com/crewconnect-europe-conference/
20% discount for NI members

24 May

Technical Seminar: Subchapter M
US Gulf Branch
1130, West Gulf Maritime Association, Houston, TX 77029
Email: nigulfbranch@gmail.com

26 May

AGM
British Colombia Branch
BCIT Marine Campus, North Vancouver
www.bcit.ca/about/marine.shtml#around

27 May

IALA Conference
Songdo ConvensiA, Incheon
http://www.iala2018korea.org/home_en/

04 June

Navigation Assessors Course
Rotterdam – location TBA
Contact: susie.stiles@nautinst.org
Discount available for NI members

07 June

Navigation Assessors Course
Athens – location TBA
Contact: susie.stiles@nautinst.org
Discount available for NI members

11 June

Navigation Assessors Course
London – location TBA
Contact: susie.stiles@nautinst.org
Discount available for NI members

25 June

IHMA Congress
Royal Lancaster Hotel, London
20% discount for NI members
https://maritime.knect365.com/ihma-global-port-and-marine-operations/

Captain John Lloyd FNI Chief Executive

Focus

Agent for change

> I am grateful to our members and Branches for their continued support in delivering important messages at a local and regional level.

As we rapidly approach our Annual General Meeting, you will see from the Agenda (p 29) that there are a number of important changes taking place in key appointments within the Committees and Officers of The Nautical Institute. I will reflect some more on the changes next month but for now kindly remember that the dates for Malta are rapidly approaching and if you are going to join us please book your places as soon as possible – today!

The event is well supported with amazing speakers, great sponsors and an exciting programme including dinner in the wonderful surroundings of the Maritime Museum in Valetta.

While people may change, our key focus on professionalism and being a 'positive agent for change' remains constant. I am delighted with the feedback and support we received for our Incident Investigation and Analysis pilot course that has helped us be ready for delivery next month. If you think a better understanding of key factors in this area would improve safety for those in your organisation then this is the course for you. See pages 8 and 9 for a more detailed look at what the course includes, and how to book your place.

We were also present in April during a very long week at the IMO. A great deal of debate concluded in a key commitment to reducing greenhouse gas emissions and the establishment of some challenging targets. My thanks to the IMO team for the regular updates on progress.

Our publications continue to receive strong support and our close engagement with professionalism with those operating in or near ice continues on a number of fronts. The launch of the latest edition of *Polar Ship Operations* is a key demonstration of this commitment and we thank our President for his hard work in ensuring this key text remains filled with guidance on contemporary best practice.

The Ice Navigator qualification continues to grow. We now have officers in 12 different countries (see map below) recognised for their qualifications and experience – testimony to the relevance and international standing of this initiative from The Nautical Institute.

During May I will be supporting the work of the 'Protection of the Arctic Marine Environment' group that brings together stakeholders committed to guarding this important region while sharing best practice and other information.

Finally, I do hope you will enjoy reading the annual report on our activities throughout 2017 (p21-23). It has been another busy year on behalf of the membership and the global maritime community. I am grateful to you, our members, for your continued support and to our Branches and the Committees that guide them for helping to deliver important messages at a local and regional level.

My thanks also go to the Headquarters team here in London who make every effort to support you, and who have ensured a strong service through a period of considerable change.

I look forward to seeing many of you in Malta. If you would like to follow proceedings on my 'Twitter' account, please tune in at: twitternautinstceo

Perception and Decision Making at Sea

The real situation may well be more than meets the eye

CHIRP Maritime with University College London

As seafarers, we are all used to working under pressure in adverse conditions. Our training reflects this and our experience teaches us how to think and react to situations. From the engine room to the bridge, we all work hard as individuals and as a crew to keep our ships running smoothly.

There are always new hurdles to overcome because nothing we do is commonplace. The challenges can be hidden in the way we see, scan, plan, decide and communicate. To be the best seafarer one can be means finding ways to recognise and deal with these issues.

Our ability to perceive the world around us and to make decisions, both individually and as a crew, is crucial for us to carry out our jobs and to avoid or respond to emergency situations. It is in how we see and how we decide that hidden factors, or factors we may know but take for granted, may ambush us.

Knowing about and understanding these issues and knowing how to avoid them is the route to first class and ever-improving seamanship. These guidelines highlight key issues in the areas of Perception and Decision Making, and makes recommendations on how we can combat them together, helping to make our ships more efficient and keeping our seas safe.

This paper is a summary of findings and recommendations in collaboration with the Arts & Sciences, and Neuroscience Departments at University College London. It is backed up by a presentation which can be found online at CHIRP's channel on Youtube (direct link https://bit.ly/2HakUqN). The presentation is only seven minutes long, and gives an excellent overview of the topic.

Understanding how we see

Seeing is something easily taken for granted. The eye is not a camera and the visual brain is easily fooled. Here are five things to consider which may help you understand how you see.

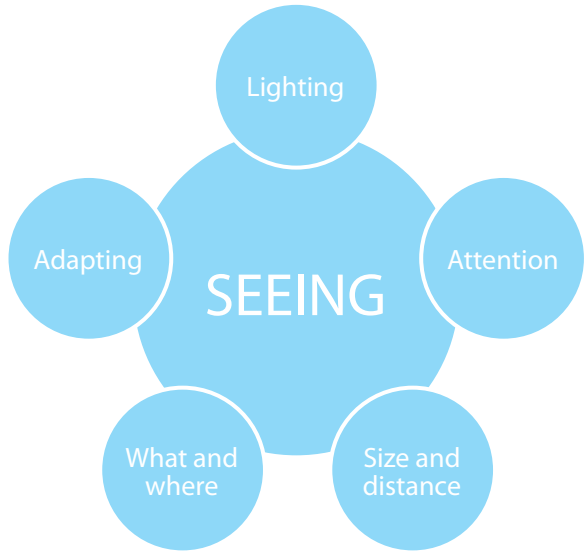
Attention

There are limits to what we can see, set by our eyes, brains, experiences and expectations. We often only see the things that we choose to focus on or are expecting to see. When fixated on certain tasks or objects, even the most experienced among us are in danger of missing what is happening under our noses or in our peripheral vision. On a bridge or in machinery control rooms, it is already hard enough to maintain our perspective on the totality of relevant visual information, a task which is complicated by the challenges of paying attention to several things at once while holding information from the last few minutes.

There is a limit to the amount of information we can hold in our memory at any one time. We think that we can track several items at once, but research has shown that this limit is only about four. With so many things to pay attention to and remember, we are working at our brains' limits much of the time. Without even taking into account how tiring it is for our eyes to stay focused for prolonged periods and for our brains to keep track of previously reported contacts, whether it's fixes to take, flashing alarms to respond to or moving contacts, maintaining our attention – ie the choice of what to focus on – is demanding.

The need to switch between modes of focus, such as near (to read and use the ECDIS and radar) and far (to spot a contact on the horizon), coupled with the challenge of maintaining distance focus when looking out to sea, makes watchkeeping a more complex task than we think. To the seafarer it may be something we do every day; but to the seafarer's brain, it is an on-the-limit workout. The eye takes time to refocus between near and far modes, and loses focus within about a minute of not having something to focus on, especially with distant objects. We must be constantly aware of the limitations of glancing between screens and out of windows, or simply scanning the horizon for an extended period of time, because there is a cost to both switching and staying focused.

So, what does catch our attention? Two types of events dominate attention; things that are surprising (loud, bright, big, fast) or unexpected, and things we strongly predict. As a result, we risk becoming too focused or desensitised to important events that all look and sound the same because we've seen it all before, or not responsive enough to unexpected events. This emphasises the need for good local knowledge to know when something is out of place. However, our expectations tend to influence our focus. When the radar presents a contact, we naturally look for the ship corresponding to that contact, and may miss others that have not been scanned. Similarly, with local knowledge, being on the lookout for the familiar may reduce our chances of spotting small, but potentially critical changes.



THE NAUTICAL INSTITUTE'S

NAVIGATION ASSESSOR COURSE

This course provides practical information on:

- Improving safety and best practice
- How to conduct the assessment with a systematic approach
- Preparing an effective report

This course is suitable for:

- Personnel requiring to demonstrate they hold a qualification to be able to conduct navigation audits stipulated in TMSA3 element 5
- 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) Non-member: £900 (+VAT)

ATHENS: 7-8 JUNE 2018
LONDON: 11-12 JUNE 2018
AUCKLAND: 17-18 SEPTEMBER 2018

The Nautical Institute

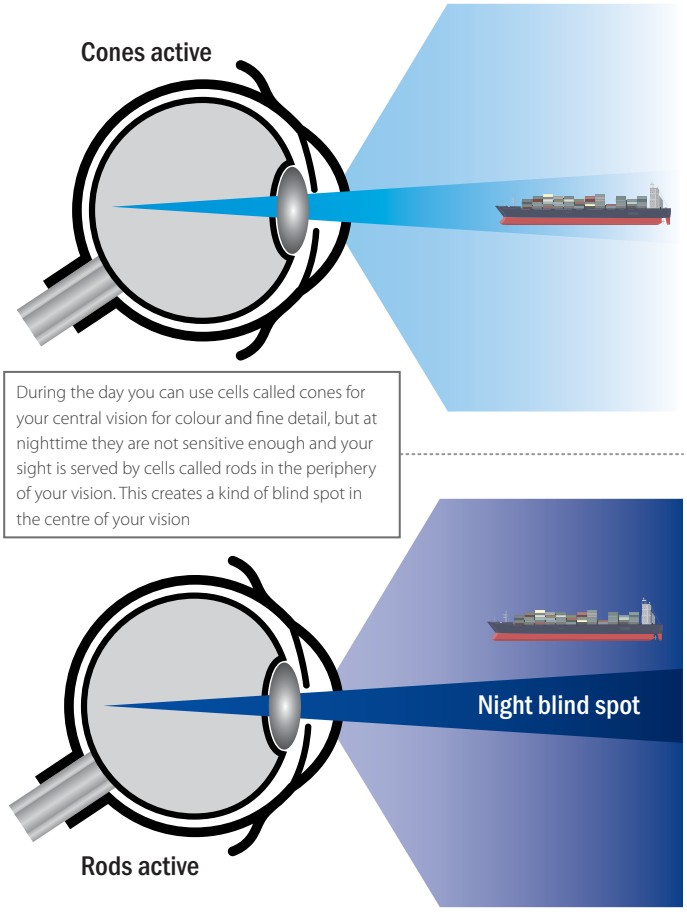
To find out more or to book your place, please email:
courses@nautinst.org

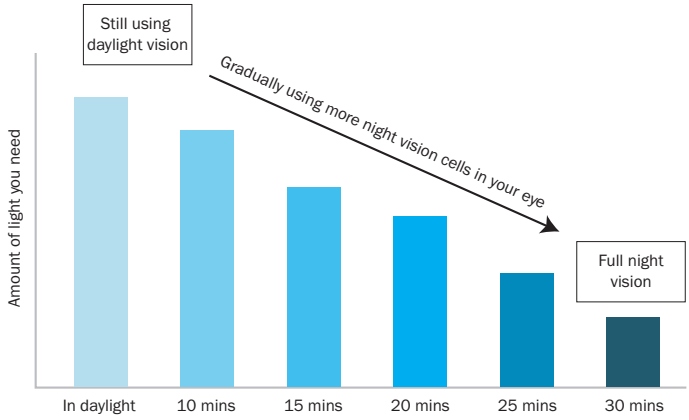
The challenges are not only set by the sea. Designers of ships and equipment need to remember that approximately 8% of males have some form of red/green colour blindness. Staff need to be capable of correctly recognising colour coding on cables, pipes and display screens where incorrect judgement can be safety-critical.

Working in night lighting conditions

Human vision operates in several 'modes' depending on the level of light in our surroundings, and it takes time for the eye and brain to transition between the stages. Our eyes are made of two kinds of cells. Rod cells are for black & white vision, light sensitivity in darkness, and detection of movement in the periphery. Cone cells are for colour vision and seeing fine details. This is why you can't read out of the corner of your eye and screens flicker less when you look at them directly. It's useful to think of having two types of vision: one for fast movement and low lighting conditions, and another for detailed vision in high lighting conditions. Our special challenge is that in 24/7 sailing we need both systems under all conditions.

According to our review of IMO data on incident severity, more 'severe' and 'very severe' maritime incidents occur at night than during the day. This is partly linked to how our eyes adapt to perceive things at night. For example we have a night blind spot when looking directly at something for several seconds. This night blind spot is in the centre of our vision, which we depend on in daylight. If you hold out your fist at arm's length, this is about the area of relative blindness in dark conditions. It is why, to see a flickering star, you need to look slightly to the side of it. Unfortunately, we were unable to analyse the full extent of night incidents because, with very few exceptions, the Maritime industry does not collect information on types, timing, severity or near misses in a consistent manner. This is an important missed opportunity to improve our safety.





Dark adaptation line. This figure shows that our eyes are fully adapted to night vision only after 30 minutes in the dark.

It takes time for our eyes to adapt when moving between bright and dimly lit sources and environments, such as ports, flashlights or screens that are not sufficiently dimmed. The time to adapt increases with age, and the resulting night vision abilities are less good in older people. Understandably, we can rarely afford the whole half hour required for our eyes to fully adapt and rid us of these problems, but that is not necessarily required so long as the light environment we are in prior to taking over a shift is not too bright, and conditions on the bridge itself are not too dim. To assist the eye in adapting to working in low levels of light, it is a good idea to spend some time in an environment illuminated by reddish light, because the rods – the eye cells that do the work at night – are most sensitive at shorter wavelengths. Using reddish lights or glasses means that these cells stay sensitive.

Lighting

Sufficient lighting is a key factor in a safe and productive workplace. However, our vision does not only depend on the lighting, but also on our own ability to see. Age plays a key role here because as we age our need for light increases – older people need more light to read than younger people do and find a range of visual tasks more difficult, for example, motion detection, speed of motion, detection of the unexpected, and they are also less able to work with dim displays. We need to see objects under adverse lighting conditions, low contrast, glare and light scatter, mist and fog, this is why we have to be aware of lighting conditions with respect to each individual making allowance for wearing spectacles.

Light is not only about seeing. It controls our biological clocks that in turn regulate our hormones, appetite, body temperature and alertness. This makes thinking about light a broader issue. Rapidly switching between daylight or bright artificial light and dim, dark adapted conditions, will confuse the body's clock systems and reduce our alertness on night duty and recovery from shift work. Thinking about lighting is important in the now – we need the best conditions for observation – and in the longer term because our clocks need regularity.

Apart from these health and wellbeing advantages of good lighting, it can also lead to better and faster work performance, fewer errors and accidents and greater safety.

What and Where

One of our tasks at sea is to identify what we are seeing and where it is going. There are two different systems in our brains for this, and they are called the 'What' and 'Where' visual systems. The 'What' system relies on the centre of your eye for detail and colour and needs bright

light to work at its best. The 'Where' system relies on peripheral vision, is better in dim light and can detect transient events such as moving objects or flashing lights. These two different kinds of information use different areas of the brain and eye. This means that we can never optimise the two systems at the same time.

How we use our eyes also makes a difference. We look slightly downwards to read, sew, draw, look at our screens and anything that requires accuracy. We do this because our lower visual field is more sensitive than our upper visual field. So if we are looking down at our instruments and then glance upwards to look out to sea, we are not using our best field of vision.

The difficulties for locating and identifying also depend on external factors. For example, while the position and brightness of lights on larger vessels may be sufficient for us to detect, locate and identify, this will often not be the case on smaller craft.

Visual Size and Distance

In the world around us, we categorise each object that we see by its size, shape and location. This experience of the world is called visual space. However, visual space is not the same as actual physical space, it is a distorted version. Because of this, visually perceived size and distance and true size and distance often vary. If we get either size or distance wrong, we get both wrong. If an object's size is underestimated, we will overestimate its distance and vice versa. Moreover, more errors in size-judgement appear with increasing distance ie the further the object is, the more likely we are to perceive its size falsely. The perception of size, distance and our sense of space can change in different sea conditions or in different deck conditions, for example in misty conditions, when we are tired or when the light in the room is changing.

Seeing size and distance relies on our 'Where' system for distance and both the 'What' and 'Where' systems for size. This makes it a very difficult task and it is important to use as many clues as possible. We can question each other and ask questions such as, "would something that far away be moving so fast?" or "if it's so close, shouldn't we be able to see its shape (or another aspect of the vessel)".

This is the first part of the report, and appears by kind permission of CHIRP. For more information, and to download the complete publication, see https://www.chirpmaritime.org/publications/

CHIRP Maritime is grateful to our sponsors for supporting this project

BASC UCL Lloyd's Register Foundation

Meet the NI team

Introducing our new Accreditation Manager

Qasim Masood MSc MRINA AFNI

The NIHQ team is continuously working hard to provide for its members and the maritime industry. This month, we welcome a new member to the team.

