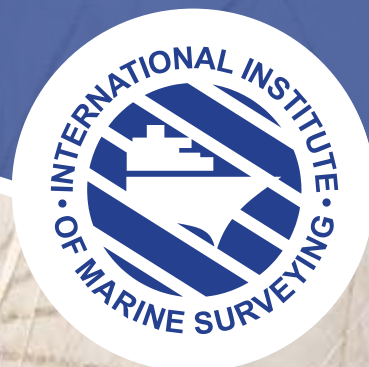


THE REPORT

DECEMBER 2016
ISSUE 78

The Magazine of the International Institute of Marine Surveying

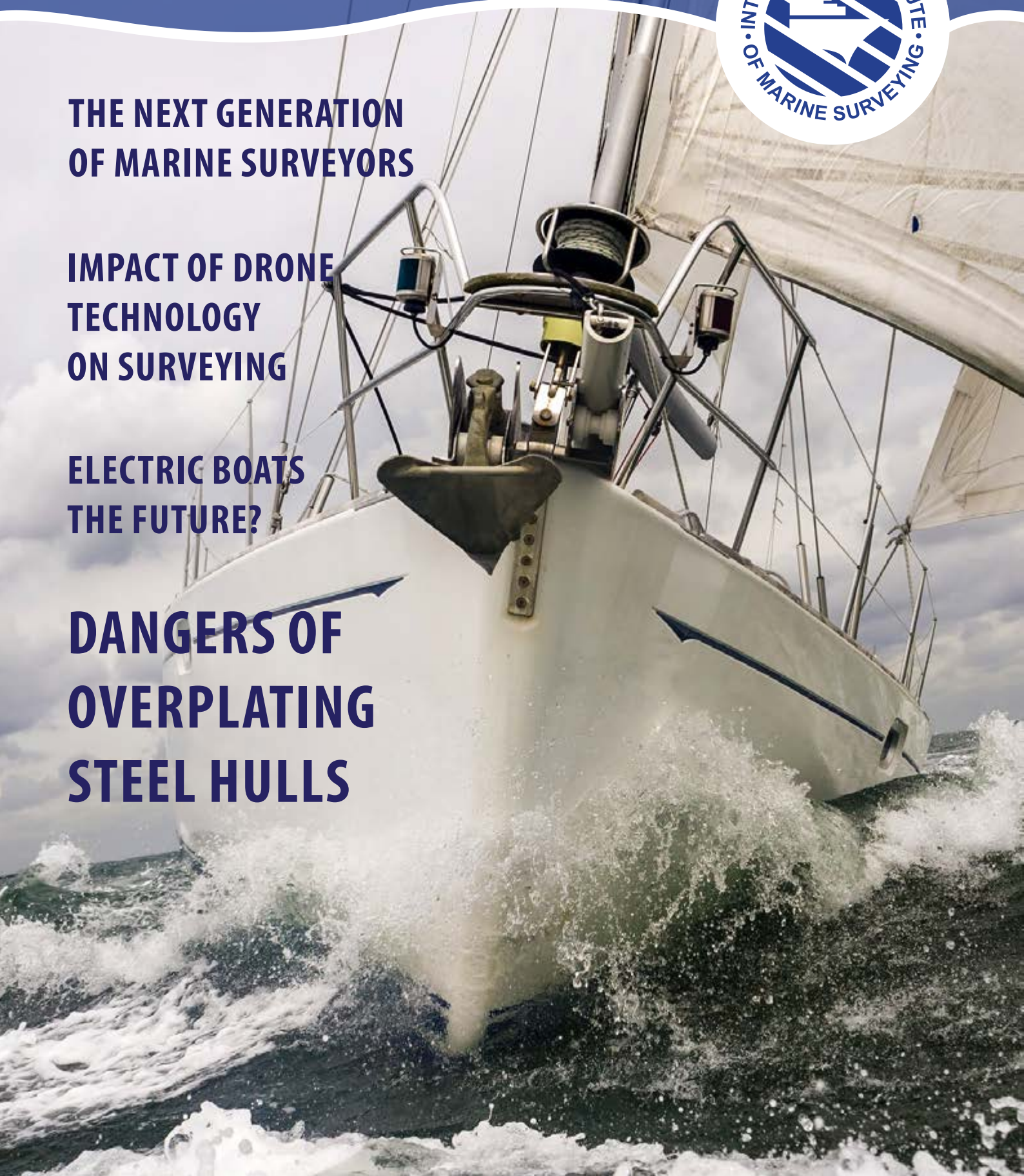


**THE NEXT GENERATION
OF MARINE SURVEYORS**

**IMPACT OF DRONE
TECHNOLOGY
ON SURVEYING**

**ELECTRIC BOATS
THE FUTURE?**

**DANGERS OF
OVERPLATING
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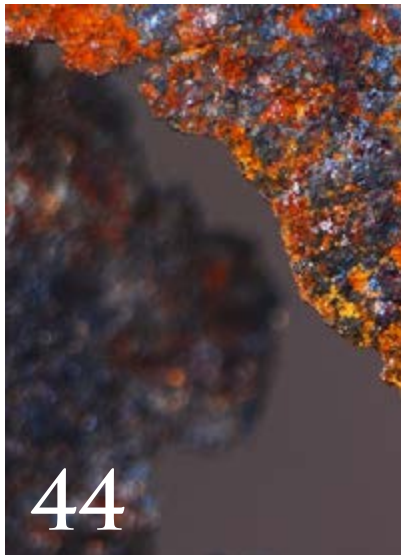
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THE REPORT

The Magazine of the International Institute of Marine Surveying

DECEMBER 2016 • ISSUE 78

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EDITOR'S LETTER

And so 2016 draws towards its end; and what a full-on, but satisfying year it has been. I believe we have made the most of the opportunities presented through the celebrations of the Institute's silver jubilee year to extend our reach not just in the surveying field, but also much more widely in the marine world by reaching out to those who touch your profession. There have been many highlights, some of which you can read in my review of the year from page 20.

Training remains an essential part of what IIMS does and believes in. Remarkably we have met over 200 yacht and small craft surveyors this year at our various events and I am grateful to those who have showed up. Organising these days takes time from sourcing the venues to attracting speakers and so on. It has been pleasing to see rooms full of surveyors taking advantage of these events wherever we have ventured, both in the UK and further afield. And there will be no let-up in 2017. The schedule of events for next year will be published soon, including a range of online seminars you can join; and with the launch of the Large Yacht & Small Craft Working Group, we have licence to extend the training possibilities.

Sticking with training for a moment, the IIMS CPD system is tired. It is about to be given a shake-up in 2017. Watch for details. This all plays into the role and importance of training against a backdrop of ever evolving technologies and the need to keep your skills current.

Producing the Report Magazine this year has been engaging and fun. My thanks to those who have contributed and to Craig Williams, the IIMS Graphic Designer, who has so beautifully recreated and depicted the articles and features. Reaching out for specially written, commissioned content has added another depth to the publication I believe. The Report Magazine is, in my opinion, as good as any other such Institute publication now.

So what else will you find in this issue? Capt Peter King, the subject of The Day in the Life of (page 77), has also written with some passion about how the industry sources the next generation of marine surveyors (page 33). Lee Wartier writes candidly on page 54 about why the role of the marine surveyor must be up weighted in the eyes of those who matter. The development of electric boats is interesting and Derek Ellard from Scruffie Marine, who has built a couple of small passenger ferries

in Australia, tells us more (see page 51). The article by Capt Bertrand Apperry (page 57) on the role of the shore based ISM designated person is absorbing. Capt Ruchin Dayal gives a comprehensive overview of the Proctor & Fargerberg Test (page 25). The dangers of overplating feature article by Alan Broomfield is a must read, (and provides some salutary lessons), if you operate in the field of surveying vessels with steel hulls (see page 43). We learn about the Golden Globe round the world solo handed yacht race 50 years on after the last one won by Sir Robin Knox-Johnston, which IIMS has an involvement with on page 65. Our regular 50 Shades of Insurance wraps up this issue.

I leave you with this thought. 2017 is the year we tackle our internal processes and procedures, for our own good and for your benefit too, including the development and launch of a couple of apps. Oh my, what a prospect. No peace for the wicked! Good luck for 2017 and survey well.

Mike Schwarz
Chief Executive Officer
International Institute of Marine Surveying

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THE PRESIDENT'S COLUMN

Dear Member

Where were you the day you heard Trump had been elected President of the USA?

There would be members reading this that could recall where they were when the moon landings took place, whereabouts they were when they heard Elvis had died and so on and so forth. Is it of that magnitude and significance? Personally, I believe it is.

The whole world watched, sometimes in disbelief, as the acrimonious campaign unfolded, new revelations and soundbites were taken and it held its breath as the results came in. The result, as with Brexit was stunning and unexpected in some quarters.

Does this concern IIMS members? In my view, it certainly does, unless the thousand or so of us have relocated to Mars that is!

I sense the world collectively holding its breath now, waiting to see if the utterances are translated in to concrete policies and action. I'm sure that any of

you reading this could think of one or two of them that caused personal concern for any number of reasons, including your religious beliefs, gender, business sector, which side of a land border you sit and so on. And quite right too in my view.

IIMS is apolitical.

This is not intended to be read as a political statement.

I don't think anyone would disagree with the fundamental principle of the right of anyone, anywhere on the planet, to have guaranteed the tenets of basic human decency and fairness. Most people would also agree and understand that we live in a hugely interconnected world, where different perspectives and values should be encouraged and diversity recognised as a strength not a weakness.

I've been elected your President to lead, and putting to paper my beliefs is in my view part of that function.

I believe that IIMS members are leaders, in their profession and

communities, and that we stand together, across the world, united by a set of common aims and goals.

Whatever the direction the world takes in the years to come I see no reason why we shouldn't continue to recognise the strength in the multiple perspectives our diverse membership base brings to this profession, and to model principles and behaviours that are fair to all, and above all to keep our heads up, and eyes on the future. We are mature women and men, well able to apply our judgement and the respect we have gained in our communities to be up-standers, not bystanders.

It could be a rocky few years ahead and our resilience and mettle could be tested. There are always other members at the end of the phone or locally and I encourage any of you to pick up the phone and chat and to use the network IIMS provides when the need arises.

Mr Adam Brancher *President*
International Institute of Marine Surveying
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MARINE NEWS



DNV GL REVEALS THE PATTERNS BEHIND INCIDENTS, ACCIDENTS AND FAILURES

Learning from failures and incidents is essential in a lean and cost effective organisation and is often a fundamental requirement in regulations. However, incidents should not be seen in isolation as the broader view and key industry learnings might get lost. DNV GL has investigated over 2000 incidents and failures globally, identifying trends among the data and invites the oil and gas industry to join and share experiences. To further strengthen DNV GL's global lab capabilities for failure investigation, a new lab in Bergen is opening, including one of the world's largest tensile testing machines.

As the oil and gas industry strives for cost effective execution in projects and operations while maintaining a high focus on safety and environmental footprint, innovative and smart solutions are needed more than ever. By extracting data and knowledge from all the detailed

incident investigations performed over the years, solutions might be just around the corner.

DNV GL now invites industry partners to join an industry project (JIP) to identify and have access to updated trends based on a broad range of data, including failure mechanisms, root causes, materials and equipment. The benefit for the industry will be a systematic approach to capturing and sharing learnings from past failures and for the JIP partners to exchange experiences. JIP participants can also use the knowledge as decision support in early phase developments, and risk based inspection.

Elisabeth Tørstad, CEO, DNV GL – Oil & Gas, says: "DNV GL has conducted many of the major failure and root cause analyses both on the Norwegian Continental Shelf (NCS) and globally, including the forensic examination of Deepwater Horizon Blowout Preventer in 2011. Our laboratories are key assets for DNV GL together with acknowledged experts within key disciplines for the oil and gas industry.

"Supporting our global laboratory network, the DNV GL technology centre for materials, corrosions, coatings, offshore mooring and lifting in Bergen has new laboratory premises with superior infrastructure so that our customers can have standard or tailored tests to suit their needs and get test results faster. This will further strengthen our position within offshore mooring and lifting and materials – and corrosion technology. The most powerful test rig will have a capacity of 2900 tons which places DNV GL's Bergen lab among the top test sites in the world," adds Tørstad.

DNV GL has a long, proven track record of demonstrating how incident investigation knowledge can be turned into industry guidance and benefits. One of the examples is when DNV GL conducted a number of failure analyses where the cause of failure was hydrogen induced stress cracking (HISC) in duplex materials installed sub-sea. Based on in-depth

materials investigations and root cause analysis of these failures, DNV GL gathered the industry in a joint effort to solve the problem. DNV GL quickly established a guideline for safe use of duplex materials, which re-established confidence in using duplex as subsea materials. Recommended practice DNV-RP-F112 Design of Duplex Stainless Steel Subsea Equipment Exposed to Cathodic Protection has become the global industry standard to avoid HISC. Similar outcomes have come from failure analysis on fasteners, thruster gears, hydraulic piston rods and anchor damages of pipelines.

Geir Egil Eie, Technology Leader Materials Technology, DNV GL – Oil & Gas, says: "Learning from previous failures and incidents, instead of repeating them, is almost like having a free lunch. The story of HISC and duplex materials shows clearly how the industry can benefit from a systematic learning approach."



US COAST GUARD RELEASES FIVE YEAR STRATEGIC PLAN FOR BOATERS

The US Coast Guard's Office of Auxiliary and Boating Safety has released the Strategic Plan of the National Recreational Boating Safety Program for 2017 to 2021.

This plan is the third in a series of five-year strategic plans and continues or updates boating safety initiatives and progress measurements that have proven successful over time, while closing gaps identified in the most recent review of strategic opportunities.

"This strategic plan is an important piece of the Coast Guard's boating safety program," said Rear Adm. Paul Thomas, assistant commandant for prevention policy. "Over the next five years, the Coast Guard will work closely with representatives of national recreational boating safety organizations to implement the various elements of the plan."

The plan includes three primary initiatives: improve and expand recreational boating education, training and outreach; update, leverage and enforce policies, regulations and standards; and improve and expand recreational boating data collection and research.

The Coast Guard reminds all boaters to boat responsibly while on the water: wear a life jacket, take a boating safety course, attach your engine cut-off switch, get a free vessel safety check and avoid alcohol or other impairing substance consumption.

An extract from the foreword in the strategic plan:
Every year, more than 70 million Americans participate in

recreational boating. Recreational boating has significant economic impacts and is an important part of the American heritage and culture.

The United States Coast Guard (USCG), the states, industry, organizations, and other members of the recreational boating safety community are pleased to report that boating is becoming safer over time. Since 1971, the year the United States Congress authorized creation of the National Recreational Boating Safety (RBS) Program, the estimated number of recreational boats has more than doubled, while the number of reported boating casualties (the sum of deaths and injuries) has decreased by more than 50%. While this trend is impressive, more can be done. No one expects that someone in their family or community will be injured or killed in a boating accident. Yet each year, lives are still lost, adults and children are injured, and property is damaged. The good news is that by increasing boaters' preparedness, safety education, and awareness, we can continue to decrease risk and evolve a culture of safety.



GARD P&I CLUB ADVISES ON WAYS TO MINIMISE HEAT DAMAGE RISK IN SOYA BEAN CARGOES

Gard P&I Club says that many claims relating to heat damage in soya bean cargoes loaded in South America, particularly Brazil and Uruguay, mostly for discharge in China have been reported this year. Due to the relatively high value of soya beans and the fairly large quantities shipped, the disputes have in some cases involved multi-million dollar claims. In a recently published loss prevention article, Gard P&I Club highlights the importance of inspections as important visible signs that fall under the phrase "apparent condition" can reveal at an early stage the problem and recommends guidelines to assist operations involved in the transportation of soya bean cargoes.

It is important to remember that there is an obligation in law, under the relevant cargo carriage liability regimes, to inspect the cargo's apparent order and condition at loading, to enable the Master to ensure that the bill of lading is accurate in its description of these items. The same regimes obliges the Master and his crew to properly care for the cargo once loaded.

The following recommendations are therefore provided with a view to assist operators and clients involved in the transportation of soya bean cargoes with cargo care and loss prevention:

- The Master and crew should be vigilant during loading and monitor the visual condition of the cargo so far as practicable, using breaks in the loading for closer inspections. Soya beans are pale yellow/brown by appearance. Although contracts allow for a mixture of several percentage points of damaged and discoloured beans, including often 1 per cent burnt beans, seek advice if portions of the cargo visibly differ from normal with parts of discoloured or black beans.
- Cargo temperatures should ideally be taken during breaks in loading and, for the purposes of ventilation, on completion of loading. If significant temperature variations (say 5 to 10°C) and/or elevated temperatures are noted, this may be indicative of self-heating already underway.
- Once on board, in loading port(s) and

during voyages, soya beans should be cared for like any other grain, i.e. kept dry at all the times and properly ventilated in accordance with normal maritime practice, following the shipper's prescribed fumigation periods (if any). Although natural ventilation as found on board many bulk carriers is not effective in controlling spoilage deep within the hold, and cannot prevent self-heating caused by inherent cargo conditions, it is nevertheless important that the ventilation practice is recorded accurately in the log book in case a party should challenge the vessel's cargo care regime. It should specifically include the times when ventilation is not conducted and reasons for not ventilating.

- During voyages, the crew should check the drain valves of the hatch covers for presence of condensation. Condensation may be

unavoidable in cold regions but if individual hatches stand out, it may be indicative of self-heating. If condensation forms and the vessel is ventilating, this should be noted in the vessel's log book in order to document that it occurred despite the crew's best efforts in cargo care.

- The crew should inspect the cargo at for example weekly intervals within the normal restrictions of vessels at sea. It is not advisable that crew enter the cargo holds, but inspections may be possible via the access ways on deck. Any abnormalities found such as sweat should be noted and logged.
- Voyage delays may give the opportunity for better inspections by opening the hatch covers, if safe to do so. If cargo temperature information can be safely obtained that can be communicated to charterers/cargo interests so that mitigating steps can be considered.

AUTOMATED SHIPS LTD AND KONGSBERG TO TEST THE WATER WITH A FULLY AUTOMATED OFFSHORE VESSEL

Automated Ships Ltd from the UK and Norway's Kongsberg Maritime have signed a Memorandum of Understanding to build the world's first unmanned and fully-automated vessel for offshore operations. In January 2017, Automated Ships Ltd will contract the 'Hrönn', which will be designed and built in Norway in co-operation with Kongsberg.

Sea trials will take place in Norway's newly designated automated vessel test bed in the Trondheim fjord and will be conducted under the auspices of DNV GL and the Norwegian Maritime Authority (NMA). The Hrönn will ultimately be classed and flagged, respectively.

Currently, only small unmanned boats are being utilised for near shore operations but there are no technical limitations to constructing

large, unmanned and automated systems. The only impediments are regulatory, but with the participation of DNV GL and the NMA, and Norwegian and UK companies and institutions, it will be possible to rapidly and at low-cost be the first to market with a full-size unmanned ship.

Hrönn is a light-duty, offshore utility ship servicing the offshore energy, scientific/hydrographic and offshore fish-farming industries. Its intended uses include but are not limited to: Survey, ROV (Remotely Operated Vehicle) and AUV (Autonomous Underwater Vehicle) Launch & Recovery, light intermodal cargo delivery and delivery to offshore installations, and open-water fish farm support. The vessel can also be utilised as a standby vessel, able to provide firefighting support to an offshore platform working in cooperation with manned vessels. Automated Ships Ltd is currently in discussion with several end-users that will act as early-adopters and to establish a base-rate for operations and secure contracts for Hrönn offshore, in the near future.

Hrönn will initially operate and function primarily as a remotely piloted ship, in Man-in-the-Loop Control mode, but will transition to fully automated, and ultimately autonomous operations as the control algorithms are developed concurrently during remotely piloted operations.

Automated Ships Ltd will be the primary integrator, project manager and ship-owner of this world's first fully automated and unmanned ship for commercial use.



Artists impression of the 'Hrönn'.

UK MAIB ISSUES ITS SECOND SAFETY DIGEST OF 2016

The UK MAIB has announced the publication of the second issue for 2016 of its Safety Digest which includes lessons learned from maritime accidents. This latest edition of the Safety Digest contains 25 articles which are examples of poor risk awareness demonstrated by the crews of vessels from the merchant, fishing and recreational sectors.

Steve Clinch, Chief Inspector of Marine Accidents states: "The procedures and safe working systems that lie at the core of all safety management systems are there for a reason – invariably mariners have been hurt, ships and/or their cargoes have been damaged or lost, or the environment harmed. MAIB investigations into marine accidents consistently identify cases where mariners chose to ignore the instructions and guidance contained in companies' safety management systems."

"The root cause for this is often complex, but MAIB investigators regularly identify a disconnect between the safety culture

that shore-based managers believe (or perhaps hope) is in place within their fleet and what is really happening on board."

"A strong safety culture is not something that will appear by magic, it takes hard work and commitment – particularly from senior managers ashore and afloat. Similarly, safety management systems need to evolve over time if they are to remain credible."

"A depressing fact, taken from many investigations that the MAIB has conducted into accidents which have resulted in the crew going into the sea, is that PFDs are not being routinely worn by fishermen when working on the open deck (see Cases 18 and 22). This is despite a concerted campaign by many different stakeholders to encourage this. So here is another fact: if you fall, or are taken overboard from your fishing vessel, based on the typical year round temperatures in UK waters, MAIB statistics indicate you will most likely die from the effects of cold water shock within 15 minutes if you are not wearing a PFD. Think about how your loss will affect your family and loved ones."



