March 2018 www.nautinst.org

Seaways

The International Journal of The Nautical Institute

What's under the keel?

Is DUKC the next step in improving port safety? **p25**

The Nautical Institute

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Seaways
The International Journal of The Nautical Institute

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Diary

What's on?

The future of maritime professionals 20-21 April 2018

London Branch Conference 2018

Novotel, Victoria Street, BS1 6HY, Bristol UK
www.nautinstlondon.co.uk/

Regulations, enforcement of conventions, technology, connectivity, social isolation and mental health all have an effect on today's seafarer. This seminar will focus on these topics and how they affect the future of maritime professionals.

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'

5 March

CHIRP – Vision and Decision
London Branch with HCMM
1730 for 1815, HQS Wellington, London, WC2R 2PN
Email: andrew.bell@shlegal.com

07 March

Navigation Assessors Course
K C Lyrintzis Group, 26 Akti Poseidonos, Athens, Greece
£150 discount for NI members
Contact: Susie.stiles@nautinst.org

12 March

Navigation Assessors Course
Swire Marine Training Centre, Loyang, Singapore
£150 discount for NI members
Contact: Susie.stiles@nautinst.org

16 March

Wellness at Sea
Sailor's Society conference
Inmarsat, 99 City Road, London EC1Y 1AX
https://sailorssocietywasc.org
10% discount for NI members

20-23 March

GST & Shipping 2030
Tivoli Conference Centre, Copenhagen, Denmark
Maritime.knect365.com
20 % discount with code FKT3394NI

22 March

History of Carmet Tugs
NW England & N Wales Branch
1800, LJMU, Byrom St, Liverpool L3 3AF
Email: sec@ninw.org.uk
www.ninw.org.uk

Red Jet 6 Project
Solent Branch
1800, onboard Red Funnel Ferry
Booking essential!
Contact: nisolentbranch.secretary@gmail.com
www.nautinst.org/uk-solent

17-20 April

Arctic Shipping Forum 2018
Helsinki Congress Paasitorni, Helsinki, FInland
https://maritime.knect365.com/arctic-shipping-forum/
20% discount for NI members

18-19 April

BWM Conference
Vallejo, California
www.wplgroup.com/aci
Email: rafael@acieu.net
15% discount for NI members

19 April

Pilotage and Liverpool 2
NW England & N Wales Branch
1800, LJMU, Byrom St, Liverpool L3 3AF
Email: sec@ninw.org.uk

20 April

Seafarer Mental Health
US Gulf Branch
1130, West Gulf Maritime Association, Houston, TX 77029
Email: nigulfbranch@gmail.com

26 April

Autonomous Vessels; a real revolution
Solent Branch
1830, Warsash Marine Academy
Contact: nisolentbranch.secretary@gmail.com
www.nautinst.org/uk-solent

Captain Duke Snider FNI President, The Nautical Institute

Focus

Speaking the same language

> As I have travelled around the globe as President I have been constantly impressed by the dedication our members display

This month's Focus comes to you from the bridge of the USCGC *Polar Star* in the Southern Ocean on Operation Deep Freeze 2018.

USCGC *Polar Star*'s Antarctic voyage is just one component of an annual international convergence of shipping on the southern continent. Voyages include cruises showcasing the unique flora and fauna, resupply missions to Antarctic research stations and research programmes in Antarctic waters during the summer navigation season. Many of these efforts are conducted collaboratively. One common challenge to all, however, is the ice.

Antarctica not only calves off massive tabular icebergs from its enormous mantle of glacial ice, but also presents the mariner with pack ice and challenging fast sea ice along its coastlines. During this voyage, *Polar Star* first had to work her way through almost 200nm of degrading first- and second-year sea ice before she reached the Ross Sea polynya (an area of unfrozen sea within the pack ice). After transiting the polynya, the real work began, breaking the track through the tough land-fast ice that extended 30nm.

All around the continent other icebreakers have been completing similar missions. Australia's *Aurora Australis* makes several journeys back and forth between Hobart and Australia's stations. The French *L'Astrolabe,* Chinese *Xue Long,* British Antarctic Survey's *Ernest Shackleton*, South Africa's *Agulhas II* and Chile's *Almirante Oscar Viel* are just a few of the icebreakers that come down to the Antarctic annually, either making supply trips themselves or providing escort to cargo vessels that complete the resupply.

Like many of the ships operating in the Antarctic resupply and research season, *Polar Star* has international personnel aboard. In addition to a RNZN Lieutenant Commander learning first-hand how to operate in ice, I am aboard representing The Nautical Institute. I was invited to sail on Operation Deep Freeze, the US military's logistical support operation for the National Science Foundation-managed US Antarctic Program, to observe *Polar Star*'s ice operations. This gives The Nautical Institute the opportunity not only to share our Ice Navigator Training and Accreditation programme with the United States Coast Guard, but also to benchmark our programme against the high standard of US Coast Guard training. We are providing officers on the bridge of *Polar Star* with the perspective of the Ice Navigators on board the ships that she will escort through the ice of the Ross Sea; and assisting the Commanding Officer and his bridge teams with ice route planning from the perspective of Ice Navigators on board escorted ships.

In July 2017, The Nautical Institute launched the Ice Navigator Training Accreditation and Certification Scheme, which provides the first international standard in training and certification for ships operating in ice-covered waters around the globe.

The maritime industry has many common international standards of training and certification. They ensure that operators not only have the same high standard of competency, but 'speak the same language' in a particular area of expertise. They give owners, insurers, administrations and charterers confidence that people holding those certifications meet acceptable standards that have been carefully developed and maintained. A prime example is The NI's Dynamic Positioning Officer certification. Similarly, the NI Sail certification ensures a high degree of competency for officers aboard tall ships.

The degree to which the Ice Navigator certification has been accepted is evident from the number of applications under the grandfathering clause. Experienced and highly competent officers who have been operating in ice for many decades have realised the value of an internationally recognised certification in ice operations. Shipowners and management companies are advising their officers that they should apply for certification. They know that showing that their bridge officers meet an international standard from a respected professional organisation such as The Nautical Institute serves as a visible show of commitment to best practice and safety.

As I participated in the daily ice navigation training for the bridge team personnel aboard *Polar Star*, it was evident that they had a very strong safety culture. These incredibly experienced and competent officers were eager to pass on their knowledge to the next generation. Incorporating The Nautical Institute's Ice Navigator Certification and obtaining accreditation for Ice Navigator training within the training regime in a more formal way would ensure the USCG officers could better understand how other bridge officers think and expect to operate in ice.

Striving for best practice and the highest levels of professional competency at sea is our goal. As I have travelled around the globe as President I have been constantly impressed by the dedication our members display, regardless of their nationality or sector of the maritime industry, whether commercial, naval or coast guard. When we all strive for the highest levels of professionalism we all benefit. Constant learning, continued proficiency, adherence to best practice and competency are the hallmarks of a truly dedicated professional mariner. The annual shipping advance towards the Antarctic, bringing together all sectors of modern shipping, highlights the ongoing need for multi-sectoral collaborative seamanship.

Captain Alison J Rawlinson AFNI

Captain's column

Onboard survival equipment

I read with interest Professor Helen Sampson's article, 'Mandatory shipboard equipment: help or hindrance', in the January issue of *Seaways*, the findings of which came as no surprise.

In a seagoing environment, boarding of any survival craft is going to be fraught with difficulties, and this should not be hindered further by continued acceptance of poorly designed and incompatible equipment. This brings me to the topic of survival suits and lifejackets – an ill-suited combination.

Twenty years ago I encountered the incompatibility issue when it was deemed necessary to wear both a survival suit and a lifejacket. The vessel was provided with survival suits of a type that were designed for use without a lifejacket; a notice to this effect was clearly printed on the fabric of the suit. However, the flag administration maintained the view that a lifejacket must be worn. As a consequence of muddle-headed regulation, numerous practical issues soon emerged:

- The design of the two-finger mitten-style gloves made it impossible to adjust and fasten the lifejacket straps;
- The design of the suit meant that the lifejacket fitted uncomfortably, if not dangerously, on the wearer;
- The constraints imposed by the bulky combination of survival suit and lifejacket prevented the wearer from accomplishing the most basic of tasks required during an evacuation.

I addressed my concerns to the company, where they were quickly filed in the 'inconvenient truths' drawer.

Some years ago I attended a personal survival techniques (PST) course in Norway. The training facility provided survival suits in a range of sizes, thereby catering for all participants. The suits were of a type that did not require lifejackets, and the training was conducted in the sea. All participants successfully boarded the liferaft either unaided or with minimal assistance. The importance of wearing the correct size of survival suit cannot be overstated, as this alone prevented or at least limited water ingress.

More recently, during a similar course conducted in the UK, participants were issued with suits that did require lifejackets. Furthermore, only one size was available. The course was undertaken in a swimming pool and all trainees struggled to board the liferaft unaided. Obstacles to successful entry included:

- Poorly designed and impractical boarding arrangements;
- The restrictive burden presented by the lifejacket;
- The significant amount of water that became trapped in the suit. This in itself should highlight serious shortcomings.

Ships do not sink in swimming pools. One size does not fit all, and multiple practical issues remain unresolved. Is it not time to take a more pragmatic and interactive approach to the function and design of LSA equipment, which in the present form serves only as a hindrance to successful vessel evacuation?

CSMART
Center for Simulator Maritime Training
Part of the Carnival Corporation & plc Group

NAUTICAL INSTRUCTOR – SHIP HANDLING

CSMART is looking for you!

CSMART, Center of Simulator Maritime Training, located in the Netherlands, is part of Carnival Corporation & plc Group.

The Maritime Training Center uses the very latest, state-of-the-art technology and methodology. It consists of Bridge/Engine Room Full Mission & Part Task Simulators including Performance Appraisal Facilities. The number and range of training courses will more than double over the next few years.

CSMART is currently looking for quality maritime professionals who want to develop their skills and become professional Nautical Instructors in a variety of Nautical Subjects.

Duties & Responsibilities

As a Nautical Instructor focused on Ship Handling courses, you are an integral part of the CSMART team, being a role model for Carnival's Deck Staff and the key responsibilities include:

- Delivering training
- Developing courses/new procedures to be implemented on board ships
- Keeping up to date with current practices and technology
- Occasional ship visits to maintain/update practices on board

Requirements & Experience

- Experience as a Captain, a senior Pilot, or a Staff-Captain.
- Extensive experience as ship handler both on vessels with conventional and **podded propulsion**
- Cruise Ship experience is preferred
- Experience in teaching/instructing, especially in a simulated environment, would be an asset

REMUNERATION

As part of our remuneration package, CSMART is able to offer successful candidates a competitive salary & benefits package including but not limited to: relocation and a pension plan.

CONTACT

Further details are available on the CSMART website www.csmartalmere.com and for expression of interest please contact our HR department via csmartrecruitment@carnival.com

Full mission and fast time simulation for shiphandling training

Simulators have much to offer in terms of training, and new developments mean they are increasingly useful for developing detailed manoeuvring plans for individual ports

Michael Baldauf MNI
& Knud Benedict

An article in the September 2017 issue of *Seaways* provided an overview of the advantages of manned model training for shiphandling. Although this type of training is effective for developing major parts of an individual mental model for monitoring and controlling shiphandling processes, there are some aspects that this training method is unable to address or does not cover fully.

Manned model training affords a good 'bird's eye view' of a ship's behaviour. It gives the trainee a physical feel for the ship's reactions both in terms of control activities and for environmental effects such as shallow water, banking and ship encounters. It supports the development of an individual mental model for monitoring and controlling these aspects of shiphandling.

There are disadvantages to the use of manned models. In particular:

- There are no opportunities to use electronic aids such as ECDIS
- There are limited team training elements, such as interaction between navigator and co-navigator (teamwork in shiphandling is vital because almost all incident reports indicate that the co-navigator could have highlighted that the navigator was deviating from the manoeuvring plan)

Figure 1 Using the SAMMON planning module to prepare students for full mission simulator training at the World Maritime University, Malmö

- Scale effects might come into play when transferring skills from handling ship models to full-size real ships
- Some environmental effects, such as wind, cannot be sufficiently planned when carrying out training sessions on open lakes
- They are not suitable for developing and following a manoeuvring plan as part of a specific arrival/departure plan for a particular port and varying environmental conditions.

The simulation-based approach to shiphandling training for complex ships, as used in the cruise industry for example, treats shiphandling as a team event including BRM techniques, detailed planning and full use of electronic navigation equipment. The training comprises:

- Detailed planning of manoeuvres to develop an overall manoeuvring strategy
- Sharing this strategy with the team during the briefing
- Using the bridge team and all relevant electronic aids to monitor and control the execution of that plan
- Debriefing with detailed assessment of the trainees' performance and results.

A fast-time manoeuvring simulation (FTS) tool can be used for lectures and demonstrations to prepare trainees for their time in the simulator. This new technology is unique in the way in which it allows shiphandlers to visualise alternative manoeuvres for different environmental conditions and so to develop complete manoeuvring strategies for arrival or departure.

Fast-time simulation (FTS) for enhanced briefing

FTS manoeuvring technology was developed at the Institute for Innovative Ship Simulation and Maritime Systems (ISSIMS Institute) at Wismar University, Germany.

This technology forms the basis for the Simulation Augmented Manoeuvring Design, Monitoring & Control (SAMMON) software. SAMMON contains all the information from pilot card, wheelhouse poster and manoeuvring booklet (and any additional trial results) for each ship entered into the system. From these, it creates a dynamic model in which the ship responds realistically to wind, current and restricted water effects.

The simulation is carried out at very high speed: the system can calculate 24 minutes of vessel manoeuvring time every second. Simulated manoeuvres are displayed on the appropriate chart, scaled to the ranges of that ENC system. This allows for a precise judgement of manoeuvring opportunities and in-depth discussion of actions to be taken and any limiting factors. The software allows:

- Demonstration of manoeuvring characteristics to familiarise users with the ship
- Offline manoeuvring, allowing users to create and trial manoeuvring plans in advance
- Online manoeuvring support, providing dynamic prediction of manoeuvre outcomes related to the actual controls on the bridge.

FTS in practice

In contrast to the limited set of manoeuvres in the manoeuvring booklet, the effects of almost any combination of ship's control setting and environmental effects can be displayed. A few examples demonstrate the variety of simulated manoeuvres that are possible beyond the range included in the ship's documentation:

Effect of split engines and rudders for twin-screw/ twin-rudder ships

Many cruise ships and ferries have twin-screw/twin-rudder systems. Normally these systems are operated in synchronous mode for continuous operation during long voyage segments,. For manoeuvres in ports there are some advantages to splitting the engines and propellers and controlling them separately. The stopping distance can be reduced by split engine manoeuvres if one engine is already running astern to keep a reduced speed.

Split mode also has some advantages for steering capability, as the rudder inflow from the ahead engine causes higher rudder forces to be used for course-keeping (eg in strong winds) than synchronised engines. In addition, turning capability can be improved (see Figure 2). From this, we can draw a number of conclusions.

When operating with split engines, the turning circle is smaller on the side where the prop is reversed. The ship reacts faster and has a smaller circular motion radius. The greater speed loss with split engines also results in an improvement in turning ability to that side, which means the ratio of rudder forces to hull forces is higher. However, if the ship is turning to the *opposite* side the turning capability is reduced. This is why the ship needs a rudder angle PT -4.4° to balance the ship when it is already on straight track – that means the effective rudder change is nearly 40° when turning to STB, but only 30° to PT side.

Effect of wind

Another important issue that can be easily explored by the SAMMON system is the behaviour of the vessel under wind impact. Figure 3, overleaf, shows how different wind and ship speed ratios will affect the manoeuvring motion of a ship. For all manoeuvres shown here, the rudder is 10° to STB and the wind is blowing from due west. The figure on the left shows a complete turning circle, with no wind. The figure in the centre shows a wind speed of 20kt, resulting in a spiral where the curvature is always changing. In the figure on the right, with a wind speed of 40kt, the ship will keep a straight track with no turning. This is a condition of equilibrium where the wind moments are balanced by the moments on ship hull and rudders. The turning motion will decrease or even stop. In this case, for a rudder angle of 10° the respective encounter angle is between 110° and 120°. This results in a course of about 30°.

Manoeuvre planning for arrival/departure

IMO regulations require berth-to-berth planning. This goes beyond standard route or passage planning. In shiphandling terms, arrival and departure are the most important parts of the voyage, and route planning must be complemented by manoeuvring plans.

The difference is quite clear:

- Route plans consist of waypoints where a change of course or speed is foreseen, and show only straight lines or circular segments
- Manoeuvring plans consist of manoeuvring points where a control order needs to be made in order to reach the next manoeuvring point. In most cases, the path is curved like a manoeuvring track.

However, conventional manoeuvre planning is still on the level of copy-and-pasting ship shapes on the intended track, with manual drawings of intended speed and rate of turn at given positions along with calculations for drift angles /swept path. FTS technology makes it possible to design a full manoeuvring plan to identify and test possible rudder, engine and thruster manoeuvres taking into consideration actual or potential environmental conditions.

The basic idea behind simulation-augmented manoeuvring support is to visualise the mental manoeuvring planning of an experienced navigator and display it on screen. This can be useful both when creating a berth plan and briefing the navigational officer.