Qasim Masood MSc MRINA has recently been appointed as Accreditation Manager. Having worked through the ranks from Deck Cadet to Chief Officer, Qasim brings a rich background in delivering technical guidance and project coordination to The Nautical Institute. His role as Accreditation Manager will see him manage our accreditation and reaccreditation services for all 94 training centres worldwide. He will also represent the NI at the regional training provider meetings and Dynamic Positioning Training Executive (DPTEG).

How did you first hear about the NI?

I have known The Nautical Institute from reading their publications at sea. During my visit to IMO I also noticed the NI being represented. When I found the Institute's website, I saw how large its contribution is towards seafarers and the marine industry.

Tell us a bit about your career so far?

I started my sea career as a deck cadet in 1994 and have sailed on various vessels such as general cargo, bulk carrier and oil tankers. I became Chief Officer in 2004.

After coming ashore, I joined Lloyd's Register Classification Society in 2005 as a Technical Specialist where I was responsible for new constructions, preparing maintenance systems, classification surveys and statutory surveys. I was also involved in giving final authorisations to issue full-term certificates of class to vessels from the shipyard.

During my time with Lloyds Register, I moved within the organisation to various departments such as Transfer of Class and Acceptance into Class.

In 2013 I became Senior Technical Specialist, Global Offshore Oil & Gas Classification department. I was responsible for global offshore installations such as FPSO, FLNG, semi-submersible platforms, self-elevating platforms, diving systems and submersible for classification and regulatory affairs projects. During my time here, I successfully delivered the world's largest new construction Shell 'FLNG Prelude' project which was deployed in Australia.

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

I would like to see the marine industry being safer for seafarers and the environment.

What are the most important challenges facing seafarers at the moment and how can the Institute help?

I appreciate how the Institute works constantly to improve standards across the industry. Job opportunities and job security are a challenge, but the Institute has launched a Jobs Board (jobs.nautinst.org), which could help. I also feel strongly about the threat of piracy attacks and seafarers being allowed adequate shore leave and resting hours, in line with MLC guidelines.

What do you like doing outside work?

I enjoy swimming, training at the gym, socialising and attending industry conferences.

Laura Nicholls

Learning lessons from accidents and incidents

Introducing The Nautical Institute's latest CPD course – Marine Incident Investigation and Analysis

Captain Michael Rydén
AFNI

It is doubtful that any shipping professional ever goes through their entire service without being involved in some form of accident or incident investigation. The importance of correct investigation, analysis and preservation of data cannot be stressed enough. Marine accidents and incidents are complex, and anyone carrying out an investigation needs to possess the skills to conduct a robust investigation and analysis.

The course at a glance

The Nautical Institute's two-day Marine Incident Investigation and Analysis Course is a small group course that aims to enhance and develop the participants' abilities to support, perform and analyse a marine incident investigation. The course is designed for shore and ship staff who want to go deeper into the topic of incident investigation and learn how to apply methods and tools for root cause analysis. It will also provide guidance to investigators about the many types of factual evidence that can be encountered on board ships.

The course complements The Nautical Institute's specialist publications:

- *Guidelines for Collecting Maritime Evidence*
- *The Mariner's Role in Collecting Evidence – Handbook*.

This course aligns with IMO Model Course 3.11. It introduces the student to the philosophy, processes and procedures required 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.

Who should take it?

This course would be useful for all personnel responsible for marine accident prevention and investigation who have basic investigation skills and would like to expand them. This includes ship safety officers, company safety officers, designated persons ashore (DPAs), captains and senior ship officers, operational ship managers, technical and marine superintendents. Previous experience of risk assessment and/or incident investigation is recommended.

Attendees should have a professional maritime background as a foundation on which to develop further specialist knowledge, and a sound working knowledge of ship operations. However, marine accident investigators do not need to be experts in every area likely to be encountered in their work. It is always possible to seek technical advice from specialists in areas such as human factors, psychology, metallurgy and technical analysis.

What's on the course?

The main objectives of the course are to strengthen the students' skills and enable them to carry out and evaluate effective incident investigation. The course will provide practical tools and techniques for the systematic investigation of human factors in marine accidents and incidents, and allow the development of effective preventive action.

Upon successful completion of the course, participants will be able to demonstrate understanding and proficiency in the following areas:

- The reasons for carrying out an investigation
- How to carry out an investigation
- How to collect physical and human evidence
- Essential interview techniques
- Causes of incidents and accidents
- Identifying the relationship between cause and effect
- Human failure and human error
- Initiation of an accident/incident investigation
- Health and safety in marine investigations
- Risk assessment and hazard identification at marine accident sites
- Evidence preservation and collection issues
- The role of shipboard personnel in external accident investigations
- International aspects of marine accident/incident investigation
- Analyses, root cause, tools and techniques
- Evaluation.

The course covers the generic skills necessary to carry out a safety investigation after any maritime or occupational accident, using real-world examples and exercises. It will also provide an understanding of the wide range of interests that may be involved with collecting and using evidence after an incident (surveyors, lawyers, claims brokers, P&I clubs etc). Owners, managers and mariners need to know what information these individuals and organisations will want and why.

The course will also provide examples of the physical, psychological and technical challenges that can be expected during an investigation. Participants will learn how to apply incident analysis tools to real cases. Other sections cover media relations and practical training on how to carry out a witness interview.

How is it delivered?

On the principle that people learn best by doing, the course is highly interactive, switching regularly between presentations and group work. There is at least a 50/50 split between group work (including case studies) and lecture material. Participants will work through a series of guided practical exercises covering a range of activities (analysing, comparing, categorising etc), including an interview scenario.

A spokesperson/team leader for the group is appointed for each group work session, with the role rotating around the group. The team leader presents the team's conclusion to the other participants.

Assessment

The course concludes with a short exam on the theory covered during the course. Participants are individually assessed on both their performance in the exam, and on their participation in the practical exercises.

THE NAUTICAL INSTITUTE'S

MARINE INCIDENT INVESTIGATION & ANALYSIS COURSE

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
- Causes of incidents and accidents
- Human failure and human error
- Analyses, root cause, tools and techniques
- Evaluation

The course is suitable for:

- Ship safety officers
- Company safety officers
- Designated persons ashore (DPA)
- Captains and senior ship officers
- Operational ship managers
- Technical and marine superintendents

LONDON: 5-6 JUNE 2018

The Nautical Institute HQ, 202 Lambeth Road, London, SE1 7LQ

FIRST COURSE DATE

The Nautical Institute

To book your place, please email: courses@nautinst.org
or, find out more at: www.nautinst.org/cpd

DUKCM – A note of caution

Dynamic under-keel clearance management promises greater efficiency, but it is essential to make a significant allowance for potential errors

Tim Hallpike
MSc CMarSci MIMarEST MNI

An article by Captain Jonathan Pearce (*Seaways*, March 2018) advocates the use of real-time environmental measurements combined with a suitable computer-based programme to determine the under-keel clearance. While this dynamic approach is clearly more efficient than the traditional 'static rule' approach (typically 10% of the draught), it assumes that real-time measurements are always accurate. Unfortunately, this is rarely the case.

The degree of accuracy depends on the inherent accuracy of the sensor/equipment, coupled with the measures adopted to both calibrate the sensor/equipment and validate the readings. Even then, there will still be random erroneous readings and, for each parameter being measured, there will be a standard error (SE). Since some of the parameters used to determine the dynamic under-keel clearance are based on calculation rather than measurement, eg squat, these values will also be subject to error, especially when there is more than one possible method of calculation for these values[1,2].

Creating an error budget

Whenever there is more than one source of error, the widely accepted method of determining the overall error is to compile an 'error budget' – sometimes referred to as an 'uncertainty budget'. A suggested 'error budget' for dynamic under-keel clearance is as follows:

Dynamic under-keel clearance – error (uncertainty) budget

Sources of error	Estimated error values (metres)	
	SE (2σ)	SE^2
Charted depth accuracy	±0.3	0.09
Squat calculation	±0.4	0.16
Draught calculation	±0.1	0.01
Height of tide measurement	±0.1	0.01
Wave/swell height measurement	±0.1	0.01
Wave/swell-related pitching resonance	±0.2	0.04
Heel of vessel (turning, wind, rolling resonance)	±0.4	0.16
Seawater density variation in estuarine waters	±0.1	0.01
Sum of the SE^2 values		0.49
Root mean square (RMS) value (2σ)		**± 0.7**

The above 2σ error values are considered to be conservative estimates. It only requires one of the larger sources of error to increase by a small amount, and the RMS value will increase significantly.

Factors affecting the error budget

CHARTED DEPTH ACCURACY

It should be noted that this level of accuracy is typical of the most accurate ('special order') hydrographic surveys. The error could well be larger, depending on the rate of siltation and survey/dredging frequency. For charts using zones of confidence (ZOC) to denote depth accuracy and seabed coverage, the highest level of depth accuracy is only + 0.5m + 1% of the depth (ZOC A1).

SQUAT CALCULATIONS

It is very rare for commercial vessels to conduct squat trials. Instead, the required squat curves are generated using one of the numerous formulae currently available[1,2]. Each formula generates a slightly different squat value, some differing quite significantly from others, especially when the depth-to-draught ratio (h/T) is <1.2[3].

DRAUGHT CALCULATIONS

The draught forwarded by the ship to the port authority prior to arrival is usually based on a calculation and is a function of how much fuel and fresh water has been used since the last port. It is therefore subject to error and, while it is fairly standard practice for the Pilot to check the ship's draught before boarding, the accuracy will still be suspect, especially in adverse conditions.

HEIGHT OF TIDE MEASUREMENTS

Most port authorities rely on tide gauges for tidal information. The accuracy of these gauges depends on a number of factors, according on the type of sensor being used. For example, in order to obtain an accurate tidal reading from a pressure sensor, it is necessary to determine the mean density of the water column above the sensor – a value that is likely to change significantly in estuarine waters with large tidal ranges. In addition, tide gauges should be calibrated at regular intervals. Ideally, there should be a minimum of three sensors in order to detect/dismiss a defective sensor. Where the approaches to the port are long, there may well be a need to establish a network of tide gauges in order to produce a co-tidal chart. Co-tidal corrections can be quite substantial.

WAVE HEIGHT AND PERIOD

The measurement of wave/swell height and period is usually carried out by means of a buoy-mounted sensor. There are two types of sensor in common use:

- Linear accelerometers
- Real time kinematic (RTK) GPS receivers.

Both types of sensor can achieve +3–5cm accuracy. In both cases, however, sensors capable of this level of accuracy are expensive – to say nothing of the cost of purchasing, installing and maintaining the buoy and a reliable data link.

RTK GPS cannot be relied upon to provide continuous readings for

a number of reasons, including ionospheric scintillation, solar storms, and GPS signal/data link interference, whether natural or manmade. Most port authorities therefore use linear accelerometers, and opt for less expensive, lower accuracy models. As with most sensors, they require regular laboratory calibration to ensure the manufacturers' quoted accuracies are being met. Again, this does not come cheap.

PITCHING

Pitching is usually more pronounced when travelling into a head sea and becomes significantly more pronounced when the speed of the vessel is such that the lifting of the bow coincides with the arrival of the next wave crest, ie synchronous pitching[4].

HEELING

Vessels heel over **when executing a turn**, rolling or when there is a sudden change in wind direction/strength.

When **executing a turn**, the degree of heel (**Θ**) is governed by:

- The speed (V) of the vessel (**Θ** proportional to V2)
- The tightness (radius) of the turn (**Θ** inversely proportional to R)
- The metacentric height, (**Θ** inversely proportional to GM)
- the speed/direction of the prevailing wind and current/tidal stream relative to the ship's heading (most ships turn more rapidly when turning into the wind/current, thereby tightening the turn).

When **rolling**, vessels have a natural roll period (T), which is a function of the dynamic rolling radius of gyration and the metacentric height (GM).

The degree of roll will increase significantly when the period and direction of the wave/swell coincides with that of the vessel's natural roll, ie synchronous rolling[4].

An additional factor that needs to be taken into consideration, especially at the end of a voyage when fuel and water tanks are partially empty, is the 'free surface' effect, which has the potential to increase the degree of roll significantly.

If there is a **sudden change in wind direction and/or strength**, the potential for error is high because the angle of heel is directly proportional to the square of the wind speed[5], and the maximum wind speed is very difficult to predict accurately. For high-sided, broad-beamed vessels such as fully laden container ships, even a 5 knot increase in wind speed can cause a significant reduction in draught.

The impact of wind on the degree of heel can be substantial when making a large alteration of course such that the change in relative wind direction can generate windage which accentuates the heel caused by the turn. For example, if a vessel is negotiating the Thorn Channel, in-bound for the Port of Southampton, during an easterly gale, a strong gust of wind at a critical moment during the 112° turn to starboard would increase the angle of heel.

SEAWATER DENSITY VARIATION

There can be significant density variation within estuaries, especially where there is a pronounced 'salt wedge' and/or a large tidal range and strong river outflow. To measure this variation, a vertical array of conductivity, temperature and depth (CTD) sensors should be deployed at one (preferably more) locations adjoining the channel.

The 'error' risk component

It follows that the gross under-keel clearance should be increased to include an 'error' risk component. Bearing in mind that the estimated SE values used to compile the error budget shown above are considered *conservative* values, the error allowance should never be less than 0.7m. Moreover, since the RMS error value could well be higher, it is vital that the gross under-keel clearance also include a safety margin, as shown right:

Under-keel clearance components

Ship's draught	
Gross dynamic under-keel clearance	Squat
	Heel
	Pitching
	Environmental parameters (tide, swell, seawater density, atmospheric pressure, wind and current/tidal stream speed and direction)
	Root mean square (RMS) error value (not < 0.7m)
	Safety margin (suggest not < 0.5m)

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Getting seafarers' rest under control

Complying with MLC 2006 and STCW requirements for hours of rest presents a number of challenges that must be acknowledged if we are to overcome them.

Captain Sanjiv Sehgal

The MLC 2006 requirements for hours of rest is a regulation that the shipping industry did not want, does not support and has no intention of complying with. Even the seafarers whom this regulation is intended to benefit have been conditioned to believe that compliance is not possible, and that this is yet another paper exercise forced upon the industry. As a result, the push from regulators and oil majors for compliance is not achieving its desired effect of preventing fatigue. And yet, it is vital for the safety of the industry – and to show legal compliance – that shipowners and operators find a way to implement this legislation.

IMO has highlighted the role of fatigue in maritime disasters time and again, even going to the extent of augmenting the work being done at ILO by introducing mandatory requirements for seafarers to be given minimum hours of rest. Everyone knows that accidents are costly and need to be prevented. No one likes to get hurt, suffer loss or have to work in a fatigued condition. So why is it that compliance with this regulation is being resisted by the very people it is meant to assist?

The pressure to keep business going often overtakes safety concerns. A variety of factors limits a ship's ability to have adequate manpower at all times to meet the operational demands of the trade. This paper seeks to focus on some of the issues that lead to violations and to provide some solutions within the regulatory framework.

Familiarity with the regulations

ISM Code 6.2.1 and 6.4 require that seafarers are 'qualified and certificated to national and international requirements' and 'have an adequate understanding of relevant rules, regulations, codes and guidelines'. This ought to ensure that seafarers are familiar with the regulations pertaining to hours of work and hours of rest and can apply them in practice. Sadly, this does not happen.

Seafarers may know the base requirements, which are a minimum of:

- 10 hours of rest in any 24-hour period, taken in no more than two rest periods with one period of six hours
- 77-hours of rest in any seven-days period.

However, they may not necessarily know how this is to be applied or measured. Most seafarers believe that 100% compliance is the norm, and any violation would result in some form of reprimand. As a result, they may resort to inaccurate reporting – 'flogging the log' – which makes it hard for managers and operators to spot any emerging problems. In my experience, more than 80% of rest hour violations are due to lack of familiarity with the regulations and their application. Companies that train their seafarers in rest hour regulations have fewer violations and hence demonstrate significantly better rest hour compliance and a better safety record.

MLC Regulation 2.3 takes into account that seafarers may be called out for work during their scheduled periods of rest, and that these call-outs may result in violations of the basic regulations listed above. MLC Standard A2.3 para 8, 13 and 14 provide the actions that can be taken in case of such work, which cannot be planned in advance or avoided when the situation develops.

Familiarity with the software

The ISM Code 6.5 requirement that seafarers are provided with the training needed to comply with the SMS *should* ensure that they are familiar with the software used to record hours of rest. Most software is intended for use by only a few people in each organisation, but the software for recording hours of rest is meant to be used by every seafarer. Lack of familiarity can result in improper systems set-up and inadequate use for planning and recording.