ADVICE ISSUED ON CARRYING SOLID BULK CARGOES SAFELY

Lloyd's Register, the UK P&I Club, and INTERCARGO have produced a pocket guide for ships' officers and agents who arrange cargoes for loading. This pocket guide outlines the precautions to be taken before accepting solid bulk cargoes for shipment; sets out procedures for safe loading and carriage; details the primary hazards associated with different types of cargo; and underlines the importance of proper cargo declarations. A quick reference checklist and flowchart summarise the steps to be followed.

The main legislation governing safe carriage of solid bulk cargoes is the International Maritime Solid Bulk Cargoes (IMSBC) Code, which became mandatory on January 1, 2011, under the SOLAS Convention. No matter what solid bulk cargo you are carrying, the same general requirements apply for accepting them for shipment and loading them.

Accepting cargoes for shipment- Information required from the shipper Before you can accept a cargo for shipment, the shipper must provide the Master with valid, up-to-date information about the cargo's physical and chemical properties. The exact information and documentation they must provide is listed in the Code under 'Assessment of acceptability of consignments for safe shipment; Provision of Information', and includes the correct Bulk Cargo Shipping Name and a declaration that the cargo information is correct.

Accepting cargoes not listed in the IMSBC Code The list of individual cargoes contained in the Code is not exhaustive. If a cargo not listed in the Code is presented for shipment, the shipper and the appropriate competent authorities must follow this process:

1. Before loading, the shipper must provide details of the characteristics and properties of the cargo to the competent authority of the port of loading.
2. Based on this information the competent authority of the port of loading will assess the acceptability of the cargo for shipment. – If the assessment defines the cargo as Group A or B5, the competent authorities will set the preliminary suitable conditions for carriage. – If the cargo is Group C5 then carriage can be authorised by the port of loading and the competent authorities of the unloading port and flag state will be informed of the authorisation.
3. In both cases, the competent authority of the port of loading will give the Master a certificate stating the characteristics of the cargo and the required conditions for carriage and handling. The competent authority of the port of loading will also provide the same information to the IMO.

Download the guide on the IIMS website: www.iims.org.uk/wp-content/uploads/2016/10/LR-IMSBC-Code-pocket-guide-ON-carrying-solid-bulk-cargoes-safely_August-2016_10.pdf



ABS PUBLISHES TOWING GUIDE

ABS, a leading provider of classification and technical services to the marine and offshore industries, announces the publication of an industry first – the ABS Guide for Building and Classing Subchapter M Towing Vessels. The Guide helps domestic owners comply with new U.S. Coast Guard (USCG) requirements governing towing vessels that operate in U.S. inland waterways.

“As a trusted advisor to industry, ABS stays at the forefront of changing regulatory requirements so we can offer the best guidance to our clients and other industry stakeholders,” says ABS Americas Division President James Watson. “Our knowledge and experience put us in an excellent position to help owners balance their operational needs with the Subchapter M requirements.”



The new Guide addresses requirements for lifesaving appliances, fire protection, machinery, piping, electrical, structure and stability/load line. It also provides additional, supplemental and alternative requirements to the ABS Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways (River Rules) based on a comparison to 46 CFR Subchapter M for towing vessels that fall under these definitions.

“ABS is committed to helping the domestic maritime industry comply with the 46 CFR Subchapter M requirements,” says ABS Inland Waterways Manager Joshua LaVire. “Our team provides companies with trusted technical advice that demonstrates our commitment and industry leadership.”

Download the ABS Guide :
www.iims.org.uk/wp-content/uploads/2016/10/Subchapter_M_Guide_e.pdf

UK SUPERYACHT SECTOR SHOWS IMPRESSIVE GROWTH DESPITE CHALLENGES

Figures from the latest Superyacht UK Annual Survey reveal that the national superyacht industry is buoyant and growing, despite uncertainty and financial volatility surrounding the EU referendum.

International demand for British products, services and expertise helped to grow industry revenue by 11.5 per cent to £605 million in 2015 and 2016 — the fourth consecutive year of growth. Over the same period, the sector contributed £273 million in GVA to UK GDP (+6.1 per cent) and full-time employment rose by 4.5 per cent to 4,125.

“The superyacht sector continues to outperform the rest of the marine industry and the domestic economy,” says Peter Brown, senior sales broker at Burgess and chairman of Superyacht UK, the dedicated association of British Marine. “The decision to leave the EU is likely to dampen this growth, but the sector is showing confidence going into the end of the year.

This is because we have less exposure to domestic economic risk and a depreciation in sterling has strengthened the purchasing power of our overseas buyers.”

Notwithstanding Brexit angst, the superyacht industry recorded its highest levels of business confidence with 75 per cent of companies feeling positive about the next 12 months. This is in stark contrast to the sharp falls in business optimism recorded in August among small and medium enterprises in non-marine industries. Productivity levels are also rising with 72 per cent of respondents reporting an increase in business activity, compared to 61 per cent in the last survey.

“Recent years have seen greater demand for yacht sales from international markets, including Asia and the US,” says Richard Selby, international development manager for Superyacht UK and British Marine. “This has led British builders to shift their focus to bespoke yacht builds.”

Post-recession confidence in the global superyacht boatbuilding and refit sectors, as well as after-sales and service businesses, have had knock-on benefits for UK jobs with 50 per cent of UK superyacht manufacturers reporting an increase in staff numbers.

However, there is a dark cloud on the horizon that could threaten this positive trend for the industry at large. Another recent report from British Marine reveals that 30 per cent of companies have identified critical skills gaps that are holding their businesses back, with 74 per cent of firms citing a lack of technical training as a barrier.

"We are growing and we want to hire more people to meet this demand, but a lack of specialist manufacturing skills in the market is a future challenge for the industry," says Mathew Hornsby, co-founder and sales director at Williams Jet Tenders.

Most companies are tackling the issue themselves by turning to in-house training and apprenticeship schemes with 470 apprentices across 100 businesses in the marine industry. During the recent Southampton Boat Show, British Marine celebrated the graduation of 63 of these apprentices, including 11 from Pendennis, 12 from Sunseeker International and 20 from Princess Yachts.

"Apprenticeships are essential to ensuring that our future workforce have the necessary skills to preserve our high standards of craft," says Andrew Walter of Princess Yachts. "Offering an array of growth opportunities, they provide numerous benefits for any young person looking to step on the career path."

POWERCELL SWEDEN AB HAS RECEIVED THE FIRST MARINE ORDER FOR TWO S3 PROTOTYPE STACKS

The leading fuel cell company PowerCell Sweden AB (publ) has received the first marine order for two PowerCell S3 prototype stacks, which Swiss Hydrogen will install on a ship powered by photovoltaics.

"The marine industry is a very interesting area, in which our capacity to deliver electricity without emissions is extremely important. This order comprises two PowerCell S3 prototypes. The order is of strategic importance, but has a limited effect on the result. We are responsible for the fuel cells and Swiss Hydrogen will manufacture the system and conduct adjustments to certify it for the marine environment. The advantage is that our fuel cell stacks are modular and in this way we can get in a few hundred horsepower where it is required in marine applications", said Per Wassen, CEO, PowerCell Sweden AB.



More and more countries are demanding fossil-free energy for marine fields of application. The Netherlands has decided to develop fossil-free ferries. Norway, that was an early user of battery operations, is far advanced in establishing fuel cell-powered ships. Over the next few years car ferries, passenger ferries and a fishing boat will be powered by fuel cell technology in Norway.

PowerCells' partner Swiss Hydrogen is developing energy systems for a long range of fuel cell applications. The current order placed by Swiss Hydrogen at PowerCell comprises two PowerCell

S3 prototypes that will be part of a system that is developed and adjusted to the marine environment. The order is a result of the collaboration agreement, which PowerCell signed with Swiss Hydrogen in April 2016.

"Hydrogen gas will replace diesel in a marine industry that is forced to reduce its emissions. The ship in question will be a mobile show-case that describes how effective and reliable the hydrogen gas technology is in marine environments", said Alexandre Closset, CEO, Swiss Hydrogen SA.

The ship will be supplied with a system that encompasses on board production of hydrogen gas from solar electricity, storage of hydrogen gas and two fuel cells each one 30 kW, which amounts to 80 hp in total.

PowerCell has, in the past, had many requests concerning marine applications. However, this is the first time that the company's PowerCell S3 stacks will be tested together with a partner in a marine environment. The fuel cells will quadruple the ships autonomy and hydrogen gas is a way for the marine sector to gain access to a fossil free energy solution.



MEMBERS' NEWS

JOOP ELLENBROEK, IIMS MEMBER, PASSES AWAY AFTER A LENGTHY BATTLE WITH ILLNESS

It is with deep sadness and regret that we announce the passing away of IIMS member and CCS founder Mr Johannes Wilhelmus 'Joop' Ellenbroek. Although Joop passed away on September 9 after a lengthy illness, news has only recently reached the IIMS office of his death.

Joop was well known within the coatings, chemicals and superyacht industry and much respected by all he worked with. After many years of working for paint manufacturers, he began his career in the superyacht industry in 1994 when he founded CCS (Coating Consultants for Superyachts), which due to his efforts is now one of the most well-known and respected coating surveying companies in the world.

In 2007 Ellenbroek began providing technical and coatings advice to ICOMIA and ISO-TC8/SC12/WG5 (the ISO related to superyachts and quality standards). One of the

first members of WG5, Ellenbroek contributed to the development of ISO 11347 (how to measure the quality of superyacht coatings) and on the drafts of ISO 19494.

In recent years, Joop had contributed significantly behind the scenes to IIMS life. He authored part of the content for the Registered Marine Coatings Inspectors (RMCI) qualification, which was launched in 2014. He was also a stakeholder in the RMCI programme as well as an adviser and occasional trainer of the material too and guest speaker.

"We mourn his passing and give thanks for his life of service to our recreational marine industry, and his years of friendship," says Udo Kleinitz, ICOMIA secretary general. "Our condolences, thoughts and prayers go out to the Ellenbroek family at this tragic time."

Joop was a much loved husband, father and grandfather. We extend our sincere condolences to the Ellenbroek family at this tragic and sad time.

RIP Joop Ellenbroek.



NEW TRITEX MULTIGAUGE THICKNESS GAUGES FOR SURVEYORS

Dorchester based, Tritex NDT has launched a new range of thickness gauges specifically for surveyors of small craft. These include the new Multigauge 5650 Surveyor thickness gauge, for measuring both metal and GRP, and the Multigauge 5300 GRP thickness gauge for just measuring GRP. Both gauges are based on the already very popular original Multigauge 5600 and have new features specifically designed for marine surveyors.

The Multigauge 5650 Surveyor gauge can be used with existing standard soft faced probes for measuring metal thickness through coatings, up to 20mm thick, to give the same high standard of performance as the Multigauge 5600. However, by simply exchanging the probe, the gauge automatically switches to GRP measurement mode which uses single echo. This can be used to assess the condition of GRP when checking for osmosis and delaminations. Either probe can also be used in echo – echo mode, if required, by easily selecting the option from the keypad during

measurement, with no special probes required for this function. For metal measurement, the gauge utilises the Multiple Echo technique to ignore coatings up to 20mm thick and just measures the metal substrate. No grinding or removal of the coatings is required, significantly reducing preparation time and ultimately saving both time and money when carrying out inspections. All probes have Intelligent Probe Recognition (IPR), which automatically adjusts settings in the gauge when connected, resulting in a perfectly matched probe and gauge for enhanced performance. Also, the Automatic Measurement Verification System (AMVS) used with multiple echo ensures only true measurements are displayed, even on the most heavily corroded metals.

The Multigauge 5300 GRP gauge has been specifically designed for marine surveyors to check for osmosis, blistering and delaminations in GRP hulls. GRP measurement has traditionally been difficult to achieve but Tritex NDT have developed their gauge to use a single echo technology with a special probe for excellent performance.

Both gauges have large modern colour displays and an easy to use clear graphic menu. They have been designed in line with Tritex's concept of Simple, Accurate and Robust. Intuitive menus allow for easy navigation. There are also datalogging versions of each gauge available which allow the user to store measurements on the gauge in either a grid, string or combination of both, giving complete versatility. The datalogging function is wireless which means that real time measurements can be displayed on a PC or laptop up to 1km away. Templates can be setup before carrying out the inspection

Only single crystal probes are used, which have a number of advantages when measuring on curved and corroded surfaces.

Tritex NDT is a leading manufacturer of thickness gauges. All gauges are designed and manufactured in the UK and supplied as complete kits, ready to use, with a 3 year warranty and free annual calibration for the life of the gauge. An optional leather case protects the gauge in even the harshest of environments.

Tritex NDT has a close working relationship with the International Institute of Marine Surveyors and as such are pleased to offer a 15% discount and free shipping to all IIMS members.

For further information, please go to www.tritexndt.com or contact Mr Jon Sharland via the website

IIMS SMALL CRAFT WORKING GROUP 2016 'SUPER' TRAINING DAY REPORT

Over 30 yacht and small craft surveyors converged on Boathouse No.4 at the iconic Portsmouth Historic Dockyard for the 2016 'super' training day on Monday 24 October and were joined by half a dozen more who came to the event remotely using video conferencing.

Chairman of yacht and small craft surveying, John Excell, welcomed guests to the day and particularly thanked Cygnus Instruments Ltd and Matrix Insurance Ltd for their generous sponsorship support of the day.

IIMS Chief Executive Officer, Mike Schwarz, gave a short review of what has been a very hectic and productive year for the Institute.

First to speak on the day was Susan Stockwell, a director of Nereus Alarms and a non-practicing solicitor. Drawing on her experience as a child and

later as an adult, she kept the audience's attention as she spoke about the causes and dangers of carbon monoxide poisoning, the silent and hidden killer. Towards the end of her slot, she passed a series of alarms around for delegates to inspect.

Nic Fieldhouse, winner of the Best Use of Social Media award at the recent IIMS Silver Jubilee awards, spoke about how to implement a social media strategy using Facebook, LinkedIn and Twitter.

A face well known to IIMS members, insurance broker, Karen Brain, presented a paper entitled mediation and the surveyor. As is often the case, Karen's presentation provoked mixed emotions from surveyors. She championed resorting to a mediator as an important means of dispute resolution.

After a splendid lunch, during which delegates were free to view HMS Victory and look into the wooden boat building

going on around them, Jenny Ashdown from Cygnus Instruments Ltd took the after lunch slot. She talked about the latest range of Cygnus ultrasonic testing equipment and explained the various uses of the products.

Well known south coast surveyor, Jim Vintner gave an interesting presentation in which he talked about the importance of the report, or as he called it the surveyor's product. He handed out a sheet of paper to each delegate and challenged them, with a little help, to complete a SWOT analysis (strengths, weaknesses, opportunities and treats) as a practical means of trying to help people understand where they are now.

It fell to IIMS member, Capt Phil Duffy of Interface Marine, who is based in the south of France, to bring the day to a conclusion. He spoke passionately and knowledgeably about the subject of yacht and small craft valuations and what should and should not be included in a valuation report.





Silver Jubilee Conference International Institute of Marine Surveying (India) Marine Surveying – Preparing for 2030!

An unusually wet October day in the bustling city of Mumbai, India experienced an unusually large gathering of the representatives from Marine Surveying Companies, P&I Clubs, Correspondents, Vessel Owners, Agents and Equipment Manufacturers. It was the 5th of October 2016 at the Majestic Ballroom of 'The Lalit' Hotel near the new swanky T2 terminal of Mumbai's International Airport.

A sequel to the Silver Jubilee Conference of the IIMS London HQ, the Indian arm of the prestigious Institute decided to 'up'

the antenna by bringing together the strength of the Marine Surveying Community and affiliated businesses under one roof, for a day-long Conference & Exhibition followed by the 1st edition of IIMS Awards for the Indian Chapter and a Networking evening for the attendees.

Mike Schwarz (CEO, IIMS UK) welcomed the guests, read out the messages from the other senior members from the HQ and threw the floor open to the speakers, who collectively presented 12 crisp papers, which were highly knowledge oriented, stayed true to the

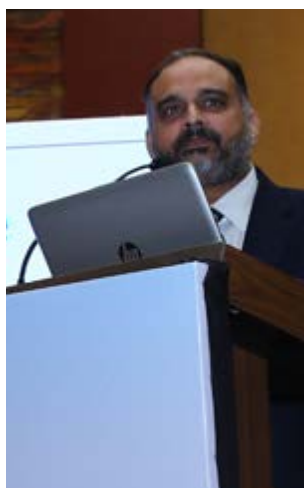
theme of the event and most importantly, engaged the audience and stuck to the timetable.

Milind Tambe, the Regional Director of IIMS India who signed off on that day by handing over the baton to Pervez Kaikobad, the now RD of the Indian Chapter recalls the very first conversation with Capt. Purnendu Shorey and Capt. Anupam Raizada of 'Offing Group Private Limited' who conceptualised and provided turn key management for the event.

With autonomous ships being (or at least supposed to being) a reality in the

near future and the advent of cutting edge technology being introduced as tools for the use by Marine Surveyors – this was an opportunity to stress upon the need for 'change' in the mindsets of the Marine Surveyors and a chance to get the next gen introduced to what they can expect in the future

Capt. Purnendu Shorey, the Co-founder of Offing chose to helm and facilitate the conference himself – 'At the beginning of the day, I too am a Marine Surveyor and a proud Member of the IIMS. We know our business best and if we don't put up a show



ourselves, the essence can get diluted and that would be a pity' asserted Capt. Shorey. He also presented the Ice Breaking session which set the tone for the day.

Capt. Ruchin Dayal of eDOT Solutions took the audience on a journey of 'what's new' with regards to the regulations of loading and testing of Iron Ore fines. An eye opener and a well-researched

paper, to say the least. In an Industry that is largely dominated by the male species – Ms. Swati Jadav of Sure Safety, stormed the floor with a smile on her face and a package of information on the Inventory of Hazardous Material for Ships. The Surveying Companies welcomed the information and also the opportunity that this stream offered – with nearly 60,000 vessels having to have an IHM done in the future!

Conrad Gordon from the Dubai office of Maritime Mutual Insurance Association (NZ) Limited, who were also the Gold Sponsors for the event – took the opportunity to educate the delegates about the strengths of the club, the services on offer and the presence of their correspondents in India.

Cargo Claims are always an area of great concern for all stakeholders of the business – Capt. Amol Deshmukh of Aeghiscorp Maritime Ventures LLP threw light on the swords and shields of this aspect of the business.

Akshay Jain from Vedam Ship Design & Consultancy followed up with a 'to-date' review and the futuristic solutions of the most talked about topic of today's times – Ballast Water Management.

And just before the delegates were treated to a wholesome lunch and a tour of the exhibits, Mandeep Pruthi of Adonia Design Engineering & Consulting LLP shared his experience and views on the role of a Marine Warranty Surveyor.

The exhibition area engaged the delegates with booths

from equipment manufacturers such as Eastwest Engineering who showcased the latest models of Cygnus Instruments, a booth of by Vedam, the exhibits of IIMS publications and financial solutions by Kotak Mahindra Bank.

There was a special area dedicated to something from the heart – Offing used the platform to voluntarily collect nutrition essentials for the lovely children who are undergoing treatment at the paediatric oncology department of the Tata Memorial Cancer Hospital in Mumbai. It was heart-warming to see the delegates take interest in this selfless act of humanity.

What happens to be the most challenging session of the day (post lunch) was turned to one of the most thrilling sessions – Dr. Phil Thompson and Mark Wilson of BMT Group, took up this challenge and presented a recreated simulation of a collision with the use of the visually enthralling, high fidelity REMBRANDT portable simulator. This presentation was indeed futuristic and sowed the seeds of the possibility of the use of simulation for incident/accident investigation

Mike Schwarz was next – who shared updates on the current and futuristic educational possibilities for surveyors and of course the need to constantly 'sharpen the axe' and to remain current in the market place.

Cygnus Instrument Ltd was represented by Ribu Kurien, who shared the features of the latest Ultrasonic Hatch Cover

Testing equipment.

Having one of the largest P&I Clubs speak at an Indian Conference was welcomed. Capt. Hari Subramaniam, Loss Prevention Manager from the Singapore branch of Ship Owners Club shared his and the club's views on the outlook of P&I surveying.

Senior members of the IIMS, Capt. Mukesh Gautama of Wilson Surveyors & T.S. Shrinivaasan of Mar-tech Surveyors wound up the technical presentations with their papers on empanelment as an IRDAI Surveyor and Human Values & Personal Discipline in Marine Surveying respectively.

It was now time to introduce the audience to the esteemed members of the Honorary Awards Panel which included Industry stalwarts such as Mr. S.Hajara, Capt. S.S. Naphade & Mr. Sanjeev Bhandari

With self and peer nominations that were analysed by the Awards Panel for a period of 30 days prior to the event, the next 30 minutes were dedicated towards celebrating the success of the winners of the below categories of awards

- 1) Excellence in Technological Advancement – eDOT Solutions
- 2) Most Courteous Surveyor – Capt. Kapil Dev Bahl
- 3) Survey Company with Best CSR Initiative – Wilson Surveyors & Adjusters Pvt Ltd

- 4) Longest Serving Surveyor – T.S.Shrinivaasan
- 5) Most promising upcoming surveyor – Capt. Ruchin Dayal
- 6) Best Speaker at the conference – Akshay Jain

The evening would not have been complete without the felicitation of:

- 1) A.W.J (Tony) Fernandez for his 'Outstanding Contribution & Dedicated Service to the Surveying Industry.
- 2) Mrs. Jan Cox from the UK HQ for her exemplary service of years to the IIMS in her role of as Membership Secretary.

Pervez Kaikobad, the now Regional Director of IIMS India gave a vote of thanks to all the attendees and sponsors.