Figure 4 (overleaf) shows the process of using SAMMON to create a manoeuvring plan for the cruise ship *Royal Princess* for arrival and berthing at Pier 163, Marseille. The plan will be made based on a route plan (red dotted lines) imported from the navigation and command system (NACOS).

The smart interface of the planning module combines:

- The virtual control panel for adjusting the controls at each selected manoeuvring point
- The ENC, displaying the current manoeuvring motion and status of the ship (centre; current position shown as a ship shape in red)
- Left column and top row display the status of the ship manoeuvring data at the next manoeuvring point, based on current position, control input and environmental conditions (shown on the ENC as a blue ship shape with a red frame).

The red shape represents the initial situation at manoeuvring point 0 (MP 0).The first task is to find the balance condition using the control panel. This can easily be done through trial and error, because the results of the control changes are immediately visible:

- Ship is set on course over ground (COG) 50° with a speed over ground (SOG) of 9.9kt, 48% engine order telegraph (EOT)
- Wind is set to 320° and 25kt (ie about 2.5 times more wind than ship speed)
- Therefore heading adjustment (HDG) needs to be about 44° to keep course (by means of drift angle, which is about 6°. The swept path width can immediately be seen and is about 82m)
- Additionally rudder 5° STB is required to prevent the ship from turning into the wind.

The predicted ship positions are displayed as black dotted shapes calculated for the next six minutes from MP0. Adjusting the time slider at the bottom will move the blue ship shape with the red frame forward until the vessel reaches the position where the next control order will be given. This position will be MP1. From there the next manoeuvring segment will follow – and so forth until finally the berth is reached.

Figure 5 shows the final version of the plan, where blue lines and ship shapes indicate each stage. Additional text windows explain the actions at individual manoeuvring points. Here, the planning module is in edit mode, which allows the user to change a plan or to display the settings on every manoeuvring point for briefing. In this screenshot, the active focus is on MP4, where the ship starts to turn into the port with rudder PT -20°, supported by split engines to reduce speed and maintain steering. The ship turns into the wind and stops.

The next actions are:

- MP5: Turning is stopped with bow thruster STB 50% and rudders amidships. The ship starts moving astern
- MP6: Speed astern is reduced, still with split engines (in order to have some reserves if the rudder is needed), steering to the berth with bow and stern thrusters
- MP7: Stopping astern motion with EOT 30% ahead and thruster about 30% STB to stop transverse motion to the pier.

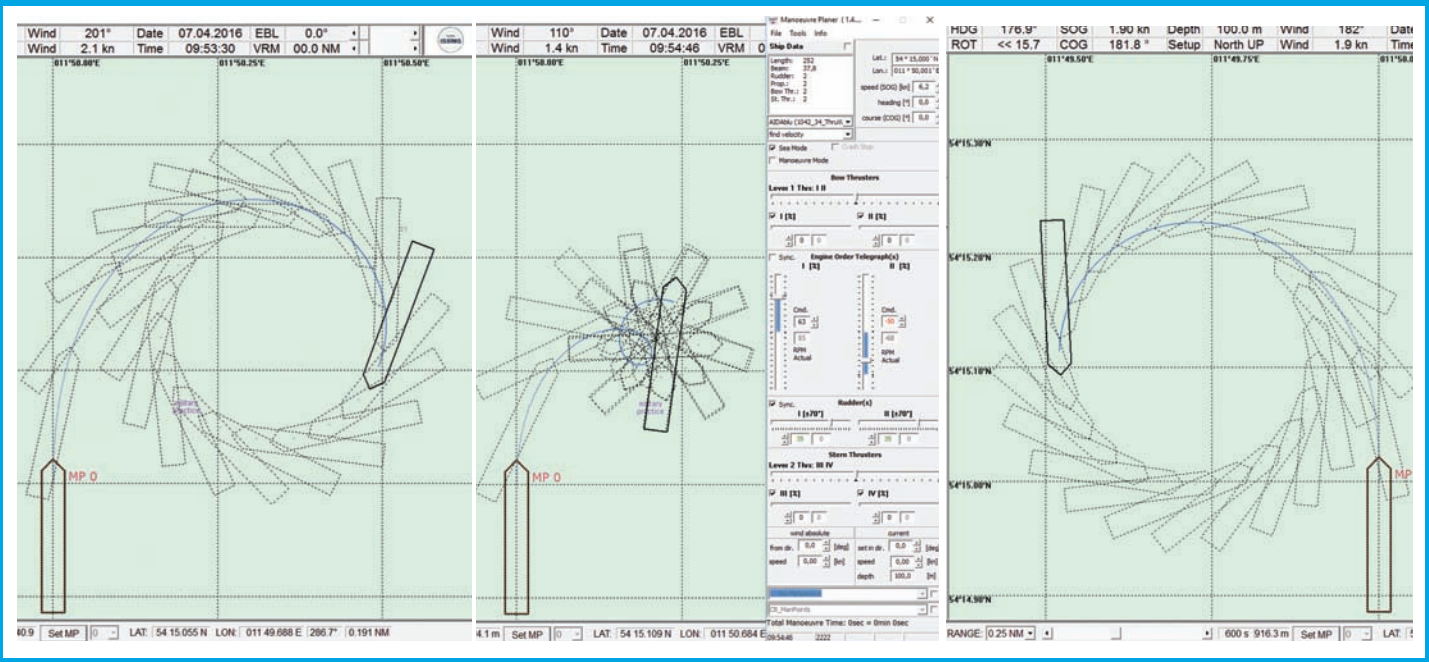


Figure 2 Comparison of turning manoeuvres from an initial speed of 6.2 knots with constant speed rate on straight track, demonstrating the difference between sync and split engines:

- **Left: Standard turning manoeuvre with full rudders 35° STB with standard sync engines from EOT 30% both STB and PT**
- **Centre: Turning manoeuvre with full rudders 35° STB with split engines PT engine +63% ahead, STB engine -50% astern**
- **Right: Turning manoeuvre with full rudders 35° PT with split engines PT engine +63% ahead, STB engine -50% astern**

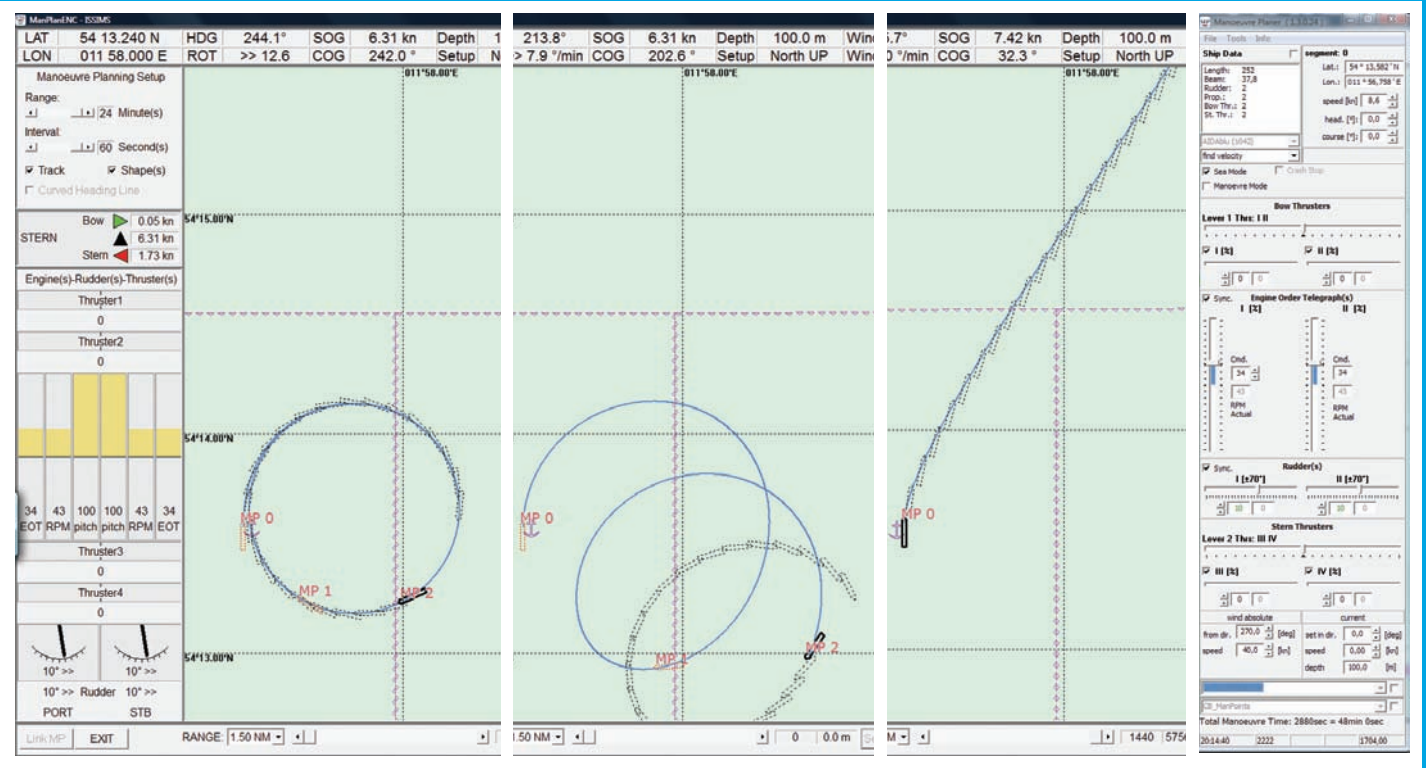


Figure 3 Turning circle showing effects of wind:
Rudder 10° STB under beam wind from 270 ° at low ship's speed of 7kt (left: no wind, centre: wind speed 20kt, right: wind speed 40kt)

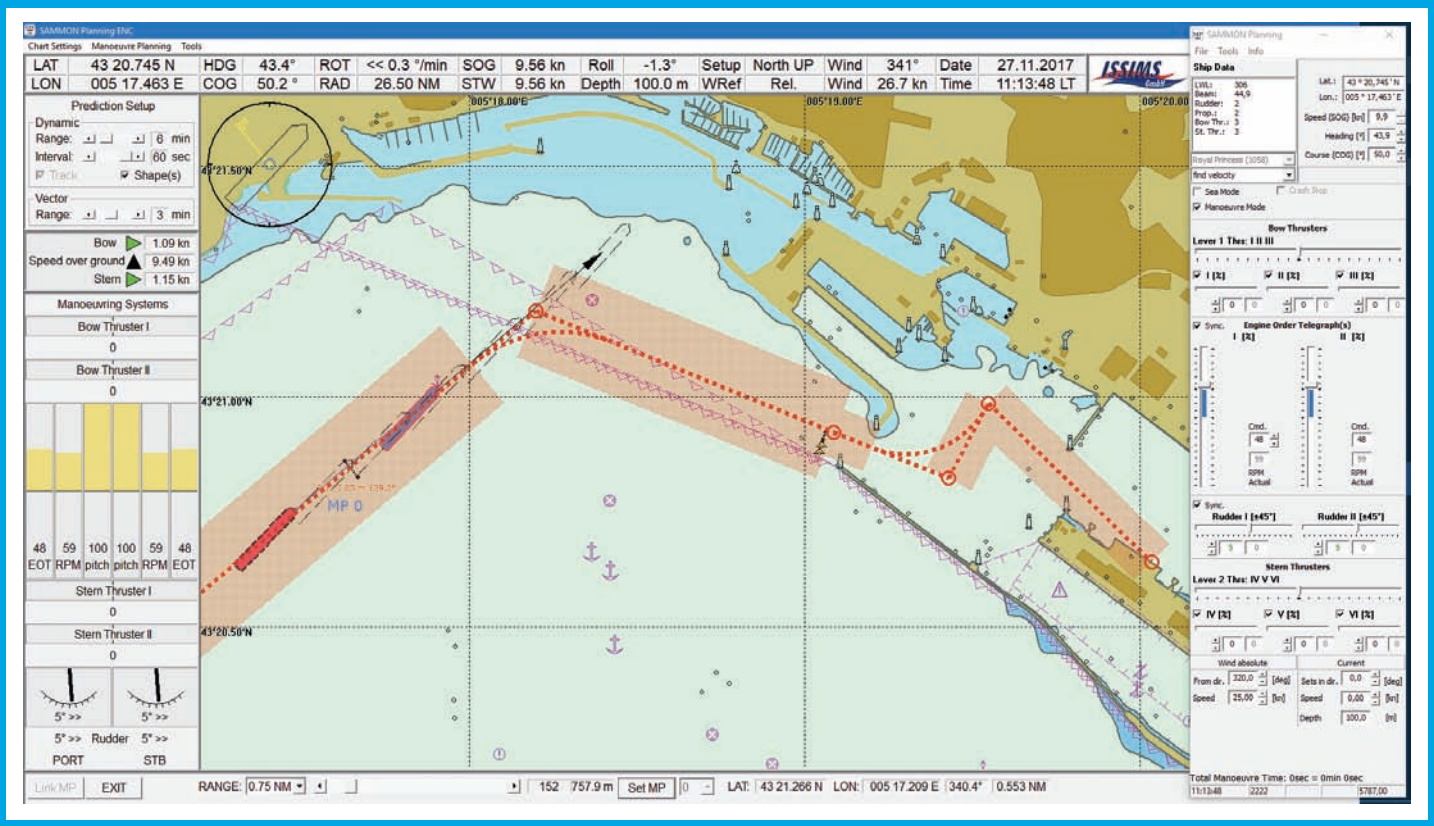


Figure 4 SAMMON planning module: route plan imported from NACOS (red dotted lines and circular segments) and start of manoeuvring planning at manoeuvring point MP0 (red shape); predicted manoeuvring track for 6 min (black dotted contours every minute) and shifted position for the next MP (blue shape with red frame)

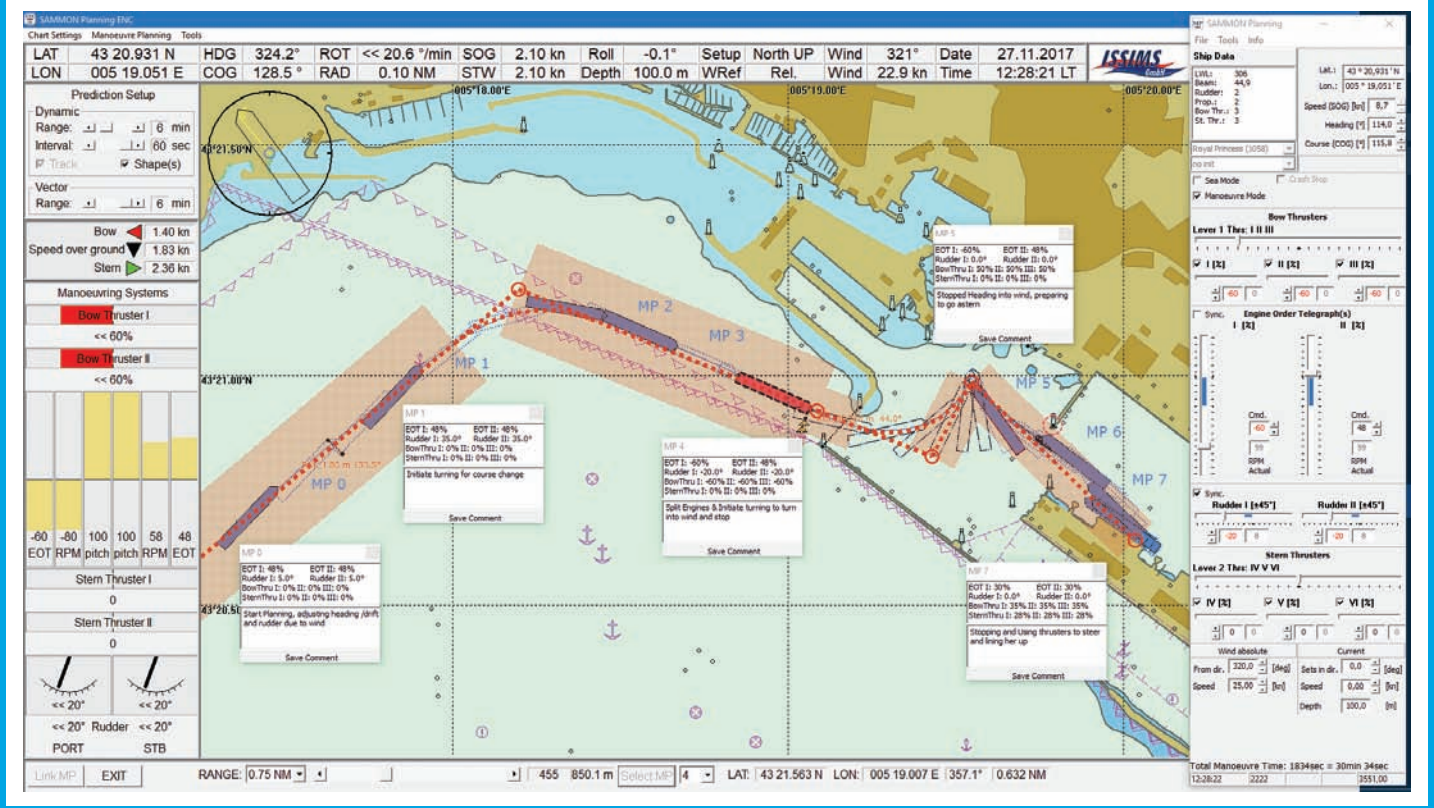


Figure 5 SAMMON planning module: complete manoeuvring plan from SAMMON planning module (blue line and shapes), based on route plan (red dotted lines) imported from NACOS

Pre-training and briefing

In addition to the planning module, SAMMON also includes a manoeuvring simulation trial and training module. This provides ship handling simulation in real time on a laptop, allowing users to check and practise the manoeuvring plan (see Figure 4). One new aspect here is that trainees can use the software both to plan the manoeuvres and to trial their results – so the results of the manoeuvre execution during the simulator training run can be assessed against the trainees' own plan.