Most seafarers do not understand the concept of 'any 24-hour period' as it is applied in the software. This leads to confusion in seafarers' evaluation of their own compliance and causes inaccurate results.

In my experience, most situations that cause rest hour violations are predictable. These violations can be addressed within the parameters of the regulations through proper use of the rest hour software. Companies that train their seafarers in rest hour software have between eight and 10 times better performance than those that expect seafarers to learn on their own.

Commercial pressure

Commercial pressure is often cited as the reason for violations. Shipping, like every other business, has deliverables based on contractual agreements. Even a person who hires a taxi expects the driver to take them to their destination in the shortest time possible, and at the lowest cost. However, this does not mean that the driver is expected to break the traffic laws to satisfy the customer.

In most flag states, the regulations to ensure seafarers are provided with adequate rest and are fit to perform their duties are incorporated into national legislation, and are therefore law. The requirement for seafarers to remain in compliance with the law is built into all contracts. The industry needs to take a united approach to address operations that require seafarers to work long hours or be called out repeatedly at short intervals, to ensure that business can be carried out while complying with the law.

Some of the methods that can be adopted are set out below.

IMO has provided for some exceptions in STCW, as amended in 2010 (the 'Manila Exceptions') to make allowance for situations that cause violation of the requirements for a minimum 77 hours of rest in any seven-day period or that the minimum rest in 24 hours should be broken into 'no more than two rest periods'. Shipowners must ensure they are able to apply these by including the Manila Exceptions in the collective bargaining agreements (CBA) and Declaration of Maritime Labour Compliance (DMLC) part I and II.

Short voyages

The exceptions to the limits of hours of work and hours of rest set out in MLC Standard A2.3 para 13 can provide a solution. For example, it is recognised that those working on ships that regularly transit long river or lake systems have difficulty complying with the rest hour regulations. A study can identify the most effective method of dealing with operations and preventing fatigue from the time a ship enters the river or lake system until it exits. This method could then be adopted within the collective bargaining agreements (CBA) of the companies that operate ships in this region and applied through the flag state and amendment of Declaration of Maritime Labour Compliance (DMLC) part I and II.

Defining the term 'short voyage' used in MLC Standard A2.3 para 13 can help ships that call at two or more ports in a 24-hour period. If seafarers on such ships have one period of six hours rest in the 24 hours from the time the ship makes fast at the first port, they can be considered in compliance provided they have 77 hours of rest in any seven-day period. This solution could help container ships, car carriers, and ro-ro ships continue their operations without fear of breaking the law.

Port turnround

The company can ensure that the Master is involved in scheduling the services that the ship needs while in port or at anchor. This can greatly reduce the violations caused by simultaneous operations and services that not only cause undue stress but also create additional risks. The Master should have confidence to reschedule a service where it is likely to cause violations as per original plan without fear of adverse repercussions.

The company should be able to work with charterers and operators without fear of breach of contract to find solutions that fit the special circumstances of a particular operation. Open communication can ensure that all interested parties are informed of any change to the programme so that commercial losses are avoided or minimised.

Safety management system (SMS)

Rest hours are not always accounted for in safety management procedures. It should be remembered that the ISM Code came into force before the rest hour regulations. It is important that every company review rest hour violations in light of the procedures governing operations and identify areas where improvement is needed. It should never be necessary to violate rest hours in order to show compliance with the SMS.

The company needs to check that the provisions of the SMS, DMLC-II and CBA complement each other. The aim should be to ensure that seafarers are provided with adequate rest and are not fatigued from the operational requirements of the ship.

The SMS should also require compliance to be monitored at different levels:

- Level 1 – Seafarers should monitor their own hours of rest each day to verify that they will remain in compliance over a 24-hour period from the time they start work. Should any violation be anticipated, they should not hesitate to discuss the situation with their superior.
- Level 2 – Heads of departments should randomly sample seafarer records of rest hours once a week to confirm that these are being entered regularly, are accurate in light of operations carried out by the ship and to check whether action has been taken in accordance with regulation in case of violations. Any concerns should be discussed with the seafarer and, where required, reported to the Master and/or company for further action.
- Level 3 – The Master should check the seafarer records of rest hours thoroughly before signing the hard copy. The rest hour record is a legal document, with far-reaching consequences for the seafarer and the company if it is not correctly maintained or does not represent the true situation. Any concerns should be discussed with the seafarer/head of department and, where required, reported to the company for further action.
- Level 4 – The company should have access to seafarer rest hour records on each ship. It should implement a system of alerts so that the responsible persons are informed of violations that require further investigation or company involvement.
- Level 5 – Verification of seafarer record of rest hours by auditors and superintendents during ship visits through random sampling.

Management of human resources

Compliance is not necessarily determined by the number of people on board. In many cases, unplanned or improper usage of existing manpower is the real cause of violations. Taking a systematic approach towards human resource management on ships can enable companies to decide which ships need additional manpower and which do not.

MLC Standard A2.3 para 10 and 11 require the planning of work and rest hours for each position on board to ensure that they get the minimum rest required by law. The following methodology can help a company evaluate whether or not the manpower on a ship is adequate:

- Step 1 – Compare the record of rest hours with the Table of Shipboard Working Arrangements (SWA) to ensure that there is a correlation between the two. In case of significant deviation or repeated violations, identify and implement the change that is needed in the working schedule and amend the SWA suitably.
- Step 2 – Operations that cause repeated violations should be reviewed to identify alternative options using the manpower on board. This may require the Master, Chief Officer and Chief Engineer to take short stints of watchkeeping or other active participation in shipboard operations to provide rest to other officers. Consideration can also be given to keeping people on call when not required to actively supervise or participate in an operation.
- Step 3 – If all attempts of the Master to prevent repeated violations fail, then the company should be involved to find a solution. If the operation causing violation is carried out regularly, consideration should be given to increasing manpower. Care should be taken to identify the ranks that are most affected to ensure that additional manpower is added in the right place to reduce the workload.

If the operation causing violation is carried out only occasionally, consideration can be given to working out a solution with the charterer or terminal about how to manage the workload based on the available manpower. This may mean agreeing on time required at berth/sea or between back-to-back operations to provide rest to crew on board.

If neither of above is possible, then the company should review this situation with flag state and seafarer representatives to determine exceptions that can be applied to the ship, as suggested earlier in the article.

The age-old saying 'where there is a will, there is a way' is certainly applicable to this regulation. For centuries the shipping industry worked without a proper regulatory framework on work and rest hours, which allowed it to exploit the seafarers. The law to prevent fatigue in seafarers is here, so now it is up to the industry to align its practices to ensure that seafarers are able to have adequate rest. The solutions mentioned in this paper are workable and have shown results in the companies that have implemented them.

Capt Sanjiv Sehgal has been in the shipping industry for 37 years. As an ILO-certified MLC 2006 train the trainer and inspector, he continues to work closely with the shipping industry to develop solutions to practical issues faced by the companies on MLC 2006 matters. He can be contacted on sehgals@vggroup.biz

Mental health at sea

A raft of measures are being put in place to improve wellness at sea – but are they having any effect?

Bridget Hogan
Director of Publications and Marketing

Mental health: could the maritime world, just for once, be in advance of practice ashore? Is it possible that advances are being made in our approaches to the welfare of our seafarers, and that our industry could be held up as an example of best practice?

It's early days but there are some signs that leaders in the industry are taking mental health for seafarers more seriously than in the past. After all, there is a great deal at stake if anyone on the vessel is not feeling well. As Stuart Rivers, CEO of the Sailors' Society, put so succinctly: a healthy crew means a healthy ship, and that will lead to a healthy balance sheet.

Introducing a day's debate on the issue in London, Rivers said that when speaking to shipowners on the topic, their reaction tended to be that they are not trained in mental health. This prompted the welfare organisation to start its Wellness at Sea programme, which has provided mental health awareness training for 4,000 officers and 1,800 students so far.

'As an industry we need to do more,' Rivers told the conference, and he warned: 'The cost of not looking after your crew will hit the bottom line. More importantly, shipowners have a duty of care to seafarers who, after all, are human beings. We need to spread this message far and wide.'

Enlightened self-interest

Paddy Rodgers, CEO of Euronav, said that the tanker company has embraced the Wellness at Sea programme, which has led the company to concentrate on people in a holistic way. The programme has not only benefitted seafarers, but has also had an unexpected and dramatic effect on observations during vetting. These have declined since the company has taken a more holistic approach, from 5.5 per visit in 2013 to 2.7 in 2017. Euronav has more than 50 tankers and 3,000 seafarers and plans to expand the fleet through another merger to 75 vessels, so this has a major effect. For Mr Rodgers it's all about leadership and cost – 'This is enlightened self-interest.'

'When dealing with crew it's not just about them being well, it's about them thriving,' he said. 'If people are thriving they are engaged, and it's not just about being physically fit.' He fears that the macho image of seafaring prevents the industry from modernising and benefitting from progress.

He cited the example of the military allowing gay people to serve. 'This doesn't mean they weren't there before, just that they were now allowed to serve without being bullied and blackmailed. We now need to do the same for mental health.'

'It's all about people,' he declared. 'The Captain symbolises authority and used to be god but that doesn't work anymore. Now vessels are process-driven, which can be oppressive and therefore ineffective. What people really want is autonomy in their daily work. We have that on every ship and deliver it.'

Teams had to be built on board with the right mindset. Euronav tried to achieve this by building a caring environment around happiness without any individual feeling stigma for their emotional or depressed state. With continuous mutual support a team can build its own resilience in an upward spiral, he said.

He added that it was important to have a just culture where people were not harshly or unjustly treated for making mistakes. 'At core is trust,' he told the conference.

Ship and shore

Euronav believes that the biggest impact on behaviour on ships came from shore staff making regular visits. The company had a Safety Starts With Me campaign centred on the individual. Rodgers said that the inspiration from this came from the mining industry. Rio Tinto reduced fatalities in mines when management started to care about everything to do with the mining process. Productivity and systems in the mines improved.

> "Shipowners have a duty of care to seafarers who, after all, are human beings. We need to spread this message far and wide."

On board ship this can translate into trying to prevent accidents resulting from sloppy working – which is where the mutual support of the whole team comes in.

Socialising on board, frequent visits from managers who express concern for seafarers' welfare and mutual support from crews has all helped to improve the performance of Euronav vessels. 'Business has to understand its interests are directly aligned with the seafarers.'

Wellness at Sea Project Manager Johan Smith gave an overview of the programme. Suicide is now a major cause of death for seafarers and the Sailors' Society feels that very often communication is failing on a personal level. 'Seafaring is probably the most diverse working environment in the world – yet how culturally competent are most seafarers?' he asked. 'They need help with resolving conflict on board, dealing with separation and building and maintaining relationships.' Smith cited an ITF study in which 66% of seafarers questioned said they worked with someone they felt was depressed. When answers were broken down into nationalities, 75% of Filipinos said a workmate was suffering. One P&I club estimated that 15% of deaths on board were attributed to suicide, but Smith feels these figures may be underestimates, as many man overboard incidents may also be suicides.

In addition many deaths are from so-called 'lifestyle' diseases. 'We have it in our power to educate people to make better choices about physical wellness, fitness on board, food safety, malaria and HIV,' he added.

Delegates pointed out the stresses that they felt seafarers faced. These included:

- Uncertainty about being relieved in time
- Paperwork and bureaucracy
- Stress and anxiety in confined spaces
- Inability to see a doctor easily for minor ailments
- Distance from family
- Financial concerns
- Fatigue.

The generation gap

Captain Kuba Szymanski FNI, Secretary General of InterManager, challenged the 'myth' of seafarers being uncomfortable with different nationalities on board. 'Do we feel uncomfortable with 17 nationalities in this conference room?' he asked. 'No, because shipping has always been international.' Instead, his concern was for the generation gap which he saw emerging. 'We complain about youngsters, but they are all our future.' He advocated reverse mentoring and asked who was responsible for the generation gap – younger people or older ones? 'We do have an issue as an industry, but it's not a young generation issue. We older people have to embark on ownership for this. Is our generation trying to be inclusive?'

A moving description of his own depression when at sea was given by Daniel Thompson, now a pilot with the Port of London Authority. He described the isolation and withdrawal that he felt and the realisation that he was not doing his job properly.

Identifying leadership

In the breakout sessions, delegates called for help in formulating best practice, with companies concentrating on building resilience in individuals. There was a feeling that P&I could encourage shipping companies to introduce measures, and that education was needed across the industry.

Again and again leadership was mentioned as the way to enhance the emotional wellbeing of the crew. Captain Michalis Malliaros of Euronav said: 'Wellness on board is a leader's role.' Companies need to know how to identify leaders – who might not always be senior officers, although the Master can be key in identifying them. 'A leader can be anyone from the Master down. Masters must be able to identify them and it will take courage for a Master to admit someone else has leadership skills to make a difference with mental health issues. These are the Masters we want to find and create.'

The Nautical Institute has several publications that promote a sensible approach to mental wellbeing on vessels, and leadership is the issue here.

For essential guidance on the main issues, senior management should consult *Managing Traumatic Stress*, published in conjunction with Human Rights at Sea.

Human Performance and Limitation helps the seafarer understand how they can recognise and manage their own stresses and strains, thereby keeping both the vessel and themselves safe.

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

Fuel contamination

As the 2020 Global Sulphur Cap approaches, shipowners and operators are urged to consider the side effects of switching from heavy fuel oil (HFO) to low sulphur fuel, as evidence of inadvertent non-compliance through tank contamination appears.

Charlotte Røjgaard, global technical manager, marine fuel services at Bureau Veritas, admits that getting ready for the 2020 cap will be a massive undertaking for the shipping industry. In assessing which method of compliance is right for a ship's operational profile, Røjgaard says that shipowners and operators must look beyond the suitability of the product itself and take note of any risks and potential side effects.

Røjgaard is referring specifically to the high risk of undetected remnants of non-compliant fuels remaining in tanks when switching from a HFO to a lower sulphur fuel. She says that you cannot simply take a heavy fuel tank and fill it with new products. 'If you have a fraction of the heavy fuel left in the tank, if it hasn't been cleaned properly for example, then you will contaminate your new product and no longer be in compliance.'

Tanks which have carried HFO for years will have deposited HFO residues on the tank walls and sides. Because fuel oils are a good solvent, even after cleaning, there may be remains of HFO that are not obvious, but will still create problems. This was seen in a case in 2015, when some vessel operators switched from 1.0% sulphur containing fuel to 0.1% sulphur containing fuel, continuing to use the same tanks they had for the 1.0% fuel. They cleaned the tanks thoroughly and no remains of 1.0% fuel were found. However, a sample taken three months later showed a high content of the 1.0% sulphur fuel. Whilst a system can be cleaned to the highest degree possible, it is still impossible to clean everything out.

Not only does this put the shipowner at a risk of being fined, but it also has an impact on its compliance record, which could affect its charter status. For more information visit https://vpoglobal.com/2018/03/23/shipowners-urged-to-consider-tank-contamination-risk-when-switching-fuels/

Navigation safety CIC

A concentrated inspection campaign (CIC) on safety of navigation was carried out in the Tokyo MoU region from 1 September 2017 to 30 November 2017.

During the campaign, authorities inspected a total of 6,720 vessels, of which 36 were detained as a direct result of the campaign. In total 157 ships were detained during the campaign.

The most notable deficiencies found during the campaign were related to the passage plan for the voyage, exhibition of navigation/signal lights and recognition of stages of remote audible alarm of bridge navigation watchkeeping alarm system (BNWAS).

Final analysis of the results of the campaign will be considered by the Port State Control Committee in November 2018 and a report will be presented to the IMO's Sub-Committee on Implementation of IMO Instruments (III).

EfficenSea2

The EU funded project EfficienSea2 has strived towards developing and testing digital standards for the past three years. At the final conference of the project, partners recently demonstrated a wide range of digital solutions.

The project has involved a total of 32 European partners and has developed solutions such as the Maritime Connectivity Platform to create a more secure and seamless data exchange in the maritime world.

The project has taken on tasks ranging from testing future standards for nautical charts to developing new communications channels to use while at sea. The main aspect combining all the work is the emphasis on standards and cooperation across borders.

Other solutions worked on in EfficienSea2 include VDES (VHF Data Exchange System), map-based web platforms. To learn more visit: https://efficiensea2.org

Flag State performance

The International Chamber of Shipping (ICS) has published the latest interactive version of its Flag State Performance Table, which allows users to compare and contrast the performance of up to four flag states at a time.

The table shows the performance of individual flag states worldwide and analyses how administrations deliver against:

- Port state control records;
- Ratification of international maritime conventions;
- Attendance at IMO meetings;
- Participation in the IMO Member State Audit Scheme.