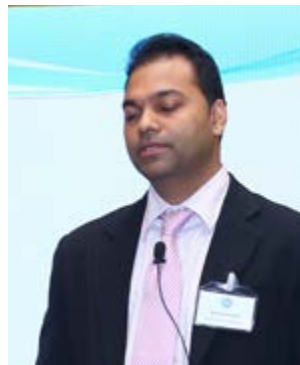
A long and thrilling day needed some unwinding and this was provided by a networking cocktails at the venue. The crowd of nearly 100 delegates was cheerful right till the end and it was a pleasure to get some instant feedback from them.

The IIMS Committee which saw a new lead in the chair on the next day, with T.S.Shrinivaasan taking over as the Chairman of IIMS India proudly looked back at the previous day, vowed to grow the members of the fraternity and return with a bang, for the next event!

Here is a message from the Chairman's desk –

The focus of the coming year will be to emphasise on the Membership drive.

We are following the 'each member suggests one' model and hopefully that will double the number of members at IIMS. We shall also focus on at least two member meets per year and encourage the members to participate in Continuing Professional Development programme of the institute.





SCWG TO BE RENAMED AND REBRANDED AS LYSCWG

With effect from 1 January 2017, the IIMS SCWG (Small Craft Working Group) will become known as the LYSCWG (Large Yacht & Small Craft Working Group).

IIMS Chairman of Yacht & Small Craft, John Excell, who was behind the decision to rebrand, explained, "There has been a significant shift in the market place with the continuing and exciting developments in the superyacht industry. A number of IIMS members who worked in the sub 24 metre vessels sector have progressed into the area of superyacht surveying, or are interested to do so. It is therefore entirely logical that we extend the scope of this group of surveyors, who sit in the middle between small craft and commercial ship surveying and cater for their specific needs."

The new, enlarged group will be announcing a series of new training events that will be offered in UK and European locations initially for 2017 for small craft surveyors and larger yacht surveyors too. Members from further afield will be able to join training events remotely by video conferencing.

IIMS is planning to bring together a small group of its members actively involved in the superyacht surveying sector to act as a sounding board and panel to generate ideas for future training and areas for discussion.

TWO DAY LYSCWG TRAINING EVENT IN ATHENS ANNOUNCED

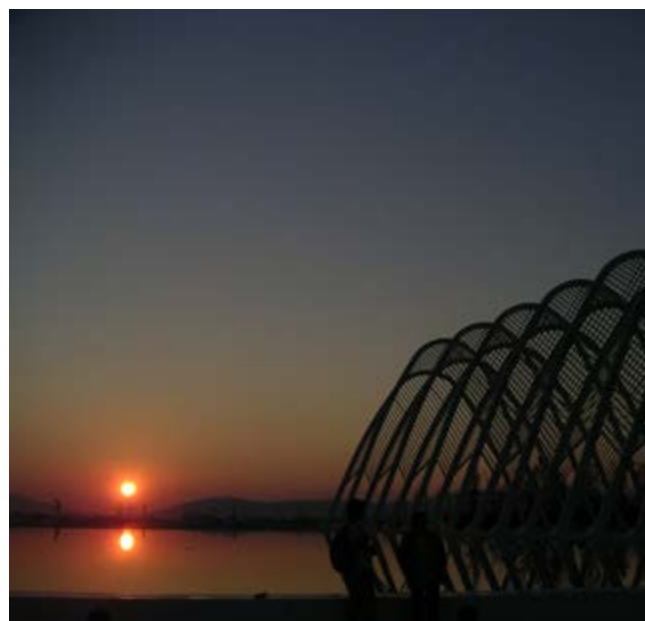
The first two day IIMS training event under the guise of the new and enlarged Large Yacht & Small Craft Working Group will take place in Athens on 9/10 January 2017.

The first day is classroom based training at the Lloyd's Register offices in Athens. Highlights include valuation reporting,

classification and flag state surveys, report writing refresher, obtaining PI insurance and reducing the risk of claims. Day two will see the group out and about in Piraeus Marina with a mix of theoretical and hands-on practical tonnage training. Please remember if you wish to become approved and recognised by IIMS as a tonnage surveyor it is necessary to have done a day's training and passed the simple test – this can be accomplished on the second day in Athens.

Full details about the programme can be found here:

<https://www.iims.org.uk/events/iims-large-yacht-small-craft-working-group-training-athens-greece/>



SCWG FINISHES WITH A FLOURISH IN SCOTLAND

The final event of 2016 and the last training session under the SCWG banner prior to its rebranding as the LYSCWG took place at Inchinnan Cruising Club on 14 and 15 November, drawing an audience of fifteen. The first day included some practical and theory tonnage training, leading to several IIMS members becoming authorised as tonnage surveyors.

Highlights of the second day included learning important facts and the latest advice about gas certification, understanding of the insurance requirements and needs of a surveyor and a presentation by the RNLI on safety at sea. Thanks to Tom Elder for organising the event locally.



NEW TONNAGE FORMS PUBLISHED AND NOW AVAILABLE FOR USE

IIMS has revised and approved for publication new and much more user friendly tonnage forms to be submitted to the IIMS and ultimately the UK registry. These can be found and downloaded on the certifying authority examiner resources page, which is password protected.

To enable a smoother flow of work, the Institute has also created a separate, standalone email address for authorised tonnage surveyors to use, which is: tonnage@iims.org.uk. If you cannot find the new forms, please use this email to communicate directly with Sam Legg, who can help you further.



IIMS BUSY AT METS TRADE SHOW

Mike Schwarz and Hilary Excell spent two days at the increasingly large METS (Marine Equipment Trade Show) event, held in Amsterdam from 15 to 17 November, which boasts many hundreds of exhibitors from all parts of the globe. They had a full diary of scheduled meetings with a variety of contacts over the two days. The results were very beneficial and encouraging.

On the second day, the pair presented an update on the RMCI (Registered Marine Coatings Inspector) programme and qualification to an influential group of people who form the Coatings Working Group within SYBass

(Superyacht Builders Association). There are now 75 qualified RMCI's since the programme began a couple of years ago and plans for additional courses in 2017. They remain keen to see the standards of those who survey and inspect the coatings on these huge one-off vessels developed further as there is no let-up in the numbers of superyachts emerging from the ship yards and ensuring the paint job is exceptional, to specification and inspected by experts remains key.





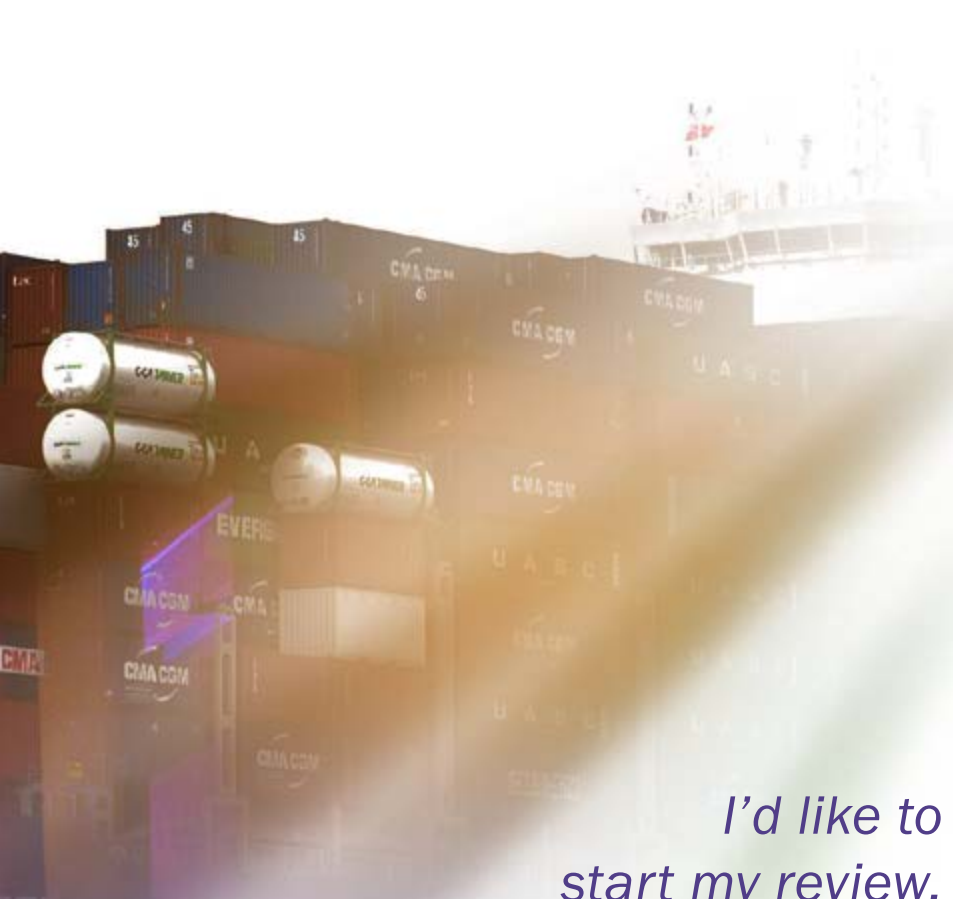
2016

A year like no other to savour and remember

Following what has been an absorbing and ground-breaking year in the life of IIMS, which saw the Silver Jubilee celebrations as the centrepiece, IIMS has made significant progress and many new friends too. Mike Schwarz, IIMS Chief Executive Officer, provides his personal review of 2016 activities in his usual frank and open style.

There are many words I could use to describe 2016, the silver jubilee of the formation of the Institute, but allow me just three words – magnificent, satisfying and exhausting!

So as I reflect on what has been a most interesting and engaging year, I do so knowing we have made new friends, some influential, not just in the immediate surveying community, but further afield too with individuals who touch our profession.



*I'd like to
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Anniversary Conference...*

I'd like to start my review, perhaps fittingly, by looking back to the 25th Anniversary Conference that took place in London towards the end of the summer. Many months of preparation and planning paid handsome dividends in my opinion, although I was slightly disappointed at the overall number of attendees for what was a landmark occasion. A range of excellent speakers came forth to share their knowledge and wealth of expertise in a wide range of subjects over two days. The three venues we chose proved to be wise choices and out and out winners. Regent's University, our accommodation for day one, surprised many. Located in a lovely part of the city, surrounded by parkland, the venue exudes 1920's splendour. The choice of the London Museum at Docklands in the shadow of Canary Wharf in London's East End, turned out to be an inspiring one enjoyed by all who

attended. What a venue and what a rich history it represents too going back over 200 years. I am sure that the Gala Dinner, the proceedings and the surroundings will live long in the memory. And of course the second day with the Old Library, Lloyd's as the venue was never going to disappoint either!

The presentation of the Silver Jubilee Awards took place on the first day of conference. I was so pleased that Sir Alan Massey, Chief Executive Officer of the MCA, was able to accept my personal invitation to join us to present the trophies. I was even more delighted when he spoke so effusively about IIMS during his key note address. The visible, emotional outpouring from some of those who won awards was proof, if any were needed, that there is nothing finer than being recognised by one's peer group. I shall recall the event fondly for years to come. Although

attracting nominations proved to be a challenge, in the end the right candidates were nominated and the awards went to very deserving individuals indeed.

It was my absolute pleasure and privilege to attend the IIMS India Branch 25th anniversary conference, which took place soon after the London event in Mumbai in early October. The well organised event attracted around 100 delegates and was a great success. My thanks to Milind Tambe and Capt Ruchin Dayal for their hospitality and for keeping me safe!



**TRAINING OF SMALL
CRAFT SURVEYORS**

The Small Craft Working Group (SCWG) has been very active throughout 2016 and not just in the UK. Over the course of this year we have met over 200 yacht and small craft surveyors at the various events we have organised.

We kicked off with an exhilarating day in Watford in February, not least due to storm Isobel that was rampaging through the area on that very day. Nearly 30 surveyors took part in what was a part theory, part practical day with the theme of ultrasonic testing as we got beneath the hulls of steel narrowboats. April saw what is becoming an annual event in Palma take place. Twenty five surveyors attended a highly successful couple of days backed around the Palma Superyacht show. There were some informative presentations as well as practical hands on tonnage measurement training.

The month of May saw 30 plus IIMS members 'gate crash' the RNLI national surveyors' conference at their headquarters in Poole Dorset. It was a privilege to meet fellow surveyors, to share information and knowledge with them too. The visit

around their facilities was most interesting. My thanks to Richard Morris for facilitating our visit.

In October we held the SCWG Super Training Day at another iconic venue, the Historic Dockyard at Portsmouth, home to Nelson's flagship HMS Victory and Henry VIII's beloved Mary Rose. Over 30 delegates participated in person a first class day featuring six excellent speakers. They were joined by another ten online using the new video technology option.

Our final session of the year was north of the border in Scotland, another popular annual event. We met as a group for a couple of day's classroom and practical training too.

The renaming of the group to the Large Yacht and Small Craft Working Group (LYSCWG) from January 2017 will provide scope to further widen the IIMS training remit. There are a number of members who specialise in the area of superyacht surveying and others who aspire to do so. Watch out for new training opportunities next year to reflect this. There will be no let-up in the range of training options we provide.



FINANCIAL HEALTH

The financial stability of an organisation can never be taken for granted and there is no room for financial complacency either. IIMS and Marine Surveying Academy (MSA) have both traded well during 2016. The initial budget set for IIMS will have been met by the end of December and I expect the final figures to be in-line with my forecast and the expectations of the Management Board.

Things have been more challenging for MSA, particularly when taking into consideration the difficulties of the offshore industry sector where much of their income is derived from. But they have contributed substantially to the wealth and financial well-being of the Institute and are looking to grow significantly in 2017.



MARINE SURVEYING ACADEMY IN MORE DETAIL

And now a bit more information about the activities of MSA, the training and accreditation arm of the Institute. MSA is a wholly owned subsidiary of the Institute and has made progress in a number of areas under the management of Hilary Excell. The CMID AVI accreditation scheme run on behalf of the International Marine Contractors Association (IMCA) continues to make progress despite a backdrop of turmoil in the offshore sector that I alluded to earlier. However there seems to be signs of improvement in the past couple of months. Let's hope this is not a false dawn. Certainly there has been no let-up in the offshore windfarm and renewables sector though.

Well over 200 CMID Accredited Vessel Inspectors (AVI's) have been successful in their accreditation applications. IMCA and MSA expect this number to rise significantly in the medium term as from 1 January 2018, IMCA will no longer recognise unaccredited AVI's who perform CMDI audits as they move the programme to an online only solution. As part of the accreditation process, it is mandatory to attend a one

*IIMS & MSA
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during 2016.*

day validation course. This year a number have been well attended and run in various places worldwide from Perth to Aberdeen, Amsterdam to Jakarta. We have built a strong team of accreditation assessors and trainers who bring the scheme to life. It is pleasing to know we are being successful in providing some form of accepted industry standard in an area which was woefully lacking and devoid of any previously.

The Registered Marine Coatings Inspectors (RMCI) programme and course continues to bear fruit in a market sector that is dogged with litigation claims, many as a result of a poor paint job in the area of large superyachts, which is what this standard was developed to help combat. IIMS continues to work closely with stakeholders, ICOMIA and SYBAss. We have now over 70 experts in this field who have passed the exam and gained the qualification since its launch following the most recent course in Viareggio, Italy. This year has seen us work on a tutor succession plan. The course delivery is now through Rory Marshall, assisted by Malcom Kerr and Gordon Bailey. It was sad to report the death of IIMS member, Joop Ellenbroek, earlier in the year (see obituary on page 13). He had been instrumental

as a founding stakeholder in the programme and will be missed.

In 2017 we are planning to bring together both the CMID and RMCI communities for individual one day conferences at a central European location for the first time.



SURVEYOR STANDARDS

Continuing on the subject of surveyor standards, I judged our silver jubilee year as the right time to speak out about the need and importance of maintaining and enhancing standards. A number of IIMS members have heard me talking on this important topic. It is a subject that I believe needs to be heard, but not just once. Developing one's standards and personal development should be an ongoing essential requirement for all of us; and age is not a preventing factor. With ever changing technology facing the surveying profession, I have argued that it is vital to invest funds directly into ensuring a surveyor's skills and knowledge remain current. How much? As a rule of thumb, those in the know recommend 3% of annual turnover. I agree with them.

What happens to a surveyor who does not invest in their personal development? In my opinion the answer is simple. Their knowledge remains fixed to a point in time when they gave up their personal development. This means that over time their knowledge becomes less relevant than it once was in a changing market place, resulting inevitably in reducing levels of competency. This is why continuing

professional development (CPD) is the key and vitally important.

Apart from the 25th anniversary celebrations, one of my biggest challenges this year has been as Chairman of the Certifying Authority Professional Standards Working Group, a role I took up in February under the auspices of the MCA. My predecessor had made good strides in determining the setting of minimum standards for coding surveyors. But it has fallen to me to try and drive this through and to gain acceptance from those involved along the way.

A gathering of all UK certifying authorities at the Seawork Show in Southampton during June revealed a desire by all to start to work more closely together. It was agreed that each delegate would go back to their management boards and committees to gauge opinion before another meeting. The next meeting duly took place in mid October. It was clear that there was no appetite for a formal association of certifying authorities, but there did seem to be a hunger to produce a Memorandum of Understanding (MOU) that would loosely bind together the dozen or so organisations without impinging on their commercial practices. There are two fundamental, underlying matters which will be contained in the MOU. The first is that a common interpretation of the MCA codes of practice will be accepted (once compiled) and that all CA's agree to adhere to the agreed standards to become a coding surveyor. The Professional Standards Working Group has undertaken for individual CA's to pool resources and to come together to run an experimental training day in 2017 open to all UK coding surveyors.

Just a few words briefly on the work of the IIMS Certifying Authority under the Chairmanship of Fraser Noble. This year the IIMS CA has made good progress. A new standalone web site is almost ready to launch and six new coding surveyors have been approved in the UK and overseas.



MEMBERSHIP GROWTH

Once again it is good to be able to report that IIMS membership continues to grow. We are at our highest ever level of full members. There is no one part of the world where growth is more noticeable than another.



AROUND THE BRANCHES

Some of the IIMS branches have been quite active in 2016. As a new branch, Canada is feeling their way and has started to run some events for members locally. Nigeria is coming on stream too. Australia has plans for 2017. Sadly, for now, it has been decided that the New Zealand branch will lapse for the time being, but could be resurrected again in the future.

I would like to take this opportunity to thank two long standing Regional Directors, both of whom decided to stand down earlier this year. Capt Barry Thompson was RD of the New Zealand branch since its inception some years ago. Similarly, Milind Tambe has been at the helm of the India Branch for a number of years. My thanks to both of them for their sterling efforts and unstinting work on behalf of the Institute.

SOCIAL MEDIA, MARKETING AND ALL THAT JAZZ

I am very aware that the topic of social media is unappealing to many IIMS members because you tell me so! However, our social media strategy is now a corner stone of how we market ourselves to surveyors and the wider maritime world; and our presence continues to grow exponentially. Our IIMS Twitter feed now boasts more than 1,000 followers and LinkedIn over 600. Using a specialist digital marketing agency, we have made excellent use of the various social media channels to drive targeted interest for the IIMS education programme, which attracts a steady stream of interested potential students.

This year we have also opened up new social media channels to service other communities such as the CMID AVIs. They also have their own Twitter feed and LinkedIn group to cover their particular needs.

The IIMS web site has recently welcomed unique visitor number 250,000 to it since launch, quite an achievement for an organisation that boasts just 1,000 members! Interestingly about 65/70 per cent of visitors each month are new. The site is a huge resource of relevant information with fresh content added most days. The site is used to break regulatory news as and when it happens and to cascade relevant information.



NEW TECHNOLOGY, PROCESSES AND PROCEDURES

Processes and procedures are not the most exciting of topics, but by enabling the available technologies we believe we can enhance what we do making a better experience for IIMS members.

Our most recent initiative has been the addition of a clickable link on the 2017 membership invoices which has made the whole process of paying online by PayPal, credit or debit card far easier than it used to be. Real tangible progress.

The other activity of note, which embraces new technology has been the ability of surveyors to join training days and events online by video conferencing link using the zoom platform. Our first such event was an online only report writing course in September that attracted over 20 delegates, who joined remotely from around the world. Since then we have run a couple of outside broadcasts from the SCWG super training day at Portsmouth and the Certifying Authority training day. Both attracted a number of delegates who joined remotely. You will see a programme of short seminars being rolled out for 2017 covering a variety of yacht and small craft and commercial ship topics.

This year we have replaced all of the office PCS and are now running on fast machines. This has been further helped by the decision to upgrade to fast broadband much earlier in the year and what a difference this has made too.

We are looking at a number of ways to streamline various other areas in 2017, including the launch of a couple of Apps for people who prefer to use this method. The first area for a major review is continuing professional development (CPD). Our present CPD process is cumbersome and in many ways unworkable. But things are about to change. Watch for further announcements soon.

IIMS HEAD OFFICE

The head office team at Portchester has had a busy year. There have certainly been times when we have been stretched, but our core aim is always to provide a first class service to members, prospective members, students and the public at large who contact us. I pass my thanks on to my colleagues who do an excellent job and who always have your best interests at heart.

It would be remiss of me not to remind members that our Membership Secretary of many years, Jan Cox, will formally retire from IIMS at the end of February. I know Jan has enjoyed close working relationships with many members over the years and equally know she will be missed by many of them as well as by her colleagues. I am nearing completion of the interviewing process to replace Jan and look forward to making an announcement soon.

THANKS AND BEST WISHES

As always, I am keen to offer my thanks and appreciation to the Management Board, the Chairmen of the various committees and the committee members. They perform an invaluable role for no financial reward or gain and do a remarkable job. The Institute is fortunate to have such excellent volunteers who are willing and prepared to put something back into the organisation. Gentlemen, you all know who you are and I say thank you.