The software features:

- Ship steered by **virtual controls on screen**
- Parallel display of manoeuvring plan and predicted manoeuvres based on user input
- Calculation of **multiple dynamic prediction** tracks for full ship dynamic simulation
- Simplified 'path prediction' presentation as Look Ahead for future ship's motion.

Future applications

Until now, fast time simulation planning has mainly being used for training, making use of the opportunities it offers for developing a mental model and creating manoeuvring strategies. During training sessions, participants have been asking whether it is possible to get FTS support for the execution of manoeuvres on board. Tests are now starting on the use of the planning module on board ships for briefing of manoeuvres and developing contingency plans for potential adverse weather changes.

During the execution of manoeuvres, FTS can be used in the monitoring and conning mode to provide high level manoeuvring predictions. The interface is the same as in the training module, except the control panel is left out; instead, control data is input directly from the vessel controls themselves. In contrast to the training module, the conning module calculates the future path taking into account the actual control settings input from the bridge controls and input from sensors such as navigation data and wind speed.

The 'dynamic prediction function' shows the future track just one second after the input of data – unlike the simplified 'path prediction', which represents only a continuation of current motion status. The parallel presentation allows continuous comparison of the current state and future development of motion. This allows users to judge the precision of the dynamic simulation model, because, given constant control settings, the predictions should match up with what is actually happening.

This new technology has a great potential to make substantial improvements not only to the training but also to the safety and efficiency of manoeuvres on board.

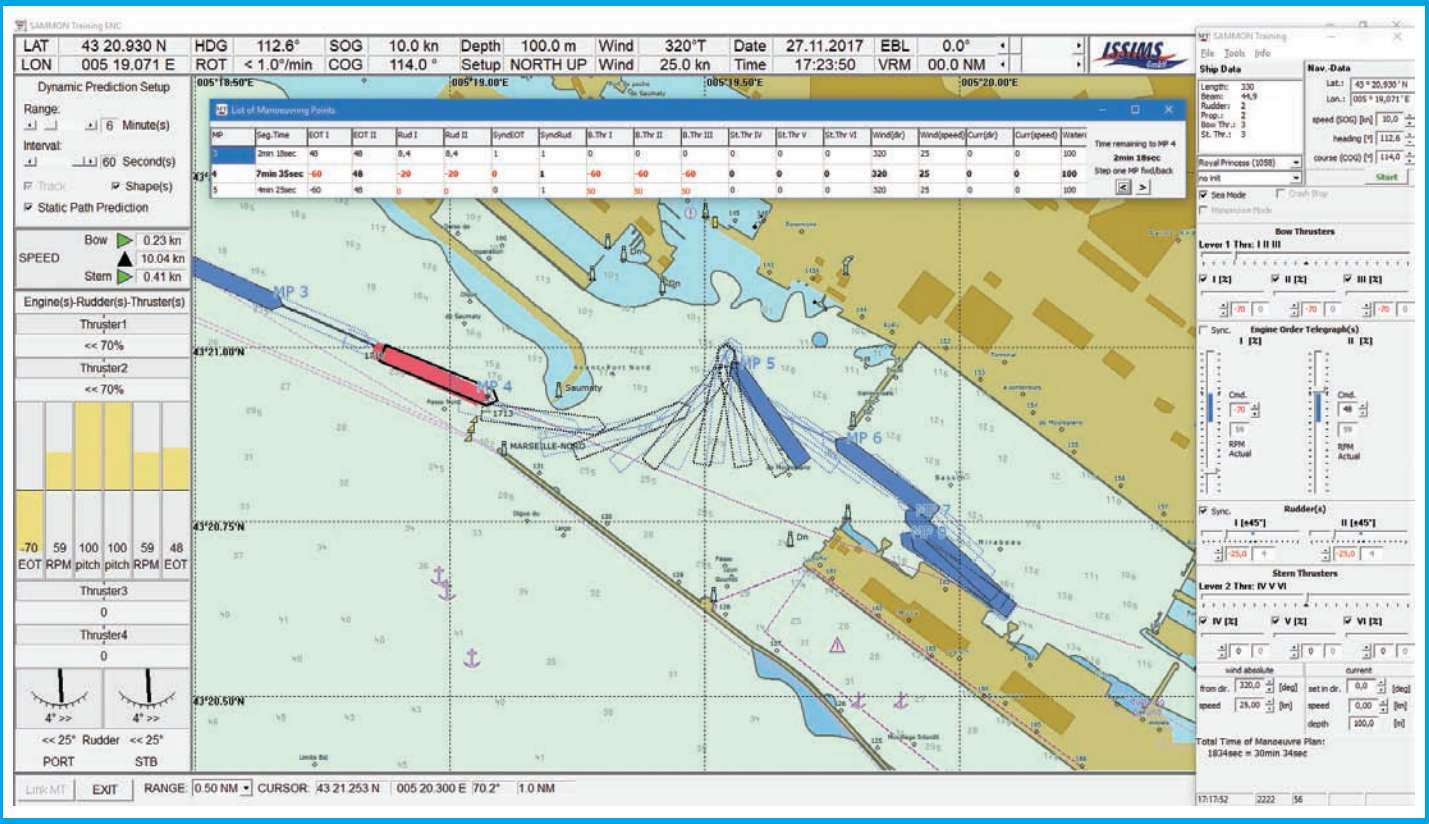


Figure 4 SAMMON Trial & Training Tool with multiple predictions: Real time simulation and manoeuvring prediction are integrated into ECDIS. The display compares Full Dynamic Predictions (black dotted ship contours) and the simple static prediction (magenta curve) together with planned manoeuvring track (blue line and ship shapes)

Annual General Meeting 2017

To be held at the Cavalieri Art Hotel, St Julian's, Malta On Wednesday 23 May 2018

Council Notice 1

In accordance with Article 8 of the Constitution, the Annual General Meeting will be held at The Cavalieri Art Hotel, St Julian's, Malta on Wednesday 23 May 2018 at 17:00. 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 gala dinner.

Council Notice 2

In accordance with Article 20 of the Constitution, Council shall notify all members of vacancies which are to occur among the officers and members of Council at the Annual General Meeting on 23 May 2018 (as shown below).

In accordance with Article 21 of the Constitution, any two members entitled to vote may nominate eligible persons for election to Council – please send your nomination in writing to the Chief Executive at NIHQ (sec@nautinst.org).

Council Members

Sea-going:

One vacancy available

Shore-based:

No vacancies available

By Order of Council

AGENDA

17:00 Welcome by the President

Presidential address: Captain Duke Snider, FNI

Institute business:

To confirm the minutes

To receive the annual report of the Executive Board of Trustees

To adopt the audited accounts

To appoint auditors

Election of Council members

Election of Vice Presidents

Election of President

Presentations of awards:

Certificates of Fellowship and Recruitment Recognition Awards

18:30 Close of Business and Reception

Governing The Nautical Institute

Keeping the Institute on track for its goals

In the February issue of *Seaways*, we looked at how the various specialist committees contribute to the life of the Institute. Governance in the broader sense lies with council and the Executive Board. Again, there are a number of ways in which you as a member can get involved with the governance structure. It is important that we have input from members at all stages of their careers. Associate members are welcome to serve on council, and there is special provision to ensure that we hear from seagoing members as well as those ashore.

The Institute carries out a major survey of its members every five years, and the response from that survey shapes our five year plan and strategic goals. If you would like to have more direct input on a regular basis, however, you might consider serving on one of these bodies:

Council

Council is responsible for ensuring the Institute meets its constitutional objectives. To ensure it is representative of the Institute as whole, Council consists of:

- Up to forty-eight members (all NI membership grades are eligible), of whom:
  - At least 50% must be seagoing members;
  - A maximum of 10% may be associate members.

In addition to the forty eight ordinary members, Council also consists of:

- President;
- Immediate Past President (unless elected to the Executive Board);
- Up to six Vice-Presidents.

Council members are elected at the AGM for a term of three years. They may stand for a second term, but may not be an ordinary member of Council for more than six consecutive years. Meetings are held in London, but as with all other committees, every effort is made to allow members to attend by videoconferencing or other electronic means.

Two dedicated subcommittees support the Council in its work, with members elected by the Council from among its own members. These are the assurance committee and the nominations committee.

Nominations Committee

Like the Assurance Committee, members are elected by and responsible to Council. The Nominations Committee advises Council on the nomination of members for specific roles within the governance structure of the Institute. The committee's role includes:

- Assessing candidates for nomination to Council, the Executive Board and the IMO Committee;
- Ensuring effective succession planning;
- Developing election criteria and procedures for election to and dismissal from the Executive Board;
- Nominating candidates for Fellowship and Honorary Fellowship;
- Considering applications for membership or affiliation with the Institute.

The Nominations committee also makes recommendations to the Executive Board on:

- Election of members, recruitment and retention schemes, and membership data;
- Membership documentation;
- Membership qualifications and experience criteria;
- Membership subscriptions and fees;
- Services to members, including the branch network.

Executive Board

The Executive Board is made up of between eight and fifteen Trustees and Company Directors, who are appointed by Council. Members are elected for a term of three years, and may serve on the board for up to six years. The Executive Board is responsible for discharging the Institute's obligations under the provisions of the Registered Companies Acts and the Charities Act. In practical terms, this means that the Board:

- Monitors and prioritises the activities of the Institute;
- Ensures compliance with the requirements of the Charities Commission and other regulatory bodies;
- Approves the operational budget annually;
- Oversees the strategic reserve investments of the NI.

It is supported by the Financial and Audit committee.

> Engagement with The Nautical Institute's governance and committees gives you the chance to use your skills and knowledge to help shape our organisation

Financial & Audit Committee

This committee advises the Executive Board on all matters involving income, expenditure or financial policy. This will include:

- Assessing risk, particularly financial risk, and providing consequent advice;
- Assisting the Treasurer and financial management staff;
- Consulting with appointed auditors and financial and legal advisers.

The Board delegates the oversight of the financial management of the Institute to this committee and receives its reports and recommendations, specifically on:

- The annual budget, management accounts and audit processes;
- The Capital Reserve Fund and investment management;
- The Annual Accounts and Auditor's Report;
- Special requests for project funding for the Institute or a particular branch;
- The terms of contracts/agreements between the Institute and third parties.

The committee will meet as necessary to prepare for Executive Board meetings.

Assurance committee

The assurance committee advises Council on the effective governance of the Institute. This includes:

- Developing Key Performance Indicators to measure effective governance;
- Assessing the performance of the Executive Board and the Institute's committees against agreed KPIs and making recommendations where necessary;
- Considering any complaints concerning governance performance;
- Encouraging the effective use of the self-assessment process for committees;
- Assessing risk within the governance structure and provide advice.

President and Vice Presidents

The President is the public face of the Institute at events around the world, both within and beyond the Institute. Presidents are normally nominated from past or present Council members. They are elected for a term of two years, and will remain a member of Council for a further two years after retiring as president, unless they are elected to the Executive Board.

Vice-Presidents are elected for six years and may be eligible for re-election for a further period of three years. One Vice-President is nominated by the President and Vice-Presidents as Senior Vice-President for a two year term.

Being part of the solution – adopt a ship

Creating a better connection between ship and shore starts in the classroom

George Hoyt FNI
IMO Maritime Ambassador, InterManager Vice President

One of my favourite professors would tell us that we need to decide if we are going to be part of the problem or part of the solution. Over the years, I've been very lucky and honoured to be part of the teams that developed and delivered some very exciting and useful maritime solutions, including The Nautical Institute's *Alert!* human element programme, the shipping KPI system, the maritime satcom glossary, and so on. There are still many issues to tackle, but three in particular cannot be solved by the maritime industry alone and need urgent action. These are:

- Unfair criminalisation of seafarers;
- Denial of safe ports of refuge;
- Seafarers being held hostage for ransom by pirates.

A great deal of activity has been directed at these challenges over the years, but we haven't been able to overcome them by ourselves. We need the support of those outside the maritime community. We can only do that if they know who we are and why these issues matter. That means the first thing we ought to do is to increase the non-maritime community's awareness of seafarers, shipping and the maritime community.

The global population at large needs to learn how much their current and future quality of life is dependent on seafarers, shipping and the maritime community. Higher levels of awareness among the general public increase the effectiveness of the work of the IMO, The Nautical Institute, InterManager, and everyone in the maritime community. And once established, this knowledge needs to be maintained – or to increase – with every generation. That means starting now, with an immediate focus on children.

Creating programmes for all children, starting at age 10, will expand our potential to bring more of the best and brightest young men and young women into a continually expanding range of challenging and rewarding maritime, and maritime-related, careers. This will help create the leaders who will develop future maritime policies.

This can be expensive and time-consuming, and it can be difficult to know where to start. One possible solution is the Adopt a Ship programme. This aims to create real links between children and those serving at sea, bringing the topic to life in an imaginative way.

Adopt a Ship

The Adopt a Ship programme is a well-developed, free tool that can help begin the process of increasing children's awareness of seafarers, shipping and the maritime community. It is a useful and enjoyable way of bringing home the critical importance they play in the quality of life for almost everyone on the planet.

The Adopt a Ship programme was initially developed by the Cyprus Shipping Chamber (CSC) and the Cyprus Maritime Environmental Protection Association (CYMEPA) in 2006 to bring together elementary schools with seafarers on board ships operated by CSC members. More than 70 ships are participating in the Cyprus programme. The programme has since expanded into the Philippines, Poland, India and Greece, and this year more than 4,500 children are taking part in the Facebook Adopt a Ship International programme in Manila alone.

The programme takes a variety of forms depending on the country where it is based (for more details, see box). In essence, it matches a ship with an elementary school class or an orphanage, shelter or hostel. The children are given a 2m × 3m world map marked with sea lanes. They use the map to track the movement of 'their' ship around the world. Once a week, a senior officer from the vessel (usually the captain) exchanges a short email with the class and answers their questions.

The children ask a wide range of questions, like:

'What happens when a seafarer gets ill or dies on board the ship?'

'Why doesn't such a large ship that is made of metal, sink?'

'How does the ship dispose of garbage?'

'How does the crew know the safest way to sail between two cities when sailing at night?'

Some of the captains provide very amusing, educational and inspiring answers.

One of the team members involved in the Manila programme shared this story with me: 'I am sitting in a workshop with the teachers involved in the Adopt a Ship programme. It is very heartening to hear feedback from the teachers as well as identify areas for improvement for everyone involved. A teacher told us about a student whose father was a seafarer. The boy did not understand what his father did, and their relationship was strained. But through the Adopt a Ship programme the young boy began to understand his father's profession and his mother was very grateful that the boy had this opportunity. The learning is

going beyond just the hardware and reaching out to both the children and teachers in deeper ways. This further deepens our appreciation for the Adopt a Ship programme and its potential to educate and raise awareness about shipping and our global maritime professionals.'

From personal experience I can tell you that the children in the orphanages, shelters and underprivileged schools get very excited and are very grateful that someone cares enough to send them a message every week, with the location of their ship and the answers to the questions they asked.

Get involved

We encourage leaders of the maritime, education and welfare communities to create Adopt a Ship programmes, because these tools can eventually help to significantly increase the safety and quality of life of our current and future seafarers working on board.

Are you interested in taking part in the programme? Perhaps you are a shipowner, a manager or a seafarer. You may already know a school that would be interested in taking part. If so, a good first step is to visit the Adopt a Ship International page on Facebook and to search for existing programmes in your area. We will try to assist all organisations, companies and individuals who want to participate.

Worldwide rights have been secured for schools and orphanages who participate in Adopt a Ship programmes to print that 2m × 3m world map. This digital version allows logos of participating organisations and pictures of ships to be added at the bottom of the map. We will share the right to print this map with organisations and companies who want to participate.

The Adopt a Ship programme can be used in combination with the Seafarers Mosaic. This is another intiative designed to raise awareness of the importance of seafarers worldwide by showing what it is that they do every day and why it matters so much. At www.seafarersmosaic.com we already have more than 1,000 videos of seafarers working on board and ashore – but the site has room for up to 40,000. To protect the identity of the seafarers participating, we don't use names, but all contributors are given an ID code so they can share their contributions with others if they wish. Paste these codes into the Mosaic's search function to meet some of The Nautical Institute team: M2962999-41, M2962999-46, M2435418-40, M2435418-33, M2962999-44, M2962999-43.