ICS Deputy Secretary General, Simon Bennett commented: 'Following the entry into force of amendments to the relevant IMO Conventions, the IMO Member State Audit Scheme has become mandatory. This is a significant development that should make further contributions to improving maritime safety and the prevention of pollution.'

The table can be downloaded free of charge via the ICS website: http://www.ics-shipping.org/free-resources/flag-state-performance-table

Mental health

The Australian Maritime Safety Authority (AMSA) issued a Maritime Safety Awareness Bulletin (MSAB) focusing on mental health for seafarers MSAB 7 (3/30/18).

Good mental health is important for both personal wellbeing and work performance. However, seafarers' mental health has become an area of increased concern as reports of mental health issues at sea indicate that seafaring is an occupation with increased risk of suicide. Social isolation, long working hours, commercial and regulatory pressures may contribute to seafarers' poor mental health.

The Australian Department of Health makes the following suggestions to improve health:

- Eating healthy food;
- Engaging in regular physical activity;
- Getting enough sleep;
- Relaxing the mind and body;
- Connecting with family, friends, and colleagues.

Online resources such as self-assessment tools and health and wellbeing trackers can be useful. Sometimes these are available as free smartphone applications. However, where serious mental health concerns exist, online resources should be used as a complementary tool only. They are not a substitute for meeting with a health professional.

The report concluded that it is essential to support good mental health among seafarers. In doing so, it should be recognised that individuals, families, communities, employers, workmates, and regulators can all make a difference. The full report can be obtained at www.amsa.gov.au/news-community/newsletters/maritime-safety-awareness-bulletin-issue-7

Mariners' Alerting and Reporting Scheme

MARS Report No. 307 May 2018

MARS 201828

Floor plate clamp tripping hazard

➔ Two engine room crew were assigned the job of dismantling and repositioning a pipe approximately 2m long and 6cm in diameter while the vessel was at sea. The pipe was located at the bottom platform of the engine room.

While shifting the dismantled pipe, one of the crew caught his foot on an unsecured, protruding floor grating clamp. He stumbled and his fingers got caught between the pipe flange and the corner plate securing the floor grating. Even though he was wearing gloves, the incident resulted in a fracture of the middle finger and a deep cut on the index finger.

Lessons learned

- Even the most mundane task can pose unsuspected risks if basic precautions are not taken. Tripping hazards should always be attended to in a timely fashion.
- Make a special effort to go over and around your vessel with fresh eyes; try to spot and eliminate tripping hazards.

MARS 201829

Spring-acting FRC painter clip fails

As edited from Marine Safety Forum Safety Alert 17-07

➔ Three crew members were in the fast rescue craft (FRC). During recovery the forward painter quick release parted just as the craft was lifted from the water. The FRC then swung to starboard, causing the stern to come into contact with the ship. The jet guard struck the side of the ship and then rode up into the ship's rescue zone, allowing the jet itself to strike the side of the ship. The FRC bucket was cracked, as was the jet inside the bucket and the jet guard was slightly bent. The FRC was recovered with no injuries to the crew members.

The painter quick release mechanism had been in use for the past two years. A previous near miss had occurred where the clip had parted, but

subsequent visual inspections of the outside of the quick release did not discern problems inside the clip where the spring mechanism is housed.

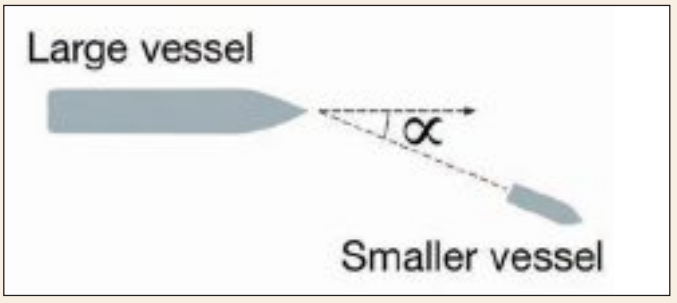
Lessons learned

- Mechanisms containing moving parts that are hidden from view but exposed to the elements are hard to maintain and verify. Whenever possible, they should be replaced with more reliable substitutes. In this case, the clips were replaced with a G-link type clip without a spring mechanism.

MARS 201830

Hydrodynamic effects create challenges

➔ A laden tanker drawing 12.75m was inbound in a restricted waterway. It was being conned near the centre of the main channel at a speed of about 7.5 knots. On the starboard side, outside the main channel, was a secondary channel used by smaller vessels such as tugs and barges. The tanker's bridge team had observed, by radar, a tug pushing a barge in the secondary channel about 6 nautical miles ahead and they were due to overtake the tug in the near future. An agreement was reached between the pilot of the tanker and the tug Master. The customary arrangement is that the tug and barge assume an angle (α) with the channel as the larger ship overtakes in order to reduce hydrodynamic effects and retain manoeuvrability, as shown in the diagram below.



As the two vessels began to close, the tug and barge were seen to be at the limit between the secondary channel and the main channel (if not totally in the main channel), and the tug-barge combination had not taken the expected angle to reduce hydrodynamic effects. As the tanker approached, the tug Master reported difficulty steering. During the overtaking manoeuvre, the tug Master was unable to control his vessel and the barge. The units sheared to port and made contact with the stern of the tanker.

Lessons learned

- Overtaking is a challenge in narrow channels; it requires proper planning well in advance, which should include contingency plans.
- The intensity and effect of hydrodynamic forces cannot be accurately assessed due to the nature of the channels and confined waters.
- In overtaking situations the difference in speed between the two vessels should be as great as safety and prudence will allow. This will reduce the time the hydrodynamic forces are acting on the vessels and negate the known 'trapping effect'.

MARS 201831

Steel coil loading, dos and don'ts

As edited from UK P&I Club, Axis Ltd Correspondent's Note

➔ Some coils of wire rod have posed problems for proper stowage for the following reasons:

- Coil is relatively short in length: sometimes the length is equal to the coil diameter. This calls for extra care when stowing as the coil is unstable and may easily overturn.
- Some of these coils may have insufficient stiffness to retain their original shape in the course of cargo handling or when stored at port. The cylindrical form of the coils becomes skewed, with the windings shifted and inclined along the coil's axis instead of being perpendicular to the axis.

These characteristics can make it difficult to ensure a tight and uniform block stow when intact and deformed coils are loaded together.

Lessons learned

- Improperly stowed coils may shift during transit and put the vessel at risk. Unsafe stowage may also trigger a claim from the unloading stevedores.
- If coils are not loaded in a tight, uniform block stow, suspend loading and issue a protest. The stevedores must accept the Master's requirement to re-stow any shifted or collapsed coils.
- Sufficient timber dunnage to level the stow and fill the gaps where necessary should be the norm.
- Be aware and vigilant during stowage, and keep a constant watch on the operation.

■ **Editor's note:** For more examples of problematic stowage of steel coils, readers can refer to past MARS reports 201733, 200631 and 201132. The latter report concerns a discharging vessel that nearly capsized after badly stowed steel coils shifted. All MARS reports are available online at https://www.nautinst.org/en/forums/mars/search-all-mars-reports.cfm and can be searched using keywords, by range of dates or by year.

MARS 201832

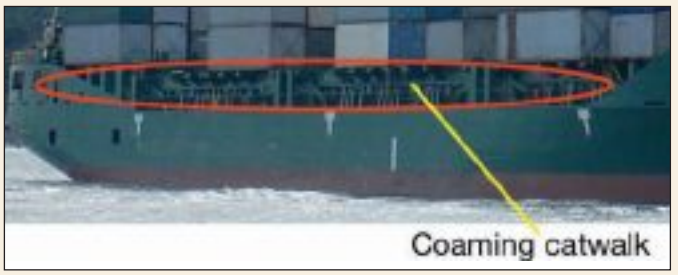
Man overboard hazard goes unnoticed until deadly accident

Edited from official report RS2017:01e, Swedish Accident Investigation Authority

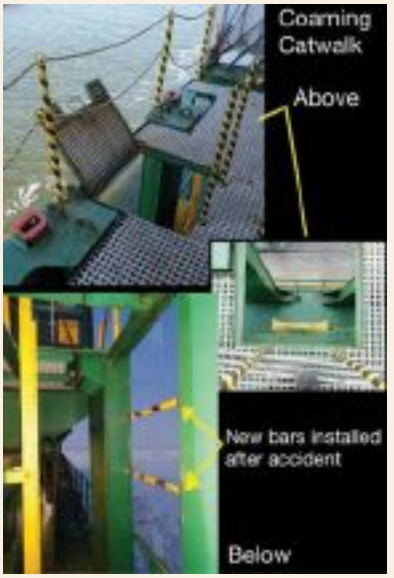
➔ A small container vessel was underway in a coastal area at about 16 knots. At mid-morning an engine room crew member informed the other duty crew that he was going to open the steam line to the aft fuel oil bunker tank. This was done in a compartment between cargo holds no 2 and 3 on the main deck, which was accessed via a ladder from a coaming catwalk.

A little while later another engine crew member went out on deck to check on the first man. He found the hatch open and the steam valve manoeuvred, but no trace of the crew member. Once back in the control room he called the bridge and asked for a PA system announcement to call for the crew member. The man's cabin was also visited but found to be empty.

With the crew member apparently missing a ship search was initiated but he was still not found. The ship was turned around and a search pattern initiated some 90 minutes after the man was last seen. A VHF radio PAN PAN call was made and local SAR authorities contacted. The water was +2°; at this temperature a person who is not protected by a survival suit will suffer hypothermia and become unconscious within about 20 minutes. Extensive searching by several vessels and helicopters failed to find the missing man, who is presumed dead.



Lessons learned



- The 'falling overboard' hazard existed for some time without raising any red flags. It took this accident for people to realise the danger.
- Extra bars were installed in the opening to provide better protection from falling overboard if someone were to lose their grip on the ladder while ascending or descending.
- Hazards exist on every ship but often are not recognised as such. People tend to accept their environment as it is, without thinking critically about potential hazards.
- As with the tripping hazard in MARS 201828 above, make a special effort to go over and around your vessel with fresh eyes; try to spot and eliminate 'falling overboard' hazards.

Visit www.nautinst.org/MARS for online database

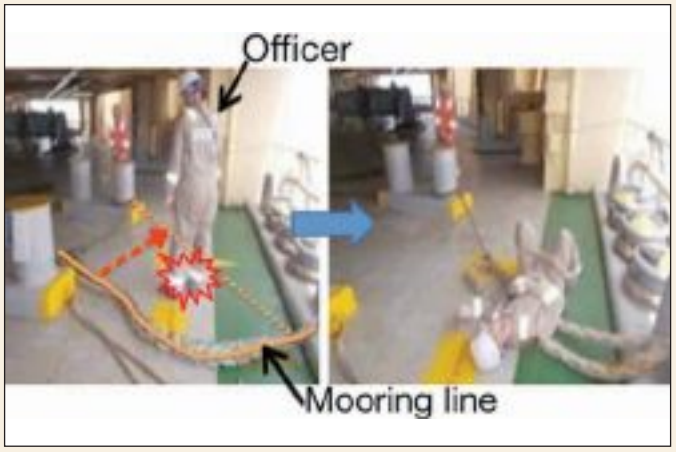
MARS 201833

Mooring line accident: watch where you are standing

➔ A pure car carrier was departing port. After turning clear at the breakwater, the order to let go the aft tug line was given. The officer aft was holding the rope stopper and a crewman was holding the messenger line around the bollard to avoid excessive slacking off when letting go the tug line. Two other crew members removed the eye of the tug line from the bollard, and then the rope stopper was slowly released. Suddenly, the tug line came under tension and shifted the mooring line, hitting the legs of the officer and sending him to the deck. He injured his back and required an emergency medical evacuation.

Lessons learned

- Treat mooring lines with respect; always keep in mind that they can come under extreme tension at a moment's notice.
- Even though this was a bad accident, it could have been much worse. Fatalities due to mooring lines are, unfortunately, significant in the marine industry. Past statistics have quantified mooring accidents as the seventh most frequent cause of personal injuries but the third most expensive per claim (UK P&I Club LP News, January 2009).
- The crew member overseeing the mooring operation should not be involved in manipulating lines, stoppers or winches. Their job is to oversee the operation, keeping a watch for dangerous developing situations.



MARS 201834

Dangerous pilot boarding situation

➔ A container ship was inbound with a heavy 3m swell near broadside, causing the vessel to roll heavily. As the pilot boat approached, the container vessel rolled sufficiently to flood the pilot boarding access portal twice. The pilot boat stood off until the container ship altered course sufficiently to stop the rolling and allow safe boarding.

Lessons learned

- Ensure your vessel is ready to accept the pilot in every way, including making a lee for the pilot boat and reducing vessel rolling to a minimum.
- Know your vessel. In this case, given the open pilot boarding access portal, the roll angle created a dangerous situation for the vessel's crew standing by to receive the pilot.
- Obviously, this situation is also extremely dangerous for the pilot and completely unacceptable.

Still images as seen on Twitter, #dangerousladders

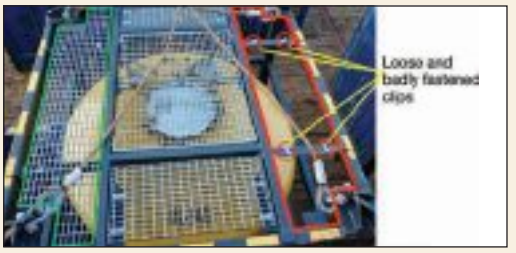
MARS 201835

Dropped object close call

Edited from Marine Safety Forum 17-12

➔ A rig supply vessel was under a rig. A tank was being repositioned on the aft deck, using the rig's crane. During the repositioning, the bottom of the tank made contact with the cargo rail, tilting and rocking it. This caused one of the top gratings to fall from a height of about 6m on to the vessel's deck. Two deck crew were some 15m forward from the dropped grating, which weighed 17kg. The potential consequence of being hit by a 17kg object falling 6 metres is lethal.

The gratings are intended to be fixed in place with four bolts and butterfly clips. On subsequent investigation, it was found that all four clips appeared slack on the side the grating fell from. One of the clips was also bent.

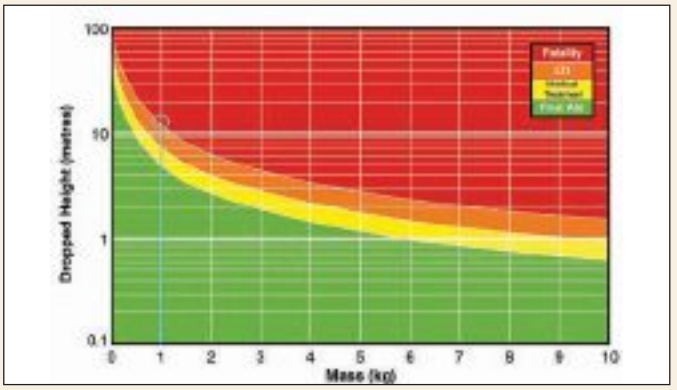


Lessons learned

- Always stand clear of lifted objects.
- Check the load before lifting; is everything secure?
- As the Drops Calculator* shows, even a mass as small as 1kg dropped from a height of about 12m can be lethal.

* See the Dropped Objects Prevention Scheme at www.dropsonline.org The Drops Calculator has some important caveats:

- It is a guide, a cursory indication of a possible outcome
- The calculator is best employed proactively during risk assessments/ task planning/time outs
- Assumes blunt force trauma, so not compatible with sharp objects
- Assumes full PPE is being worn
- The height of an individual should not be subtracted
- Never assume dropped objects will always strike the head.



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Aqua Marine Maritime Academy
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BMT Surveys
www.bmtsurveys.com

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Constanta Maritime University
www.cmu-edu.eu

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Exmar
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Gard
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GigaMare
https://www.gigamare.com/

The Gdynia Maritime School
http://morska.edu.pl/en

Glasgow Maritime Academy
www.glasgowmaritimeacademy.com

GNS
www.globalnavigationsolutions.com

HC Maritime Consulting Pty Ltd
www.hcmaritime.com

Hindustan Institute of Maritime Training
www.himtmarine.com

IAMI
http://iami.info

IMCS
www.imcs-group.com

InterManager
www.intermanager.org

International Salvage Union
www.marine-salvage.com

KASI GROUP
www.kasimalaysia.com

LOC Group
http://loc-group.com

Louis Dreyfus Armateurs
www.lda.fr

Maersk Training
www.maersktraining.com

Marine Society & Sea Cadets
www.ms-sc.org

Marlins
https://marlins.co.uk/

Martech Polar
http://martechpolar.com/

Masterbulk
www.masterbulk.com.sg

Menezes & Associates
www.menezesandassociates.com

MES
www.myanmarexcellentstars.com

Nea Gnosi
http://nea-gnosi.gr

North of England P&I Club
www.nepia.com

NorthLink Ferries
www.northlinkferries.co.uk

New Zealand Maritime School
www.manukau.ac.nz

Norwegian Hull Club
www.norclub.no

Paramount Nautical
http://paramountnautical.com

The Port of London Authority
www.pla.co.uk

The PTC Group
http://ptc.com.ph/

IHS Safety at Sea
http://magazines.ihs.com

SAIMI
saimi.co.za

SDT
www.sdtultrasound.com

Seagull Maritime AS
www.seagull.no

The Standard Club
www.standard-club.com

Steamship Mutual
www.steamshipmutual.com

The Shipowners' Club
www.shipownersclub.com

Stolt Tankers
www.stolt-nielsen.com

Southampton Solent University
www.solent.ac.uk

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Viswam Group
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Our Nautical Affiliates help us make a difference to the shipping community by ensuring that our MARS Scheme is available to the industry for free. Find out more at: www.nautinst.org/affiliate

Annual Report of the Trustees 2017

John Lloyd FNI
Chief Executive and Company Secretary
on behalf of the Executive Board

2017 was a period of significant change and challenge for the Institute, with the succession of John Lloyd to the position of Chief Executive and the retirement of several staff members. The continued downturn of the oil and gas sector kept the Professional Development revenues under some pressure.