In conclusion, on behalf of myself and my colleagues, I wish you a peaceful Christmas break (if you celebrate it) and most importantly, a productive, busy and profitable 2017.





BY CAPT RUCHIN C DAYAL
MMI, AFNI, MIIMS, MAIMS
CEO, eDOT Solutions, Goa

The “Modified Proctor & Fagerberg” test A boon or a bane?

An Independent Surveyors Perspective

“New research by leading scientists and doctors, spanning over a decade, suggests that cholesterol levels up to 300 units will not harm your heart”

How would you react if you read this in a medical journal tomorrow?

What would you choose to do from these options?

1. Jump in joy and start binging on steaks, ice-creams and burgers. Stop all forms of exercise.

2. Discontinue any and all medications which you may have been taking for control of your cholesterol.

3. Refuse to accept the new findings.

4. Be cautious in your approach and plan a subtle and systematic change in lifestyle, if at all required.

Personally speaking, I am not sure what I would do - **BUT** I can positively identify what **I SURELY WOULDN'T DO** - easy 1,2 and 3!!!

While some of you may find the analogy annoying, the advent of the modified Proctor and Fagerberg test in the context of the present IMSBC Code and its amendments brings us to a similar challenge.

The modified Proctor & Fagerberg test results in SIGNIFICANTLY higher values of the Transportable Moisture Limit (TML) when compared with the existing methods in the IMSBC Code. While the test has been accepted by the IMO and has the backing of apparent sound research and adequate vetting, its advent has evoked a mixed reaction from the industry; so much so that some prominent experts believe it to be a conspiracy by major states to suit their iron ore export and that the test will eventually undermine the safety of ships and seafarers; But what is the truth and what to believe? An umpire cannot change rules!!

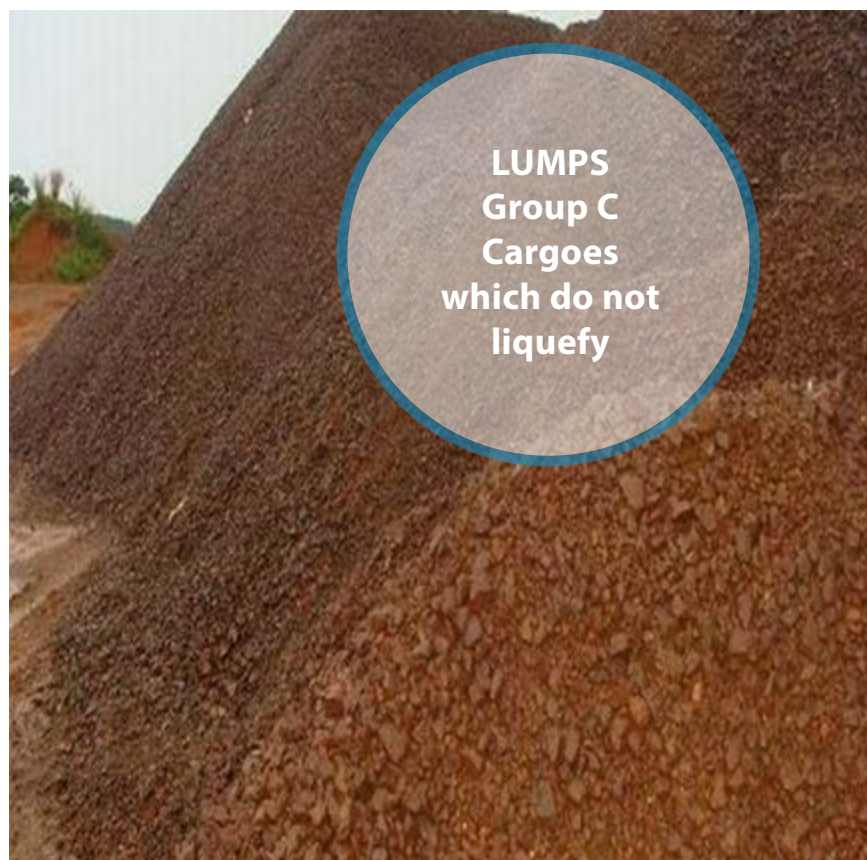
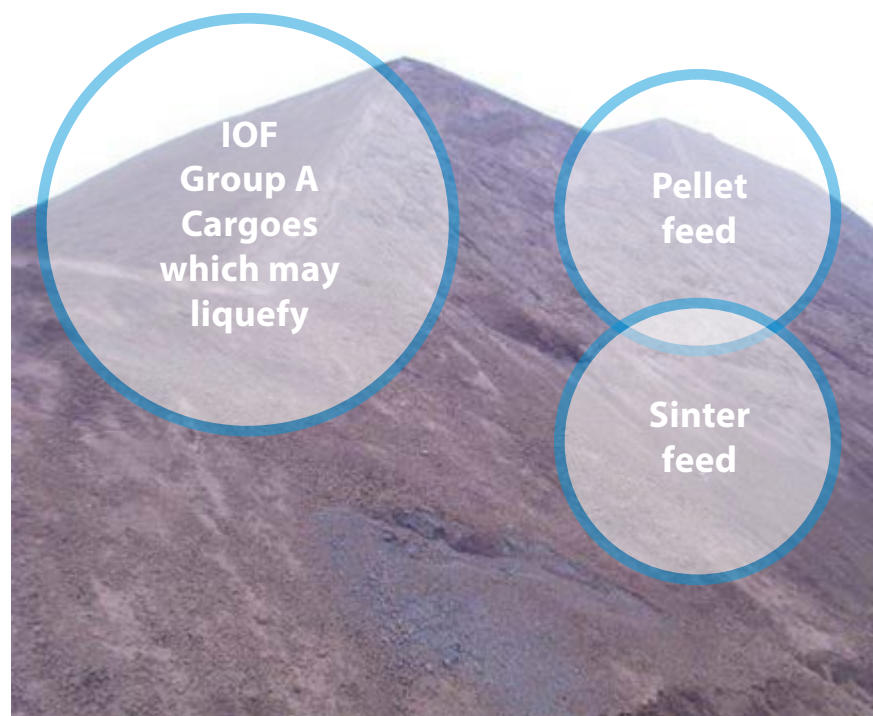
This is not an easy subject by any means and to truly try and appreciate the predicament the industry is faced with, one will have to dig a little into the background of the iron ore trade, the development of the code and a brief understanding of the test methods.

BACKGROUND: THE BUSINESS OF IRON ORE

While Iron Ore has been carried by ships for many years now, the development of the 21st century sintering technology in the making

of steel has facilitated the use of Iron Ore Fines, which used to be previously considered as a waste product in the production of iron ore. Iron Ore is considered to be largely comprising of lumpy material resembling small rocks or stones of 10-25 mm, while iron

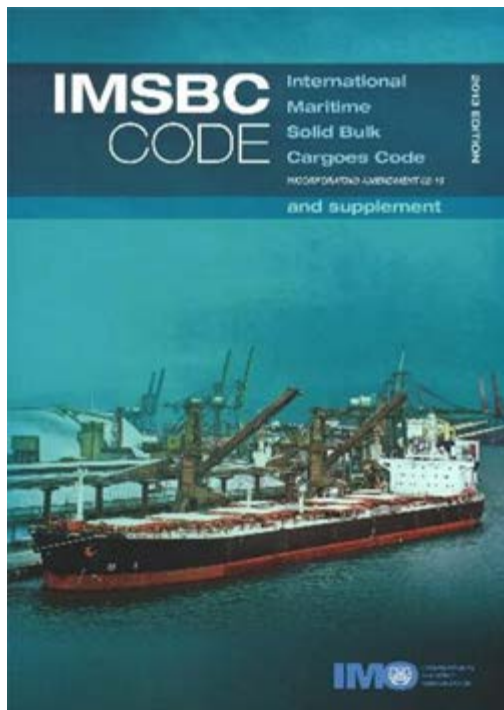
ore fines are made up of powdery material below 10 mm in size. Iron ore fines may be produced using various beneficiation processes which may include sieving the natural ores into various sizes; Iron ore fines cargoes belong to Group "A" in the IMSBC Code. Group "A" cargoes are defined as those which may liquefy if shipped at a moisture content in excess of their TML, i.e. their Transportable Moisture Limit. Iron ore (lumpy material as described earlier) is a Group "C" cargo – not liable to liquefy. Close to 1000 Million MT of iron ore fines is transported in ships each year, the bulk of it from Brazil and Australia to China.



“The modified Proctor & Fagerberg test results in SIGNIFICANTLY higher values of the Transportable Moisture Limit (TML) when compared with the existing methods in the IMSBC Code.”

The International Maritime Solid Bulk Cargo Code (IMSBC Code) governs the carriage of solid bulk cargo (except grain) and is mandatory under the SOLAS convention

THE DEVELOPMENT OF THE IMSBC CODE



The **mandatory** IMSBC Code replaced the **recommendatory** BC Code on 1st January 2011. The Code was in-fact adopted by the IMO in Dec'2008 and it was ironical that a spate of casualties due to liquefaction took place during this *in-between* period (2008 – 2011); the Asian Forest in 2009 and the Nasco Diamond in 2010 amongst others. What subsequently followed can be termed as chaos. Shippers, unable to understand their obligations under the code, coupled with commercial pressure and complete ignorance about the risks of liquefaction refused to believe in the code, resulting in mandatory and critical information being treated as cumbersome paper exercise, and owners, albeit guided by clubs and associated surveyors, were left confronting shippers who would not co-operate and more often than not, got away because of the prevailing market conditions (such high demand for ore – seller's market).

THE REVIEW

While understanding the IMSBC Code and its implementation was being accepted as a major challenge, the procedures themselves were under review; it was way back in 2011 that Brazil proposed a formation of a working group to deepen the study on the inadequacies of the test methods in the code basing it on an earlier study by IMO in 2001; ref is made to DSC 16/4/75 (July 2011) & DSC 6/5/3 (April 2001). Hence, while during the years between 2008 and 2013 when shippers, owners, surveyors and laboratories were finding an equilibrium to operate at sufficiently controlled and comfortable environments, there was new research underway which culminated in DSC.1/ Circ.71 (Nov'2013), which made amendments 3/2015 in June 2015 by way of RESOLUTION MSC.393(95). The most important feature of these amendments was the introduction of the new schedule for Iron Ore Fines and the complementing modified Proctor and Fagerberg test (MPFT).

THE TESTING METHODS

Iron ore fines are tested for their Moisture Content and Transportable Moisture Limit. While determination of the Moisture Content is fairly straight forward and governed by National and International Standards, the determination of the Transportable Moisture Limit is guided by the methods in the IMSBC Code, appendix 2; it may be relevant to be noted that the *appendix 2 of the code is "recommendatory" only*. The Moisture Content (MC) requires to be less than the TML for the cargo to be compliant with the code for sea carriage. Essentially, until the advent of this new test, there existed **three methods** for the determination of the Flow

Moisture Point(FMP)/TML; *The flow moisture point may be defined as the maximum water content, expressed as a percentage, at which a sample of cargo will begin to lose shear strength. Cargoes with moisture content beyond flow moisture point may be liable to liquefy.* The Transportable Moisture Limit (TML) = $0.9 \times \text{Flow Moisture Point (FMP)}$: (90% of the FMP)

1. The Flow Table Test (FTT)

Adopted in the 1980s, this has been a standard test for decades for the determination of the flow moisture point of concentrate fine materials. It is applicable for minerals with maximum particle top size of 1mm and can possibly be used for a maximum size of up to 7mm. The sample is compacted into a mould and placed on a horizontal plate, which is connected to a supporting table, mounted in a concrete base built to standard. Once the mould is removed, the sample and its supporting table are rotated and dropped repeatedly. The plate is dropped from a height of 12.5mm at a rate of 25 drops per minute for two minutes. The test revolves around imparting physical energy into the sample similar to what is experienced inside the ships holds. The behaviour of the sample is observed to distinguish between crumbling and plastic deformation. The water content at which the sample exhibits plastic deformation is deemed the flow moisture point (FMP). While the FTT is a relatively simple test requiring little interpretation of test data, the critical aspect is the reliable identification of a flow state in the test sample. As this is being done visually, the result becomes heavily dependent on the skill & judgement of the chemist performing the test.



2. The Penetration Table Test (PTT)

Adopted in the 1990's, this method was developed as an alternative to the Flow Table Test (FTT), which could reduce dependence on individual chemist skills and accommodate a larger particle size upto 25mm.

The PT is based on the principle that there is a direct relationship between loss of shear strength by cyclic vibration and liquefaction. The test is performed by placing a sample in a cylindrical container, tamped as per the FTT method and then subjected to cyclic vibrations of $2G \pm 10\%$ on a vibrating table. The sinking of a weight by more than 50mm, in the form of a penetration bit, placed on top of the sample is considered as an indication of the loss of shear strength by the sample. The moisture content of the sample at this point is determined to be the FMP. The TML is then calculated as 90% of the FMP.

While the construction of the penetration test table may appear to be complicated, the test itself is simple and relatively objective when compared to the FTT.



3. The Proctor and Fagerberg Test (PFT)

The PFT is a dynamic compaction laboratory test method, based on the principle of reproducing dry bulk densities as experienced in the ships holds by inducing compaction energy using a compaction tool; the dry bulk density is then co-related to the corresponding void ratio and the moisture content – The TML is considered to be the moisture content at 70% saturation.

The test uses extremely simple equipment's and is easy to perform; however, the compaction curves are required to be plotted using standard calculation methods and the results are heavily dependent on the accurate determination of specific gravity. The results are objective and consistent.

The eDOT Marine Laboratory in Goa has tested over 100 different samples of Indian Iron ore fines – each by all above methods, in addition to the modified P&F test. While the results for the prevailing three methods, described above, were found to be consistent and almost nearly equal, the modified Proctor & Fagerberg test always resulted in higher TML values - by nearly 2-3%.



RHETORICAL INTROSPECTION

Between 2008 - when the mandatory IMSBC Code was adopted - and now when the new schedule for iron ore fines is set to become mandatory on 1st January 2017...

Did ships run into problems due to liquefaction?

YES

Was the ore tested and certified prior being loaded into ships which ran into problems of liquefaction?

YES

Is the IMSBC Code being understood properly by the people concerned (Shippers, Masters, Surveyors, Competent Authorities, etc.)?

?

Are the IOF testing Laboratories competent and completely unprejudiced, especially in the subcontinent and the far east?

?

Is there a drop in the movement of ore because of the procedures mandated by the code?

NO

What is the biggest challenge in respect to the IMSBC Code?

EFFECTIVE IMPLEMENTATION & INTEGRITY OF TESTING?

Hence, how will lowering the bar or diluting the set standards (effectively, that's what is apparent to a layman) of determining the TML help enhance safety? Quite clearly, it will not - but by adopting and mandating the new schedule as well as the modified Proctor & Fagerberg Test, IOF export speed breakers will certainly ease up; in-fact, much of the ore in question will suddenly be categorised as a Group C cargo in the IMSBC Code – not liable to liquefy and will not warrant a TML certificate.

1. The Flow Table Test (FTT) - previous page
2. The Penetration Table Test (PTT)
3. The Proctor and Fagerberg Test (PFT)

Now the question is –

“Is the new schedule and test procedure for IOF going to compromise safety of ships and seafarers in any way?”

SOME DELIBERATIONS – LIMITATIONS OF THE EXISTING METHODS

While at first, it may seem as a clear case of the shippers and exporting community around the world having had their way, it may be worthwhile to try and negotiate a clear and an unbiased & objective perspective on the same - and then go on further to explore ways and means to effectively use the new information properly.

TO START WITH, WHY WAS IT NECESSARY TO DEVELOP A NEW TEST?

The research and subsequent development of the new IOF schedule as well as the new test was the initiative of major exporters from Brazil and Australia, who really make up the bulk of the iron ore export market in the world. The existing Flow Table Test(FTT), Penetration Table Test(PTT) and the Proctor & Fagerberg Test(PFT) were analysed in a controlled, systematic and transparent environment

and found to be inadequate and inconsistent for testing of IOF cargoes; while the FTT was determined to be subjective and restricted the particle size to 7mm, the input vibrational energy in PTT was found to have little connection with the actual experienced conditions inside a ships hold. The PFT was considered as the most consistent test of the lot albeit having a size restriction of 5mm; furthermore, the input energy using a 350 gm hammer was determined to be excessive when compared to actual hold conditions.

Having established that the PFT was most consistent & objective of the existing methods, extensive tests were conducted to suitably modify the same.

THE DEVELOPMENT OF THE NEW TEST

Without going too deep into the technical details, the broad principles on which the research conducted, in modifying the PFT included the following principles:

Bulk density of Iron Ore Fines(IOF) increases when loaded into the ships holds; initially by the loading process, where the material is dropped from significant heights into the holds (20-25 mtrs) & then by the particle re-distribution

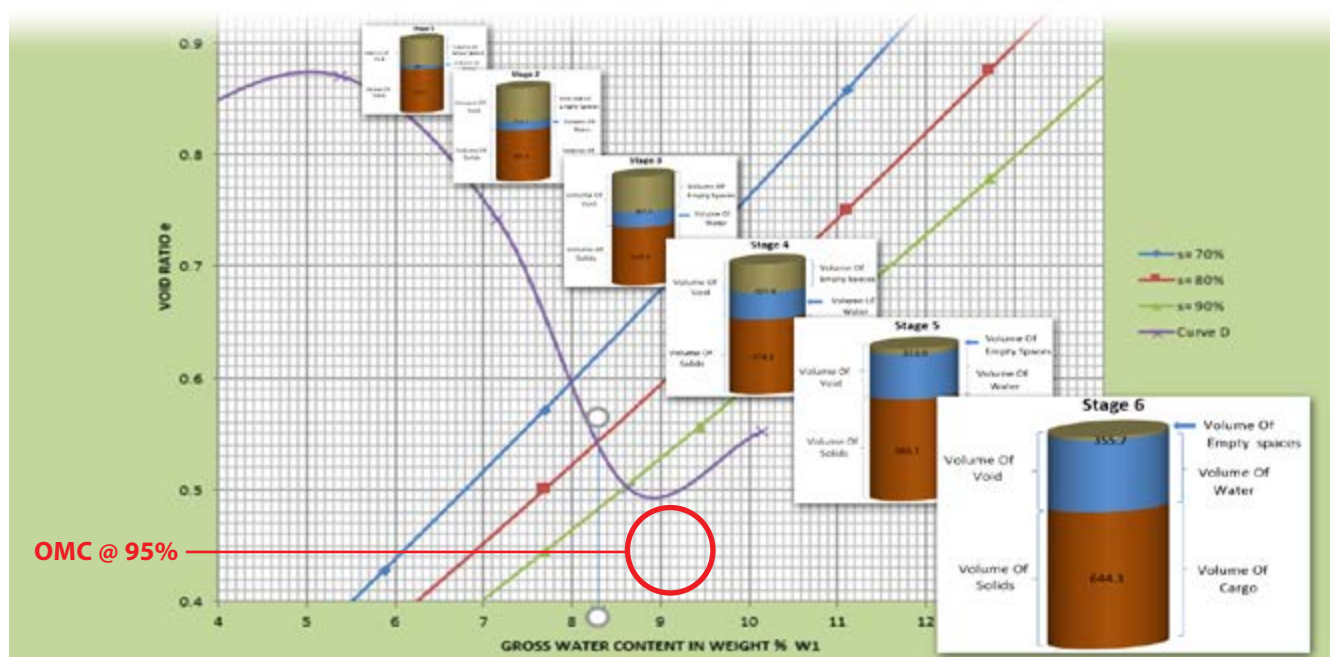
within the material itself because of the multiple vibrations and motions experienced within the hold during the voyage. Quite simply –

$$\text{Bulk Density} = \frac{\text{Mass}}{\text{Volume}}$$

and while Mass remains constant, the volume reduces due to compaction during the loading and the subsequent voyage resulting in the effective increase in the density.

The tamping pressure applied during the testing process MUST result in densities representative of the actual experienced bulk density inside the ships holds; a modified PFT hammer weighing 150 gms with a drop height of 15 cm is best suited for the purpose.

The Optimum Moisture of Compaction (OMC) for IOF is 90-95% of saturation when compared with that of mineral concentrates which have their OMC at about 75%. In simple terms, the OMC may be defined as the maximum moisture a cargo may be able to hold beyond which it may become susceptible to liquefaction; by saying that the OMC of IOF occurs at 90-95% of saturation, it is simply meant that the void spaces at maximum compaction or at maximum dry density may be filled upto 90-95% with water with no loss of shear strength of the cargo.



The series of compaction tests, like in the existing PFT remain unchanged while the TML is determined by first graphically reproducing the relationship between the void ratio and the water content, and then using the intersection of the curve & the 80% line of saturation for calculations; hence keeping a 10-15% margin from the OMC.

To surmise, the compacting force used in the existing PFT has been reduced to match existing hold densities ascertained by modern techniques like using sophisticated scanners, cameras and other equipment's in the holds – from load-port until discharge, which measure the change in the volume of the cargo inside the holds extremely accurately. It has been determined by a series of compaction tests, that the OMC for IOF occurs at about 90-95%, which leaves a 10-15% margin of safety when using the intersection of the 80% saturation line with the compaction curve as the TML.

testing for Goethite is not available commercially in India and many other Nations exporting IOF and while the testing standards for this are developed and may mature with time, Masters, Surveyors, Clubs and Owners **MUST** insist on testing for TML if the consignment complies with the following criteria set down in respect of the size in the new schedule for Iron Ore Fines: *10 % or more of fine particles less than 1 mm and 50 % or more of particles less than 10 mm.*

The research and development which went into making of the above amendments spanned over half a decade with every technical aspect being vetted and reviewed by Japanese experts, The Imperial College-London, P&I Clubs and non-governmental organisations like BIMCO & INTERCARGO; Furthermore, these were deliberated at length by states and stake holders at every session of the DSC/CCC at the IMO between 2010 and 2015.