We encourage every member of The Nautical Institute to make some time to get involved in spreading the 'good news in shipping' to the non-maritime community. The best way to do this is by sharing positive stories about shipping and seafaring in local communities and on social media platforms.

Please visit us at Adopt a Ship International on Facebook and provide us with suggestions about how we can all become part of the solution.

Students take a keen part in the programme

Following the ship's track on the map shows the scale of the industry

Even young children can take part

Creating engagement in the classroom

How it works

The Adopt a Ship programme is very versatile, and can be adapted to work with the educational needs of the country or school in question. Beyond the basics outlined in the article, we list below a few of the possibilities.

Measuring learning

Before the programme starts, the children are given a 'pre-test'. They are shown a world map with the outline of the oceans and continents, but with no names. The teacher asks them to fill in certain details. Ten weeks into the programme, the children are given the same test a second time. Results are then compared with those of the previous test. (Details of the very positive results are available for review on request.)

On screen

Children are shown films from the IMO, the Internationl Chamber of Shipping and other sources.

Online

It may be possible to set up a Skype session or similar once or twice a year between the ship and the classroom or orphanage.

In person

Executives from participating organisations, and sometimes seafarers who have participated in the scheme on board, can visit the schools or orphanages that are involved in the programme.

Site visits

At the end of the school year, or on some other agreed date, the children visit some of the shipping companies that are participating in the programme. They might be shown equipment used on board and models of ships. They may even be allowed, when properly supervised, to use some of the training facilities, suh as simulators. These visits are sometimes followed by a question and answer session and/or a test.

Rewarding participation

Certificates are given to the seafarers who participate on board, to shipping companies and to the teachers and administrators who run the scheme within the schools and orphanages.

Dynamic separation

Newly observed phenomenon may cause additional hazards for bauxite carriage

Research presented to IMO has found that certain forms of bauxite with a large proportion of smaller particles could be subject to the newly identified phenomenon of 'dynamic separation' when there is excess moisture in the cargo. The IMO has issued advice that bauxite may become unstable when carried in bulk, potentially causing the vessel to capsize.

According to reports presented to the IMO, certain forms of bauxite with a large proportion of smaller particles could undergo dynamic separation when there is excess moisture in the cargo. During dynamic separation, a liquid slurry of water and fine solids can form above the solid material. The resulting free surface effect could significantly affect the vessel's stability.

The draft new schedule for Group A bauxite states:

'If free water or a liquid slurry above the cargo or fluid state of the cargo is observed, including the flattening of the cargo, during voyage, the master shall take appropriate actions to prevent cargo shifting, loss of stability due to free surface effect and potential capsize of the ship.

An atypical motion of the ship (wobbling) may also be indicative of cargo instability and the master shall consider appropriate action.'

According to a report from Gard P&I Club, 'Like liquefaction, the process of dynamic separation can be prevented by ensuring that the bauxite has limited fines content and a limited moisture content, as both particle size distribution and moisture content are the main parameters for the occurrence of this phenomenon.'

Updated guidance

IMO's Sub-Committee on Carriage of Cargoes and Containers has provided new guidance on the carriage of bauxite, in the form of a circular aimed at shippers, terminal operators, shipowners, ship operators, charterers and shipmasters. The circular requests that extreme care and appropriate action be taken, taking into account the provisions of relevant IMO instruments, when handling and carrying bauxite in bulk.

This takes immediate effect, ahead of the next scheduled adoption (in 2019) of the new test methods and relevant schedules for bauxite cargoes during the routine scheduled updating of the International Maritime Solid Bulk Cargoes (IMSBC) Code.

The CCC.1 circular updates a previous circular on carriage of bauxite and invites governments to note that bauxite cargoes with a larger proportion of smaller particles present a risk caused by moisture and should be treated as Group A cargoes. The Master should take appropriate action should the cargo show signs of possible instability.

The circular includes:

- Draft test procedure for determining the transportable moisture limit (TML) for bauxite;
- Draft individual schedule for bauxite of Group A (Bulk Cargo Shipping Name 'BAUXITE FINES');
- Draft amendments to the existing individual schedule for bauxite of Group C (bauxite with a lower proportion of smaller particles and with a degree of saturation by moisture not liable to reach 70%).

Global Bauxite Working Group (GBWG)

There is a long history of bauxites being shipped safely, and problems and accidents resulting from carrying bauxite cargoes are extremely rare. However, after the loss of the bauxite-carrying vessel *Bulk Jupiter* in early 2015, IMO asked the global bauxite industry to undertake research into the behaviour of bauxites during ocean transportation. The industry responded by forming the Global Bauxite Working Group (GBWG) to conduct research into the behaviour and characteristics of seaborne traded bauxites to inform IMO about safe shipping of these cargoes.

GBWG membership covers key disciplines including shippers (miners), transporters (ship owners/operators) and users (alumina refinery operators) as well as consultants with backgrounds in geotechnical and hydraulic engineering, maritime science engineering and real world operations.

Further information on bauxite carriage and dynamic separation from a variety of sources is available in The Nautical Institute's Knowledge Library.

Mariners' Alerting and Reporting Scheme

MARS Report No. 305 March 2018

MARS 201814

PPE for cooks too

➔ On a vessel underway, the cook was in the galley preparing meals. One of his tasks was to skin and cut poultry. While attending to this job he accidentally cut a finger on his left hand. The investigation revealed that although the chicken was tested for appropriate tenderness before cutting and the knife used was properly sharpened and the correct size for the task, the cook was not wearing a protective 'cut glove' on his left hand.

Lessons learned

Using a protective 'cut glove' on the hand that holds the item to be cut is not always the first choice for cooks, but it should be. Just as hard hats and steel-toed boots are now the norm on deck and in the engine room, in the kitchen appropriate PPE should become part of the culture.

MARS 201815

Improvised pressure test causes injury

➔ Two engine room crew were about to undertake a pressure test of an auxiliary engine air cooler. To this end, the sea water outlet pipe of the cooler was sealed using a large wooden plug and a piece of cloth acting as an improvised gasket. The air cooler was partially filled with water and then air pressure of about 4 bar was applied to the cooler from the sea water inlet side. Suddenly, the wooden plug shot out like a bullet with tremendous force and speed.

Red arrows show trajectory of plug

After bouncing off a casing the plug hit one crew member on his helmet, then ricocheted and hit the other crew on his forehead. While the first crew was unhurt, the second was injured, suffering swelling of the forehead with severe pain. Fortunately, the injury was not serious.

Lessons learned

- Wooden plugs or other improvised methods that do not ensure positive and secure closing should never be used for pressure testing.
- Other than on pressure vessels like boiler shells or compressed air bottles, pressure tests should be carried out by hydrostatic means, by filling the appliance with water and creating a head of pressure appropriate for the required test.

MARS 201816

Don't drink that!

Edited from IMCA Safety Flash 29/17

➔ The crew noticed that there was no extra diesel fuel on the fast rescue craft (FRC), so they searched for containers to store the fuel. Some plastic bottles were found and used to store the diesel in the FRC.

Later, during a vessel inspection, these containers were observed and it was pointed out that storing diesel in inappropriate containers is a safety deficiency. These containers were old water bottles, which could cause confusion and possibly induce someone to mistakenly drink from one of the bottles.

The bottles were subsequently emptied and discarded; a safety stand-down was held with the crew.

Lessons learned

- Never use improvised containers for fuel or chemical storage, especially old drinking water bottles. This has the double disadvantage of being a risk to the environment and dangerous for anyone who might drink the contents.
- Always insist that ready-use fuel or chemicals are stored in appropriate containers.
- If ready-use containers for fuel or chemicals are bought in bulk, ensure they are labelled correctly, including safety data sheet references and full product name.

■ **Editor's note:** Any time you improvise you may well be making a serious mistake. Think safe – do your running risk assessment. Ask yourself, 'What could go wrong here?' There have been cases where fuel, thinners and other harmful substances have been consumed accidentally because water bottles were reused for other substances.

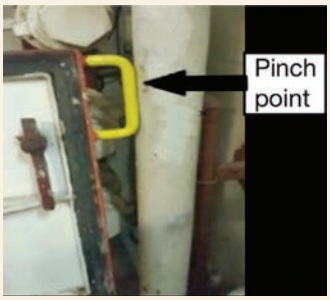
MARS 201817

Pinch point discovered the hard way

As edited from IMCA Safety Flash 04/16

➔ A crewman needed to lift an escape hatch cover from the machinery spaces. He grabbed one of the yellow handles and raised the hatch, but he was unaware of a pinch point that existed between the handle and a nearby pipe.

As he brought the hatch to the upright position his finger was caught in the pinch point causing a serious injury to his finger.



Lessons learned

- Risk assessments should be done on your vessel and pinch points should be targeted. If possible, these hazards should be eliminated.
- If it is physically impossible to eliminate certain pinch points, they must be clearly indicated and should form part of the vessel's familiarisation checklist.

MARS 201818

Deadly girding accident

Edited from official MAIB report 16/2017

➔ A 1,100teu container ship was leaving berth assisted by a small port tug. The tug, with a 320hp engine and a single fixed-pitch propeller in a nozzle, was normally used to move barges rather than large ships. It was serving as a temporary replacement for the port's usual ship-assisting 1,200hp Voith configured tug, which was undergoing maintenance.

On the bridge for the departure were the Master and pilot, the chief officer and a helmsman. All communication between the pilot and the tug was conducted in the local dialect, which the crew were not able to understand.

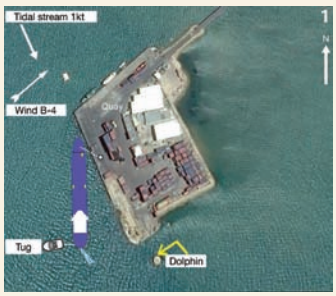
According to the agreed plan, the tug had been secured on the container vessel's port quarter with two of the ship's mooring lines payed out about 40 metres. The lines were placed over the tug's single towing hook.

The Master was initially concerned about the tug's ability to assist the ship effectively in the planned manoeuvre, and requested the pilot to direct the tug to pull on the port beam with full power. The tug's performance satisfied the Master, so the stern mooring lines were let go. With the stern lines away and the tug continuing to pull at full power, ahead propulsion was ordered and starboard helm applied on the container ship. The resulting actions caused the vessel to pivot on the remaining forward backsprings, thereby enhancing the stern's movement away from the quay (diagram 1).

Within a few minutes, the container vessel's stern was about 25 metres from the quay; the forward backsprings were then let go. The engine was then initially put dead slow astern with the bow thruster full to port, and then hard to starboard helm and dead slow ahead, with the bow thruster remaining full to port. Shortly afterwards the helm was ordered amidships and then hard to port, but the vessel was by now moving astern with its stern coming dangerously close to the mooring dolphin (diagram 2). Half ahead was ordered and the bow thruster half to port, and then full ahead, hard to starboard helm and bow thruster full to port in order to avoid hitting the dolphin. Soon, the ship was moving ahead at more than 5 knots. The tug, which was now astern of the vessel, was unable to gain a safe position because of the unexpected (to the tug crew) and rapid forward motion of the container ship. It quickly girded and capsized.

The Master immediately ordered stop engines and the local pilot boat proceeded to assist the tug crew in the water. After rescue operations, two of the tug's crew were pronounced dead.

Although the rapid forward movement of the container vessel that had led to the tug's girding was ultimately the primary unsafe event, several aggravating factors on the tug also contributed to the negative outcome:



- The towing hook was not fitted with an emergency release mechanism
- A gog rope was not rigged
- Doors and hatches were left open during the towing operation
- None of the tug's five crew was wearing a lifejacket or other buoyancy aid.

The official investigation found, among other things, that:

- The container ship's ahead movement was not communicated to the tug crew, so the tug was caught in an unsafe position and was subjected to girding.
- The pilot and Master concentrated solely on trying to prevent the ship's stern from making contact with the mooring dolphin, so communication with the tug was less than optimal.

Lessons learned

- When in doubt, reconsider your plan. In this case, the tug in service was approximately one-quarter as powerful as the tug normally used and the Master had some doubts about its efficacy before undertaking the manoeuvre.
- Always keep assisting tugs appraised of your vessel's movements, preferably before the movement begins.
- For tug crews, ensure your vessel is seaworthy and the crew properly trained and equipped.

■ **Editor's note:** Readers may recall the recent MARS 201780 report in which girding was also the focus of attention.

MARS 201819

Severe burns from hot oil

➔ A crew member found some small oil leaks from the glands of the suction and delivery valves of the fuel circulation pump on both generators. He took it upon himself to stop the leaks by adding gland packing, but he was working alone and had not informed anyone else of his plans.

Once the work had been completed on one generator, he started the pump to ensure the leak had been corrected. After confirming there was no oil leak from the valve gland, he started to work on the valves of the

other generator, but neglected to stop the pump. When he slackened the gland of the delivery valve to install the gland packing, hot oil splashed on to his face and body.

As a result of the incident, he received first and second degree burns to many parts of his body including his face, ear, left arm and left hand.

Lessons learned

- Although this accident may still have happened even had the crew member been working with someone else, it is often advisable to work on such projects as a team. Mistakes are more likely to be caught before negative consequences occur.
- Always inform your superior about work that is not planned but that you see as necessary – never improvise.
- Work methodically and continue to do a running risk assessment as you accomplish the task at hand.
- PPE, PPE, PPE!!

MARS 201820

Timber deck cargo collapse causes one fatality

Edited from official MAIB report 25-2017

➔ A bulk carrier had loaded a cargo of packaged sawn timber. This was the first time timber had been carried on board the ship and the crew were inexperienced in this type of cargo. A supercargo had been appointed for the loading to help supervise and provide guidance to the chief officer on cargo loading and securing and ship stability requirements.

Following the supercargo's instruction, the ship's crew secured the deck cargo by means of top-over lashings using chains and turnbuckles. Wooden ladders were constructed at the fore and aft ends of the deck cargo stack to allow access between the accommodation and the forecastle.

Vessel loaded and underway

Upon arrival at the discharge port the ship's crew removed the deck cargo lashings and cargo was discharged into barges secured alongside the anchored ship. All aspects of the cargo discharge, including operation of the ship's cranes, were carried out by shore stevedores as required by the charterparty. During the discharge, the bosun was to carry out security rounds and to monitor operations for any damage caused to the ship. There was no supercargo to advise the Master and crew during discharge.

Two barges were alongside on the starboard side and one barge was positioned on the port side. At one point during the discharge about 20 packages of timber, each about 2 tonnes, tumbled overboard from the port side. Cargo operations were stopped. It was then realised that the bosun had been standing on top of the stacks that had gone overboard.

A search of the water and the barge was begun. The bosun was found under a pile of timber on the barge. He was evacuated ashore, but was pronounced dead some time later.

Some of the official report's findings include:

Scene of the accident

- With the deck cargo lashings removed, the cargo packages stowed on deck had insufficient stability.
- The use of uprights would have helped prevent a deck cargo stack from collapsing once the securing lashings had been removed.
- Prior to loading, the Master was not advised of either the deck cargo package racking strength or the frictional resistance of its plastic covering. Such information would have enabled him to make a more informed assessment of the deck cargo stack's stability and security.
- Poor stevedoring practices that had been witnessed by the ship's crew were not discussed with the stevedores' foreman and so were allowed to continue.
- Without the provision of a lifeline, there were no readily available means for attaching a safety harness. Without edge protection or any means of fall arrest, the risk of falling from the top of a deck cargo stack, or as a result of a deck cargo stack collapse, was significant.
- The ship's crew did not assess the level of risk correctly. For example, it was not considered necessary for a catwalk to be installed nor for safety harnesses to be worn while on passage. This miscalculation of risk continued during cargo discharge operations.

Lessons learned

- The provisions contained in the IMO Code of Safe Practice for Ships Carrying Timber Deck Cargoes (TDC Code 2011) is unequivocal in its recommendation that 'uprights', as shown below, at least as high as the stow, should be used to stabilise stowed round wood, loose sawn wood and sawn wood packages with limited racking strength.

- The presence of non-critical persons in the vicinity of cargo operations is a factor that unnecessarily increases risks to those persons.
- If poor stevedoring practices are observed, stop operations and discuss your concerns.
- If a specialised cargo is to be transported and crew are inexperienced in the special considerations required, always ensure expert guidance is employed for all phases of the work.

Visit www.nautinst.org/MARS for online database

Thank you to all our Nautical Affiliates for their continued support

The Nautical Institute

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Aqua Marine Maritime Academy
http://ammacademy.com

BMT Surveys
www.bmtsurveys.com

Britannia P&I Club
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Constanta Maritime University
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Constellation Marine Services
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Dracares
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Epsilon Hellas
http://epsilonhellas.com

EuroShip Services
www.euroshipservices.com

Exmar
www.exmar.be

Gard
www.gard.no

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

Seagull Maritime AS
www.seagull.no

The Standard Club
www.standard-club.com

Steamship Mutual
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The Shipowners' Club
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This article is an extract from *Casualty Management Guidelines* – one of The Nautical Institute's best-selling publications, and Book of the Month for March. Developed in association with the International Salvage Union, it provides a comprehensive overview of all aspects of the complex process of managing a casualty at sea. The response can involve a bewildering number of people and agencies, and all too often, some of those players have no idea what some of the others are doing, or how their roles interact. Thirteen chapters, each by an expert in the field, look at the roles played by everyone involved, including:

- The shipmaster
- The owner or manager
- The harbour master
- The salvage industry
- Command and control
- Accident investigation teams
- Insurance issues
- The legal perspective
- The special casualty representative
- Classification societies
- The media
- ITOPF.