Headquarters staff have been under a pay freeze during the year, although a pay review brought an increase to the lowest paid. Other cost control measures included the release of one member of staff under voluntary redundancy and the redeployment of staff between departments where resignations occurred. Overall, the cost control measures were strong.

Revenue in the year was slightly ahead of forecast thanks in the main part to success of the new book *Collecting Maritime Evidence*.

The Executive Board Trustees remain appreciative of the support for the printing and distribution of *The Navigator*, which this year received new grants totalling £200,000 split evenly between the International Foundation for Aids to Navigation (IFAN) and Trinity House.

A compendium of the Human Element Project's *Alert! Bulletins* was completed and distribution begun thanks to the funding from the Lloyd's Register Foundation and the Maria Tsakos Foundation.

Staff and volunteer delegates had another busy and productive year representing the members' views at all the International Maritime Organization's (IMO) meetings.

Objectives and activities

This report provides a summary of the work of the Institute during the year. The Trustees are grateful to the many members and the staff whose dedication and professionalism continue to achieve so much.

In January 2017, The Nautical Institute successfully transitioned to the ISO 9001:2015 quality management standard. The Institute maintains a system of internal and external audits to ensure procedures and processes are fit for purpose and continually improved.

There was extensive consultation with industry stakeholders, particularly with regard to the Oil Spill Response Schemes. The NI also prepared and delivered a short course in several locations for Navigation Assessors. The course proved to be popular and has made a significant contribution to the finances.

Finance and staffing

The Trustees review the Institute's income, expenditure and cashflow as well as risks that may affect its operations or reputation. The investment portfolio continues to be affected by a certain amount of global uncertainty, but overall growth and a good income stream was maintained despite a fairly volatile market.

The fund value at year end was £1,177,196, which reflected a total return of 7.8%. The reserve policy was reviewed and the contingency reserve adjusted to reflect the changing staffing level.

The 2017 accounts show an operating surplus of £203,563 (+6.4% of total income *versus* -6.8% in 2016). This was substantially better than the small budgeted surplus and reflects the success in the Publications Department and new cost control measures.

Publications

One book stands out as a big success for the Institute in 2017 – *Guidelines for Collecting Maritime Evidence*. Its popularity showed the worth of high-quality books that have been rigorously peer-reviewed.

Reprints of existing volumes continued at a high level, and work continues to update books in our portfolio. Our work at IMO and other international organisations informs work on other volumes. The NI's offering is strengthened by co-operation with other specialist bodies where relevant.

A new IT system was introduced for handling both membership and book sales. The full benefits of this are expected to be seen with the development later in 2018 of the new website.

As ever we continued to build relationships with our loyal customer base. Most of our sales are through booksellers and they provide helpful information which enables us to keep up to date with customer trends.

Seaways

Shiphandling has been a key theme for the year in both *Seaways* and *The Navigator*. We have approached the topic from a number of angles, strongly supporting the use of the NI *Shiphandling Logbook*. Each issue of *Seaways* now contains a substantial feature and/or extract from the Book of the Month – a useful way to highlight the NI's new publications and promote our backlist.

In addition to the usual mix of technical articles, debate and Branch updates, we have been focusing on using *Seaways* as a means of increasing HQ engagement with members. *Seaways* continues to report on Branch activities, and we are seeing discussions that began at branches continued in articles in *Seaways* and in the LinkedIn forum.

Marketing and communications

Much of the communications effort in 2017 focused on promoting the Institute's five Command Seminars. Other initiatives promoted in 2017 included the Institute's new Navigation Assessor courses, its Command Diploma Scheme, the launch of a new Jobs Board and the Ice Navigator Certification Scheme.

The Nautical Institute continues to use social media to spread news of its activities to communities of mariners that might otherwise be hard to reach. The NI LinkedIn discussion group in particular has proved highly effective in introducing maritime professionals to the work of The Nautical Institute. The growth of the Institute's activity on social media can be seen below (2016 figures shown in parenthesis):

- NI LinkedIn Group: 19,234 (17,024) group members
- NI LinkedIn Company Page: 6,102 (3,388) followers
- NI Facebook: 28,492 (23,286) likes
- NI Twitter: 14,400 (10,022) followers
- NI YouTube: 101,936 views (62,040) views.

Membership

Recruitment to the Institute continues at a reasonable level and efforts to improve retention, particularly in the first few years of membership, are showing some signs of success. In early 2017 the Institute began offering Dynamic Positioning Operators (DPOs) the option of becoming a member at the point they paid their DP certification fee. A significant number of DPOs have taken advantage of this offer, and this has helped to boost the Institute's new member acquisition figures.

Membership declined by only 36 year on year, despite continuing subdued market conditions in our main recruitment areas.

Retention remains a key focus, and we continue to examine membership benefits, engagement and communication to this end. Many of the lapsed members we contact believe they are still members but have failed to tell us of a move or other changes in circumstances. Migrating the membership database on to a new IT platform in November 2017 has allowed the Institute to offer members the opportunity to renew their membership automatically each year. It is anticipated this will help to strengthen retention.

Members value our work at IMO and the fact that they have a direct line to their representatives there. Many members feel they gain from helping to form best practice in the industry and from the status that membership grants.

Grade	2016		2017	
	No.	Av. Age	No.	Av. Age
Hon. FNI	22	76.9	23	80.3
FNI	590	68.6	569	69.19
AFNI	1741	50.1	1916	50.32
MNI	3999	53.6	3793	53.88
AMNI	14	40.9	12	38.75
AMNI (S)	186	26.7	203	26.53
Total	**6552**	**53.3**	**6516**	**52.80**

Total membership at year end

Grade	Joiners		Rejoiners	
	No.	Av. Age	No.	Av. Age
Hon FNI	1	56	n/a	n/a
AFNI	242	45.23	43	46.02
MNI	308	39.99	65	46.29
AMNI	5	43.4	n/a	n/a
AMNI (S)	67	24.77	2	27.5
Total	**623**	**40.38**	**110**	**46.24**

New joiners 2017

	2016			2017		
Region	No.	Av. Age	%	No.	Av. Age	%
Africa	155	51.9	2.4	154	51.96	2.4
Black Sea	190	46.6	2.9	151	45.38	2.3
C. America	112	49.7	1.7	88	49.67	1.4
Europe *	3469	55.3	52.9	3457	55.27	53
Far East	136	53.0	2.1	133	53.67	2.1
Indian Sub-cont.	720	47.6	11.0	732	47.46	11.3
Mid-East	125	48.9	1.9	104	48.91	1.6
N. America	600	55.7	9.2	619	55.09	9.4
Oceania	567	54.0	8.7	551	54.16	8.4
S. America	98	49.6	1.5	113	48.23	1.7
SE Asia	380	48.8	5.8	414	49.42	6.4
Total	**6552**	**53.3**	**100.0**	**6516**	**52.80**	**100**
*of which UK	2511	57.3	38.3	2461	57.46	37.76

Geographical distribution and Branch update

The 2017 Command seminars gave those who attended another opportunity to make their views known and we know that support for branch activities also improves recruitment and retention.

Legal defence cover remains a key benefit that has been used by a number of members.

Projects

eNavigation

There were significant developments in NI eNavigation initiatives this year. After 10 years of IMO working on a Standardised Mode of operations for navigation (S-Mode), the industry has rallied around a new approach put forward by the marine electronics industry body CIRM to voluntarily adopt a greater level of standardisation. The NI has worked closely with CIRM to ensure that the voice of the mariner is heard and that future systems will benefit from more effective system familiarisation. Further information and a recorded webinar are available on the NI website. It is anticipated that S-Mode guidance should be finalised at the IMO in early 2019.

Another NI initiative is the 'ePelorus', a concept that has been developed from a traditional pelorus but which incorporates a trigger that can send a line of position to an electronic navigation display. This technology is being trialled as part of the eNavigation project.

The NI is a policy adviser to the Sea Traffic Management (STM) validation project, which claims to be the next step towards a safer, more efficient and environment-friendly maritime sector. The concept is that Sea Traffic Management connects and updates the maritime world in real time through data exchange among selected parties. The NI Technical Committee deems it important to follow these developments and influence decision-making based on members' input. More information can be found at http://stmvalidation.eu/

Automation

The NI has been involved with many debates about automated systems, autonomous surface craft and the debate to take place at the IMO on maritime autonomous surface ships (MASS). Our interests in this field are at least threefold:

- There are an estimated 2,000 autonomous surface craft in operation today. These tend to be small vessels (less than 10 metres) used for specialist operations. However, such craft will increase in size and number, and the relationship between a staffed ship and an unmanned one will need to be clear to all.
- While the common use of fully autonomous cargo ships may be some time off, all ships possess some autonomous systems. Understanding how best to use these tools will be a significant focus for our members.
- Most autonomous seagoing craft will continue to be controlled by humans at some level – even if they are not on board. It is clearly within The Nautical Institute's remit as a professional body to support these individuals.

The NI participated in the development of the voluntary Code of Practice for MASS published by Maritime UK in November. This is available as a free download from https://tinyurl.com/y784fbhh

The Navigator magazine

With generous funding from IFAN and Trinity House we were able to deliver 300,000 paper copies of *The Navigator* and many thousands more copies by means of the app and free downloads. In 2017 *The Navigator* supported the NI's wider work on S-Mode with an industry-wide questionnaire. We addressed the very real need to improve mentoring on board, not just so that younger navigators can 'learn the ropes', but also to encourage younger navigators to share their knowledge and understanding of new electronic systems. Issue 16 covered the complex but essential act of pilotage, focusing on communications and the working relationship between all professional navigators on the bridge. *The Navigator* magazine continues to gain plaudits from all who read it.

Member engagement

The ability of the NI staff and volunteers to engage with the industry is only made possible by constant support from our members. At the IMO, IALA and countless other industry fora, both formal and informal, we are respected as a practical and professional organisation representing mariners from around the world. We seek feedback from targeted discussions on LinkedIn and other social media platforms, from our Branches via twice-yearly newsletters and video conferences, and from responses to *Seaways*, *The Navigator*, our publications and our website. We highly value input from our SeaGoing Correspondence Group (SGCG), which can react in nearly real time to technical debates, giving us the authority to influence discussions in a practical manner. Our committees are another strong source of input. We encourage our Members to visit us in our HQ if they are in London.

Professional development

In 2017 the Professional Development Committee made a strategic decision to promote more short courses to our Members. Although the NI will continue to provide feedback to Members who log their CPD with us, we will embark on more proactive methods of providing professional development. This started with the relaunch of our long-standing Command Diploma and an update of our Sail Endorsement Scheme and Harbour Master Scheme. We have also developed a new short course for those conducting navigational assessments. We are grateful to our Branches for their support for this initiative.

One of the professional skills most keenly sought by our Members is shiphandling. While we do not have a ship for our Members to practise with, it was suggested that we could help our Members make the most of the experience that they are able to acquire elsewhere. We have therefore produced a *Shiphandling Logbook* that will facilitate the planning, execution, reflection and recording of any experiences on a ship, in a simulator or on a manned model. We hope that these logbooks will become a source of pride for our Members and be used to encourage mentoring, identify training gaps and act as proof of experience.

Human element – Alert!

Our *Alert! Human Element Bulletin* project produced 40 issues of the bulletin between 2003 and 2016. We were keen to pull this substantial body of knowledge together in a single indexed volume for the benefit of the industry. With further support from Lloyd's Register Foundation, which financed the original project, as well as from the Maria Tsakos Foundation and the NI India (South) Branch, we were able to produce a compendium of all 40 issues and offer a copy to all maritime libraries around the world. This is also available in a digital format on www.he-alert.org, along with an associated library of other human element (HE) documents. The website also hosts 21 high-quality short videos on key HE issues – all free to download thanks to LRF.

Command seminars

More than 500 people, from cadets to sailing Masters and senior industry figures, attended The Nautical Institute's five Command Seminars during 2017. The seminars looked in some detail at how the industry can best cope with the changes expected over the next 15 years. Concerns include:

- The need to address the human element in maritime incidents
- The problem of fatigue and false reporting of working hours
- Increasing automation on board ship, including autonomous vessels
- Ensuring training is properly carried out, and that results are monitored.

Training and professional development needs to be addressed at the highest level if we are to continue to improve maritime safety.

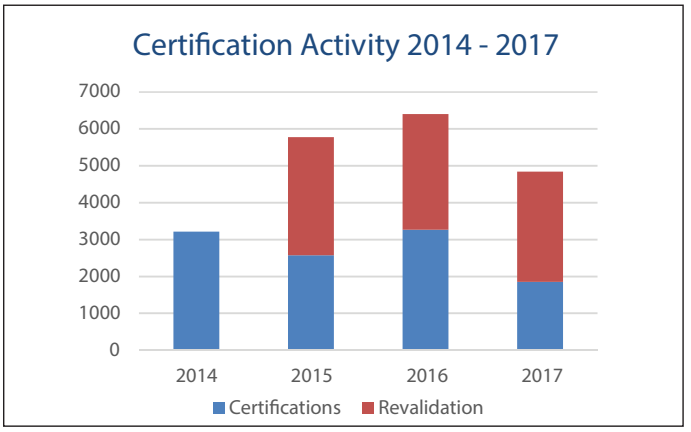
Through its position at the IMO and through its professional networks, The Nautical Institute will be working to produce and implement resolutions to these issues. Measures that have already been put in place include provision of formal professional training for navigation assessors, the establishment of an ice navigator qualification, and the relaunch of the Command Scheme.

Accreditation and certification

Dynamic Positioning (DP) Scheme

The Nautical Institute continued to process substantial volumes of DP applications in 2017. In total, 4,839 certificates were issued during the course of the year, of which 1,851 were initial certifications and 2,988 were revalidations. The KPI of processing applications within 15 days of receipt was maintained throughout.

There was a reduction in applications for initial certification due to the substantial reduction in activity in the offshore oil and gas sector. Logbook sales for 2017 increased minimally from the previous year, with 2,148 offshore logbooks and 45 shuttle tanker logbooks sold.



Accreditation

Despite the downturn, 96 centres remain active. In addition to the standard DP course:

- 36 centres run revalidation courses
- Four centres run refresher courses
- Eight centres run tech courses
- Two centres run shiphandling courses.

The pattern for 2018 is expected to be similar, with best estimates indicating a sustainable level of 95 centres over the next 12 months. Seven centres are in the early stages of the approval process.

Work is proceeding on developing qualifications for the renewable energy sector, including defining task sections and DP Sea Time equivalence.

Recognition Scheme

The Recognition Scheme continued to grow. By year end there were 37 courses carrying the NI 'Approved for CPD' logo, in addition to the 13 specialist courses that are recognised for CPD in the offshore sector.

Oil spill response

There has been steady growth in the number of companies seeking accreditation for providing oil spill response (OSR) training.

In total, 42 centres are approved worldwide, which represents an increase from 34 last year. The UK represents 33% of these providers. The regulatory body in the UK requires that all companies providing OSR training are accredited to the UK national standard and syllabus, and has appointed The Nautical Institute as its accrediting body.

An international oil spill response accreditation scheme has been developed for introduction in 2017/2018. This removes the requirement for syllabuses to be aligned with UK requirements, which makes it more straightforward to expand accreditation to international (non-UK) providers. The scheme also allows for the accreditation of other environmental response courses.

To reflect this change there is a proposal to rebrand the scheme 'Environmental Response' in 2018.

The Nautical Institute

(A Company Limited by Guarantee) Company No. 2570030; Registered Charity No: 1002462

Financial Statements for the year ended 31 December 2017

The trustees present their report and the audited financial statements for the year ended 31st December 2017

Principal activities

The Institute is registered as a Company limited by guarantee to promote and maintain nautical education.