INFERENCES

Now, with the background work having been looked at, are we ready for answers to the original question – How should we adopt this new schedule of IOF including the modified Proctor & Fagerberg Test? Like the existing set of methods in the code (FTT, PTT, PFT), this has also gone through a systematic and controlled development process as mandated by the IMO, vetted by experts, tested by exporters in Brazil and Australia, where its already being used via exemptions granted by their respective maritime authorities and already forms the text of the IMSBC Code as amendment 3/2015. But how do we adopt it PROPERLY? And will it help at all; specially in the sub-continent?

I firmly believe that it is not the LAW but the IMPLEMENTATION which is the problem in India and most other places in the world. Making new laws MUST take into account the context in capacity, capability and the environment for their implementation.

The following are my concerns followed by suggestions, especially in the Indian context;

Accountability and Responsibility of Shippers

This always was and remains the biggest challenge – not just in India but all round the world. How to educate the shippers on their obligations under the code? How to make them accountable beyond just the Charter Party dimension (demurrage and expenses)? While this is topic for another day and another article, consider this example in a nutshell – a stockpile is sampled and certified by an approved marine lab, the shipper's declaration along with the required TML certificate is presented to the Master.



In an absolutely non-technical and primitive manner, the above may be compared to a sponge which can hold more water if squeezed with less force.

Furthermore, it was determined through a series of Cyclic Triaxial tests that IOF with a Goethite content of 35% or more were not liable to liquefy – But this is a topic on its own and will be handled in a separate article. For now, it is relevant to note that



Stockpile sampling
carried out: TML
8.3% vs MC 6.9%
(USING THE MPFT)

**Shippers carried
out loading during
torrential rain for
6 during torrential
rain for 6 days -
Measured rainfall
of 450mm during
the period -
NOBODY BUT THE
SHIPPERS AND
MASTER INCHARGE**



MC in the **holds** reached 9% (only 2-3000MT loaded in each hold) - the cargo had to be discharged - upon intervention of the owners P&I Club.
This consignment would have been rejected by the FTT or PTT and wouldn't have reached ships holds in first place – this vessel was lucky!

Six days later, after loading 15000MT, Master/owners appoint their own surveyors who find that the cargo loaded does not comply with the provisions of the code (MC>TML). This is a frequent occurrence – **Shippers have just not loaded the certified stockpiles or have handled the same in incessant rain or have had a beneficiation process on the cargo prior loading.** Invariably, the situation leads to a commercial dispute. The Master is blamed for not exercising due diligence, the laboratory is blamed for issuing a “wrong” certificate BUT nothing really significant happens to the shippers, who are getting ready for their next shipment!!

The use of the modified PFT is going to make matters worse – like in the picture above, the margin which was working in absorbing the callous attitude of many shippers will be marginalised.

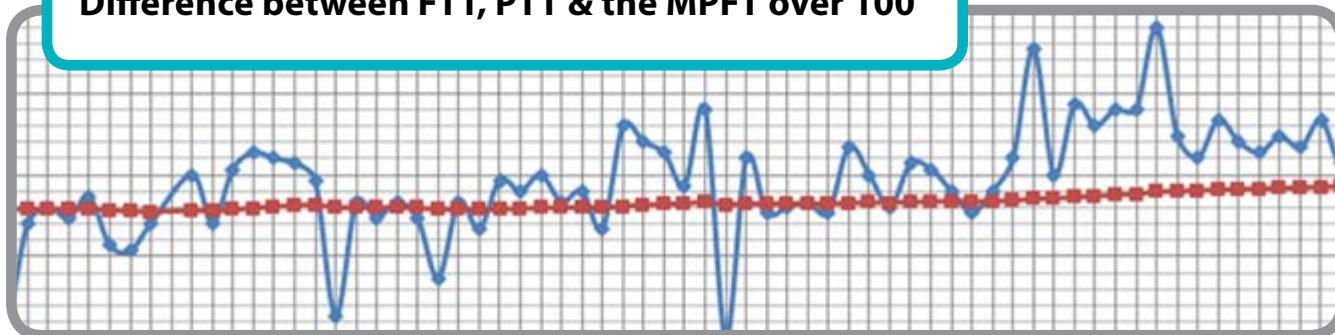
Appointment of owner's surveyors, vetted by IG Clubs, on the **Primary shipper's time and costs**, as a CP clause without which the P&I cover is prejudiced may help, but may be expecting too much too soon!!

The competence, capability and integrity of Laboratories

Research and Development in the making of the modified PFT has been carried out on Brazilian and Australian Ores. While the Brazilian ores are permeable, the Australian ores are relatively porous with high Goethite content; The Indian ores differ in nature with the grade and the coastline. The high grade cargoes on the east coast are relatively permeable when compared the low grade Goan cargoes which tend to hold a lot more water. The eDOT Lab, having carried out exhaustive tests on all type of Indian cargoes, has established that the modified PFT will result in higher TML values

of between 1.5 & 3%, subject to the actual disposition of the consignment. Considering that the IMSBC Code is in existence for nearly a decade, the competence of the marine laboratories is not at expected levels; majority of the labs are happy with the flow table test and use the same irrespective of the particle size of the consignment. This opens up the challenge for validation of the new test; laboratories are expected to have sufficient data on various cargoes, tested by alternate methods to validate the results obtained by the modified PFT. With the new schedule for IOF clearly defining the criteria in respect to the particle size, it becomes imperative that laboratories which may be authorised to carry out the new test, are equipped to carry out the PTT in addition to the FTT (so that consignments with nominal size upto 25mm can be tested and results obtained by the modified PFT may be validated properly).

Difference between FTT, PTT & the MPFT over 100



Furthermore, the integrity of the laboratories will always be in question when their very existence is based on the business of quality-testing for Fe-content for the shippers. The **marine laboratories** have to be defined as a separate category with strict parameters for manning and other relevant standards; cannot be mixed up with any testing which may form the basis of a commercial contract.

CONCLUSION (If it is possible to have one)

While the test makes an entry into the code and becomes mandatory on 1st January 2017, it is the prerogative of individual states to establish compliance with the code in their existing context. **The existing methods in the code have very valuable intangible benefits for the maritime and export industry in its present predicament; the present largely uncontrolled environment of sampling, testing and export, & discrepancies arising thereof, are absorbed in greater margins of safety in the prevailing methods.** It may be noted that awareness of this greater margin has only been evident after the advent of the modified PFT test; This notwithstanding, ships & lives continue to be lost due to liquefaction. Quite clearly, the issue is of compliance and while a lot of work has been put-in in this regard, there is more to be done – specially so in the sampling techniques and the qualification and integrity of surveyors and their representatives.

The present environment in the sub-continent, like in many places around the world, demands that the introduction of the modified Proctor and Fagerberg Test is handled with extreme caution; stringent measures be introduced for its validation and the competency standards for laboratories be raised suitably to appreciate the background and the limitations of the test procedure.

The understanding of the IMSBC Code within the shippers and surveyor's community is far more demanding and a pressing need of the hour.

Effective implementation of the IMSBC Code can only be possible through a controlled process; rapidly easing up procedures for export cannot be made an argument for bringing in the modified Proctor and Fagerberg Test for use.

Hence, technology is welcome BUT its use is limited in the existing context if the foundation leading to the development of the same is weak. My advice – **DO NOT USE THE METHOD UNLESS YOU HAVE A TRANSPARENT SYSTEM OF VALIDATION.**



Written in good faith with the sole objective of contributing to the Maritime and Safety Culture in India and around the world. Contrary or complementing points of view are welcome; please reach me on ruchin@edot-solutions.com



BY CAPTAIN PETER H KING
FNI MIIMS

The Next Generation of Marine Surveyors

For all the challenges to be addressed to secure the next generation of marine surveyors, the prospect of introducing a professional apprenticeship scheme for potential marine surveyors, might not only fill a need in terms of personnel for the future, but would also provide a unique opportunity for up-grading professionalism in the marine surveying market, professionalism which is sadly lacking in some quarters. There is more to marine surveying than giving an office clerk a fancy jacket and calling him or her a marine surveyor! Captain Peter King spoke eloquently on this topic at the IIMS 25th London Conference earlier this year and has now expanded his presentation into a feature article.

In 1985, the Journal of the (American) National Association of Marine Surveyors, set out a tongue-in-cheek resume of the qualities which make a marine surveyor, beginning:

General

In order to satisfy Admiralty lawyers, a marine surveyor should be a qualified officer and a young man with many years of experience in all phases of marine activity, both ashore and at sea.

and went on to identify the multitudinous qualities, expertise and experience attaching to a competent marine surveyor. There is more than a glimmer of truth in the foregoing – not that lawyers, P&I Clubs and cash-strapped shipowners are readily prepared to acknowledge the need they have for such experience-based expertise when it comes to paying professional fees for professional services, but that is another story!

Marine surveying is facing a manning crisis and here I reflect upon surveying practices engaged in the "big ship" end of the market, but I am conscious that the problem is common to all branches of the profession. So from where will the next generation of marine surveyors be sourced? Traditionally, the "big ship" end of the market has drawn upon Master Mariners and 1st Class Marine Engineers seeking a new career ashore, who bring with them a breadth of maritime experience and discipline inherent to their qualification.

Why master mariners or chief engineers? While there are many highly competent marine surveyors who have come into the profession from a non-marine background – insurance, stevedoring, naval architecture – in my view the professional mariner brings to the party unique qualities not readily found elsewhere:

- Credibility with / acceptance by the Masters and / or Chief Engineers with whom they have to deal on a daily basis, often under distressed circumstances, to which they bring an empathy for the problem which might not be forthcoming from a non-marine background surveyor;
- Credibility with the P&I Clubs;
- Breadth of maritime experience;
- A 'can-do' approach to the job in hand, inherent to a maritime background, which gets results; and,
- Perception, based upon hands-on experience.

However, a purely maritime background does not create an instant marine surveyor, and on far too many occasions, the professional status of marine surveyors has been denigrated by individual master mariners coming ashore and setting themselves up as one-man bands without the underpinning experienced-based specialist

knowledge inherent to a competent marine surveyor. In my own case, I came into marine surveying after a career in merchant shipping spanning over 40 years, which included experience in general cargo, reefer, tankers, offshore, and Pacific Island trading ships, including command over a broad front before moving into shore employment, which included ship and shipping company management, management of offshore logistic bases, marine equipment manufacturing, operations direction of the English / Welsh / Channel Islands Lighthouse Service and service as an assessor to the Admiralty Judge. Did this fit me for service as a marine surveyor? I was questioned by the chap from whom I was buying the company as to my motives in buying a marine surveying company – according to him, it would take seven years to make a surveyor out of me and I would probably be dead in the meantime. An outstanding piece of corporate marketing and fortunately one I chose to disregard. In the intervening 17 years, with a little help from Google, and a lot of help from professional colleagues, my experience base has grown immeasurably, but so have my concerns as to the future of the profession.

Three years ago, I attended a joint survey involving two other surveyors. The aggregate age of the

"...a purely maritime background does not create an instant marine surveyor..."

assembled company was 210 years; a lot of professional experience, but a worrying reflection on the health of the marine surveying profession! From where will the next generation of marine surveyors be sourced? The traditional source of suitably qualified mariners, at least in the UK, has effectively dried up. With excellent leave conditions, generally tax-free salaries, and the prospect of servicing a mortgage and a young family, the attractions of a shore appointment from within the diminishing cadre of qualified, suitably aged mariners has shrunk, unless it be specialist applications such as pilotage, harbour administration or in support of the legal profession / P&I clubs or the MAIB, who can afford to pay firm star wages by comparison with what the marine surveying profession can, with few exceptions, offer.

The economics of recruitment are a serious consideration and are tied, in my opinion, to the professional perception of the marine surveyor in the market place. On my desk lie papers in respect to the receivership of a well-known marine survey entity of whom my company are a creditor. I read with a combination of shock and envy that the senior liquidation practitioner involved is charged out at £455 per hour, middle rankers at £230 - £280 per hour, and junior staff at £120 - £185 per hour. If as a reputable surveying entity, we charged out at more than the junior range, we would be out of business. I accept that

there are a very limited number of marine surveying entities which charge out at significantly higher rates; these entities employ highly qualified (and often not particularly effective) personnel who contribute to a formidable overhead which has to be serviced. But the general rate of remuneration chargeable, reflecting in turn what can be paid to surveyors, is a source of real concern when compared with the other fee-charging professionals – lawyers, accountants, architects, quantity surveyors etc. In my view, the marine surveying profession must work to address this imbalance as a pre-requisite of recruiting the right sort of personnel for the future, and the only way it will achieve such will be an overall elevation of professional standards within marine surveying which justify higher charge-out rates. This will not happen overnight, and in the meantime the recruitment problem bugs us.

Crucial to the professional advancement of marine surveying is the perception of the surveyors' principals to the concept of value for money. In a (forever) cash-strapped shipping industry, driven to no small measures by freight forwarders to whom the concept of professionalism is an anathema, the temptation to go for the cheapest is foremost in many companies' thinking. A professionally presented survey with accompanying analysis often provides the material whereby a principal can successfully defend a claim, saving tens of thousands of pounds. Yet there are many shipping companies, lured by the siren tones of cheap, un-professionally executed fixed price survey offers, who deny themselves the opportunity of making such savings, and thereafter expend extortionate sums on legal fees to sort the mess out. Such survey entities do nothing to enhance the professional standing of marine surveyors!

Before considering the future, it is worth examining the fundamental qualities attaching to a competent marine surveyor. In my view these include:

- An ability to expeditiously write concise, clear, court-compatible reports in the English language.
- An appropriate, experience-based foundation qualification.
- A perceptive, enquiring mind which goes way beyond the standard "aspect, nature and extent" cachet of the marine surveying business.
- An analytical approach which identifies trends and individual circumstances which can lead to loss prevention for the future.
- A naturally courteous, cheerful approach at all levels.
- A working understanding of I.T. applications.
- A can-do approach to whatever presents, at whatever time, at whatever place.
- A passion for professional standards and professional development, manifested inter alia by membership of an appropriate professional body.
- A culture of safety and environmental awareness.

Additionally, the following are useful attributes:

- An ability to take and caption meaningful photographs (sounds obvious – but how many can?).
- An ability to effect simple, clear sketches and understand technical drawings.

Too many individuals who profess to be marine surveyors, are deficient in at least some of the foregoing attributes, especially the first, to the detriment of the profession!

Against a back ground of a drying-up resource, at least in the UK, the future would seem to lie, at least in part, in training from scratch – a structured Marine Surveyor Apprenticeship Scheme. Such a scheme would draw upon either:

- School leavers, with appropriate minimum qualifications in the English language, mathematics and physics, who would serve a full four-year apprenticeship; or,
- Graduates with an appropriate maritime studies first degree, together with a watch keeping certificate, who would serve a two-year student apprenticeship.

"Before considering the future, it is worth examining the fundamental qualities attaching to a competent marine surveyor."

Key elements of such an apprenticeship scheme would include:

- » Accreditation by an appropriate professional body – the International Institute of Marine Surveying clearly has a role in this direction;
- » A structured training programme, founded upon an approved open learning course, with modules selected to suit the needs of the sponsoring company;
- » On-site training under the tutelage of an experienced surveyor;
- » Specific deployments / internships reflecting the sponsor's practice, including by way of example:

- P&I Club / shipping line internship(s)
- Refrigerated warehouse QC experience
- Reefer container course / servicing experience
- Rigging yard deployment
- Port operations experience
- The rudiments of accountancy and business administration
- The taking of evidence
- The giving of evidence
- Report writing
- Safety training
- Computer literacy, to include CAD

- » Crucial to non-degree course apprentices would be six months' experience at sea as a cadet.

Factors which would impact upon the successful establishment of a marine surveying apprenticeship scheme include:

- Awareness of marine surveying as a career, both at the sixth form and university level.
- Acceptance by the powers-that-be that marine surveying in the sense that we are talking about exists as a profession, acceptable for inclusion within government sponsorship.
- The role of the IIMS as a professional body capable of securing apprenticeship-worthy accreditation.
- On-going career prospects and academic advancement.

There will inevitably be a cost – possibly a high cost – attaching to such a scheme. The economic considerations include:

- » The availability of state funding to support an apprenticeship scheme. For such, the scheme would need to be accredited.
- » The cost of employing over a period of time non-productive personnel, though progressive involvement at the lower end of the surveying spectrum, under supervision, would hopefully offset some of this cost.

- » The inevitable distraction to productive personnel of mentoring apprentices (though there are rewards to the mentor).

- » The cost of P.P.E.

- » The cost of training providers.

- » The goodwill of partners such as the P&I Clubs.

- » The ever present prospect that at the conclusion of a first class apprenticeship, the graduated apprentice will be head-hunted by rival survey entities who have made no investment in training.

The International Institute of Marine Surveying would have an important role to play in the introduction of a successful marine surveying apprenticeship scheme. Inter alia:

- Promotion of the very meaning of "Marine Surveyor" as a professional career path within education, government and industry circles.
- Establishment of the training standard based upon existing / to be developed open-learning courses.
- Liaison with government / educational / professional establishments to secure accreditation status.
- Stemming from accreditation, tapping into nationally available training funding.
- Securing of equivalent standards – NVQ levels etc.
- The role of training providers (if at all).

"Against a back ground of a drying-up resource, at least in the UK, the future would seem to lie, at least in part, in training from scratch..."



The impact of drones on marine surveying now and in the future

BY JAMES HARRISON
CO-FOUNDER OF SKY-FUTURES

Drone technology it seems is not quite as new as one might imagine, although its entry into the marine surveying sector is certainly more recent. Originally introduced into theatres of war a decade ago, drone technology is now becoming common placed. James Harrison, co-founder of Sky-Futures Ltd, spoke eloquently about this most fascinating of technological developments at the IIMS Silver Jubilee Conference earlier this year and the far reaching, potential impact of drone technology on the marine surveying profession.

In this specially commissioned article for The Report Magazine, James expands his thoughts further by asserting that although the technology is not yet widely understood by the industry, the cost and safety drivers that support it most certainly are.

In recognition of their work in the area of drone technology, Sky-Futures Ltd were announced as joint winners of the IIMS Innovation Award at the recent *Awards for Excellence in Marine Surveying*.

Whatever you may think of drone technology and its likely future relevance to the surveying profession, James's article will certainly open your eyes to the possibilities.

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Drones are being used for marine surveying and their use is becoming more widespread and generally accepted. However, the use of drones to capture data is hardly new. I used drone data in Iraq and Afghanistan in 2006 and 2007 as a young Army Lieutenant in the Grenadier Guards. We focused on accessing the rich information within the video and static data for planning purposes. By using reference measurements from known objects in the imagery we could try and work out the size of buildings, the width of roads and a range of other useful information prior to arriving in that destination. This was especially important to us as the destination was typically a remote part of Helmand province held by the Taliban.

Sky-Futures Ltd, was a joint Winner of the Innovation Award at the recent IIMS Awards for Excellence in Marine Surveying

After receiving his award from Sir Alan Massey (Chief Executive Officer of the UK Maritime & Coastguard Agency), James Harrison (Co-Founder of Sky-Futures) said, "We are thrilled to receive this award. It is a token of appreciation for the hard work of the whole team."

James is pictured below on the left.



Commercially, however, the market had to wait for the non-military manufacturers to catch up and produce drones that can work in industrial environments. We incorporated our business in 2009, but it wasn't until 2011 that we felt the commercial drones were sophisticated enough to be used for surveying and inspection. Once they were, we started to introduce the concept of drone inspections into the inspection of vertical infrastructure. Once we had overcome the typical Oil and Gas mentality of 'the first second', whereby we needed a credential to be able to deliver work, the managed service became accepted.

The economics supported the industry, with an offshore drone inspection reducing costs by up to 85%, increasing safety and taking 25% of the time of convention survey methods. With Oil and Gas being global the managed service got pulled by clients all around the world, from Angola to Vietnam, that has seen us working in 26 countries globally.