The sample chapter is a typical example of the straightfoward, practical information included in the handbook – a must for everyone who is ever likely to be involved in this situation (and for all those who hope not to be).

The role of the SCR and casualty consultant

David Pockett and Nick Haslam

It is commonplace to arrive at the scene of a casualty to find a marine authority insisting on immediate action, environmental authorities making far-reaching demands for emergency measures, other authorities underlining their presence in some way, and a variety of local government officials and pressure groups of one kind or another, including fishermen and those from the tourism industry. Add to this the presence of perhaps four or five potential salvage contractors assessing the nature and extent of the casualty and representatives from owners, charterers, sub-charterers, insurers and cargo interests, and you will get an idea of the pandemonium that often exists from the earliest moments of such an incident.

Against the above background, a casualty needs to be managed from the outset. A disciplined approach is needed in any salvage or wreck removal operation. Safety of life is paramount in all respects and protection of the marine environment the top priority thereafter. Above all, a team development process is crucial. A special casualty representative (SCR) and casualty consultant play an important part in the overall management team.

The SCR

If a salvage operation is contracted on Lloyd's Open Form with SCOPIC invoked, it will be possible to appoint an SCR, who will represent all insured interests to the casualty. The SCR has specific responsibilities, which are defined in Guidelines for Special Casualty Representatives (see the Lloyd's Agency section of the Lloyd's of London website www.lloyds.com). In particular, note the following:

The primary duty of the SCR shall be the same as the Contractor, namely to use his best endeavours to assist in the salvage of the vessel and the property thereon and in so doing to prevent and minimise damage to the environment.

The SCR will work very closely with the salvage master (who is always in charge of the salvage operation) to ensure that the salvage plan and any changes to it, is executed. The SCR will also agree, or otherwise, with the salvage contractor what personnel, craft and equipment is required and in use, and sign off a daily spreadsheet of costs from a tariff that can be found in Appendix A of SCOPIC. The SCR is required to abide by the requirements and guidelines set out under SCOPIC.

Casualty consultant

This role might be similar in some respects to the SCR, depending upon the type of contract in force. However, one marked difference is that they will specifically be acting for the owners and their insurance interests. More often than not, a casualty consultant is also an SCR or ex-SCR. Unlike the SCR, they are not bound by the requirements and guidelines of SCOPIC. The casualty consultant will monitor progress, liaise closely with the salvage master and ensure that the salvage or wreck removal operation is performed with the same objectives as are set out in the SCR's particular responsibilities above. They will not, however, be subject to the reporting detail required of an SCR under SCOPIC, but rather the specific instructions and reporting required by the client.

Before arrival and arrival on site

An SCR or casualty consultant will arrive on site at short notice and soon after the casualty has occurred. Inevitably, they will face the scenario described at the outset. Like the salvage contractor, they ought to be in possession of the basic details of the situation before they arrive at the incident location.

The first priority of the SCR is to liaise with the salvage master and obtain a clear understanding of the nature and extent of the casualty, the hazards involved (strength and stability conditions, dangerous cargo, pollution risks and so on), threat to the marine environment, what operations have been carried out, what is intended and the development of a detailed salvage plan together with the required resources to execute that plan. When the incident has occurred in territorial waters the salvage plan may well need to be approved by the authorities, so careful preparation is vital in assisting rapid response and progress.

When the vessel is a constructive total loss (CTL) and subject to a wreck removal order, or perhaps

not a CTL but is to be salvaged under a contract other than LOF, the casualty consultant will still have to become familiar with the circumstances and condition of the casualty, and be in a position to advise owners and insurance interests on how best to proceed. Frequently, the various authorities exert pressure, and especially when a clear threat exists to the marine environment. Time, therefore, is of the essence, together with quick but clear thinking.

Engineering studies will often be needed, requiring a casualty to be modelled using recognised computer programs. There may be a need to challenge or verify the proposed actions of a contractor, perhaps with additional technical input. A casualty consultant is likely to be asked to manage or assist in a tendering process for wreck removal. It is therefore essential that first-hand knowledge is readily available for making technical and practical assessments of the proposals for refloating/removal.

Prioritisation

It is important that the SCR and casualty consultant prioritise. What is the nature and extent of the casualty? What are the stability and strength values? Can buoyancy be induced? What is the risk of sinking, capsize or grounding? What are the options for salvage or wreck removal? Has pollution occurred or is there a risk of it, and can this be addressed properly? What do the maritime authorities require exactly?

In prioritising, it is crucial that the relevant authorities understand the risks and problems posed by the casualty so that they have an informed basis on which to make their demands or requirements. They too will be under public scrutiny and risk being persuaded to make irrational demands such as laying oil booms in bad weather or in such a way that they are a hindrance rather than a help. The maritime authority needs to have a full understanding of the condition of the casualty and what immediate measures are proposed and the plan for salvage or wreck removal in the medium to long term.

It is essential to gain support from the maritime authority. It will also greatly assist in accommodating the requests and requirements of the salvage or wreck removal contractor in the early days, and subsequently too. The representatives of the authorities may need to be brought on site to see for themselves the often major and critical tasks that are facing or being dealt with by the salvage or wreck removal contractor. These may include working in heavy polluted conditions, handling dangerous cargoes, being severely exposed to the elements and so on. First-hand observations are more effective than trying to explain these problems in the comfort of an office, and they can also help decision-making and promote better understanding of the issues. The SCR or casualty consultant should play a proactive role in this regard.

The immediate risks

Initial surveys and assessment of a casualty will enable the immediate or potential risks to be identified, remembering that crew safety is always paramount. Thereafter, potential risks might include bad weather and the effect on the already weakened longitudinal strength of a vessel on the ground; stability problems; pollution from leaking oils and/or cargo and their impact on the marine environment; access problems for salvage craft and equipment; hazardous cargoes, their effect on the crew, salvors and the environment and how they should be handled. Weather windows can be another major consideration; operations need to be planned to suit them. There are many more risks, but, like the salvage masters and their teams, the SCR and casualty consultant need to be fully aware of them all and, most importantly, need to plan how best to address and mitigate them.

The salvage or wreck removal plan

The situation will always be dynamic because of the ever-changing circumstances, but the key to a successful conclusion is a professional, reputable salvage contractor (usually a member of the ISU) that has the requisite experience to make a quick assessment of the casualty and provide first aid measures to stabilise the situation and develop an appropriate salvage or wreck removal plan as the assessment continues. Such assessment usually requires underwater surveys. The status of the casualty's compartments must be established along with the nature and extent of the grounding (if the vessel is aground) to establish ground reaction and forces required to free the casualty. Extensive internal and external soundings will be taken for the purpose and engineering studies conducted to establish strength and stability conditions under various circumstances.

Once completed, the salvage or wreck removal plan will need to be submitted to the competent maritime authority. It is essential that it sets out the status of the casualty and associated risks, provides a clear method statement, identifies the primary tools for the job and the pollution combat and safety measures that will be in place. Interested parties will be also anxious to have an estimate of the time scale involved. Important features of a tendering process will be commercial considerations such as unit costs, proposed uplift and form of contract.

Before the salvage or wreck removal plan is finalised, the specific requirements of the maritime authority must be clearly established. It is always helpful to arrange meetings with that authority to ensure the plan is approved without unnecessary delay. These meetings will also allow discussion of and agreement about any concerns the authority may have – for example, the immediate removal of bunkers and other pollutants or hazardous materials. The SCR or casualty consultant should be able to lend support in this respect.

Political salvage

Sadly, the presence of a casualty sometimes brings out the worst in people. Some view it as a cash cow or treasure trove; others as something to be regulated beyond reason; a few as a vehicle over which to compete for authority! Considerations for the safety of life and the risk of pollution can sometimes be subordinated as a consequence. Like the professional salvage contractor, the SCR and casualty consultant will be only too well aware of the need to plan and execute the salvage or wreck removal meticulously to overcome these potential problems. In so doing, it is essential that the salvage or wreck removal contractor complies with local and national laws, rules and regulations to try to achieve a trouble-free operation.

Health and safety

Health and safety should never be underestimated. Although standards differ from country to country, health and safety should always be the priority – and will also be under scrutiny from within and beyond. The contractor will have its own corporate H&S plan and also a job-specific evacuation plan for use in an emergency. Local and state authorities will have their requirements. Early agreement and compliance with these issues is essential to avoid delays and disputes arising later.

Pollution

After safety of life, protection of the marine environment is the most important consideration with a marine casualty. Pollution avoidance and pollution response plans are critical elements in any salvage or wreck removal plan. The professional salvage contractor will give immediate attention to sealing sources of leakage and containing oils and other contaminants. Sometimes, pollution might be inevitable; hence the need for a robust pollution response plan. Where possible, this can be usefully combined with local response plans so that the salvage contractor and government-engaged contractor can work in unison with a full understanding of what is going on. Frequently there is a demand that all oils be pumped out of a casualty even when there is no release (and little risk) to the environment. This may actually hinder a safe and expeditious refloating operation, and this point will need to be carefully explained to the competent authorities. The SCR or casualty consultant should be proactive and fully supportive in this regard. If oils and other contaminants can be safely contained and a casualty refloated, all well and good. It is often the case that the most expeditious method of reducing the risk of pollution is to remove the potential source of the pollution in its entirety – in other words, to transfer the bunkers to a safe location internally and refloat the casualty.

Immigration and work permits

Members of the salvage team will probably have foreign status at the incident location as will the SCR or casualty consultant, so work permits can be an issue. They may also have to face objections from local interests, such as divers and riggers. Securing permission to work is essential, and there will need to be close liaison with the immigration and other appropriate government departments. A salvage contractor will always try to use local personnel and equipment wherever possible and they should have a good local agent or in-country representative or base. In certain jurisdictions, this is becoming increasingly complex and the issue will need to be carefully considered. It may be the case that the immigration department has more of a say in such issues than the maritime authority.

Customs

This is often the cause of delays that can compromise progress and cause costs to spiral. It is impossible to over-emphasise the importance of ensuring the correct declarations are made for imported craft and equipment. Many developing jurisdictions have far-reaching restrictions on the importation – however temporary – of certain craft and equipment. Long delays may also occur when trying to get a release for the equipment to be returned on completion.

Cabotage is becoming an increasingly thorny issue, so this should be researched and thoughly understood before it can be assumed that a certain type of type of craft can be brought in to assist. The contractor will certainly need to appoint a good local agent with a sound reputation to help with matters of this kind. The SCR or casualty consultant will always need to be aware of delays caused by customs and the reasons for these hold-ups. Disputes often arise over payments to a contractor in consequence of customs formalities and a failure to comply with them in full.

Control and co-ordination of access

A casualty has occurred, various parties are interested and the cause of the casualty needs to be clearly established. The local or national maritime authority will hold an inquiry; the flag state will investigate; and of course, owners, charterers, cargo interests with their insurers and legal interests will be concerned too. However, the Shipmaster and crew may still be on board, fully occupied in advising the contractor about the ship and its features and characteristics. The casualty is not a place for visitors, no matter how genuine their cause may be. The salvage contractor must press on and not be hampered in their work. The owner will be protected by legal interests and contemporaneous evidence will, or should be, preserved.

Like the salvage master, the SCR has a duty to exercise due diligence in salving the ship. The casualty consultant, acting for owners and their insurance interests, is there to look after specific interests. There will be a safety and security (MARSEC) regime on board the casualty, which should include proper control and co-ordination of access. A salvage or wreck removal contractor needs to be able to get on with the job without let or hindrance in so far as this might be possible. So much depends on the geographical location and the political forces at play.

The contractor has to comply with local, national and international laws, rules and regulations.

Once approval for the salvage or wreck removal plan (if needed) has been granted, the operation can proceed. The SCR or casualty consultant will need to be very proactive and supportive in ensuring that the contractor can work without hindrance and that access is denied to those parties not required on board. A salvage operation is no place to investigate the cause of an incident. Too often the Shipmaster and crew are put under extreme pressure to assist in providing evidence at the wrong time. At the outset of a salvage operation the crew are better placed to assist the salvage contractor than to answer questions from lawyers for one party or another.

Management of the casualty

The designated salvage master is charged with overall management of a salvage or wreck removal operation on site. There will be an assistant salvage master as well. In the case of a complex operation, two salvage masters might be required, with one on the casualty and the other ashore to co-ordinate matters. The same might apply to the role of SCR and casualty consultant where doubling up may be deemed necessary. Management of operations can, and does very frequently, extend beyond overseeing operations on the casualty. Problems can quickly develop that demand attention and prompt solutions. Such problems are likely to include demands from various authorities. Meetings are frequent and to enable an operation to flow with minimal interference, interruption or delay, it is often necessary to have responsible persons available ashore as well as aboard the casualty. The salvage master and SCR and casualty consultant also need to have skills in diplomacy, an ability to understand the problems of other parties to a casualty or affected by it, have solutions in mind and above all, endless patience!

Key to managing any casualty is ensuring that there is a well considered plan, a clear chain of command, fluent channels of communication and an ability to measure progress and anticipate problems. Unforeseen problems need to be dealt with using all resources and, crucially, all parties directly involved should be pulling in the same direction. Once there is deviation, problems arise!

The authorities

These should never be underestimated. For many casualties, several authorities are involved, each with specific laws to apply and its own requirements. To ensure there is proper compliance throughout an operation and to avoid delay, the salvage or wreck removal contractor and the SCR/casualty consultant need to establish what these laws and requirements are, both at the outset and during a salvage or wreck removal operation. Regular meetings with the recognised maritime authority (and other authority representatives) are essential during operations. It is crucial that they understand the plans and how they will be executed. Transparency is the key. Co-operation with and approval from the authorities are essential for the success of an operation. This all takes time, which can increase pressures on an already risky operation.

Reporting

Reporting is an essential part of the role of the SCR, who is required under SCOPIC to note, agree/veto and record salvage contractor personnel, craft and equipment as well as those of third parties that are employed. They are also required to endorse the salvors' daily progress report (DPR) and make any comments deemed appropriate including any dissenting remarks. SCRs may make their own daily reports as well.

Owners and insurance interests need to be kept advised of progress, ongoing costs, potential risks and updated time schedules in wreck removal and salvage operations even under a different contract such as BIMCO Wreckhire. Daily situation reports (sitreps) are usually prepared by the casualty consultant when time allows, in much the same way as the salvage or wreck removal contractor sends a DPR. It is also essential that the competent maritime authority is kept fully in the picture.

It should be remembered that signing off the daily salvage or wreck removal report comprises a (non-binding) agreement on behalf of the owners' interests. The DPRs form the basis of the contemporaneous evidence of the salvage or wreck removal operation and may be used by the arbitrator in making an assessment for the potential salvage award or any claims arising. Any such additional reporting by the SCR should, as a matter of course, be copied in to all parties as required.

Reports should address:

- Events of the past 24 hours;
- Problems experienced;
- Any changes in operational plans;
- Delays and their causes;
- Costs expended;
- Projected costs;
- Vessels and personnel on location;
- Look ahead to the next 24 hours.

The SCR or casualty consultant's sitrep will not be dissimilar from that prepared by the salvage or wreck removal contractor. The SCR has a duty to prepare a final report after the operation, which will include agreed costs for the salvage operation and any that are in dispute.

Casualty checklist

SCR or Consultant Checklist 1	
Casualty details upon appointment	
The SCR or Casualty Consultant will want to be provided with, or obtain, as much information when appointed to be prepared for, or anticipate, the problems which might be presented on location. It is always good to have a list in mind and this checklist sets out the key considerations – some obvious and some less so. Not all details or information is readily available and can only be realised at the casualty location. Conditions are very liable to change as one is proceeding to the location as well.	
1	Vessel name; IMO No; call sign; Satcom (MMSI)
2	Owner; manager; charterer; insurer
3	Key contact details
4	Flag/port of registry
5	Type of vessel
6	Date/time of casualty
7	Geographical position; relevant charts; exposure
8	Nearest airport
9	Nature of casualty (grounding/sinking/fire/explosion/collision/capsize)
10	Cause of casualty
11	Immediate risks/concerns reported by Shipmaster
12	Draughts (before/after grounding if relevant), trim, stability condition
13	Crew/passenger complement; nationality; status; safety; injuries; fatalities
14	Cargo details and stowage plans
15	Hazardous cargo or cargoes
16	Bunkers – type and disposition
17	Pollution/type/source
18	Internal/external soundings if performed
19	Ease of access
20	Tidal information
21	Water depth, nature of seabed at casualty location

Enhanced navigational safety using dynamic underkeel clearance systems

As vessels increase in size, the dilemma facing many ports is that their existing static underkeel clearance (UKC) rules are inflexible. A simple change in methodology on how underkeel clearances are calculated could improve safety for all ports.