Public Benefit

The trustees confirm that they have complied with the duty in Section 4 of the Companies Act 2006 to have due regard to the Charity Commission's general guidance on public benefit and that the activities carried out by the charity during the year were all undertaken in order to further the charity's aims for the benefit of the Charity's beneficiaries. A detailed explanation is shown under Objectives and Activities on the Trustees report published in the May 2017 issue of the Institute's Journal, *Seaways*.

State of affairs and business review

The company made an operating surplus on the General Fund of £203,566 for the current year (2016 loss: £198,379). After taking into account investment activities, designated funds movements and unrealised gains the company made a surplus of £287,932 (2016 loss: £83,858).

The trustees keep the Reserves Policy under regular review. The Institute holds reserves in order to ensure as far as possible that its Objects may be met in future. Total invested reserves at present stand at £1,175,686 which is comprised of the Contingency Reserve (£577,000) calculated as shown on page 8 and the remainder acting as a Projects Reserve. The trustees consider that this amount of free reserves is adequate to ensure that the Institute's services are not compromised in the short term. The investment policy of the Institute is to maximise the total return from capital and income combined while maintaining a medium level of risk. Management of the funds is delegated to external investment managers on a discretionary basis and the trustees review the performance of the managers against benchmarks on a regular basis.

The trustees review the Institute's Risk Management Policy at regular intervals. After considering the principal areas of strategic and operational risk, the trustees are confident that the appropriate means of control and mitigation have been adopted. Prudent management practices with awareness of changes in the operating environment are felt to be in place. The Management of the Institute are responsible for the day to day management of risk and minimising the effect of any adverse events. The Trustees decided to maintain staffing levels through the year due to the demand for Institute services, so authorised cash drawdown to sustain operations.

The Institute operates a remuneration policy based on salary scales by grade with annual RPI and other changes determined by the Executive Board during the budget planning process. A delegated group of trustees appraise the Chief Executive at least annually and set his remuneration for the forthcoming year. A non-contributory pension investment of 9% of salary, is made to staff personal pension schemes and auto enrolment was implemented for all eligible staff on 1st July 2016.

The Institute greatly values the contribution of its trustees and members in the work of the charity, which ranges from their roles in the governance structure to representation input to the industry's decision-making bodies and writing for the Journal and other publications. Due to the diversity of these voluntary contributions and the large number of members involved (some 140 in central governance roles) it is not feasible to assess the value in terms of time or money.

Auditors

The auditors, Appleby and Wood are willing to continue in office and resolutions concerning the appointment of Auditors will be submitted to the annual general meeting.

Fixed assets

Changes in the company's fixed assets during the year are shown on the balance sheet.

Trustees

The trustees of the company during the financial year were:

Captain J A Robinson	Captain R A Coates – resigned 6.4.17
Captain R B Middleton	Mr. F Coles
Captain T J Bailey	Mr. P B Hinchliffe
Captain M K Barritt	Captain N Hiranandani
Captain D Bell – resigned 6.4.17	Mr. G J P Lang – resigned 6.4.17
Mr. D Bendall	Captain M L G Nuytemans
Captain Z Bhuiyan	Captain D Telfer
Captain J P Menezes	Captain I Mathison (Apptd 6.4.17)
Captain J P Szymanski (Apptd 6.4.17)	Captain G Cowling (Apptd 6.4.17)

This report has been prepared in accordance with Statement of Recommended Practice- Accounting and Reporting by Charities and in accordance with special provisions of part 15 of the Companies Act 2006.

Approved by the Trustees and signed on their behalf by:

Mr. P J Lloyd
Secretary

Statement of Trustees' Responsibilities

Company law requires the trustees to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the company and of the surplus or deficit of the company for that period. In preparing those financial statements, the trustees are required to:

- Select suitable accounting policies and then apply them consistently;
- Make judgements and estimates that are reasonable and prudent;
- State whether applicable accounting standards have been followed subject to any material departures disclosed and explained in the financial statements;
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the company will continue in business.

The trustees are responsible for keeping proper accounting records which disclose with reasonable accuracy at any time the financial position of the company and enable them to ensure that the financial statements comply with the Companies Act 2006. They are also responsible for safeguarding the assets of the company and hence for taking reasonable steps for prevention and detection of fraud and other irregularities.

Captain J A Robinson **Captain R B Middleton**
Trustee **Trustee**

Auditor's Report

Independent Auditor's Report to the members of The Nautical Institute Limited

We have audited the financial statements of The Nautical Institute Limited (the 'charitable company') for the year ended 31st December 2017 which comprise the Statement of Financial Activities and the Balance Sheet and notes to the financial statements, including a summary of significant accounting policies. The financial reporting framework that has been applied in their preparation is applicable law and United Kingdom Accounting Standards, including Financial Reporting

Standard 102 The Financial Reporting Standard applicable in the UK and Republic of Ireland (United Kingdom Generally Accepted Accounting Practice).

This report is made solely to the charitable company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the charitable company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the charitable company and the charitable company's members as a body, for our audit work, for this report, or for the opinions we have formed.

In our opinion the financial statements:

- give a true and fair view of the state of the charitable company's affairs as at 31st December 2017 and of its incoming resources and application of resources, including its income and expenditure, for the year then ended;
- have been properly prepared in accordance with United Kingdom Generally Accepted Accounting Practice; and
- have been prepared in accordance with the requirements of the Companies Act 2006.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) (ISAs (UK)) and applicable law. Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of our report. We are independent of the charitable company in accordance with the ethical requirements that are relevant to our audit of the financial statements in the UK, including the FRC's Ethical Standard, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Conclusions relating to going concern

We have nothing to report in respect of the following matters in relation to which the ISAs (UK) require us to report to you where:

- the trustees' use of the going concern basis of accounting in the preparation of the financial statements is not appropriate; or
- the trustees have not disclosed in the financial statements any identified material uncertainties that may cast significant doubt about the company's ability to continue to adopt the going concern basis of accounting for a period of at least twelve months from the date when the financial statements are authorised for issue.

Other information

The trustees are responsible for the other information. The other information comprises the information included in the Report of the Trustees other than the financial statements and our auditor's report thereon. Our opinion on the financial statements does not cover the other information and, except to the extent otherwise explicitly stated in our report, we do not express any form of assurance conclusion thereon. In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If we identify such material inconsistencies or apparent material misstatements, we are required to determine whether there is a material misstatement in the financial statements or a material misstatement of the other information. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact.

We have nothing to report in this regard.

Opinions on other matters prescribed by the Companies Act 2006

In our opinion, based on the work undertaken in the course of the audit:

- the information given in the trustees' report for the financial year for which the financial statements are prepared is consistent with the financial statements; and
- the trustees' report has been prepared in accordance with applicable legal requirements.

Matters on which we are required to report by exception

In the light of the knowledge and understanding of the charitable company and its environment obtained in the course of the audit, we have not identified material misstatements in the trustees' report.

We have nothing to report in respect of the following matters in relation to which the Companies Act 2006 requires us to report to you if, in our opinion:

- adequate accounting records have not been kept, or returns adequate for our audit have not been received from branches not visited by us; or
- the financial statements are not in agreement with the accounting records and returns; or
- certain disclosures of trustees' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit

Responsibilities of trustees

As explained more fully in the trustees' responsibilities statement set out on the previous page the trustees (who are also the directors of the charitable company for the purposes of company law) are responsible for the preparation of the financial statements and for being satisfied that they give a true and fair view, and for such internal control as the trustees determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the trustees are responsible for assessing the charitable company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the trustees either intend to liquidate the charitable company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on the Financial Reporting Council's website at: https://www.frc.org.uk/auditorsresponsibilities. This description forms part of our auditor's report.

R R Oswald (Senior Statutory Auditor)
For and on behalf of Appleby & Wood, Statutory Auditor

Summary Income and Expenditure Account for the Year Ended 31 December 2017

	2017	2016
	£	£
Income	3,222,977	2,954,343
Gains on investments	56,256	90,789
Gross income in reporting period	3,279,233	3,045,132
Expenditure	(2,991,301)	(3,128,990)
Net income (expenditure) before tax for the reporting period	287,932	(83,858)
Tax Payable	–	–
Net income (expenditure) for the financial year	287,932	(83,858)

All income is unrestricted funds.

A detailed analysis of income and expenditure by source is provided in the Statement of Financial Activities and the notes to the financial statements.

Statement of Financial Activities for the Year Ended 31 December 2017

	Note	Unrestricted Fund	Designated Fund	Total Funds 2017	Total Funds 2016
Income and endowments from:		£	£	£	£
Donations and Legacies		208,747	–	208,747	256,226
Charitable activities	2	2,282,995	–	2,282,995	2,171,223
Other trading activities	4	695,467	–	695,467	493,671
Investment income	5	941	34,827	35,768	33,223
Other		–	–	–	–
Total		3,188,150	34,827	3,222,977	2,954,343
Expenditure on:					
Raising funds	6	266,539	–	266,539	296,486
Charitable Activiites	7	2,718,048	6,714	2,724,762	2,832,504
Other		–	–	–	–
Total		2,984,587	6,714	2,991,301	3,128,990
Net Gain on investments		–	56,256	56,256	90,789
Net income/(expenditure)		203,563	84,369	287,932	(83,858)
Transfers between funds		–	–	–	–
Net movement in funds		203,563	84,369	287,932	(83,858)
Reconciliation of funds:					
Total funds brought forward		437,216	1,101,662	1,538,878	1,622,736
Total funds carried forward at 31st December 2017	18	640,779	1,186,031	1,826,810	1,538,878

Movements in funds are disclosed in Note 18 to the financial statements.

All amounts above relate to unrestricted funds.

The notes on pages 8 to 12 form part of these financial statements.

Balance Sheet as at 31 December 2017

Company No. 2570030

	Note	£	Total Funds 2017 £	£	Total Funds 2016 £
Fixed assets					
Tangible assets	13		109,910		99,498
Investments	14		1,177,196		1,092,330
Total fixed assets			1,287,106		1,191,828
Current assets					
Stocks	15	79,398		128,599	
Debtors	16	290,038		246,823	
Cash at bank and in hand		528,539		270,026	
Total current assets		897,975		645,448	
Liabilities:					
Creditors: amounts falling due within one year	17	(358,271)		(298,398)	
Net current assets			539,704		347,050
Total net assets or liabilities			1,826,810		1,538,878
The funds of the charity:					
Unrestricted funds:					
Designated funds	18		1,186,031		1,101,662
General funds			640,779		437,216
Total charity funds			1,826,810		1,538,878

These financial statements have been prepared in accordance with the special provisions for small companies under Part 15 of the Companies Act 2006.

Approved by the board of trustees on 22 March 2018 and signed on their behalf by:

Captain J A Robinson **Captain R B Middleton**

Trustee **Trustee**

The notes that follow form part of these financial statements.

Notes to the Accounts for the year ended 31 December 2017

1. Accounting policies

a) Basis of accounting

The financial statements have been prepared in accordance with the Companies Act 2006 and follow the recommendations of the Accounting and Reporting by Charities: Statement of Recommended Practice applicable to charities preparing their accounts in accordance with the Financial Reporting Standard applicable in the UK and Republic of Ireland (FRS 102).

b) Depreciation of fixed assets

Furniture and office equipment is depreciated on the straight line basis at cost over its estimated useful life at the rate of 10% per annum. Computer equipment is depreciated at a rate of 33 1/3% per annum on cost.

c) Revaluation of investments

The investment assets have been shown at market value in the year ending 31st December 2017 with the comparatives for the year ending 31st December 2016 also shown at their market value. The revaluation surplus has been shown on the statement of financial activities as net realised and unrealised gain on investment assets.

d) Corporation tax

The company has taken advantage of the tax exemption allowed due to its charitable status.

e) Allocation of expenditure

10% of salaries and 50% of travelling and meeting expenses have been allocated to management and administration of the Institute, which reflects the proportion incurred in this activity.

f) Capital reserve fund

This has been set up to create a Contingency Reserve and a Projects Reserve. The Contingency Reserve should be based on 3 months staff costs, 6 months rent and services and the average trade creditors. The Projects Reserve is to enable the Institute to fund specific projects with the approval of the Executive Board of Trustees. This Fund would be reviewed annually.

g) Stock

The stock held is the stock of books, both historical and current, and are valued at estimated selling price less costs to complete and sell. The stock of books is reviewed periodically for the professional content and current relevance and a bad debt provision is calculated on this basis.

h) Lüddeke Prize Trust

The closing balance of the Lüddeke Prize Trust, a sum of £27,290, was transferred to the Capital Reserve Fund as a result of the closure of the Luddeke Prize Trust.

		Unrestricted Fund	Designated Fund	Total 2017	Total 2016
2 Charitable activities		£	£	£	£
Charitable activities	3	213,301	–	213,301	182,772
Entrance fees, transfer fees and subscriptions		665,825	–	665,825	650,558
Accreditation and Certification		1,403,869	–	1,403,869	1,337,777
Educational grants		–	–		116
		2,282,995	–	2,282,995	2,171,223

3 Seminars & Conferences	Seminar/ Conferences £	Seaways Journals £	2017 £	2016 £
Income				
Conferences/seminars	88,266	–	88,266	69,610
Seaways income	–	66,586	66,586	71,448
Seaways advertising income	–	58,449	58,449	41,714
	88,266	125,035	213,301	182,772

	Seminar/ Conferences	Seaways Journals	2017	2016
	£	£	£	£
Expenditure				
Conferences/seminars	86,473	–	86,473	52,447
Seaways publications	–	190,453	190,453	213,603
Mars	–	6,000	6,000	5,000
Seaways advertising cost	–	13,603	13,603	10,078
	86,473	210,056	296,529	281,128
Surplus/(deficit) on Seaways & conferences	**1,793**	**(85,021)**	**(83,228)**	**(98,356)**

4 Other trading activities

	Books	Services	2017	2016
Sales	693,662	1,805	695,467	493,671
Costs of sales				
Opening stocks	122,152	6,117	128,269	152,243
Purchases	192,396	1,122	193,518	235,570
	314,548	7,239	321,787	387,813
Less closing stocks	(73,853)	(5,545)	(79,398)	(128,599)
Costs of sales	240,695	1,694	242,389	259,214
Surplus on other trading activities	**452,967**	**111**	**453,078**	**234,457**

5 Investments income

	General Fund	Designated Fund	2017	2016
	£	£	£	£
Bank interest	941	–	941	945
Dividends	–	34,827	34,827	32,278
	941	34,827	35,768	33,223

6 Raising funds

Cost of generating funds	4	242,389	–	242,389	259,214
Publicity		24,150	–	24,150	37,272
		266,539	–	266,539	296,486

7 Charitable activities

Cost of activities in furtherance of the institute's objectives	3	296,529	–	296,529	281,128
Support costs	8	805,669	–	805,669	814,441
Administration & Governance costs	9	560,995	6,214	567,209	580,304
Project costs		131,874	–	131,874	128,280
Accreditation and Certification		922,981	–	922,981	1,025,351
Prizes and scholarships		–	500	500	3,000
		2,718,048	6,714	2,724,762	2,832,504

8 Support costs

		2017	2016
		£	£
Branch subventions		10,917	15,519
Staff costs	11	749,902	752,406
Travelling and meetings		44,850	46,516
		805,669	814,441

9 Administration & Governance costs

		2017	2016
		£	£
Postage and telephone		35,935	36,296
Printing and stationery		11,315	16,393
Computer expenses		84,920	77,018
Auditors fees		5,300	5,700
Credit Card & Bank Charges		34,458	36,926
Rent, rates and service charges		121,822	117,510
Insurance		5,803	5,942
Insurance - Members Benefit		36,976	39,645
Office equipment rental		4,182	4,195
General expenses		9,632	11,606
Travelling, meetings and AGM expenses		44,850	46,516
Legal & Professional fees		7,837	6,546
Training Costs		3,131	2,704
Staff costs	11	83,322	83,601
Depreciation		77,726	89,706
		567,209	580,304

10 Net movement in funds for the year

	2017	2016
	£	£
This is stated after charging:		
Depreciation of fixed assets	77,726	89,706
Auditors remuneration (audit services)	5,300	5,700

11 Staff costs

	2017	2016
	£	£
Salaries & wages	1,175,405	1,334,994
Social security costs	105,851	131,534
Pension	103,042	112,251
Less allocated to cost centres	(551,074)	(742,772)
Wages and salaries including benefits	833,224	836,007
No. of employees earning £60,000 to £70,000	2	2
No. of employees earning £70,001 to £80,000	–	1
No. of employees earning £80,001 to £90,000	–	2
No. of employees earning £90,001 to £100,000	1	1
No. of employees earning £100,000 +	2	1
Average number of employees	32	37

The chairman and trustees did not receive any remuneration during the year.