The big value though is not just in the service, although it brings enormous benefits today. The captured data is rich and extracting additional information to help inform the decisions made by

engineers is key. A couple of years ago we finished a client job inspecting a flare boom in the North Sea. During the post-project meeting we had highlighted some through corrosion on one of the structural members. The client said that whilst it was impossible to get



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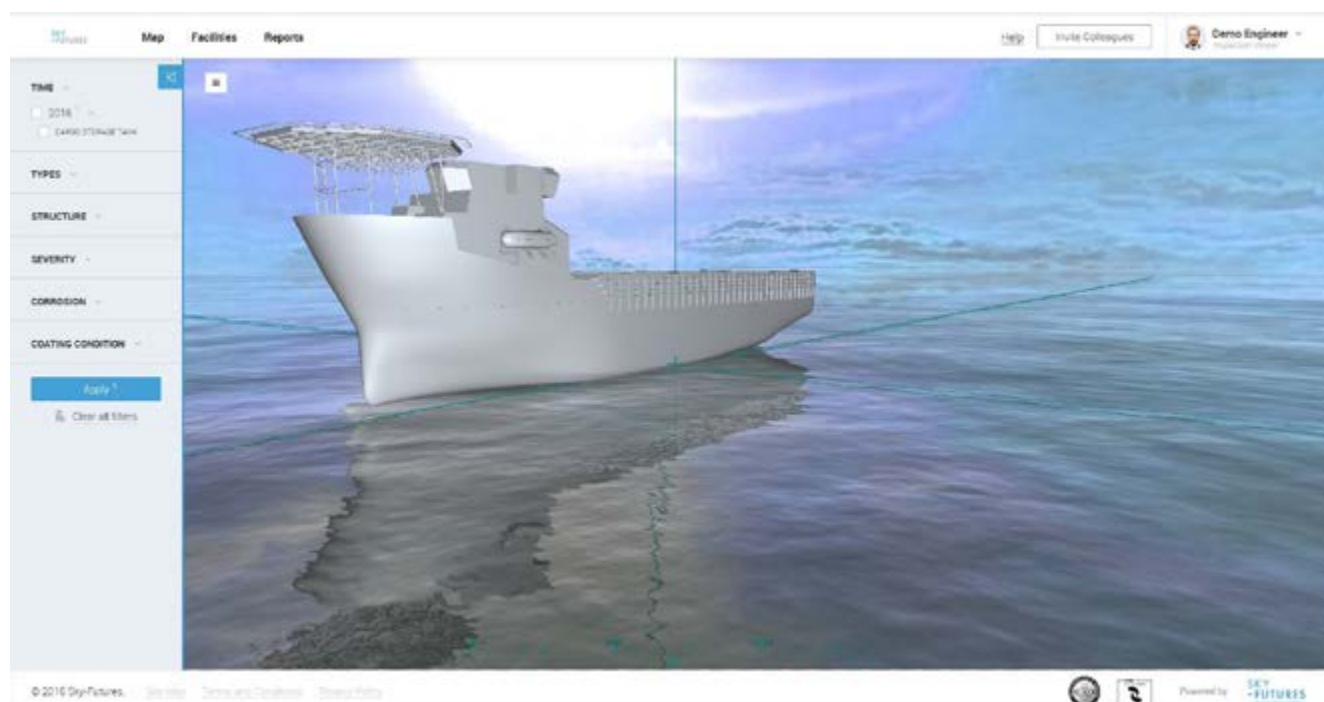
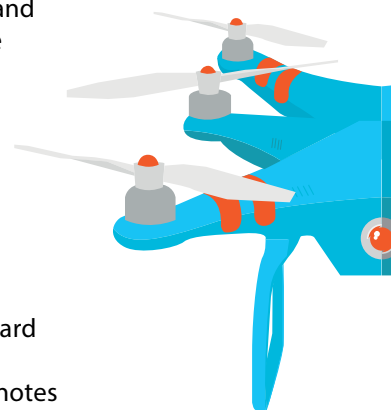
the imagery any other way during production, they still had an issue – the unknown size of the problem and most importantly, the change over time of this through corrosion. To resolve this and by continually holding client feedback sessions we built some tools to enable us and our clients make more informed decisions about their assets. Today we can measure a crack or defect to $\pm 1\text{mm}$ using a proprietary laser measurement device, meaning that issues can be sized and then compared over time. We see it as a building block to better data. It has also enabled the measurement of corrosion, by length and area. Another issue that we had was our own engineers replaying hours of video to try and find previous issues or problems. They did this to better understand how a defect such as through corrosion has changed over time. To solve this issue we worked on sorting and analyzing video and static images to quickly find the same problem again, creating a concept called fingerprinting. This programme uniquely marks images and our algorithms can then detect every instance of the same image. So rather than physically taking hours searching previous videos for the same image, we are now able to

locate it in seconds. Meaning that trends and change over time can be measured and known to the engineer. We refer to these analysis methods as our workbench tools.

New software analysis is not the only significant advancement happening in the marine sector. New drone applications have already been explored and are being commercialized. Sky-Futures conducted the world's first unmanned inspection of a FPSO tank, without putting a human inside. This project was delivered on BW Offshore's Athena FPSO and delivered significant cost savings to the client. From a safety point of view the project was described as 'invaluable'. Similar results include the inspection of an onshore tank that was deemed too dangerous to investigate. Following a single drone flight the footage from the specialist caged drone was good enough to condemn the tank. The client was so impressed that the CEO of the major oil company presented the findings at the next board meeting. The speed of development and the enormous number of use cases will continue to see more and more advances in rapid succession. As we see the advancement of software and data

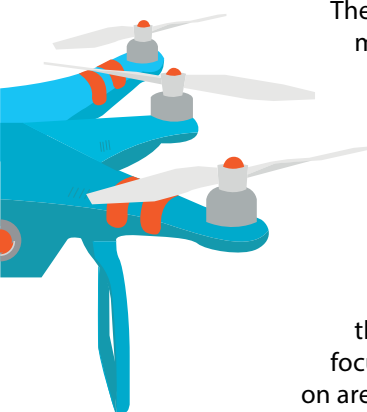
analysis, we will also see more robotics take on the dangerous and time consuming work in the marine environment.

As the market continues to evolve, the industry has started to recognize that standards are required to operate drones in an industrial environment and to validate the data capture methods. Sky-Futures worked with Lloyd's Register in Singapore at our partner Keppel's shipyard to help shape the guidance notes that Lloyd's Register subsequently released. The American Bureau of Shipping, ABS, also worked with Sky-Futures in Houston and Singapore to create their guidance notes on drones in a maritime environment. They also worked with us to create a standard for 'marine inspection' using drones – a world first. This validation of the work to date by the verification bodies, and acceptance of the techniques and procedures is



key as the industry now is rapidly adopting the technology.

With any new technology, there comes additional benefits as there isn't always a current way of doing things. Inspections and surveys were typically done annually, with a time based approach.



The industry has moved towards a risk based methodology. However, the next frontier is predictive analysis.

Fixing issues before they fail and focusing spend on areas that will

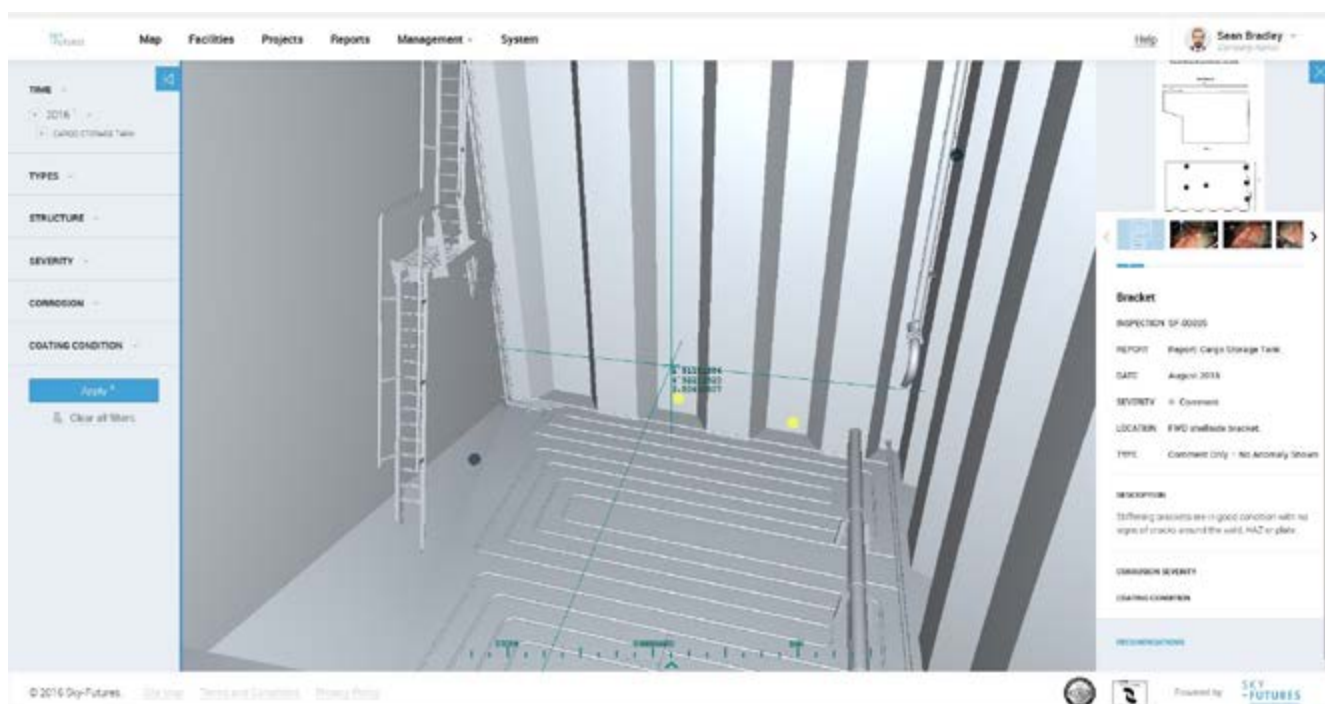
benefit over time based on data points are key. For example, coating breakdown or the performance of certain types of paint in a given geographic region are not well understood, yet they cost the operators of drill rigs \$m's per year. Firstly, though the data is required in an accessible place where it can be analyzed. Currently inspection reports can be held in a variety of places and typically once the annual

inspection cycle is complete they are deemed obsolete. Which is crazy, given that the report could have cost \$70k to put together in the first place. The collected data is incredibly valuable as it enables the change over time to be analysed. Furthermore, the stakeholders requiring the data are not just the purchasers of the information. Just because the inspection team have commissioned an inspection of a flare boom does not mean that no one else needs the information. A HSE executive may want to understand the risk of dropped objects across the entire offshore platform, a 3rd party maintenance contractor will want to know the condition of the flare boom ahead of a shutdown and a subsea engineer may need to know the condition and likelihood of dropped objects for their risk assessment for working directly below the flare boom underwater.

This issue drove the development of ExpanseSM Inspection, a secure cloud based visualization tool that stores inspection and other data in an easily accessible 3D environment. This means that if a project team commissioned a survey of the offshore rig an inspection colleague can see that

data by simply logging on to the system. Saving a huge amount of time and effort searching internally for the latest data, or preventing another inspection being authorized to get the same data. This repository also enables further analysis by client engineers using the workbench tools already in use such as fingerprinting, laser measurement and corrosion analysis. Anomalies can be traced back through time using fingerprinting and speed of growth can be measured. Suddenly the first steps to preventative maintenance can be taken, as anomalies and other issues can be fixed before they become major issues. This helps to drive prioritization of maintenance schedules and frees up maintenance staff to focus on the safety critical and most costly issues by utilizing existing data sets that would have otherwise sat in draws, on desktops or otherwise siloed in an organization.

The ExpanseSM software has two sides, a client side where clients can access their data and use the workbench tools and an inspector side where reports can be created by 3rd party or in-house inspection engineers. The report outputs are standardized





and companies can customize and categorize problems according to in-house best practice. This leads to harmonization of and standardization across an organization and enhances the ability to learn from that information. By opening the ExpanseSM Inspection software to industry and making it commercially available, we are able to learn from every report that is submitted into the software. The big win for inspection engineers is that a report takes 1/3 of the time to create when compared to conventional methods and techniques, such as word, excel or powerpoint. For the company, the output is standardized, meaning that analysis and decision making is clearer. As inspectors highlight items in a report, such as corrosion, cracks, coating defects, etc. we can learn from this information. This means that soon the inspectors will be presented with suggested issues within images and asked to confirm or dismiss the issues in the image. This will further drive down the time spent building reports and help to spot anomalies or defects that may have been missed during the reporting process.

These steps are taking us towards the next stage of artificial intelligence. As we continue to

learn from the inspectors building the reports and validating the suggestions created by our algorithms, we will move to a position where the 'inspectors' add human intelligence to the reports, as opposed to building them. Know actions and outputs can be further automated so that actions such as repair work or scheduling maintenance will also be undertaken without human involvement.

Paired with the artificial intelligence working on the data, the drones themselves are already making huge advances. Already capable of automatic flight based on waypoints, the next level of autonomy brings in intelligence such as sense and avoid and onboard decision making. Currently drones are flown by a remote pilot and an inspection engineer controls the camera. We already collect the video, static and other sensor data from the drone. Simultaneously we are collecting the meta data, the high of the drone, GPS location, angle of the camera, direction of the gimbal and so on. This additional information is key for repeatable flights to capture the exact same data sets where existing problems are. With the cost of data acquisition and hardware coming driven down we are moving to the concept of native drones. Native

drones will be stationed on the oil rig, vessel or refinery and they will fly pre-determined routes optimized to obtain data in the most efficient manner possible. As this develops a request for information from people onshore will also drive additional drone flights. The individual drones will no longer require a team of 2 people offshore, but instead rely on a systems engineer observing the health of hundreds of drones. Today's remote pilots will be tomorrows system engineers.

So what do we foresee in 25 years time in the maritime industry?

Today we are already sending unmanned drones into tanks without requiring humans in there too, using artificial intelligence and drone automation to fly drones and help create reports. This technology is not yet widely understood by the industry but the cost and safety drivers that support it are. In 25 years, we foresee fully automated industrial marine environments monitored by a few humans onshore. Robots will provide repairs, 3D print parts offshore and a myriad of sensors will continuously feed artificial intelligence that is making real-time decisions. In all, a safer, cheaper and highly optimized environment.



THE DANGERS OF OVERPLATING



BY
ALAN BROOMFIELD
MIIMS

It is common practice when in the field surveying steel vessels to find mild steel plates welded to the hull, a practice regularly carried out on leisure vessels as a permanent repair. If any defects are found on the shell of a metal boat during a survey, surveyors are all too quick to recommend that the area concerned be overplated. Marine surveyors who deal with steel vessels will find that very often – Dutch barges and canal boats in particular – are frequently heavily overplated and should remember at all times that such overplating does NOT constitute a repair. It merely hides the defect.

I have recently seen an overplate welded to an existing doubling plate on a Dutch barge moored on a gravel tidal mooring. The result was a two foot crack in the second over plate allowing water to down flood between the plates nearly sinking the vessel which was only saved by the occupants having sufficient bilge pumps to keep her afloat until she could get into dock.

I feel it should never be allowed to overplate on an existing doubling plate even though such bad practice is often found. It is a very bad practice and should be condemned and highlighted within our reports. If doubling or overplating is found on a vessel, the marine surveyor should remember the **Law of Unintended Consequences**.

Wherever possible, doubling or overplating should be avoided and any defective steel cropped out and renewed. It should never be carried out on round bilges and never doubling over existing doubling plates. However, one occasionally sees this and it should be strictly taboo.

Doubling or overplating can only ever be regarded as bad practice, a cheap bodge job and is intellectually dishonest. It is often carried out on leisure vessels to cover over areas of pitting which is not necessarily the best solution.

Pitting, if small in area and localised, is often best dealt with by back filling the pits with welding rather than extensive overplating. Pitting on non structural interior bulkheads can often be satisfactorily filled with a plastic metal paste such as Belzona **but this method of repair should not be used on shell plating**. Plastic metal should only be used on single pits on water/ ballast tank plating or in areas where heat is not allowed or unsafe (fuel tanks).

Finally, the marine surveyor should remember that overplating, though a common practice, is often carried out without thought as to the unintended consequences.

We should realise that it adds weight to the vessel's structure without adding much compensating volume and, as a direct result, the vessel necessarily sinks lower in the water. It also has a number of other unintended and often unrealised side effects.

1. By increasing the draft, it reduces the available freeboard and, therefore, the amount of reserve buoyancy.

2. It also, therefore, reduces the transverse metacentric radius (BM_T), and slightly, increases the height of the centre of buoyancy (KB) usually with very little compensating reduction in the height of the centre of gravity (KG) so that the end result is a reduction in the metacentric height (GM) and a negative alteration to the characteristics of the statical stability curve *i.e.* a reduction in the maximum GZ value and the range of positive statical stability. [The average metacentric height of a narrowboat is about 150 mm (6 inches)]

3. It may also, depending upon where the overplating is sited, alter both the longitudinal trim and the transverse heel of the vessel with further indeterminate alterations in her statical stability curve.

4. It lowers the deck edge immersion angle and, therefore, any downflooding angle(s).

5. The double plating is usually not secured to the primary supporting structure - the shell side framing. It is also rarely fitted with centre plate plug welds and is dependent only on the edge weld for security.

6. The double plating is secured only at its edges and the greater the area of plate, the smaller the length of the attachment weld per unit area and, therefore, the greater the stresses in those welds

7. The corrosion or pitting, being the reason for fitting the doubling plates, means the corrosion or pitting will still remain there and, if it is on the inside of the original shell plate, will still be increasing. Doubling, therefore, is merely hiding the problem, not repairing it.

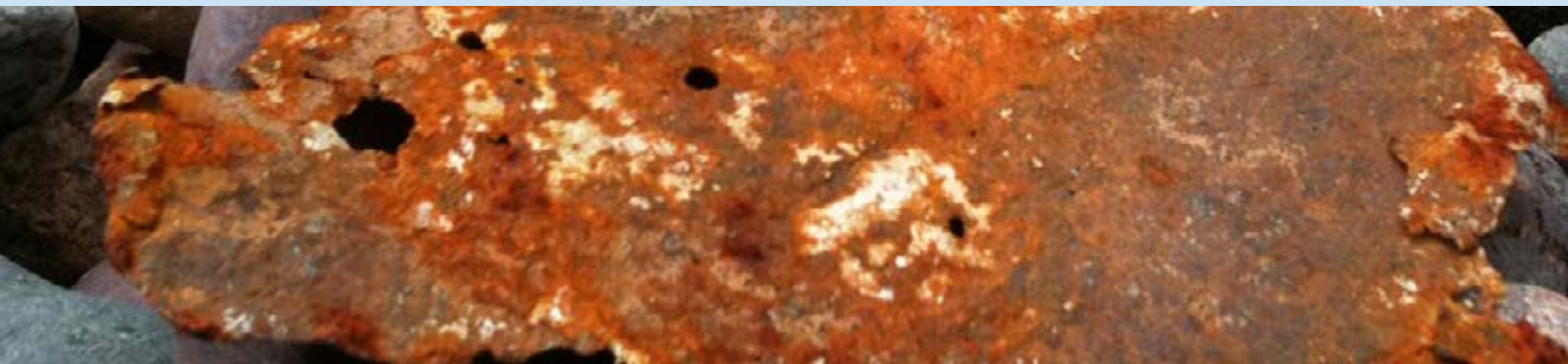
The marine surveyor should remember that time spent considering the consequences of his actions is never wasted. A lot (too many) of boats, particularly inland narrow boats and private pleasure boats, are doubled or over plated to various degrees in both terms of area and quality of welding and finish. When presented with a vessel that has a length of 6 mm plate some 250 mm or so wide welded astride the normally laden waterline, it

is not unreasonable to conclude that the plating in way has severe corrosion or pitting (for whatever reason) and that somebody in the past has **recommended** overplating as a cure.

At this point the marine surveyor's mind should go into cause and effect mode and ask *"How extensive was the defect? Could it have been more simply rectified by grinding out and back welding an area of pitting? Was the corrosion arrested before the doubling was fitted?"* That said many of those questions are academic as the answers to most of them are well and truly hidden from view which only leads to speculation. In cases where the marine surveyor finds the situation described applied to both sides of the hull, another question arises – *"Did both sides of the vessel's hull exhibit the same degree of damage or was the double plating simply applied to both port and starboard sides to ensure maintenance of lateral stability or appearance?"*

If the plate is badly pitted or where the actual thicknesses, as measured, of bottom or side shell plating fall below allowable minima, the metal structure in way requires remedial treatment within time limits to be laid down by the marine surveyor. It is, in the author's opinion, (and for that matter also apparently that of the MCA who will not allow doubling plates of any size – particularly on passenger boats - to be fitted except as a 'get you home' emergency measure) far better to crop out such thin areas back to metal of an acceptable thickness and renew the plate in way although it is accepted that that is more difficult, time consuming and costly.

The marine surveyor should also be aware that the heat from the welding and subsequent cooling



in air alters the microstructure of the steel and, if a doubling plate is fitted, the underlying steel becomes brittle and can fracture, particularly in cold weather.

Care should also be taken when doubling plates pass over a riveted seam or butt as the weld can draw the nearby rivets causing them to leak. It is good practice where a doubling plate edge traverses a seam or butt to cap weld the rivets alongside the cross over point. Even that has to be done with care otherwise an inordinate amount of time can be spent rivet chasing. It is a common experience, particularly in Dutch barges and canal boats, to find the whole of the bottom doubled. That clearly begs the question as to the condition of the original shell plating underneath the doubling plates and the marine surveyor should be very wary indeed of such heavily overlaid vessels.

The US Coast Guard states that, in certain cases which they do not define, a welded doubling plate may be used in lieu of a crop and insert repair for the permanent repair of small damaged areas lying wholly within an individual plating panel but they also, quite rightly in the author's view, do not allow the use of doubling plates in the strength deck, bottom or shell plating or part of the main hull strength girder. They also state that such doubling plates or patch plates in American terminology – are inadvisable in areas of high corrosion and the author would most certainly concur with that.

Doubling plates also tend to rust from the inside faying surface outward.

The marine surveyor should note that, when an area of plating is doubled, the presence of these doublers creates a structural discontinuity. That may induce rather than prevent a structural failure. We should also note that doubling plates tend to proliferate as randomly placed items that, in reality, tend to cover up

deficiencies that would otherwise show up the true condition of the hull. It is also common practice to leave such doubling plates with square corners.

This is bad practice as it raises a hard spot on the corner from which cracks in the shell plating may propagate.

When the marine surveyor comes across existing doubling plates with square corners he should closely inspect the shell for cracks using a dye penetrant if thought necessary. Doubling plates can also flex and vibrate causing the edge welding to crack. If such cracking is found here, again, a dye penetrant is useful to find the extent of the crack.

The marine surveyor should also be aware the estimated plate frequency be checked against the revolutions per minute of the main engine (and the generator engine if fitted) and also against the propeller blade frequency. i.e., the shaft revolutions multiplied by the number of propeller blades. If the ratio of any of these factors to the estimated plate frequency is a whole number then it would be as well to investigate the possibility of engine or propeller excited vibration causing the cracking. The marine surveyor should bear in mind that steelwork repairs and plate replacements are never cheap but that the potential consequences of not carrying out proper repairs are far more costly and traumatic.