Captain Jonathon Pearce
Business Development Manager, OMC International

In today's economic climate, ports need to maximise their efficiency while ensuring safety of passage. Existing underkeel clearance rules can conflict with the ports' need to maximise their efficiency, and the ongoing struggle for ports to accept ships of ever-increasing size.

Most authorities and regulators in the world use static rules to determine the underkeel clearance. They normally use the vessel's draught as the baseline. A key problem with this method is that it assumes that the calculated clearance is always sufficient, regardless of the prevailing environmental conditions.

In practice, the actual safety clearance is determined by the conditions on the day. Most of the time the static rules will be conservative, but evidence shows that up to 5% of transits are marginal, even unsafe. Static rules will not warn of pending disaster, and it is likely that the only risk prevention control is the shiphandlers' experience.

Problems with static allowances

These rules were devised when vessels were smaller, their speeds lower, ship/shore communications poor and technology generally unavailable to determine ship motions accurately. There needed to be a simple method of calculating a safe underkeel clearance (UKC). The accepted practice was to calculate the underkeel clearance as a proportion of the vessel's draught. Essentially, the only controllable factors are the time of transit, which determines the tide height, and the vessel's speed, which determines the amount of squat (dynamic sinkage). Where depths are critical and conditions variable there may be times when the allowance is marginal.

Speed is an absolute critical element in maintaining safe UKC. Evidence has shown that vessels do not always maintain the planned speed for the transit. If the transit is too fast, the ship will squat more than allowed for. If the vessel transits slower than planned, it will not reach waypoints at required times, so may have less water than predicted. Most underkeel clearance calculations are undertaken prior to transit and assume that, all things being equal, the calculations remain valid for the duration. Once underway, these elements can be more difficult to assess and are often overlooked.

Another problem is that many authorities use a generic squat formula. There are many formulae in existence and the most

Component	Notes
Static Draught Uncertainties	The ship's draught is not always known with absolute certainty.
Water Density	
Ship Squat *including dynamic trim*	Prediction of ship squat depends on ship characteristics and channel configurations. ... the most important ship parameter is its speed V_s.
Dynamic heel	During turning of a vessel, heeling will occur depending on the ship's speed, rate of turn, metacentric height and tugboat line forces.
Wave response allowance	Potentially the largest ship factor, especially if the ship is in an exposed channel where large waves are present. Ships in water have a natural period of oscillation in heave, roll and pitch. Resonance, with amplification of ship motions, can be expected if their natural period is close to the period of the dominant wave forcing.
Net underkeel clearance UKC_{Net}	Largest Component and is what is left as a 'safety' margin for the ship after subtracting the other ship factors (wave-induced vertical ship motions, ship squat and dynamic heel) from the nominal channel bed level or depth. UKCNet should be based on kind and size of ship, commodities transported, environmental consequences, density of traffic, etc...

Figure 1: PIANC 2014 Guidelines of the primary factors that determine UKC

appropriate formula depends on the bathymetry, channel design and the type of vessel. Squat is often calculated for a single critical point, but in practice a vessel's squat changes continually throughout the entire length of the transit because of variations in the channel bathymetry and currents.

The biggest drawback with static rules is that they have to cater for an assumed worst-case scenario: too optimistic and safety could be jeopardised; too conservative and they become uneconomic. The result is often a blunt compromise. The actual net clearance is wholly reliant on the environmental and transit conditions, and static rules are unresponsive to change. This means an authority cannot maximise efficiency when conditions allow. More worryingly, it also means it will be unaware when conditions are unsafe. Static rules are therefore *a variable risk system* and every transit will be different.

Reducing variability

Some of this variability could be removed if ports were to calculate underkeel clearances by adopting a net methodology, as promoted in World Association for Waterborne Transport Infrastructure (PIANC) Harbour Approach Channels Design Guidelines (PIANC Report 121, 2014). These guidelines offer substantial advice on the design of new channels, but they are also recognised as best practice on calculating underkeel clearances.

PIANC guidelines state that there are six factors that need to be considered when determining a safe vertical clearance. These are:

- Static draught uncertainties;
- Water density;
- Ship squat (including dynamic trim);
- Dynamic heel;
- Wave response allowance;
- Net underkeel clearance.

This implies that one must assess all of these factors – including net underkeel clearance – in order to derive the gross UKC. A further progression of this methodology is the assessment of the critical factors prior to any transit by considering the known environmental conditions. This improves the planning processes by confirming that there should be sufficient clearance. Using net UKC is a far better methodology, because it defines a minimum safety limit that must not be breached. It must be remembered, however, that the other factors probably contribute to a large part of the total UKC clearance, and some may vary greatly.

Using net UKC for every transit ensures that the required water level must be calculated, and must be sufficient to ensure a safe transit is maintained regardless of the prevailing environmental conditions. The risk for a touch bottom incident remains constant, as it is in addition to the net UKC safety limit.

PIANC also requires assessment of the manoeuvrability margin so that a minimum clearance under the ship (between the seabed level and the lowest average position of the ship) is provided. Net clearance builds upon the manoeuvrability margin to take account of elements such as the bottom topography, traffic density, cargoes and environmental consequences.

Advanced static allowances

Manual calculations of any of the first five factors listed by PIANC could be viewed as an advanced static rule. This is the first step towards a net UKC regime. Ports that use advanced static rules typically either cross-check, so that their gross rule does not fail, or utilise a port safety limit (normally greater than the minimum UKCNet) and apply the major factors such as squat and heel, and possibly also wave response. However, they generally use predicted tidal heights and forecasted wave data, and do not take the ship's stability into account.

These calculations are normally undertaken only at the initial planning stage. While some of these factors can be pre-calculated, predicted wave response (in real time) is impossible to calculate without access to environmental data and substantial processing power. In practical terms, wave motions are only crudely assessed prior to transit by applying a pre-determined roll/pitch angle. Unfortunately, on board, and especially once the transit starts, wave motions are generally undeterminable.

The use of real-time environmental data such as tide, current, wave and wind data, augmented by the use of ship stability data, is what differentiates a dynamic UKC regime from an advanced static rule regime.

The calculation of the factors, the application of additional localised data and the use of real time and forecasted data can be viewed on a continuum where additional layers are added as one goes from static to dynamic.

Dynamic systems

Dynamic underkeel clearance systems can be considered as providing a 'bottom up' approach to calculating underkeel clearance. They determine underkeel clearances in near real time, based on the design and handling characteristics of the actual vessel and the current environmental conditions. The system has minimum net UKC limits that must not be breached, meaning that the risk level remains constant regardless of conditions.

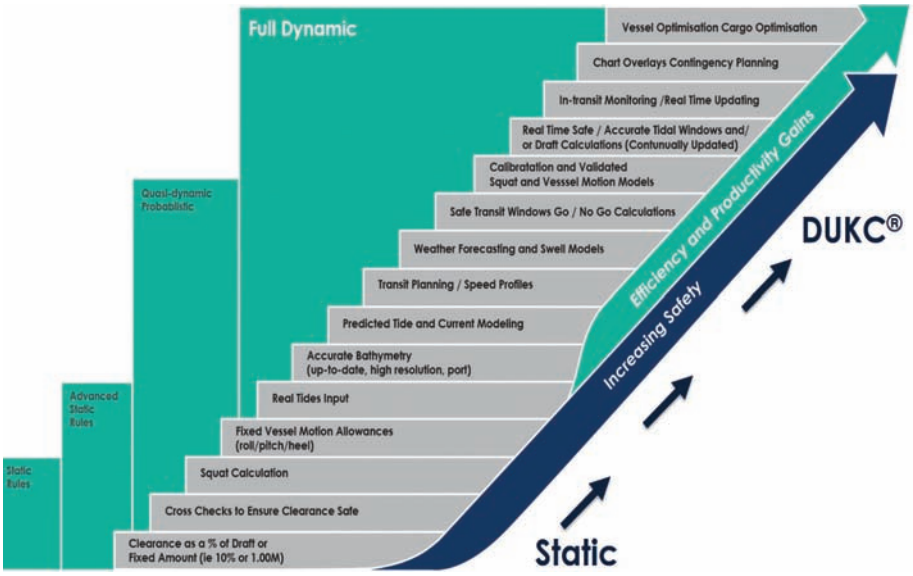


Figure 2: Steps to a safer underkeel clearance management system

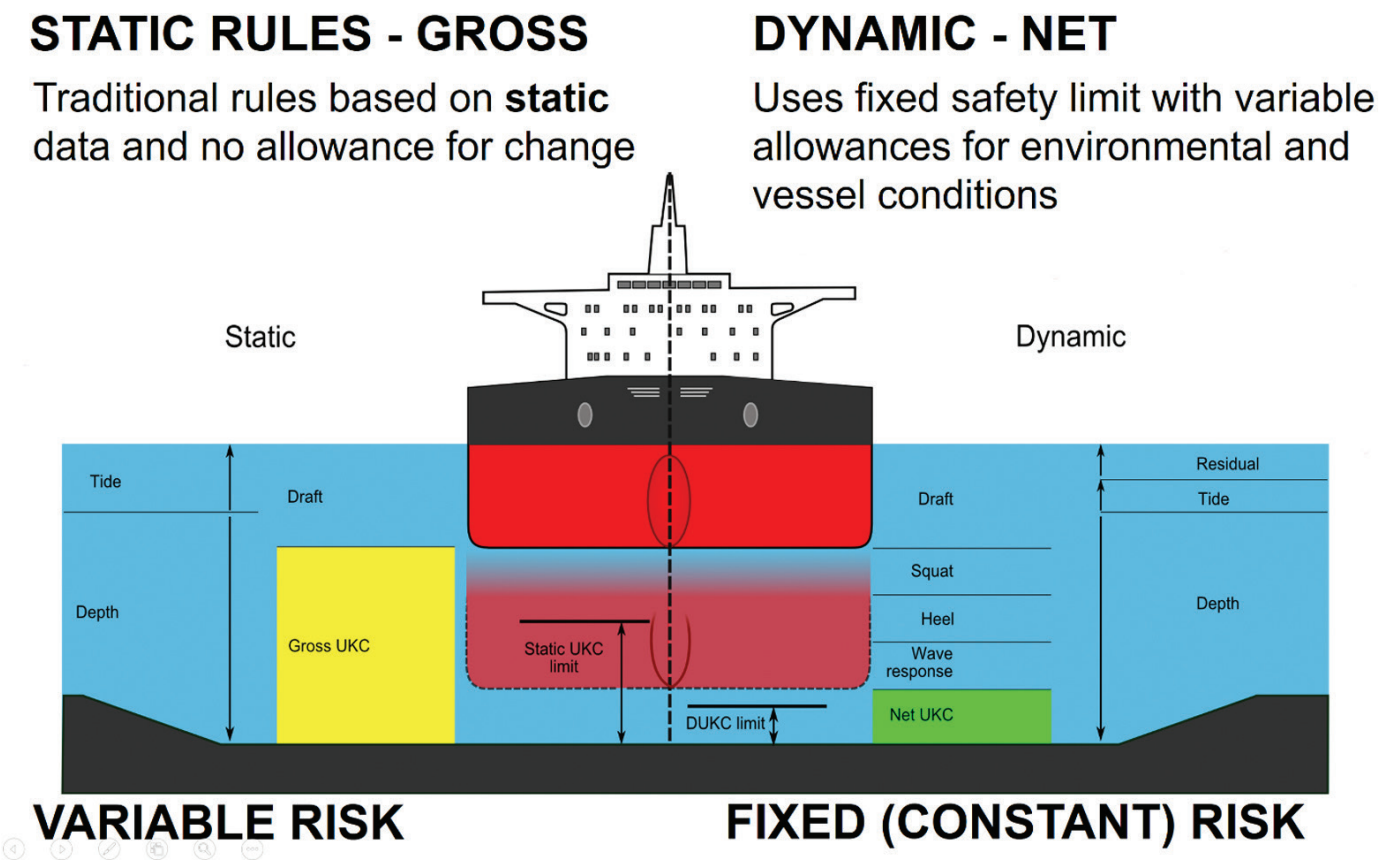


Figure 3: Differences between static and dynamic regimes

The channel characteristics for the whole transit are analysed with validated numerical models to ensure accurate vertical displacements for the vessel type, size and stability condition. These models are augmented with an appropriate squat formula for the vessel and channel, including the effect of tidal currents during the transit. The prevailing ocean conditions (wave height, period and direction, water levels, currents, tidal plane, wind) are analysed and applied. The calculations are complemented by accurate forecasts for the near future, ensuring every transit satisfies appropriate risk standards throughout the whole transit. These are continually updated as new data is received. The system can automatically update the calculations if a navigator wishes to adapt the transit plan, for example if there is an unforeseen event (such as an engine issue or berth congestion) or a change in the environmental conditions.

Every installation is fully tailored to the individual port. This includes high-resolution multi-beam survey data in greater detail than is typically available from a standard ENC or navigational chart. It utilises the latest available hydrographic depths and includes a daily accumulative allowance for siltation when available. For this reason, a dynamic system satisfies, and often exceeds, the internationally accepted levels of risk for safely managing the UKC of vessel transits.

The utilisation of a fixed (constant) risk profile in a dynamic system ensures that safety is never compromised, as marginal conditions will require additional water height. With safety assured, economic and efficiency benefits are realised when conditions allow deeper draughts, and/or extended tidal windows, increasing the productivity of the port. Ship operators (owners/charterers) indirectly benefit because cargo is maximised for the vessel, but still with ensured safety.

Dynamic under-keel clearance systems (DUKC®)

Dynamic systems are becoming more prevalent in ports and harbours worldwide. The first dynamic underkeel clearance system (DUKC®) was created for Hay Point coal terminal in 1993 by OMC International. The methodology has been internationally recognised, and regulatory bodies consider DUKC® to be an effective risk mitigation tool.

The core function of a DUKC® system is to provide ports and users with dynamic passage planning advice on:

- voyage planning up to a year in advance;
- maximum draught for tides;
- earliest and latest sailing times (tidal windows);
- UKC for specific transits;
- chart overlays (see p28).

The technology has now been installed in more than 25 ports and has ensured the safety of over 160,000 transits to date.

The Australian Maritime Safety Authority (AMSA) has installed a dynamic underkeel clearance management system (UKCM) in the Torres Strait to manage transiting vessels, which is now mandatory for all deep-draught vessels (see *Seaways*, August 2010). Transiting ships do not need any additional equipment, as the system is installed ashore and can be remotely accessed through existing communication equipment. This was the first coastal waterway in the world to have a mandatory UKC risk system. Other regulators are looking to implement similar risk management systems for their waterways. The system is continually evolving through user feedback, and outputs and reports are tailored to individual needs.

Chart overlays

There is a growing requirement to deliver dynamic information in a format that is readily understandable. Ship sizes are encroaching on the physical limits of the port, creating a demand for better information to improve the decision-making processes. In addition, there is often a need for historical information for auditing purposes. The delivery of dynamic information to the pilot (and vessel), in formats that are readily understandable and in a way that does not interfere with primary requirement of navigation, is at the core of the concepts being developed for eNavigation.

From DUKC® user's perspective, the delivery of dynamic under-keel clearance information whilst underway is best achieved through chart overlays. This information can be readily incorporated into the pilot's portable pilotage unit (PPU), presenting a simple visual indication of those areas that meet UKC requirements and the areas that do not.

The DUKC® chart overlay displays underkeel clearance information in real time through a marine information overlay (MIO) on a compatible electronic charting system (ECS). Generated overlays are displayed on the web within the DUKC® portal and simultaneously sent to the pilot's PPU through a dedicated server. This allows a shore station to view the same dynamic overlay that the pilot is viewing. Authorised users (ie the ship) can also view the overlay via the internet, but as an information-only tool. Interrogation of cells is available only on the web due to bandwidth constraints.

An example of the chart overlay is displayed in Figure 4. The simple presentation of predicted go/no-go areas at the time of the vessel's arrival in those areas allows the pilot to anticipate any deviations from the transit plan that may be required. This allows time for options to be considered and enables proactive rather than reactive navigation.

The overlays are evolving through user feedback and newer UKC overlays can now show additional information. For one international waterway, the pilots requested warnings for areas which, while not regarded as no-go areas, were close to the safety limits. (No-go areas do not mean the vessel will ground, but that the possibility of grounding increases.) The original no-go colouration (red) has now evolved to incorporate a user-defined warning level (amber), and the user can interrogate the cells for greater information. This allows the user to adapt their transit as newer information becomes available.

The overlay is gridded, and cells have been set at 10m by 10m. An actual display on a PPU is shown right. Here, the overlay colours are more transparent to avoid hiding navigational marks and information.