12 Taxation

The charitable company is exempt from corporation tax on its charitable activities.

13 Tangible fixed assets

	Office furniture & Equipment	Computers	Total
	£	£	£
Cost			
At 1st January 2017	72,827	406,662	479,489
Additions	789	87,349	88,138
Disposals	–	–	–
At 31st December 2017	73,616	494,011	567,627
Accumulated depreciation			
At 1st January 2017	33,695	346,296	379,991
Charge for the year	6,831	70,895	77,726
Disposals	–	–	–
At 31st December 2017	40,526	417,191	457,717
Net book values:			
As at 31st December 2017	33,090	76,820	109,910
As at 31st December 2016	39,132	60,366	99,498

14 Investments	2017 £	2016 £
Market value at 1 January 2017	1,051,100	919,877
Acquisition at cost	72,307	115,652
Sales proceeds at market value	(18,700)	(75,218)
Surplus in the year	56,256	90,789
Market value at 31 December 2017	1,160,963	1,051,100
Other Holdings		
Cash	16,233	41,230
Market value as at 31 December 2017	**1,177,196**	**1,092,330**
Historical cost as at 31st December 2017	961,060	938,618

15 Stocks	2017 £	2016 £
Books	73,853	122,152
Member services	5,545	6,447
	79,398	128,599

16 Debtors	2017 £	2016 £
Trade debtors	76,044	61,378
Prepayments	92,349	87,583
Other debtors	121,645	97,862
	290,038	246,823

17 Liabilities: Creditors: Amounts falling due within one year:	2017 £	2016 £
Trade creditors	110,941	66,890
Accruals	215,239	194,520
PAYE & other creditors	32,091	36,988
	358,271	298,398

18 Designated funds	Balance 1.01.17 £	New Designated £	Utilised/ Realised £	Transferred £	Balance 31.12.17 £
Capital Reserve Fund	1,063,646	91,083	(6,714)	27,671	1,175,686
Educational fund	10,226	–	–	119	10,345
Lüddeke Prize Fund Trust	27,790	–	–	(27,790)	–
	1,101,662	91,083	(6,714)	–	1,186,031

19 Related Party Transactions

No Trustee received any remuneration for services as a Trustee. The amount of £9,723 (2016 £13,885) was reimbursed to Trustees to cover miscellaneous travel expenses in connection with their roles as Trustees.

Trustees and Council members use the Institute's services on the same terms as other members. Because of the nature of the Institute's trades it is not practical to quantify the total of transactions with these members during the year. However, only minor balances were owed to and from these members as at 31st December 2017 and any fees paid to these members are shown separately in the Revenue Account. Trustees and Council members are required to be full voting members of the Institute.

Due to the nature of the Institute's trade, a number of the Trustees and Council are also directors/trustees/employees of entities with which the Institute trades, and due to the nature of the trade, it would not be practical to quantify the total of transactions in the period.

Statement of cash flows	Total funds 2017 £	Prior year funds 2016 £
Cash flows from operating activities:		
Net cash provided by (used in) operating activities	339,493	–129,088
Cash flows from investing activities:		
Dividends, interest and rents from investments	35,768	33,223
Proceeds from the sale of property, plant and equipment	–	–
Purchase of property, plant and equipment	–88,138	–54,471
Proceeds from sale of investments	18,700	75,219
Purchase of investments	–72,307	–115,652
Net cash provided by (used in) investing activities	233,516	–190,769
Cash flows from financing activities:		
Repayments of borrowing	–	–
Cash inflow from new borrowing	–	–
Receipt of endowment	–	–
Net cash provided by (used in) financing activities	233,516	–190,769
Change in cash and cash equivalents in the reporting period	233,516	–190,769
Cash and cash equivalents at the beginning of the reporting period	311,256	502,025
Change in cash and cash equivalents due to exchange rate movements	–	–
Cash and cash equivalents at the end of the reporting period	544,772	311,256

Reconciliation of net income/(expenditure) to net cash flow from operating activities	Total funds 2017 £	Prior year funds 2016 £
Net income/(expenditure) for the reporting period (as per the statement of financial activities)	287,932	–83,858
Adjustments for:		
Depreciation charges	77,726	89,706
(Gains)/Losses on investments	–56,256	–90,789
Dividends, interest and rent from investments	–35,768	–33,223
Loss/(profit) on the sale of fixed assets	–	–
(Increase)/decrease in stocks	49,201	23,644
(Increase)/decrease in debtors	–43,215	59,704
Increase/(decrease) in creditors	59,873	–94,272
Net cash provided by (used in) operating activities	339,493	–129,088

Analysis of cash and cash equivalents	Total funds 2017	Prior year funds 2016
Cash in hand	528,539	270,026
Investment capital reserve account	16,233	41,230
Notice deposits (less than 3 months)	–	–
Overdraft facility repayable on demand	–	–
Total cash and cash equivalents	544,772	311,256

Annual General Meeting 2018

To be held at Cavalieri Art Hotel, Malta

On Wednesday 23 May 2018

Council Notice 1

In accordance with article 10 of the Constitution, the Annual General Meeting will be held at the Cavalieri Art Hotel, Malta on Wednesday 23rd May 2018 at 1700 hrs. The Agenda is set out below. The AGM will take place after the first day of the Technical Seminar and will be followed by a reception and dinner at the Malta Maritime Museum. Full details of the AGM Event are available on the website:

By Order of Council and the Executive Board of Trustees

AGENDA

17:00 Welcome by the President

Presidential address: Captain Duke Snider, FNI

Institute business: **Resolution 1** - To confirm the minutes;
To receive the annual report of the Executive Board of Trustees
Resolution 2 - To adopt the audited accounts
Resolution 3 - To appoint auditors.

Introduction to The Nautical Institute Foundation Initiative Chief Executive John Lloyd FNI
For approval to progress through Executive Board and the Finance and Audit Committee

Introduction to minor modifications to the governance documentation of The Nautical Institute Chief Executive John Lloyd FNI
For adoption by the Chief Executive (Company Secretary) subject to advice from NI solicitors

Election of Council members
Capt A Spooner (UK, London)

Election of Chair of the Executive Board Mr Peter Hinchliffe FNI (UK (London))

Election of Honorary Treasurer Captain Duncan Telfer FNI (Singapore)

Election of members of the Executive Board
Capt Moin Ahmed AFNI (Singapore)
Mr George Lang FNI (UK/SW England)
Capt Allen Brink FNI (Southern Africa)

Election of Vice President: Capt Trevor Bailey FNI (UK, NW England & N Wales)

Election of Senior Vice President: Jillian Carson-Jackson, FNI (SE Australia (ACT))

Election of President Captain Nick Nash FNI (UK/SW England)

Acceptance Address of new President

Presentations of Awards Certificates of Fellowship and other Awards

17.45 Close of Business

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

SOLENT BRANCH

Onboard visit: *Red Osprey*

The Nautical Institute Solent Branch membership was invited by Captain Alwyn Rees and Captain Aqeel Hyder of Red Funnel to hold its meeting aboard the ro-ro ferry *Red Osprey*, courtesy of the Master, Captain Alice Duncan, and Senior Master Captain Russ Hodgson. A capacity audience met in the ferry's Signature lounge for the round trip from Southampton to Cowes and back.

The round trip across the Solent lent itself to a mini-seminar, with one speaker taking the leg to Cowes and the second speaker the Southampton-bound leg. The turnaround in Cowes provided an opportunity for members to visit the bridge.

Southampton past and present

On the outbound leg, Captain Martin Phipps MBE, who has recently completed eight years as Southampton Harbour Master, gave a talk on the Port of Southampton past and present. The port's history stretches back to Roman times. Its modern renaissance goes back to the mid-19th century, following development of the Victoria docks from 1838. In the interwar years, the transatlantic passenger trade was a major driver of shipping development in the port. The port and immediate hinterland played a vital role in the build-up to the Normandy landings in 1944. Reclamation work in the post-war years allowed spectacular growth in port activity.

The cruise sector continues to play an important role in the port. Last year saw 500 cruise ship calls, with 2 million passengers passing through the port – up from 702,000 in 2005. This is expected to rise to nearly 3.5 million by 2035. The container trade is expected to reach some 2.7M teu by 2030, with dry bulk reaching nearly 2.2M tons. The development of very large container ships has seen the largest of them (more than 20,000teu) regularly visiting the port's specialist berths.

Finally, Capt Phipps summarised the extent of the port VTS and the Harbour Master's authority. The Harbour Master's department has 120 staff controlling the wide range of responsibilities attached to operating the port.

By the end of the presentation the audience had a better understanding of the complexities of running the many trades operating from Southampton and Fawley. Southampton is truly the most complete port in the UK.

High-speed ferry operations

The second presentation was given by Captain Matthew Parker, a Red Funnel officer who specialises in health and safety issues relating to the operation of high-speed ferries. We were updated on Red Funnel's high-speed 'Red Jet' fleet, including the introduction of *Red Jet 6* in 2016 and the progress of *Red Jet 7*, under construction in the Wight Shipyard in East Cowes from a design by One2Three Australian naval architects. Captain Parker went into considerable detail about the technical specification. *RJ7* has an operating speed of 38 knots (where permitted), a range of 200 nautical miles at the service speeds and a passenger capacity of 275 (including four wheelchairs). The crew consists of four people: a commander, a mate and two cabin attendants.

Propulsion is achieved by four Hamilton HM571 waterjets, powered by 4 × 10V2000 M72 direct injection liquid-cooled turbocharged diesels developing 900kW at 2,250rpm. The trim control maintains a low wash characteristic.

One aspect of the build that captured the audience's interest was the system of hull coatings used to project a high visibility and durable finish. Captain Parker completed his presentation by explaining the navigation and communication systems; all compliant and right up to date. More detailed information can be found on www.redfunnel.co.uk/redjet7.

Before disembarking in Southampton, the Solent Branch Chairman offered a vote of thanks to the speakers and to Captains Rees, Hyder, Duncan and Hodgson.

John Noble FNI

PAKISTAN BRANCH

➔ It was an honour for the Pakistan Branch to welcome NI CEO Captain John Lloyd for a visit from 13 to 15 March. Highlights of his busy schedule included visits to:

- The Pakistan Branch, where John was able to meet members, and many topics were discussed during a very lively interactive session.
- Karachi Port Trust (KPT), meeting Rear Admiral Jamil Akhtar (Chairman KPT) and Rear Admiral Asif Hameed AFNI (General Manager (Operation).
- Pakistan Mercantile Marine Department.
- The Maritime Training Institute (MTI) – a leading professional maritime training institute.
- National Centre for Maritime Policy Research at Bahria University, Karachi. John gave a presentation on continuing professional development (CPD) to more than 100 participants, including lecturers and professors, naval personnel, merchant navy officers, Nautical Institute members, government officials and students.

UAE BRANCH

CEO visit and VAT regime

➔ The Nautical Institute UAE Branch organised a presentation on the new VAT regime, which was introduced at the beginning of the year. This is the first legislation of its kind in the country, and is something of a hot topic in the country.

Our speaker, Heinrich Kollisch, from law firm Meyer-Reumann and Partners, explained the implementation of the new system, with a focus on cross-border transactions.

Some of the highlights of his presentation were:

- Implementation procedures on goods and services
- Tax disputes – general
- Tax disputes – steps of escalation
- Tax audit
- Tax assessment and penalty assessment
- Challenges against decisions.

The audience took a keen interest in the presentation and fired several questions at the speaker during the Q&A session, all of which were very well answered.

This presentation was preceded by a talk given by Institute CEO Captain John Lloyd. With the aid of an interesting video, John explained the various projects being undertaken by the Institute and stressed the substantial benefits of becoming a Member of the Institute.

Chairman Captain Adil D Moos FNI gave a vote of thanks to Captain John Lloyd and Heinrich Kollisch. He invited John to present a token of appreciation to the speaker on behalf of the UAE Branch and all guests present.

The evening was rounded off with a cocktail reception and dinner, which had been kindly sponsored by Messrs Meyer-Reumann and Partners.

Zarir Irani AFNI

CYPRUS BRANCH

Flying the flag for shipping – live!

➔ The Nautical Institute was invited by a local radio station to talk about the shipping industry in Cyprus and the role of the branch in the local maritime cluster. Assisted by the presenter, Gina Panayiotou, Branch Chairman Graham Cowling and Honorary Secretary Ania Ruszczynska gave an introduction to the Institute worldwide and the branch in Cyprus.

Cut-Radio runs a regular feature programme on shipping that aims to get young people engaged with the shipping community and to help them to understand how it works. The programme was therefore an ideal platform on which to speak about NI activities.

What is the function of The Nautical Institute?

Our goal is to provide the strongest possible professional focus on improving standards of those involved in control of ships on the sea. We are also an international centre of nautical excellence.

- The Nautical Institute represents the professional views of our members on the safety and efficiency of shipping operations.
- We promote and co-ordinate the development of nautical studies by encouraging and promoting a high standard of qualification, competence and knowledge among our members.
- We share and exchange information and ideas on nautical science and we encourage research and publish the results.
- We establish and maintain educational and professional standards of membership.
- We co-operate with government departments and other bodies concerned with statutory and other qualifications and we also co-operate with universities and other educational institutes and authorities for education and training in nautical science and practice.
- We have a worldwide branch network and professional groups.
- The Nautical Institute is a non-governmental organisation (NGO) with consultative status at the International Maritime Organization (IMO).
- We have a huge catalogue of publications, which are written by serving Masters and officers, which provide the best practical operational guidance available. These cover everything from bulk carrier safety to the Captain's first appointment in command.
- We perform worldwide accreditation for non-STCW qualifications such as dynamic positioning operator courses, oil spill response and recently ice navigation to meet the needs of the new Polar Code.

When and why was the Cyprus branch established?

The Cyprus Branch was established in 1993 after it was recognised that the Cyprus ship management industry was growing significantly. A large number of shipowners and ship managers were relocating to the island of Cyprus, attracted by a favourable business environment, a keen and highly motivated workforce and of course, the lovely weather! So it was (and still is) a great place to do business. This in turn meant that a large number of our members both seagoing and ashore began to live and work on the island.

The branch celebrated its 20th anniversary in 2013 and will celebrate a quarter-century in 2018. We have around 55 members on the island as well as some shipping companies who are Nautical Affiliate members. Worldwide, The Nautical Institute has around 6,500 members.

What are the main challenges that the industry has faced over the years, and which are you facing today?

Our main challenge is to encourage young people to go to sea and convince them that a career at sea is worthwhile, enjoyable and well paid. Experienced seafarers are in high demand because they have valuable skills such as leadership, problem-solving, international experience and independence. It is generally recognised that seafarers are honest, kind and hardworking people. A career at sea or in the maritime sector is highly recommended.

Because our members spend a lot of working time on ships and are widely spaced around the world, we need to find ways to communicate easily and make sure that even if a member is on a ship in the middle of the Pacific Ocean, thousands of miles from land, they can still keep in touch with us. Communication with ships is improving and many ships have 'always on' internet connections, so this is getting easier. In our branch committee here in Cyprus we have seagoing members who keep in touch with us by email even when they are on board the ship.

Our other main challenge is to improve navigational standards on ships and reach out to as many seafarers as possible. As a charitable non-profit organisation, raising awareness and also finance for new projects is always a challenge, but luckily we have fantastic support on the island from all the shipowners and managers here as well as the support industries in the marine industry.

What are your main activities/projects?

We hold a large number of 'free to attend' branch events and professional presentations on a whole range of subjects. For example, in November we hosted a full-day Command Seminar on navigational accidents and their causes. In September, we focused on navigational assessments on the bridge of ships and offered a two-day course to anyone interested in improving their knowledge on how to conduct navigational assessments. Earlier this year we held presentations on seafarer fatigue and how to prevent it, as well as the best ways to pass oil major vetting inspections. We also have a very busy calendar of networking events and other social events so that you can meet new people and network.

What does the Institute offer?

The Cyprus Branch is vibrant and proactive and is supported by members from a wide variety of shipping activities including ownership, management, offshore, consultancy and surveying. We offer:

- A programme of interesting technical presentations and social meetings.
- Representation on our international user groups. For example, we have user groups on such things as seafarer fatigue, electronic charts, dynamic positioning, lifeboat safety, cargo container weights, ship manoeuvring and handling, how to be a mentor, and how to do accident investigation and collect evidence – it is easy to get involved.
- Assistance with your personal professional development, which you can use to show your existing employer or a new employer your knowledge and expertise in the nautical or marine field.
- Help to solve professional problems through seminars and workshops.
- Networking opportunities with other nautical professionals.
- Co-operation with other professional bodies on the island so that our presentations are co-ordinated and open to as many people as possible.