These factors made me put pen to paper when I was recently asked to look at a narrow boat which had been purchased without a survey that being the first mistake. The owner had the vessel out of the water for blacking and had decided to have the hull thickness determination for future maintenance.

The vessel had a doubling plate close welded between the whisker harpins on the port bow. I was suspicious of the area around and behind the doubling plate due to the poor quality of the welding and suspected the latter to be porous to water ingress as the plate was below the water line.

The upper whisker harpins were found to be suffering from jacking corrosion which had been instigated from the D bar only being stitch welded along the top and bottom of the bar which is also a common defect found on such vessels as the builder can save time and money by not seam welding such bars.

However, the defect in this case was compounded when the shell plate was found to be holed above the harpin. The hole can clearly be seen in Photograph 1 which shows the area of the vessel as first seen. It was also noted that a poor repair had been carried out below the lower harpin forward and the shell plate was also found to have excessive pitting just aft of the stem.



Photograph 1 – Vessel as originally seen



Photograph 2

The upper harpin and doubling plate were cut off while I was on site by grinding off the welds and Photographs 2 and 3 show clearly the heavily corroded inner repair plate and appalling condition of the underlying shell plate.

Photograph 4 shows the faying surface of the doubling plate that was removed and which can be clearly seen to be corroding from the inside outward. It can also be seen in this photograph the doubling plate had been welded

to the harpin in places making the doubling plates seam weld porous to water to entering between the doubling plate via the gaps created when the D sections harpins were originally stitch welded in manufacture. The fault



Photograph 3



Photograph 4

would have been compounded by crevice corrosion and a poor maintenance programme though out the vessel's life.

The only possible repair to that damage is a complete crop out of derogated steel work and new steel close welded in to the aperture and new D section bar fitted to the shell side and which should be seam welded fully along the top and bottom of the bar.

In a recent video available on the web, a broker was seen to be stating that the narrow boat he was showing required the whole side to be doubled because of a single pit (apparently due to microbiological attack) that had been found by a surveyor. He also stated that the doubling would increase the strength of the hull and give the vessel an extra life of twenty years. Both statements are clearly nonsense.

However, overplating is a repair that is regularly accepted by brokers and the pleasure vessel users community and it is our duty to educate them that these repairs are not a cheap way out.

Patrick Keating, who regularly lifts narrow boats at South Dock, has stated that he has seen a number of such vessels where the bottom plating was sagging because the whole area had been doubled and where the doubling plates were unattached to the frames or even the remains of the original bottom plate.

He stated that, on one vessel, the welder, who was about to work on it, started to cut out a section of plate and, as soon as the plate was broached, water started pouring out. The bilges were immediately checked and found to be dry and it was estimated that at least 500 litres of water had been trapped between the doubled bottom and the original shell with the water getting between them from the bilge through holes in the original bottom plate.

I have also seen water pouring out from doubling plates on the

shell plate sides through pin holes found in the seam weld whilst carrying out survey's and try to make a point of viewing the vessel being lifted from the water.

The obvious problem with this practice was that the doubled shell plating can corrode from the inside out with no external evidence of the problem is not usually seen and can often go undetected until too late. In recommending the fitting of doubling plates the marine surveyor must take even more into account than the increase in draught and loss of freeboard due to the added weight. For example, a forty foot long narrow boat will have a tons per inch immersion value of about 0.55. If her bottom is fitted with a 6 mm thick doubling plate over about 30 feet of her bottom by the full width she will sink by about 1½ inches with an equal loss of freeboard plus a deleterious change in her metacentric stability and down flooding angles.

Photograph 4 shows the faying surface of the doubling plate that was removed and which can be clearly seen to be corroding from the inside outward.

Here it is probably apposite to quote the case of the narrow boat *MINI MOO* ex *MARY MINT*. The following is quoted verbatim from a Safety Bulletin issued by the Port of London Authority: -

On the 24th August 2012, a narrow boat was delivered by road to South Dock Marina in London for a new owner. The vessel was lifted into the dock and the new owner requested to lock out of the marina as they had an overnight berth in Lime House Marina; a short distance up the River Thames. The vessel departed the lock at 17:00 with 5 adults and 1 dog aboard. As they departed the lock the lock keeper commented to them that they should have lifejackets on board as they appeared to be missing. The crew decided to continue on and left the lock with 3 adults in the aft cockpit and 2 adults in the cabin. The vessel transited directly across the river to the starboard side of the channel and then turned upriver towards Lime House Marina. Shortly into their transit the crew noted

a change in the engine note and opened the engine room hatch to find the engine half submerged. All persons quickly moved to the stern to try and bail out the engine room, but were unable to cope with the ingress of water into the vessel. The engine room continued to fill with water and flooded into the main cabin, submerging the aft coaming below the water, resulting in severe flooding of the vessel which sank within 10 seconds. All of the crew and the dog entered the water without lifejackets, but were rescued by a nearby RIB and Police Launch.

Marine surveyors and others concerned with narrowboats should obtain a copy of the Bulletin from the P.L.A. and take note of its recommendations.

It was noted by the P.L.A. that the vessel had been extensively overplated. Whoever had **recommended** the overplating had also **recommended** partly blocking off the engine room air jalousie on the port side as its bottom edge was considered even then to be too

near the waterline. The following Figure 1 below shows the effect of the overplating and the number of persons seated aft.

The buyer of the *MINI MOO* bought the boat on the strength of a survey report provided by the seller. The marine surveyor concerned had estimated the height of the engine air intake jalousie from water level marks on the hull although the vessel had been out of the water for a considerable time prior to his survey. He had estimated the intake to be 200 mm above the waterline but when it measured after the salvage it was only 65 mm. The marine surveyor had covered himself with the caveat that it was an estimate only. In that particular case, when the vessel sank, no life jackets were on board and at least one person on board could not swim. The survivors were very lucky that nearby boats managed to pluck them from the water immediately. The fact that a marine surveyor's report perhaps covers him with words such as estimated does not provide much comfort if bodies have to be pulled from the water.

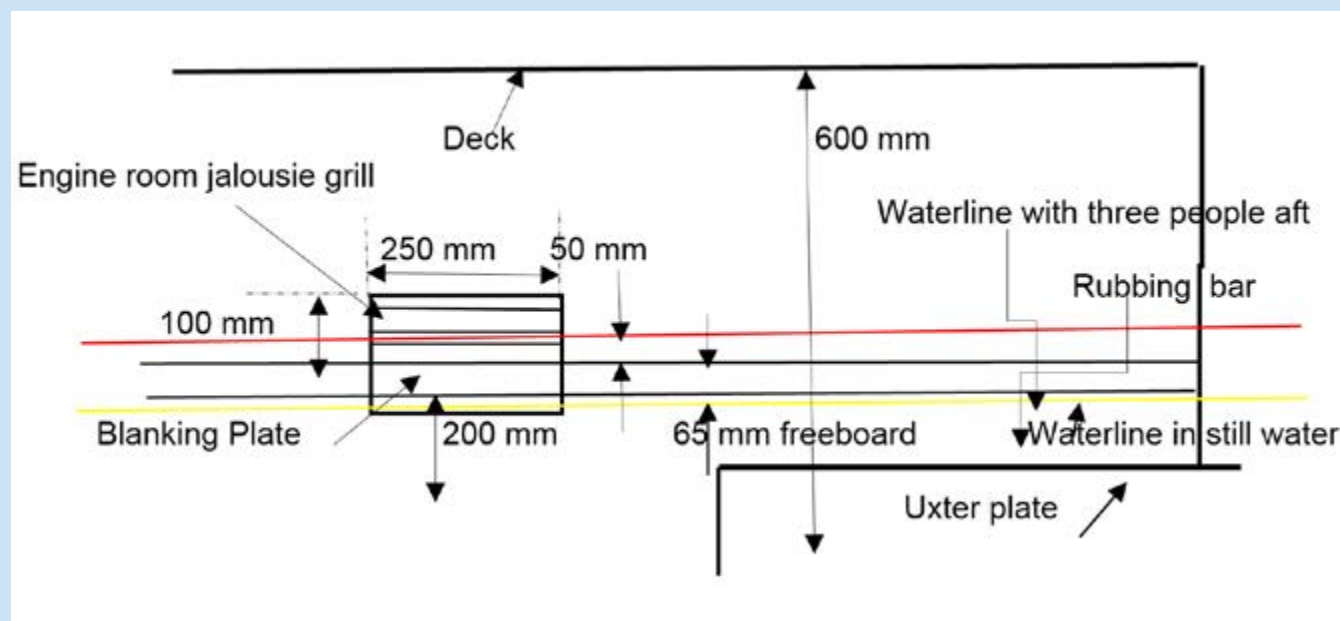


Figure 1 Detail of Engine Jalousie on MINI MOO

The yellow line indicates the original free board in still water this was measured to be 65 mm. The red line indicates the waterline incurred from three people standing on the aft deck which pushed the engines jalousie below the water

The vessel was fitted with an air cooled Lister engine and, in accordance with common practice, had a ventilation jalousies cut into the topside aft to give the necessary combustion air supply for the engine. The overplating was such that the jalousie at the engine room was within 65 millimetres of the waterline. That highly dangerous situation was not helped by the presence of a small lop on the water surface. Some five people plus a dog called Gus were on board (three of them sitting aft and two in the cabin) to make the journey and, hearing unusual noises from the engine, the engine room cover was lifted and the boat was found to be rapidly taking water. The situation was made worse by all of the people on board moving aft to have a look and to try to bale the water out, thereby increasing the trim and pushing the lower edge of the jalousie 50 mm under the water. The boat rapidly filled and sank within 10 seconds but, fortunately, a nearby RIB and a police boat arrived within two minutes and all personnel, plus Gus the dog, were picked up by the police and the nearby RIB. Despite the fact that none of them were wearing life jackets and at least one of them could not swim, there were, thankfully, no fatalities although all were suffering from shock. What Gus said was not recorded. It was later said that the owner had relied on a marine survey report prepared for the *previous* owner and that the vessel was uninsured.

Following the discussed casualty, the author recommends that the following paragraph be included in any relevant survey reports.

*The Port of London Authority has **recommended** that the tidal reaches of the river Thames which stretches from Teddington Lock to the Number One Sea buoy be regarded as MCA Category C waters as wave heights of up to 1.2 m may be encountered there. We would **recommend** that the similar tidal reaches of the river Medway also be so classified. Narrowboats with engine room side jalousies are simply not suitable for operation on those waters.*

Another point is that not all Narrowboats have a very small transverse metacentric height often only a matter of 150 mm or so and heel very easily and the minimum angle of down flooding through the jalousie in the case discussed was not more than about 4 degrees which is far too small for safety even on the calm waters of a British canal. Further, the average first down flooding angle of a narrowboat even without such engine jalousies is often less than 35°. The minimum recommended angle is 40°.

Whilst in the same yard I had carried out a survey on a Springer steel cruiser style narrow boat which had been constructed originally from 3 mm mild steel plate due to its age of the vessel was probably constructed of 1/8 inch Imperial steel plate. This was found to have been over plated with mild steel plate of 5 mm thickness along and below the waterline. It is a misconception by boat yards and brokers that all vessels that fall below 4 mm plate thickness should be fitted with a doubling plate along those areas.

However the fact of the matter is, a repair is only required if the parent thickness falls below 20% of the area within a single plate, at this point that section should be cropped and replaced with the same sized thickness of plate for example if the vessel is made of 3mm mild steel plate a suitable repair would be to fit a new close welded 3 mm mild steel plate which should be welded in to bring the vessel back to the original scantlings. The mild steel fitted should also be of ship building quality.

One final but very important point to remember is that many Dutch barges and similar steel vessel when converted to floating homes have the inside of the shell coated in sprayed plastic foam or a mixture of horse hair, goose fat and tar. Many of such foams and coatings are highly flammable and if set on fire can give off large volumes of highly toxic gases. Welding a doubling plate onto the side of such a vessel, therefore, poses a very high fire risk with possible resulting fatalities. **BEWARE!**

One way to overcome the fire risk is to close and seal all doors, windows, scuttles, ventilator and other opening and then to fill the sealed off space with carbon dioxide. The gas will kill any fire before it starts. It is, of course, necessary to make sure that, when the welding work is finished, the space is fully opened up and thoroughly fan ventilated to ensure that there is no CO₂ left inside the hull. Do **NOT** enter the hull until that has been carried out.





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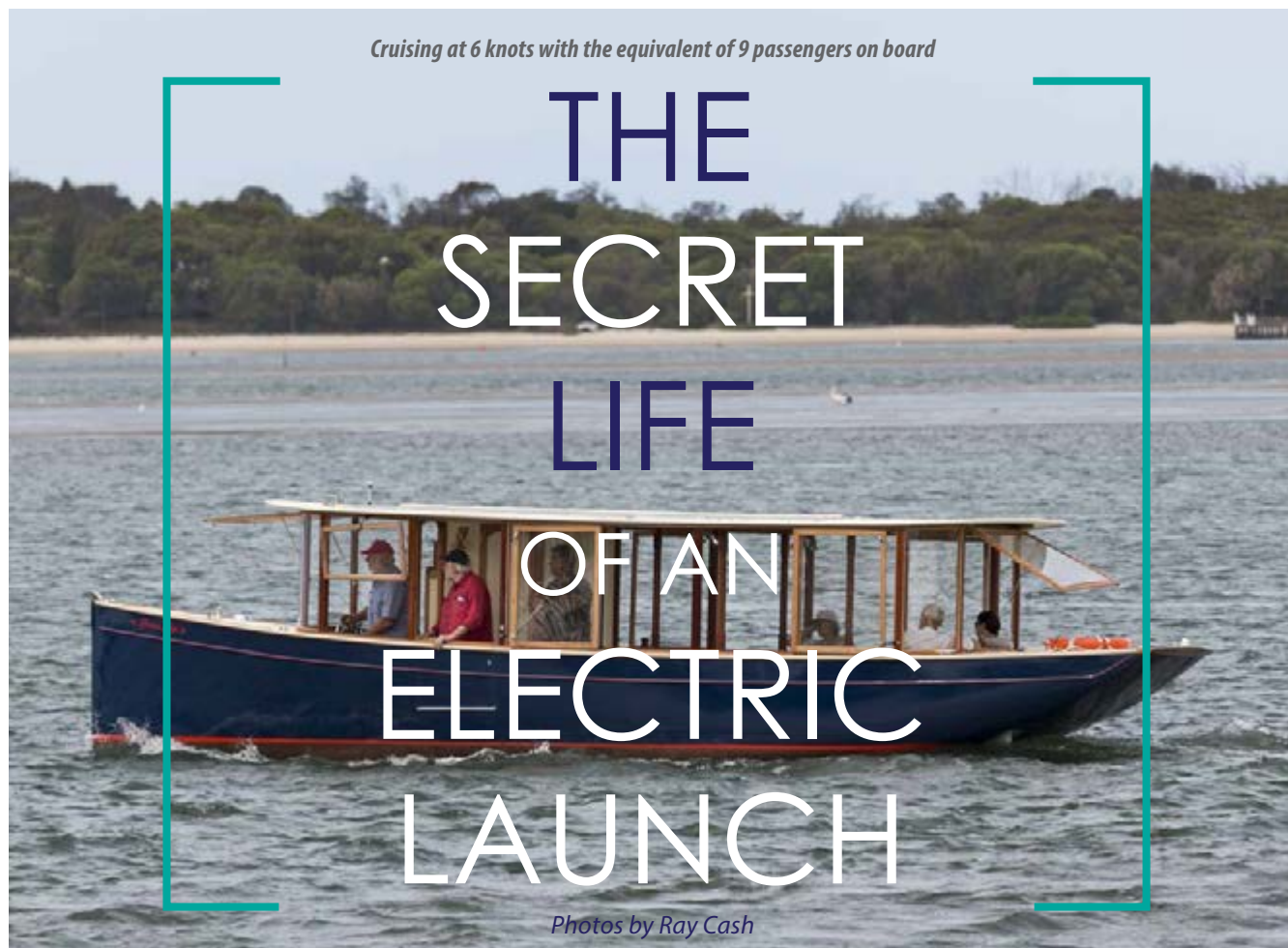


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Electric boats operate at a fraction of the cost of conventional fossil-fuel powered boats. They offer maximum torque through the whole rev range and ride in silence with no emissions. This means that marinas and waterways will be cleaner and quieter. No noise and no fumes from conventional engines to contend with. But are electric boats the thing of the future? Derek Ellard of Scruffie Marine, based in North Tamborine, Queensland, Australia thinks so and is involved in building them.



BY DEREK ELLARD

Reading this magazine for the first time, I was struck by the complexity of modern shipbuilding technology. For the 21st century marine surveyor it must surely be somewhat daunting and yet today's professional has a battery of modern electronic tools to help in his assessments.

As both a designer and boat builder, I am keenly aware of new materials and techniques but my heart is with those glorious maritime creations of a century ago. All very well you many say, but

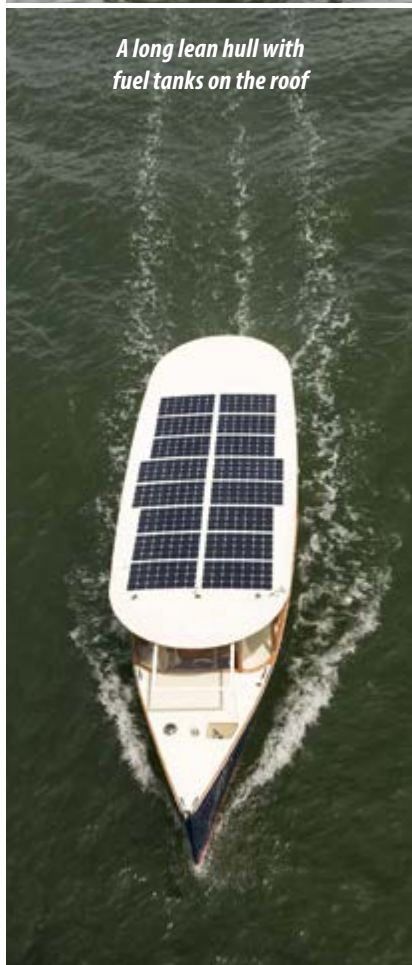
we can't live in the past and let's face it, today's vessels are infinitely more efficient and much safer. Yet there is a powerful yearning for an elegance, a gracefulness almost lost in 21st century boating. So our first production boat, launched over 25 years ago, was a modern take on a traditional Swallows and Amazons dinghy and our latest, the solar-electric Secret 33 SE continues the line – a boat from the Jazz Age with a lithium heart – a boat with a soul.

As a boy in the 1950s I learnt to sail on England's East Coast. I was thrilled to encounter sailing barges

and Essex smacks yet shocked to see first class racers rotting in the mud at West Mersea. But their DNA lives on in the new electric Secret. The demanding brief was for a stable 12-passenger shallow draft solar-electric tourist boat, low on maintenance, high on Edwardian aesthetics. Being a sailor at heart, I had already drawn up many variations in the "spirit of tradition" notably the Secret 20, a gaff cutter or shall we say, a "smackette." The new 33-footer, her bigger sister, was drawn as a yacht first, just as were many early 20th century motor boats. I reasoned that an



The author guns it



A long lean hull with fuel tanks on the roof

SECRET 33

solar
electric
launch

easily driven 33-footer would work very well with the limited power of electric propulsion. So I designed the new boat with the option of a deeper three-quarter length ballasted keel or skeg, generating two boats for the price of one hull mould – I get my racy gaffer and the client gets his electric launch.

I drew up a set of lines and as usual agonised over the coach roof height, sheer line, and counter stern. Finally the dining table was cleared for more pedestrian use and the drawings dispatched to my computer friendly colleague for subtle corrections and sundry calculations.

A long fine entry, flattish deadrise and that essential counter meant that the batteries and ballast could be kept well forward for good load bearing capacity. We later fitted a 200-litre water ballast tank aft to help keep her stern down when unladen.

With a beam of 2.5m and with a weight on the road trailer of 3.42 tonnes, the boat is trailerable and international shipping is viable with a flat-rack container.

During the design and development stage we made every effort to enhance stability and this process continued during the build – nearly a half tonne of lead shot and epoxy settled nicely in the bottom of the hull and a big AGM house battery plus eight chunky lithium batteries were all installed as low as possible. The upper works were kept as light as practical and windage kept to a minimum. The GRP hull was built in alternating layers of chopped strand mat and woven cloth with 4mm core-mat at the heart of the layup. From the turn of the bilge to the keel, the hull was 12mm thick, doubled where the interchangeable keels sit in their recesses forming a good strong backbone. The sides were a little more modest at 8mm. Plentiful 12mm marine ply bulkheads, both transverse and fore and aft, were well filleted and glassed in place with reinforcing to gunwales and seat stringers. Various structural items such as seat

sections and seat divisions were also glassed in to further strengthen the monocoque. We specified 12mm marine ply for the sole and used a tough durable vinyl coving from Japan on top. This fake teak flooring sounded awful but the samples were reassuringly robust and frankly didn't look too bad at all. Under the sole and in all available extremities we installed more closed-cell foam than was necessary. The decks were manufactured in foam-core glass to our specifications in order to ensure good structural integrity. Up on the roof we went lighter with more foam and less glass, all laid up in one continuous section with no joints. The roof laminate material was also used for horizontal bench tops and upright seat sections, all in matching cream gelcoat – we don't do white.