Chart overlays will be an important component of any eNavigation system. The type of data that

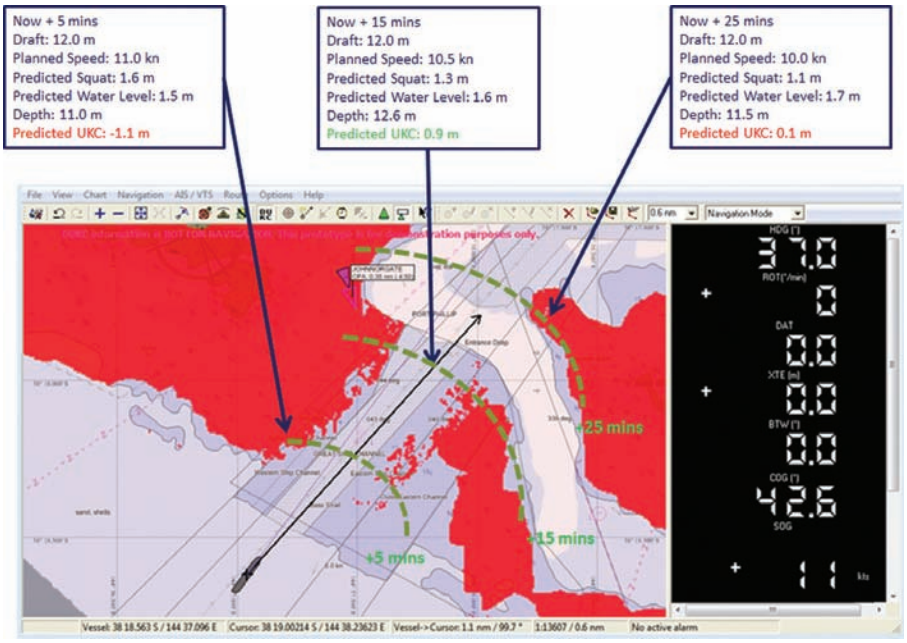


Figure 4: Dynamic overlay with predictive calculations for the transit

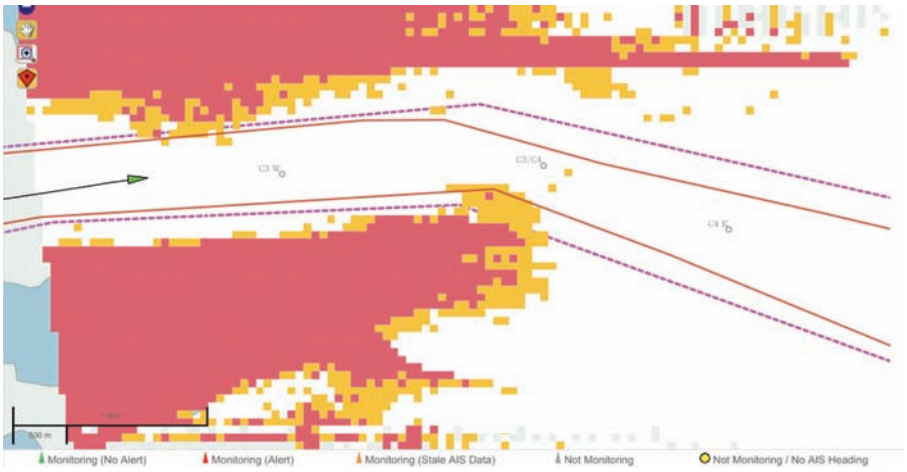


Figure 5: Chart overlay (web-view) showing no-go areas and warning areas at a safe speed

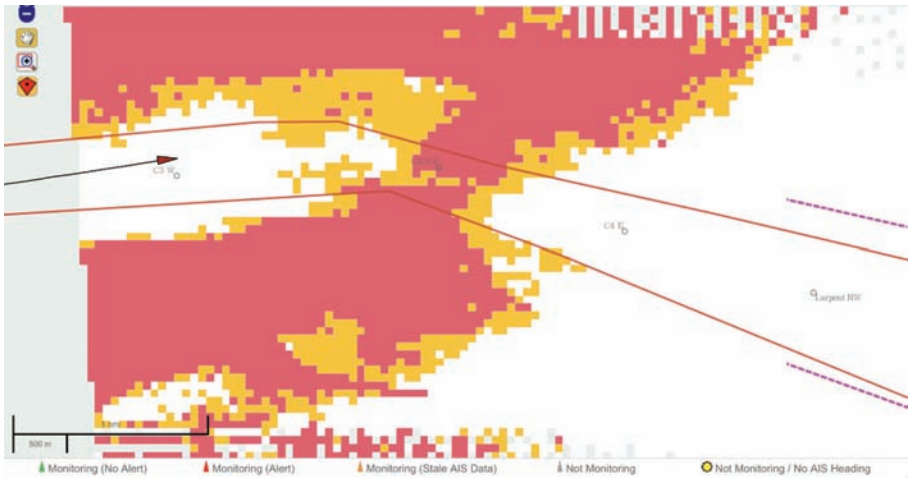


Figure 6: Chart overlay (web-view) showing no-go areas and warning areas at an unsafe speed

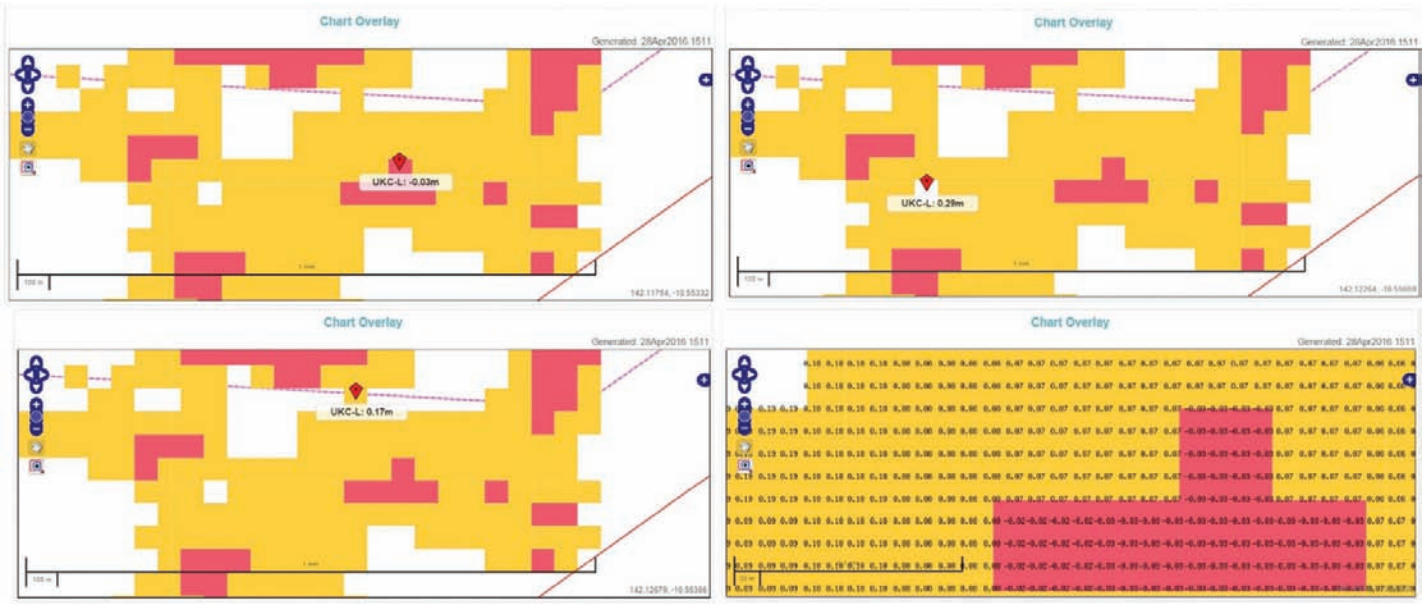


Figure 7: Interrogation of cells (drill-down) to see actual UKC clearances per computed cell

could be communicated is diverse, and probably they will revolutionise navigational practices. Implementation of the S100 standard is very likely to benefit the delivery of this information to a ship's ECDIS, or other navigational systems, rather than just the pilot's PPU. The proposed VHF Data Exchange System (VDES) will also be an important/necessary development as data requirements increase.

Conclusion

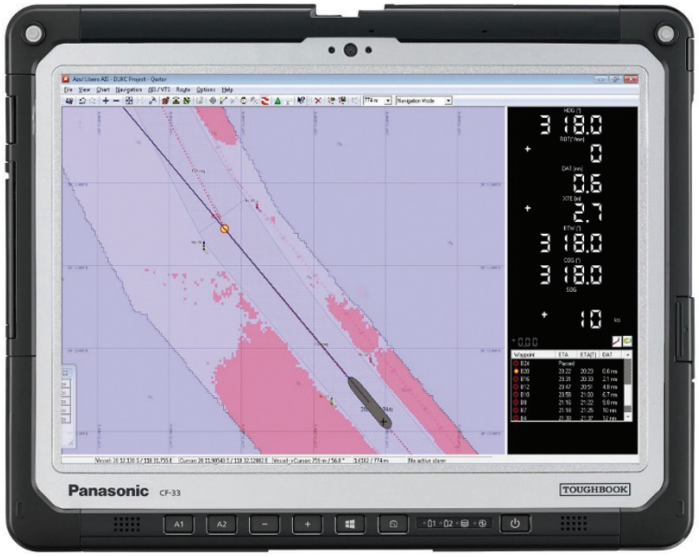
The derivation of the existing static rules in any given port is often lost in the annals of time. With the new PIANC guidelines it may be prudent for ports to reassess whether they are still appropriate. The paradox of the static rules is that without an incident a port's static rules may appear validated and considered safe. Where underkeel limits are critical and conditions variable, there may be times when the clearance is marginal and the port has experienced an unknown 'near miss'.

The implementation of a net regime, where some of the vessel motion factors are calculated, has the potential to reduce some of the uncertainty and thereby improve the risk profile of the port. It would be a useful exercise to reassess the factors mentioned in the PIANC guidelines to determine if the existing port static rules are still valid.

In contrast to static rules, dynamic underkeel clearance systems ensure safety through accurate planning and continual monitoring of the UKC of large vessels during transit along shallow waterways. These decision support tools and the integration into navigation systems also allow pilots and masters to quickly evaluate alternative speed/sailing options where the passage does not proceed as planned. The availability of results to both vessel and shore in real time enhances contingency planning in the event of an unforeseen incident. Dynamic systems, such as DUKC® do not need additional ship equipment, as existing infrastructure can be used to access the information. However, the level of information that can be delivered will improve, thanks to newer technologies such as S100 charts.

Dynamic underkeel clearance systems have a proven track record and their use will only increase. As the methodology builds on the concept of a minimum clearance limit that must not be breached, dynamic underkeel clearance systems effectively control the risk of a touch-bottom/grounding incident.

In summary, there are easily achievable improvements over basic static rules, such as those offered by using a net regime and dynamic UKC approach. This results in positive safety outcomes through improved port practices and risk management strategies. Additionally, there is the potential to increase port efficiency through deeper sailing draughts and wider tidal windows.



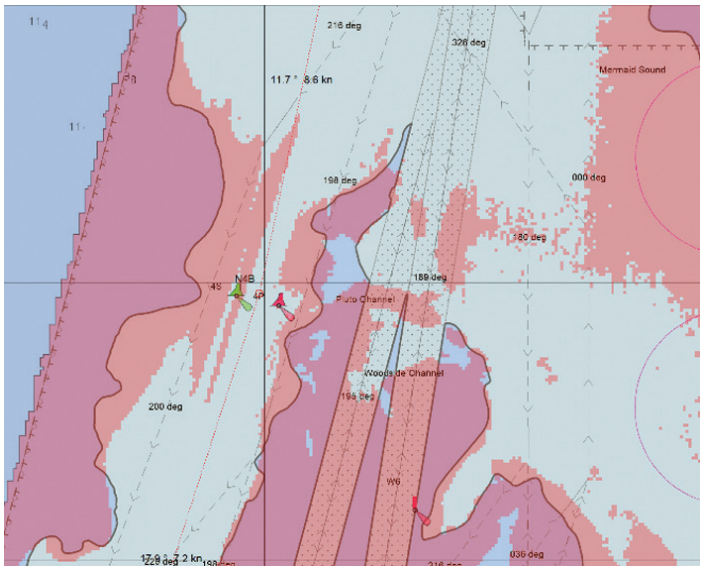


Figure 8: Actual PPU displays on Panasonic Toughbook during transit (2016) with detailed sectional view

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

Improving safety

The UK Chamber of Shipping has launched HiLo, a predictive modelling tool for accident prevention in shipping.

The new initiative aims to prevent 'high-impact' events such as explosions, collisions and groundings by recording the low-level incidents that frequently are precursors to major incidents – hence the name HiLo.

Data from these smaller, seemingly non-threatening incidents can be interrogated using HiLo. The analysis can then be used to target the specific areas in which safety should be improved on board vessels. This will help enhance the overall safety performance of the individual shipping companies that subscribe to the scheme.

Development of the HiLo system has been undertaken jointly by Shell, Maersk and Lloyd's Register, with future funding from the Lloyd's Register Foundation.

Several shipping companies have also been contributing incident data to the system during its preliminary stages.

'Our shipping industry has a fatal accident rate 20 times that of the average British worker and five times that of construction. Simply put, that is unacceptable. And it needs action – now,' said Dr Grahaeme Henderson, President of the UK Chamber.

Mind your mobile

The Hong Kong Shipowners Association (HKSOA) reports that a non-Chinese-flag ship alongside in Ningbo was boarded by immigration authorities, and the entire crew were told to surrender their mobile phones. Content from each of the crew phones was then uploaded to the authorities' laptop for inspection as part of a 'nationwide anti-terrorist campaign'.

'Although the authorities claimed that they didn't download any personal information, the situation is still concerning and the flag state of the ship in question is considering making a formal protest to the Chinese government,' the HKSOA says.

The association advises crew on all ships to be aware of the possibility of phone seizure. Individual mariners need to make their own risk assessments about the kind of data they are storing on their mobile phones.

Mariners are asked to take note of this occurrence and to bear in mind the possibility that similar inspections may be conducted among their own crews. The HKSOA would like to be notified of any such incidents in China and members are asked to contact the managers should it occur on board one of their vessels.

Non-compliant fuel

Leading environmental organisations and the global shipping industry have joined in calling for an explicit prohibition on the carriage of non-compliant marine fuels when the global 0.5% sulphur cap takes effect in 2020.

IMO has agreed that from 1 January 2020 the maximum permitted sulphur content of marine fuel (outside emission control areas) will reduce from 3.5% to 0.5%. Unless a ship is using an approved equivalent compliance method, there should be no reason for it to be carrying non-compliant fuels for combustion on board.

The 2020 sulphur cap will provide substantial benefits to the environment and to human health as a result of the reduced sulphur content of marine fuels that must be used from the start of that year. At the same time, the 2020 cap will increase ships' operating costs substantially.

The restrictions on sulphur will also present major challenges to governments, which will have to ensure consistent enforcement across the globe. If the intended environmental and health benefits are to be secured, the organisations say it is of utmost importance that enforcement of this standard is efficient and robust in all parts of the world. Any failure by governments to ensure consistent implementation and enforcement could also lead to serious market distortion and unfair competition.

In a joint statement ahead of a crucial IMO meeting, at which proposals for a carriage ban will be discussed by governments, the environmental and shipping organisations maintain that banning the carriage of non-compliant marine fuels will help ensure robust, simplified and consistent enforcement of the global sulphur cap.

The International Memorial for the Battle of the Atlantic

Vice Admiral Mike Gretton CB CVO FNI
Chairman of the Battle of the Atlantic Memorial

The key issue in the Battle of the Atlantic was the balance between new merchant ships built and those sunk. It was the most important campaign of the Second World War, as without success Britain would have been starved of food and fuel. Furthermore, other key wartime campaigns would have not been possible – particularly the D-Day landings in Europe in June 1944. The Battle of the Atlantic was the longest continuous campaign of the war. According to Winston Churchill: 'The Battle of the Atlantic was the dominating factor all through the war. Never for one moment could we forget that everything happening elsewhere, on land at sea or in the air, depended ultimately on its outcome.'

Many factors contributed to the Allies' eventual success. Among them were intelligence from Enigma, and Western Approaches HQ in Derby House, Liverpool. The performance of the convoy escort groups was improved by training at the Western Approaches Tactical Unit. In early 1943 very long range maritime aircraft were made available to the campaign, and once they arrived it was possible to cover the previous gaps in the Atlantic: the U-boats had nowhere to hide.

But surely the most important factor contributing to Allied success was the extraordinary bravery and resilience of the merchant seamen (of many countries in addition to the main combatants), the crews of warships, and the aviators – both land- and sea-based.

The toll was high on all sides. The figures are difficult to pin down because of the fog of war and also because of the different areas for which casualties were reported. In broad terms, more than 3,500 ships were sunk, and over 26,000 UK merchant sailors and 20,000 sailors from other countries lost their lives. Around 23,000 UK Royal Navy personnel died, while 65% of German submariners did not return to their home bases; 648 U-boats were lost out of a total fleet of 859.

A memorial for the Battle of the Atlantic

Despite its significance, the Battle of the Atlantic does not have an overall memorial in the UK, unlike Canada, the United States, Germany and several other countries. The purpose of our project is to fill that gap. As the veterans of that generation leave us, it is important that we create a reminder of the losses and the lessons of that battle and the war. We want the memorial to be a remembrance that recognises those sacrifices, and to stand as a reminder of the high cost and incalculable value of peace. It will be an instrument of education to adults and children alike about the vital importance of this campaign, which was 'out of sight' compared with other well-known events such as the D-Day landings, Dunkirk, Alamein and the Battle of Britain.