How can I get involved with The Nautical Institute?

Come along to one of our branch presentations and meet us. All the meetings are free and publicised on the web and social media. At these events you will meet like-minded people who want to develop their professional knowledge and skills. This will open many new doors for you. In return, we would like you to consider joining us as a member.

What are the future aims/aspirations of the Institute in Cyprus? Do you see room for growth and expansion?

First, we want to increase the number of members. We are going to do that by

continuing to reach out to people and continuing to offer the highest quality presentations as well as tools such as continuous professional development. We also want to bring about improvements in navigational safety through our influence at the International Maritime Organization.

There is a very positive development on Cyprus with the development of a number of maritime academies for cadets. It is our hope to be involved in these areas since we have a role to play with the professional development of the cadets and their knowledge.

Would you say their branches in different countries experience significant differences in the shipping industry/cluster?
Of course there are local differences between branches but we are a very international body and the concerns of our members in, say, Hong Kong match our own here in Cyprus. Different maritime clusters have different specialities. For example, we are focused on the ship management needs for container ships, bulk carriers and tankers. If you went to The Nautical Institute branch meeting in Scotland, you might find that they do far more in areas such as offshore, oil rig support and dynamic positioning. But because we are an international organisation, what we learn from all these topics feeds across to all our branches.

Are there good prospects for the younger generation within the shipping industry locally?
The fact is that Europe needs a new generation of seafarers, and the younger generation here on the island of Cyprus have a key role to play. It is absolutely essential – not only for ships – but for all the other support industries that rely on ships such as ports, pilots, harbourmasters, maritime lawyers and cargo surveyors.

What advice would you give the younger generation coming into the shipping industry?
- Get some sea experience. This is really important to understand how ships work and operate.
- Network really hard and get involved with all the shipping activities on the island. Come to our meetings.
- Read our journal *Seaways* and *The Navigator* magazine online to get an impression of what we do.
- Join The Nautical Institute as a student member or an associate member.

Where can people find further information?
You can have a look at our website www.nautinst-cyprus.org or go to our Facebook page, https://www.facebook.com/nauticalinstitutecyprus/
Graham Cowling FNI

This is an excellent introduction to the Branch and its activities. Over the next few issues, *Seaways* will begin running regular profiles of individual branches, their members and activities. Some branches have strengths in particular areas, some in others, and as a worldwide network, there is always something to be learnt from best practice elsewhere! If you would like your branch to feature in a profile, please contact the editor – lrb@nautinst.org

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:

www.linkedin.com/groups/Nautical-Institute-1107227
www.twitter.com/NauticalInst
www.facebook.com/thenauticalinstitute
www.youtube.com/TheNauticalInstitute

Increasing safety in tanker operations

➔ In most oil producing parts of the world, tanker operation is an accepted everyday activity. In some regions, however, this is not the case. In these regions, the local authority could enhance the acceptance of tankers by publicly advising that, in addition to all the usual standards and precautions, tankers will voluntarily adopt extra provisions to increase their safe operation. These provisions have to be practical and affordable, and directly aimed at preventing errors of operation which could result in damage and consequent spillage of cargo.

Due to the current oversupply of tankers, freight rates are low and a shipowner would be unlikely or unable to provide supplementary safety provisions on an ongoing basis without financial assistance from the charterer/shipper. The charterer in this concept would be an oil company requiring the carriage of its oil, and would be the main beneficiary of accident-free transportation. The contribution of the charterer in paying an above-market charter rate could enable safer transportation of those oil cargoes.

The provisions listed below are intended to provide a measurable increase in the safe operation of a tanker.

OPTIONAL ENHANCED SAFETY PROVISIONS FOR TANKERS

Improvement to a ship's operational safety could be obtained by selecting an enhanced procedure in place of an existing one that offers a lesser safety margin, or by the addition of personnel or equipment.

International standards set by IMO, class or flag define safety levels for vessels trading worldwide. These regulations provide an adequate standard of protection against commonly encountered risks, which gives the ship a practical defence against accidents.

It is proposed that specific additional precautions would mean that the vessel would operate with a higher safety margin, that is the additions would improve the safe operation of the tanker. The cost of these safety provisions or additions would be reflected in the charter rate.

The safety provisions listed below are considered to increase a ship's operational safety margin. They are entirely optional. However, where an enhanced safety standard for a particular vessel has been declared, that vessel should adopt all of the applicable provisions.

SAFETY PROVISIONS

1. Before a tanker is chartered, the charterer's superintendent or his equivalent will visit the vessel and satisfy themself as to the apparent good order of the vessel. That is to say the vessel will not be spot-chartered sight unseen.
2. The tanker will not be over 10 years of age at the time of the initial chartering of the vessel.
3. There are considerable differences between different designs of double-hull tankers. All will meet IMO requirements, but will vary in the cargo tank, ballast tank and other structural arrangements and their overall strengths and damage tolerance capacities may vary. To enable preferential selection to be made for a particular tanker, sufficient technical data would have to be submitted initially.
4. The tanker Master is to agree to divert or delay to avoid severe weather in excess of Beaufort 9 in near-coastal areas, whether the vessel is arriving or departing.
5. The tanker Master is to confirm that the forward emergency towline is deployable within one hour in accordance with IMO requirements, and the aft emergency towline within 15 minutes. Additionally, the ship's ability to facilitate the towing connection with an assisting tug, including in heavy weather conditions, is to be found satisfactory.
6. The tanker is to be provided with sufficient watchkeeping officers while the vessel is underway to accommodate a schedule of maximum unrelieved watchkeeping periods for bridge watch officers of 90 minutes for the night watches between 20.00 and 08.00. This would require one more watchkeeping officer in addition to the usual three mates. (The relieved interval after each 90 minutes of night watchkeeping would be 30 minutes.)
7. While underway during day or night, a continuous watch from the bridge by all appropriate means is to be maintained, with duty cycles appropriate for maintaining vigilance. The bridge watch is to consist of at least one ship's officer and a bridgewatchman, so that there are always two active watchkeepers on the bridge who are not employed during their watch on other unrelated activities. Short interruptions by one or other of the usually visual watchkeepers to attend to other bridge duties, including radar observations and navigational matters, is an accepted work pattern and does not impair the continuous watch standard.
8. The ship's whistle is designed to be audible at 2 miles in still air conditions when the background noise on the receiving vessel is moderate. This should be supplemented by a directional long-range acoustic generator unit. The output of the long-range acoustic device should be sufficient to alert people in general on the target vessel at 2 miles, under the same conditions.
9. When sea watches are discontinued for the purpose of assigning the 1st, 2nd and 3rd mates to cargo loading or discharging duties, then when opportunity allows the sailing of the vessel immediately following cargo operations should not be scheduled after 20.00 and before 08.00.
10. Appointed crew members are to undertake and record daily monitoring of important machinery including generators, steering gear, navigational electronics and other self-selected items. (The extent of list to be to the charterer's satisfaction.)
11. The safe performance of the crew is to be assisted by the provision of evidently satisfactory employment conditions. (To charterer's satisfaction.)
12. The number and qualification of crew members is to be evidently sufficient for the usual operation of the vessel, including continuously manned engine room.

B M Johnston FNI

Bridge design

➔ All ships should do what car carriers used to do: position the bridge about two metres back from the front of the accommodation block. This:

- Does away with the need for an expensive platform in front of the bridge to clean windows etc.
- Makes for easier maintenance underneath.
- Often that platform has big cargo floodlights on the front of it. How many naval architects does it take to change a light globe?
- Reduces the glare from insufficiently drawn curtains on the deck below. Some 3/Os are reluctant to ask senior officers to draw their curtains properly.

There should be a walkway between instrument panels and the bridge windows. In marginal visibility, you want to be able to put your nose against the window, with the glare from instrument lighting behind you.

All ships should have centreline compass repeaters.

VHF radios are frequently installed after the instrument panel. They are then often placed either on the bridge front below the window, and at knee height, or on an aft-facing bulkhead at the chart table console. Neither is acceptable. The shiphandler should have the oncoming ship in full view all the time. The VHF should be under the wheelhouse window, at waist height, at a 45° angle for ease of use.

Chart tables should be able to take three charts simultaneously: the coastal chart, the smaller-scale ocean chart, and a chart where the navigator can be planning the next voyage/doing chart corrections. The best set-up I have seen is where the navigator had their own separate chart table at the back of the bridge. Over the lifetime of the ship, additional instruments will probably be placed on the bridge. The temptation to put them on the chart table must be resisted.

Consideration should be given for distance between the centreline conning position and a clear view aft. Young navigators should realise that in their lifetime one of the superpowers is going to jam, or worse, distort the GPS signal. Old-fashioned things like stern leads will again be useful. (For the same reason, start practising with a sextant!)

I have quoted the River Boyne/Embley as brilliant collaboration between the people who design and build ships and the people who work them. The twin funnels and casings were widely spaced with a clear tunnel between them. At the back of the wheelhouse in the centre there was a set of windows. The mainmast was a goalpost mast to the same end. From the centre line conning position you could see astern.

On most ships the control panel stretches across the centre of the ship with the steering position in the centre. When the ship is under pilotage, you often have the Master, Pilot and helmsman close to each other. The best arrangement I have seen is where the control panel was offset to starboard. The wheel/autopilot was in the centre of it. However, there was a remote steering position in the traditional place on the centreline, which was used while in hand steering. The helmsman should have a small platform so he can look over the head of the person conning the ship

The chartroom settee's main function is for the Master/coastal Pilot to take rest while still being available. It should have a curtain round it, and should not be adjacent to the bridge toilet, tea making facilities, bridge staircase etc.

There should be a raised bench and table platform on the front of the bridge so that the Master/Pilot can take their meals while still having good visibility. In this age of excessive paperwork it must be accepted that while on ocean passage the OOW will do paperwork on watch. It is better to do it here rather than at the chart table.

All of the above might seem self-evident, but if so, why was I on so many ships where it was not? If the people who designed the *City of Rotterdam* had talked to the people who were going to sail it, perhaps the collision would not have happened.

Captain Peter Hay MNI

Shiphandling

➔ Currently in The Nautical Institute there seems to be an obsession with shiphandling, and I have been reading about the need for junior officers and even cadets to be proficient in this activity. Why?

We should make it clear what area of shiphandling we are talking about. Such every day shiphandling as care of the ship in heavy weather, picking up and dropping off a pilot and (in some circumstances) anchoring are all part of a Master's routine activity. All ships' officers should learn what they can of these basic procedures even if they do not actually perform them.

In fact I was asked questions on these actions in my oral examination for Second Mate, but shiphandling in the confines of pilotage waters is a speciality and is a full time occupation that is performed by a pilot who is a specialist and is knowledgeable about and responsible for the local environment.

Has seafaring changed so much since I sailed as mate and Master that ships' officers have no other job description? I sailed on ships that carried just about every cargo you could think of except bulk oil, and there was a lot to learn about stowage and safety of cargo. This was an important and time-occupying part of my nautical education. Also there was the need to learn how to navigate the ship in both deepsea and coastal waters. Then there was maintenance and use of safety and firefighting equipment and cargo handling gear.

Shiphandling was something I learned much later except for such basic matters as I have mentioned above, which were learned initially by observation and mentoring by senior officers and the Master. Even on passenger ships, which do not give the officers much cargo experience, there are other duties such as security, firefighting equipment and the handling of lifeboats, to name just a few.

We hear a great deal about the increase in paperwork that is now thrust upon Masters, much of it repetitive and probably unnecessary. Junior officers should be taught about this and could probably assist the Master with this work.

Ships' officers should learn all they can by observing experienced shiphandlers in action and thereby becoming a useful part of the bridge team in pilotage waters. Most of these officers will have taken courses on simulators as part of their early training, but actual practical shiphandling experience can be obtained later.

The majority of ships have no more than three deck officers in addition to the Master and possibly some cadets. When a ship is being handled into or out of a harbour, which is an important and critical part of the voyage, two of the deck officers are at one end of the ship or the other to supervise mooring, anchoring and the securing of tugs, so the time that an officer is on the bridge observing and helping with the shiphandling is limited.

Also there is the question of fatigue and the need for rest and this may limit the time that can be spent on the bridge, especially on departure after a busy day in port.

Capt Malcolm C Armstrong FNI
BC, Canada

Representing The Nautical Institute to the maritime industry and beyond

These are just a few of the newest Nautical Institute members from 'The Nautical Institute Club' at California State University Maritime Academy – Cal Maritime. Together, as a club, they have made significant progress towards becoming better mariners. 'We are all very excited to be a part of the club and have big things planned for the upcoming school year!'

Director of Publications and Membership, Bridget Hogan represented the NI at The Sailors Society's Wellness at Sea conference, speaking about raising welfare standards above and beyond the MLC.

Thank you to those who attended the Navigation Assessor Course in Hong Kong in March. Here, the attendees are shown with our course leader Captain Mark Bull and John Wilson of the Hong Kong Branch.

Vladimir Torskiy FNI, Honorary Secretary of NIU presenting the *Alert!* Compendium on behalf of the NI to Nataliya Afanasieva, Head of the Library at the National University Odessa Maritime Academy.

New members

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

Associate Fellow

Arora, J S Mr/Master (India (West))
Bradley, B W Captain/HSEQ Manager (UK/Bristol Channel)
Daveney, D A Cdr/Commander (UK/Central Scotland)
Desilva, R M Captain/Regional Operations Manager (UAE)
Draper, A Captain/Master (UK/SW England)
Era, A M P Captain/Head, Training (Philippines)
Evans, S D Mr/Master (UK/NE England)
Fitzgerald, J M Captain/Director/Owner (Ireland)
Hunnisett, G Mr/Consultant (UK/London)
Jayasinghe, N K B Captain/Training Captain (Sri Lanka)
Jones, S C Captain/Master (UK/N of Scotland)
Krishnamoorthy, R Captain/Master (Singapore)
Lane, M Mr/Managing Director/Master (UK/SE England)
Masood, Q Mr/Accreditation Manager (UK/London)
Mischke, M Captain/Operation Manager (GER/Hamburg)
Modak, Z Captain/Master (India (West))
Pandey, S Captain/Principal (India (West))
Perera, R Captain/Senior Surveyor (U.S. Gulf (Houston))
Sengupta, B Captain/Head Of HSSE (China: Hong Kong SAR)
Sharma, R K Captain/Master (Singapore)
Singh, S Captain/Deputy Director (Trinidad and Tobago)
Singh, V P Captain/Master (India (North))
Skiadas, A Captain/Master (GRC/Hellenic)
Stroebel, H Captain/Marine Manager (Singapore)
Tun, N M Captain/Master (Myanmar)

Upgrade to Associate Fellow

Dimitrov, D G Captain/Pilot (Bulgaria)
Harding, J F Mr/Resource Manager (UK/Solent)
Jasper, S H Mr/DP/Navigation Instructor (GRC/Hellenic)
Joshi, A Captain/Master (India (West))
Mishra, S Mr/Key Account Manager (Singapore)

Member

Auld, G Mr/2nd Officer (New Zealand)
Cabrales Vega, C Captain/Chief Officer/SDPO (Mexico)
Chadwick, A Mr/Partner (UAE)
Chu, K W Captain/Offshore Installation Manager (AUS - WA)
de França, R F M Mr/DPO (Brazil)
Delvers, A Mr/Chief (U.S. East Coast (N))
Dodds, L Mr/Global Manning Manager (UK/Central Scotland)
Galea, N Captain/Maritime Pilot (Malta)
Legget, C S Mr/Project QHSE Engineer (UK/Humber)
McLuckie, M Mr/Senior DPO (UK/Central Scotland)
Nigam, B Mr/Condition Survey Programme Manager (Singapore)
Olaiya, R A Mr/Master (Nigeria)
Omelchenko, D V Ms/Assistant To Chairman (Ukraine)
Pappu Venkata, R M Mr/2nd Officer (India (East))
Popovich, A Mr/Chief Officer (Singapore)
Quansah, J E Mr/Maintenance Officer (Ghana)
Roberts, K M Ms/2nd Officer (AUS - VIC)
Stephenson, A M Mr/3rd Officer (UK/Solent)
Stinton, D Mr/OOW (UK/Solent)
Wilson, D Captain/Marine Warranty Surveyor (UK/SW England)
Wilson, N C Mr/Master (AUS - QLD)
Wood, A J Mr/Master (UK/NE England)
Zubayed, M K A Mr/3rd Officer (Bangladesh (Chittagong))

Upgrade to Member

Lee, B Mr/Second Officer (Trinidad and Tobago)
Quadrio, P Mr/Second Officer (AUS - NSW)

Associate Member

Devereux, A S Mr/Deck Officer Cadet (UK/N of Scotland)
Gupta, G Mr/Student (UK/NE England)

*Signifies members who have rejoined

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