In the educational role of the memorial, we are working closely with the nearby Merseyside Maritime Museum and the newly refurbished Western Approaches Museum at Derby House.

We will be commemorating all participants – Merchant Navy and Armed Forces – in the campaign:

- The British and Allied Merchant Navies: seafarers from all over the world, especially India and China, served in these ships.
- The British Armed Forces: Royal Navy and Royal Marines, the Army and the Royal Air Force
- Allied Armed Forces: Canada, Norway, Netherlands, Belgium, France, Poland, Brazil, Australia, New Zealand, South Africa, the Soviet Union and the United States participated.
- Former adversaries: Germany, Italy.

The bravery and dedication of all of these peoples and countries will be commemorated in a city that was at the heart of the effort in the UK – Liverpool. The command headquarters of the campaign was in Liverpool, and many of the warships and merchant vessels were based there.

Progress to date

A site for the memorial has been approved between the western side of the Museum of Liverpool and the River Mersey, close to the Pier Head, the Merseyside Maritime Museum and the Albert Dock.

Architects Donald Insall Associates, supported by sculptor Paul Day, have been selected to complete the memorial.

An outline design has been approved by the Trustees, with an overall shape to reflect a Liberty ship, and friezes to tell the story of the campaign. Other memorials for aspects of the Battle of the Atlantic that already exist on the Pier Head, such as the statue of Captain Johnny Walker and plaques from various countries, will be moved to the site of the main memorial to create a Battle of the Atlantic walkway from the Pier Head to the Albert Dock and Merseyside Maritime Museum.

Way forward

The initial estimate for the cost of this project is in the order of £2.5 million. To meet this, a two-stage fundraising programme is required: first, pump-priming of between £50,000 and £100,000, which is nearly completed, and, second, the main fundraising campaign.

If you would like to contribute to the project, any amount, however, would be most welcome. There are two ways in which you can contribute:

- On line. Please go to our website, www.battleoftheatlantic.org, and click on Donate On Line. This takes you to theBigGive.org.uk which enables you to donate and complete a Gift Aid Declaration when appropriate.
- By cheque. Please make your cheque out to 'Battle of the Atlantic Memorial' and send it to the Secretary, Bayley's Barn, Norton Lane, Norton, Chichester, West Sussex PO20 3NH.
  For more information about Gift Aid eligibility, telephone the Secretary on 01243 545948 or email: cwpile@gmail.com. The Secretary can then send you a Gift Aid Declaration form if you qualify.

We have made a good start towards our goal of commemorating the Battle of the Atlantic, but there is a long way to go! The plan is for the memorial to be unveiled in 2020.

Letters

JOIN THE CONVERSATION

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

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www.youtube.com/TheNauticalInstitute

Cyber security and traditional navigation

➔ Cyber security and cyber security breaches are the most modern threats on board commercial ships. The industry has taken the traditional steps of preparing guidelines and including the problem in the contingency plans, in the safety management system and security plans. There is just one thing missing in all this – the mentality of the personnel. Are we prepared?

In June 2017, there a was mass spoofing attack involving over 20 vessels in the Black Sea. In the end nothing happened, GPS operation was restored and everything went fine. But it could have been worse. Imagine that the ship is approaching a port, or is going to pass a shallow water area and her position is not accurate. Do we really have an alternative to GPS, and are today's officers on the bridge and young shipmasters able to plot the ship's position in traditional ways and to take the right decisions to avoid incidents?

Electronic charts are already compulsory and even if the officers are able to take bearings and distances with the radar or visual bearings through the compass repeater and distances with any measuring device, could they plot the position and could they do it in ample time to take the proper decision and to navigate safely? General and type-specific training in ECDIS is compulsory for all deck officers, and in theory they should be able to do this. However, I wonder how often the officers are using these training options in order to be ready to do that in case of necessity. Even if they are included in the safety management system, a lot of exercises are done automatically. Sometimes boxes are ticked with the words 'That's very easy to do, I do not need to train it in reality, and I'll do it when necessary.' We skip a lot of minor activities to save time, and it becomes a habit.

Unfortunately there are enough emergencies and investigations showing omission of such simple activities leading to groundings, collisions in clear weather and good visibility simply because of loss of situational awareness. The only reason is absence of traditional skills to plot ship's position, to evaluate it immediately and to take the proper action. In general, most modern seafarers would not have the next step immediately at hand if there is a failure in ship's electronics.

Too often, we neglect probable threats and dangerous situations with the simple question 'Will it happen now or to me in this moment?' And yet, with all the modern equipment and facilities, fatalities still happen, for reasons that are more trivial than before.

How to improve the situation or to reduce the risk of incidents due to human error? Most probably, we have to go back to basics. Students in the merchant academies prepare their lessons online. The academies save money, and students are not obliged to undergo severe conditions in practice. They stay in front of computers, watch the screens and learn everything. And very often they forget it immediately. In my green years there was no GPS system on board commercial ships and satellite systems – when they were available at all - gave ships' positions once during four hours watch. When sailing close to the shore we had nothing to do but to take bearings using radar or the compass repeater and to plot the ship's position on paper chart. It was routine, and in case of emergency all of us were able to do it immediately without any doubt. This is not the case today. Even if some professors insist on teaching this knowledge, there is no time to practise it when the youngsters go on board, busy with daily routines and schedules.

Relying on the expertise of the shipmaster is really very sketchy, as the Master is busy 25 hours out of 24. Comprehensive research carried out by Danish nongovernmental organisations showed 75% of the Master's time is occupied by administrative burdens, and less than 20% is pure navigation. Unfortunately, it's more or less the same with the officers. Nowadays, most of the shipmasters are already from the ECDIS generation and traditional skills will disappear little by little.

To make matters worse, most shipping companies are owned and managed in industrialised countries, while crew are usually provided from third parties/ countries. Decision makers and managers are getting further and further away from the real problems of crew members. Nowadays, most managers have no maritime background or have only one or few voyages as junior officers. Without experiencing the responsibility, one can hardly understand the need for traditional practical knowledge and skills in case of emergency.

What can be done to change this trend? First of all, when discussing safety of life and pollution matters, we have to make sure we do not look first and foremost at the financial aspect. In this period of prolonged crisis, finances are important, but in the long term cutting education, training and safety expenses is killing good practice. This will create huge problems, future generations will not even be able to understand where these problems come from.

Safety culture and the safeguarding of traditional skills is becoming more important for the future of the industry. One might say that autonomous ships will solve all these problems. Automation is an important tool to improve safety and new technologies should be used. But there is still no alternative to traditional skills. The developers of autonomous ships will need knowledge of traditional skills to create the necessary tools to navigate the ships. And managers will need to have knowledge of those skills to manage the entire process properly.

Dimitar Dimitrov MNI
IMO Maritime Ambassador for Bulgaria

Open vs enclosed lifeboats

➔ In his Captain's Column in *Seaways*, January 2018, Captain Peter Hay considers the advantages of open lifeboats as opposed to the present enclosed ones. Watching on You Tube the evacuation by the crew of the burning *MV Schieborg* on 08 January 2005 in very adverse weather conditions in the German Bight, I think that the use of an enclosed lifeboat was a factor in the successful evacuation. To make things even more difficult the lifeboat had to be lowered along the ship's side.

Having said that, I do think that enclosed lifeboats are completely useless as so-called man overboard boats – something which is also very nicely demonstrated in the video.

Hein P.S. Arendsen MNI
Molenend, The Netherlands

The Nautical Institute LinkedIn forum

JOIN THE CONVERSATION

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

THIS MONTH, WE DISCUSS **RADAR OVERLAY ON ECDIS**

This month we discuss RADAR OVERLAY ON ECDIS
Marlous Mes, a lecturer at Maritime and Logistics College De Ruyter, Vlissingen, wrote:

When I teach my students how to check their GPS position on ECDIS, I tell them to use the radar overlay. I point out the obvious factors to take into account such as gradual sloping coastlines, small reflection angles etc.

I then tell them whenever they use this overlay to check the GPS, the radar presentation must be in relative motion so as to rule out any possible errors due to input errors with true motion (TM) ground stabilisation. This can result in an incorrect TM presentation which would then be used to check on the GPS.

However in all the publications I have read about this subject, this specific aspect is never mentioned…

THE INSTITUTE'S LINKEDIN COMMUNITY RESPONDED:

➔ During my watch, the radar is on North up, relative motion (RM), true trails, relative vectors. The ECDIS is also on N up, RM. Not all shipowners purchase the option of radar overlay; however, we do have sort of ARPA input, which also feeds the electronic bearing line (EBL) and variable range marker (VRM) from our radar, but no echoes. Thus we can easily check our GPS as the EBL and VRM on radar will be visible in the ECDIS as well (green circle/line). This way, no problems with echoes are encountered.

➔ You are checking the GPS against spoofing and that is done either with range and bearing or visual bearings to confirm the ECDIS position. This is no different to the paper charts check. Yes, use RM raw data.

➔ Checking the electronic position fixing system (EPFS) by using radar video overlay, the video itself is not RM or TM. It is just a picture that should match with the system electronic navigational chart (SENC) output based on the EPFS position. The moment you use the overlay it is presented in the same mode as the ECDIS.

➔ We usually teach TM because all of your vectors show course over ground (COG)/speed over ground (SOG). This also allows for collision avoidance planning assisted by AIS which also show TM COG/SOG based on the GPS input. As for the radar image overlay this needs to be on at all times as it provides the best initial indication that the ECDIS inputs may be in error. When utilising ARPA for radar collision avoidance planning this also should be in TM as it will give a consistent answer (this differs somewhat from the conventional, pre-AIS wisdom).

➔ The radar overlay is just good to quickly check that the radar picture matches with the ECDIS. I do not really like using it because sometimes it is offset (JRC users will understand) with the ECDIS (problem of angle) or just because so much information is not practical. ECDIS is already displaying lots and lots of information (even when adjusting the layers of information) and humans are only able to process a certain amount of information.

➔ I don't understand why it would make any difference. The radar overlay is just a tool to verify that the ECDIS matches the radar picture, ie a quick tool to ensure that your GPS is in fact giving you an accurate position. What difference would it make what mode of stabilisation the radar is in? The radar's ability to measure a range and bearing is not affected by stabilisation mode.

➔ Where I can see a problem is as follows. The ship's plotted position on the ECDIS is dependent on the GPS, therefore the radar overlay on ECDIS is actually relative to the ship's GPS position. If the GPS position of own ship is in error (the centre point of the radar overlay) then the whole radar overlay would be giving a false overlay (overlay shift). This could actually be quite a significant problem and very misleading for the navigator.

➔ Whatever happened to looking out of the window?

➔ If one stops looking out of the window, all is lost, no matter how well the other equipment is working. All navigational aids on the bridge are just that: aids to navigation. If used properly these navigational aids should give the navigator more time to look out the window, not replace looking out of the window.

➔ There is a need to reassess the whole issue of 'looking out of the window'. The ECDIS picture is complicated, simply because it brings a large number of inputs into one display. That was supposed to be the system's advantage, but there is also a disadvantage to it. It takes time for the officer of the watch to absorb the ECDIS picture. Unless we change the ship's bridge design totally, he cannot both keep a lookout and interact with the ECDIS. That is a human limitation, and not a failure of capability.

➔ Much as it's about good practice checking instruments, this is one instrument checking another instrument. Where and what is the practical and physical check that every navigator should apply? What are the indicators that provide best calibration?

➔ Although ECDIS and radar are invaluable in handling the massive navigational information load, the visual must always take precedence over the electronic. The NI publication *Bridge Team Management* (by Capt Swift) includes a diagram about information and decision flow that all navigators would be well advised to use for organising their bridge team. The three elements – visual, electronic and internal communications – need to be set properly.

➔ To the OOW I recommend TM but I also tell them to use whichever mode they feel more comfortable – except course-up mode. Radar overlay is recommended. I ask them in case of any discrepancy between ENC and radar echoes which is more reliable. The answer is radar, as the other is just digitally created. In case of any discrepancy they should follow radar – but first of all 'in case of any doubt do not hesitate to call me'.

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

Representing The Nautical Institute to the maritime industry and beyond

Speaking out on new technology

In January, Director of Projects David Patraiko FNI, attended an S-Mode testing workshop at BIMCO Headquarters in Copenhagen. The workshop brought together mariners and stakeholders to trial the online testing modules for S-Mode that was launched at the IMO in February at the NCSR Sub-committee. These tests will be reported on in *Seaways* and on NI social media. Thanks to BIMCO for hosting this event.

David also attended the 2018 eNavigation Underway conference, held on board the *DFDS Pearl*, where he chaired the session on Autonomous Systems. This was the eighth International annual enavigation conference, looking at the performance of many ongoing eNavigation testbeds including the SESAME project in Singapore, STM in the Baltic, SMART Navigation in the Republic of Korea and EfficenSea in Europe.

This month, the NI was represented at the InterManager Interactive Ship Management Forum in London. This forward-looking event covered complex issues including blockchain and cryptocurrencies, personality profiling for shipping, safety culture and a discussion on safe manning vs sustainable manning.

John Lloyd spoke at the European Dynamic Positioning Conference in London, updating industry members on the latest extensions to The Nautical Institute's DP scheme.

Welcome Captain Varma

This month we welcome a new member of staff, Captain Maneesh Varma, who joins us as Training and Accreditation Development Officer. With 25 years experience at sea, Maneesh worked through the ranks to Captain for Maersk. He has held numerous roles in the maritime training sector, working as senior lecturer at Warsash Academy, Lowestoft College and Liverpool John Moores University. Captain Varma will be working to enhance and manage The Nautical Institute's CPD services.

A marathon audit trip

Captain Ghulam Hussain FNI, Accreditation Manager conducted several audits throughout Asia during February. In Manila, he reaccredited three DP training centres. In Mumbai, India, he visited four DP training centres for reaccreditation and one new centre for initial accreditation.

Ghulam Hussain FNI during the IMOSTI audit in Manila (above), at Aquamarine Mumbai (top left) and Kongsberg Manila (below left)

A traditional Burns Night supper to celebrate Scotland's national poet, Robert Burns, was held in London by Menzies Response, the company responsible for storing and distributing the Institute's publications. Director of Publishing and Membership, Bridget Hogan, met members of the senior team at Menzies and representatives from Asendia, the group that handles the international distribution of *Seaways* and *The Navigator*.

The Nautical Institute's Technical Seminar & AGM 2018

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Book by quoting 'Nautical Institute AGM' to the Cavalieri Art Hotel

Find out more at: www.nautinst.org/AGM2018

New members

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

Associate Fellow

Bartilad, A E Captain/VP & COO (Philippines)
Brown, E Captain/Superintendent (UK/London)
Doymus, M Captain/Lecturer (Turkey)
D'Souza, A A Captain/Master (UK/Solent)
Edwards, S P Captain/Master (UK/Bristol Channel)
Ellis, J F Captain/Master (Aus - Vic)
Fitzek, E Captain/Marine Consultant (Aus - Wa)
Krishnamoorthy, R Captain/Master (Singapore)
Lehtovaara, E Captain/SVO, Head Of Regulatory Affairs (Finland)
Loudon, C Captain/Master (Aus - NSW)
Moiseev, A Captain/Senior Fleet Superintendent (Cyprus)
Muhamad, A R B Capt/Master/DPO (Malaysia)
Peeters, Y Mr/Managing Director (Belgium)
Pingali, S Captain/Head Of Shipping (Singapore)
Rathore, P S Captain/Master (India (West))
Sopala, P W Captain/Master (Poland)
Stevenson, L Captain/Master (UK/London)
Tian, L S Captain/Master (Malaysia)
Varma, M Captain/Accreditation & Training Development Officer (UK/London)
Vijay, B G Captain/Senior Operations Manager (UAE)
Warwick, P D Cdre/Commodore Royal Navy (UK/Solent)
Zevri, G Captain/Cargo Superintendent (Ireland)

Upgrade to Associate Fellow

Daniel, D Captain/Director (UK/SW Eng.)
McJury, B K Captain/Consultant (UK/NE Eng.)
Newton, P B W Captain/Master (UK/Central Scotland)
Robarts, M Mr/Director (UK/London)
Rosenkranz, S Mr/Consultant/Master (UK/London)
Udovyts'kyi, G Captain/Master/SDPO (Spain)

Member

Al-Abri, F Mr/Training Manager (Oman)
Bastian, A Mr/DPO (Indonesia)
Berry, S Miss/Loss Prevention Executive (UK/London)
Brito, H R P Mr/DPO (Brazil)
Buchanan, L M Mr/Master (UK/Central Scotland)
Dinu, C Mr/DPO (Romania)
Eriksen, O Mr/1st Officer (Norway)
Esposito, V Mr/2nd Officer (Italy)
Falcão, P R D C Mr/Master (Brazil)
Fraser, S F Mr/Marine Technical And Safety Advisor (UK/N of Scotland)
Hamilton, M W J Mr/First Officer (UK/London)
Haslar, J Captain/Master (New Zealand)
Hedgepeth, D Capt/Marine DP Advisor (US Gulf (Houston))
Hill, E Mr/Chief Officer (UK/NW Eng. & N Wales)
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