Here in Australia we are blessed with plentiful supplies of excellent boatbuilding timber which we used to advantage. The laminated beams and support posts were of Queensland Red Cedar (*toona ciliata*) once used for those glorious vintage Sydney Harbour skiffs. Silky Oak (*grevillea robusta*) was used extensively for the fit-out trim, being both durable and spectacularly beautiful. We also used spar grade Douglas Fir in the laminated deck beams and all structural timber was saturated with epoxy and preservative. The timber brightwork outside had six coats of the excellent Awlwood while satin varnish was used inside. We used UV-resistant high-density extruded PVC for the roof edging and rub rails for a good strength to weight ratio and excellent durability, the colour perfectly matched to the gelcoat.

For the glazing we opted for cast acrylic bedded in foam and silicone with four large side-opening plus two large top-hung windows fore and aft, the bow panel being of toughened glass. The thermo-formed fixed curved corner panes reduce wind resistance and add a touch of Art Deco. They also, unofficially, add a degree of stiffness to the upperworks.

Back inside, the bulkhead division panels, shelves, and so forth we built from 12mm foam-core PVC, again thermo-formed to suit. These sections were sprayed with 2-pack before bonding with slotted timber sections and modern miracle adhesive.

The goal was for a rot-proof structurally sound and aesthetically pleasing hull. We'd like to think we succeeded.

Successful solar-electric propulsion systems involve some judicious juggling of batteries, motors, hull forms and sunshine with a weather eye on speed and payload. So while high speed shenanigans off the Greenland coast are out, sensible displacement-speed cruising in sensible latitudes are easy to achieve.

Secret 33s weigh in at under 3 tonnes and with a full complement of passengers they'll hit over 4.0 knots when the 1.2kW solar input equals the draw on the batteries, that's allowing for losses in the power train too. So with a not too early start on a sunny day, lunch at a quayside restaurant and a light touch on the throttle, day-long free fuel is entirely feasible.

While the prototype and the second vessel were fitted with a brace of Torqeedo Cruise 4.0 outboards which we mounted on sliding pads, all subsequent models will feature the Finnish Oceanvolt 10kW sail drives. Among the advantages of this single motor installation, fitted forward of the rudder, is real time global monitoring. A small bow thruster will ensure safe manoeuvring.

The solar array comprises a bank of sixteen lightweight panels, each one raised with 9mm plastic spacers to keep the panel and the passengers cool. They feed the battery banks via voltage regulators and the built-in smart chargers top it all up via the mains, if necessary. For remote operations a small diesel charger can be incorporated and there's space for even more

lithium batteries for those who suffer from range anxiety. The batteries and chargers are located in a spacious locker forward with four inlet vents and a solar powered extractor on the foredeck.

With regards to usability, the skipper's needs are addressed with a step up on to the foredeck for anchoring and easy access to the mooring cleats without leaving the helm. He'll enjoy good all round vision thanks in part to those aforementioned rounded bulkheads. He'll love the instant torque of the brushless electric motors, the boat's easy motion, and the sprightly top speed of 7.7 knots.

Passenger feedback is uniformly positive so far:

"I closed my eyes and I was on a sailing boat," said one; "The only sound was the happy chuckle of the water," said another. While one passenger said, "Very comfortable, nice and stable, and surprisingly fast!"

While we are a minor player in the world of electric boating, we have worked hard to create a viable electric ferry that doesn't look like an aluminium rocket ship in a sci-fi movie.

The Secret 33s are all custom built so a big variety of fit-out options are there for all occasions, except the Greenland water skiing championships of course!

Now for that Secret 33 gaff yawl...

About Scruffie Marine

Scruffie Marine offers unique kit sailing boats, custom built timber boats, ready to sail fibreglass boats, and elegant solar-electric boats. They have been in production for over 25 years, designed in-house and built with care. They are beautifully styled in the spirit of tradition!

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SECRET 33

an
elegant
ferry or
family
boat



Life in the sub tropics



Some of the builder's timber indulgences

AN EXPERT IN MARINE SURVEYING?

BAH!
BUT WHERE WERE
THE SURVEYORS?

Lee Wartlier MIIMS,
a Director of Sterling
Global Marine Limited,
reflects wistfully on a
'tough day in court'
having attended
the annual 2016
Bond Solon Expert
Witness Conference.



BY **LEE WARTLIER**

Friday 4th November 2016 marked a rare occasion for some as it was the largest gathering of registered Expert Witnesses in the UK to date. Should we attend? Our contemplation was clouded by the idea that yet again we would sit in a stuffy room with a bunch of 'old boys', most of whom were medics of some description and the focus of the day would be the lunch. Well it worked for us; and the lunch of slow braised beef cheek was exceptional too by the way.

Church House within the confines of the Palace of Westminster, London, was our home for the day and the main auditorium our base. This marvellous studio took a direct hit during a bombing raid of the Second World War, its immense structure withstanding the attack and so for the remainder of the war it became the home of both houses of parliament. We sipped tea (china cups and all!) in the same room that Sir Winston Churchill announced to the world the sinking of the German battleship Bismarck. It made you feel privileged to be there and certainly I'd consider the location fitting for the intended conference.

In short summary, the 2016 Annual Bond Solon Expert Witness Conference was excellent. Joining leading expert witnesses working in civil, criminal and family law allowed for a huge wealth of experience and expertise to be available and whilst originally anticipating the usual dribble of law and what we can and cannot do (and that which we must) I was swiftly taken aback at the immense relevance of the subject matter of the day to my current work. Starting with a keynote address from Lord Justice Fulford (the senior presiding judge for England and Wales) which gave a very topical introduction to the common issues faced by the courts today regarding the handling of expert testimony. We were then entertained by the hilarious Mr Clive Stafford Smith from across the pond in the USA. Mr Smith, a human rights lawyer, focused on the case of Dr Waney Squire and questioned the validity of some of our most relied-on legal processes. He has fought hard for his clients against 'expert processes' such as hair analysis and his research has unveiled massive flaws in such processes leading us to question if expert evidence is really as solid as everyone thinks. Several short seminars followed focused on key updates to the Civil Procedure Rules (CPR) which for some might cast a shadow of dread if you have not been keeping up with such things; the advent of digital

technology for expert evidence and now testimony which then led to a rather healthy debate across the floor. The afternoon for us civil guys, having been separated from the large group of medical experts (who seem to be getting younger) and the family crew (even younger) considered the impact of our most favourite subject this year; Brexit and this has greater relevance than you might think! The day was rounded up by Senior Costs Judge Gordon Staker breaking down the basics of cost control and focus, particularly regarding expert fees and their relevance.

Okay. So; this year's conference focused on changes in the law, technological implications and the impact of Brexit. An all-round success across the board. Totally relevant for all industries however there was just one problem; no marine surveyors were present. I kid you not - none. Other than a field specialist in Dynamic Positioning I was the only 'marine



NO MARINE SURVEYORS WERE PRESENT

surveyor' in attendance. Dwarfed by the crowds of architects, quantity surveyors, RICS candidates, psychiatrists, accountant's legal beavers and medics covering a variety of fields I felt rather unloved. On several occasions, I was asked about my trade and specialisation; all good questions of course but there was a base line to this which was the stereotypical idea that marine surveyors are cross trade enthusiasts without qualification. Many times in conversation when describing what I do for a living I was asked the question "What qualification do you have?" and heard the phrase from another "Anyone can be a surveyor." I'm lucky. Having spent much of my short life to date on the water, I've got a degree in a parallel relevant subject, obtained sea time on yachts and with the Navy and have since partaken in the Diploma schemes founded to remove this type of stigma. My training however, will never be over. My field of expertise rests with 'expert valuation' having completed over 100 this year to date with several in arbitration at present. This is in addition to high value logistics (specifically the handling and securing of high value cargoes) an area in which I have worked and studied for more than ten years. Explaining these basic facts to my peers at the conference won me some points and by the end of the day you could say I was one of them but nonetheless always feeling slightly like a guest amongst others.

My situation was worsened slightly when the advent of expert fees was discussed in the afternoon. A little unsure of where the data came from Bond Solon produced a spreadsheet to all delegates giving a breakdown of expert's fees including hourly rates, report production costs and court appearance costs etc. (apparently from survey data). I was slightly dismayed to see that on all levels the marine surveyor was listed as the lowest in all fields. Whilst I expect barristers, solicitors, consultants and superhero grade medics to hold a higher status

in terms of chargeable income I thought the marine surveyor would sit slightly higher than tree surgeons and driving instructors; perhaps on a level par with quantity or building surveyors but alas no. We are at the bottom of the pile. This raises the question of where did this information come from; is it entirely accurate and who out there is charging just £60 per hour for expert witness testimony? Not only should we be looking at the standardisation of qualification within our industry but I think it is about time we started looking at standardising fees also. The difference in fee structure throughout our own membership at the IIMS is huge; often when working quayside you may have two or three surveyors on site representing different parties all of which charge hugely different sums for what is effectively the same work – is this fair, or indeed correct?

Having heard our CEOs Seawork speech regarding the requirement to raise professionalism within our industry I've always been rather sceptical about such subjects; however, being placed in a room full of internationally accredited experts opens one's eyes to the opinion of our field and knowing that there are several marine surveyors working as expert witnesses, though none were present at such a gathering, nor to my knowledge hold membership to any of the associations relevant. I think it is perfectly understandable where the negative opinion is sought and I would welcome discussion from any of our membership who work in the expert witness field on how they maintain their standards of association with some of the legal institutes. Working with the administration office I am hopeful we may see a return in representation of these groups at future conferences, so watch out. I personally am an active member of the activities with both Bond Solon as a training academy but also the Academy of Experts which give unrivalled support to their membership. Check them out!

IS THE REPUTATION OF THE MARINE SURVEYOR SOMEWHAT TARNISHED?



Moving forward I think the reputation of the marine surveyor is somewhat tarnished in the eyes of parallel industries and the IIMS is working toward the correction of this. There is lots to do on both a fee and professional training sense. The expert witness world is one where one poor performance can end your career at an instance. There are several examples which can be given which include i) Allen Todd Architecture Ltd V Capita Property & Infrastructure Ltd (2016) EWHC2171 where the confidence was lost in the appointed expert due to the delays and lack of communication; the claimant sought to change experts mid trial. Another example is provided in ii)

Arroyo & others V Equion Energia Ltd (2016) EHC 1699 where a class action was brought about in which the experts were criticised for making assumptions and trying to bolster the claimants case. There are several examples which show how fragile your reputation can be and the simple transition from marine surveyor into an expert witness is not as easy of some might think.

It would be interesting to complete an assessment of our membership to find out who our experts are and what qualifies them to be as such. I would pose the following questions to our would-be experts:

1. When did you last receive an update to the Civil Procedure Rules (specifically part 35 which relates to the appointment of expert witnesses)?
2. Is your knowledge of the requirements of the CPR and relevant parts enough to guide you through the process should you receive an appointment?
3. When was the last time you received training in courtroom skills and perception?
4. Do you know how to write an expert witness report, its legally required content and the formatting necessities required?

I would welcome any 'experts' within our membership that are keen to collaborate on the issues raised to contact me...
email: lee@sgsurvey.com

Key references:

- Bond Solon 2016 Expert Witness Conference literature.
- Key note speech of Lord Justice Fulford.
- Speech of Senior Costs Judge Gordon Staker.
- Allen Todd Architecture Ltd V Capita Property & Infrastructure Ltd (2016) EWHC2171.
- Arroyo & others V Equion Energia Ltd (2016) EHC 1699.

The ISM designated person ashore: what a job!



BY CAPT. BERTRAND APPERRY

CLC – FIIMS – ISM SURVEYOR & CONSULTANT

Being aware of the continued misinterpretation of some parts of the ISM code, I started to review my specific article on the subject issued 13 years ago. It is a pity to see the errors still appearing in the numerous SMS (Safety Management System) I encounter during my assignments as an ISM specialist. The present reviewed study takes into account the circular MSC-MEPC.7/Circ.8, which was specifically issued to clarify some points like the present one.

NB I gave up to discuss with certification RO which are still accepting such stupid mistakes as “the CEO can be the DPA and vice versa”

Called “IDP, DP, DPA” or another “PD”, this key person of the ISM code has badly run some ink already, but I would like to make here an exhaustive assessment of this problem... because it is a real problem is is not?

01 Warning

The ISM Code presents some requirements, which must be regarded as a minimum and the base; any additional requirement can come only from the flag or Port State, the company itself or the ship.

Reference: ISM Code § 4 DESIGNATED PERSON(S)

*To ensure the safe operation of each ship and to **provide a link between the Company and those on board, every Company, as appropriate, should designate a person or persons ashore having direct access to the highest level of management. The responsibility and authority of the designated person or persons should include monitoring the safety and pollution prevention aspects of the operation of each ship and ensuring that adequate resources and shore-based support are applied, as required.***

02 History

The idea of a code for management was in the spirit of the maritime industry since the middle of the Eighties, however the concept of the Designated Person Ashore appeared only after the accident of HOFE (HERALD OF FREE ENTERPRISE) on 6.3.87 at the exit of ZEEBRUGHE HARBOUR causing the

loss of 188 human lives.

Deeply shocked by this accident, the British “invented” the Designated Person.

He acts, in addition to the normal staff of a traditional shipping company, to have one or more persons especially designated to ensure a **reliable connection between the management and the seafarers and to supervise the operations of their ships as well as to ensure that adequate resources and support to the ship and her crew are provided.**

Why?

Remember, the Management of Townsend-Thoresen was recognized guilty of failure in the management of safety of its ferries and it was estimated that a person particularly designated to deal with the problems of safety in the company was missing. This failure was regarded as one of the causes of the accident. This was perhaps the case in this company, but in the majority of the other shipping companies, a marine superintendent – with assistants for large companies – was traditionally the “Safety

Officer" in charge of all the problems of safety of ships and operations.

The General Management of TOWNSEND THORESEN reorganized its management structure after the trial and named an Operation Manager having a marine qualification... Apparently, they did not understand completely the recommendations of Lord SHEEN!

Really pragmatic, the British Administration was going further, indeed since 1988, they required for their companies, the designation of a person to ensure the communication and "to supervise" the operations of ships: this is already about a "controller" rather than of a person in charge of safety who was traditionally in charge of the application of the international safety requirements (SOLAS, LL, STCW, MARPOL, COLREG or ILO) in the company and on board ships.

This concept of Designated Person Ashore presented by the British Delegation had problems to enter in the successive resolutions of IMO on the management of safety; once again it is a dramatic accident, the fire on board "SCANDINAVIAN STAR" in April 90 resulting in 158 dead, which has boosted the Resolution A 680 in 1991 and then the famous Resolution A 741 in 1993 which is the official birth of the ISM Code such as we know it.

The concept of the Designated Person Ashore was maintained by the British Delegation and thus

finally ratified in its current form by the working group on the ISM (human element WG) then by the MSC and finally by the 17th Assembly of IMO in 93.

03 Study of the text of the code

Though written in a strange manner, the text is quite clear: the responsibilities and the minimum authority of the DPA (Designated Person Ashore) are found hereafter (NB the text has not been amended since the beginning!)

- **Provide a link between the Company and those on board, ... a person ashore having direct access to the highest level of management.**

By highest management we include the decision level in particular at the financial level and when we speak about those on board we think of all the crew members because if not, the code would have said the ship or the Master.

This lack of communication was clarified by the court in the accident of HOFE and specifies in its "attendus": "the need for... maintenance of proper channels of communication between Ship and Shore for the receipt and dissemination of information"

- **The responsibility and authority of the designated person or persons should include monitoring the safety and pollution prevention aspects of the operation of each ship (which we will call monitoring task N°1):**

Often forgotten, this responsibility of the Designated Person is not simple to ensure. Indeed, how, from

shore, can the operations of each ship's safety and environmental protection be supervised?

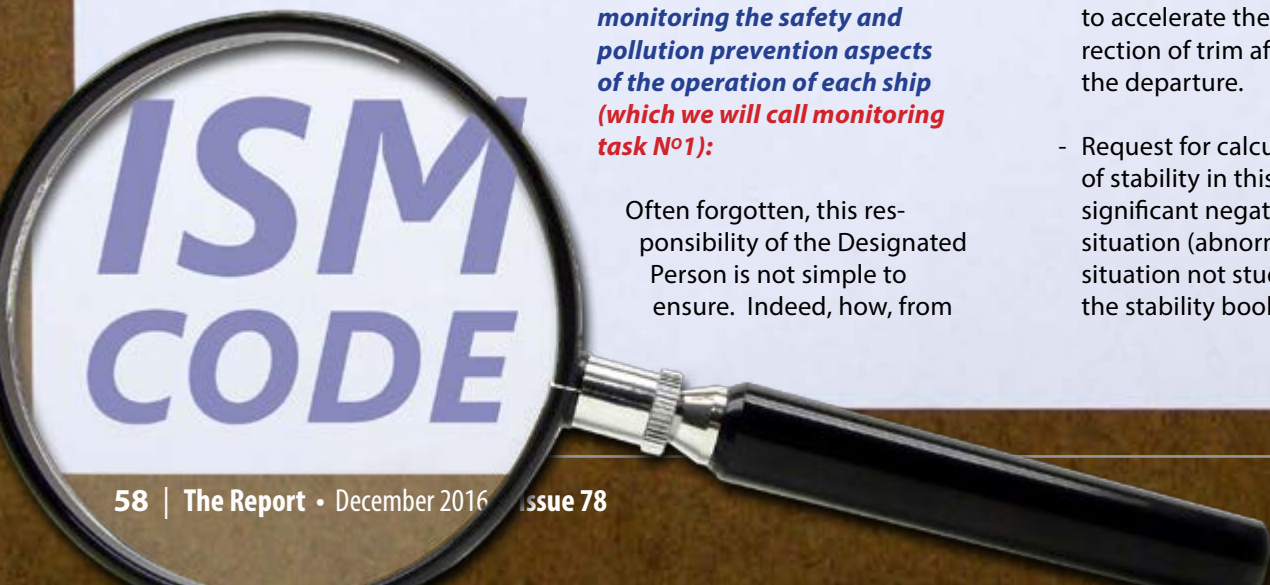
Bad habits taken by the crews of TOWNSEND THORESEN (several ships were concerned) to leave the port with ship's doors open and/or with a negative trim of almost 1m, would have perhaps been abandoned if a person, charged to supervise the operations, had informed the highest level of the management of these bad habits ... who then could have modified the ships' schedules accordingly.

- **Ensuring that adequate resources and shore-based support are applied, as required. (called monitoring task N°2):**

The requests of the HOFE's Captains (and others Masters) who had taken their responsibility in these bad practices with unique commercial aim (departure "before" the time, arrival "on time", "maximum" of passengers or freight) were not granted but did not receive any answer ... not even a verbal refusal!

Remember, they asked for:

- Warning lamps for the opening of the front doors (doors were invisible from the bridge), request which amused the "directors" really... they acknowledge in front of the court!
- Replacement of the ballast pump by a more powerful one to accelerate the correction of trim after the departure.
- Request for calculation of stability in this significant negative trim situation (abnormal situation not studied in the stability booklet!)



ISM CODE

These captains' requests were thus blocked at the Company operations level by one or more of the non-competent persons in the fields concerned.

A qualified person ashore having these competences and seeing these requests could have intervened and at least ensured an answer to the Masters.

NB The legal implications of the responsibilities for the designated person appeared very quickly in the industry and the opinions or studies are published since 1996.

04 What is this job finally?

4.1 Connection task

This connection is significant, universally understood and applied: it is a question of ensuring a reliable communication between the highest management level and the persons on board each ship.

Connections between the Captains and the top management generally exist. For smaller companies, the problem does not arise (the General Manager is always close to his ships which are sometimes his own assets), for others ... perhaps, though today a Captain always can, via mail or e mail or mobile phone, contact directly the General manager". So, we do not need a Designated Person for that: **that is a common answer!**

Traditionally the other officers on board have frequent connections with the persons in charge ashore (the Chief Engineer with the Technical Superintendent, the Chief Officer with the Safety Officer, the Purser with the Head of Catering department etc.).

The other crewmembers have means of communication with the Marine Superintendent or the Management ashore via their heads of department, their representatives on board (trade-union or safety representative, safety committee etc.) when they exist.

So, why do they need another communication method?

It is of course about another communication method, which could be used, ***if the traditional ways mentioned above, would not work!***

The causes can be multiple:

- Dysfunction at the intermediate level (case of the HOFE)
- Dysfunction at the Captain's level: not taken into account or personal implication of the Captain (case of the COSTA CONCORDIA)
- Dysfunction at the level of the head of department (not taken into account or oversight)
- Quite simply, at the level of the crew members, timidity or fear of reactions of close or immediate management: existing culture in to day multi-national crews (Case of the BOW MARINER)

It is to compensate this type of dysfunction and to create a communication method, which will work every time: **the ISM way!**

So, the ISM way is a parallel way, used when the normal or traditional ways do not work: it is a sort of by-pass!

This supplementary communication way:

- Applied in the case of the HOFE, the accident would certainly have been avoided: via the designated person the captains reaches the CEO (Chief Executive Officer) who, knowing very well his own responsibilities when he is informed, will hasten to find the solution because the obligation of "due diligence" which is of primary importance for the insurer and the court!
- Applied to other cases (COSTA CONCORDIA or BOW MARINER) where the behaviour of the Master or officers did not correspond to their responsibilities (in front of daily crew's assessment), this connection would perhaps have avoided some dramas (recent spectacular groundings, former dramatic jettison of stowaways)
- Etc.

This interpretation is well accepted with the crews by however training or adequate information in order to avoid some mistakes as: ISM way used to claim or settle a score!

NB This way is to be used with intelligence of course and the DPA must be capable to try to regulate the problem at the operational level before going to strike at the "big boss" level. Today the DPA has his own budget and the possibility to order within a certain budget fixed by the finance management (this joined the monitoring N°2, see next).

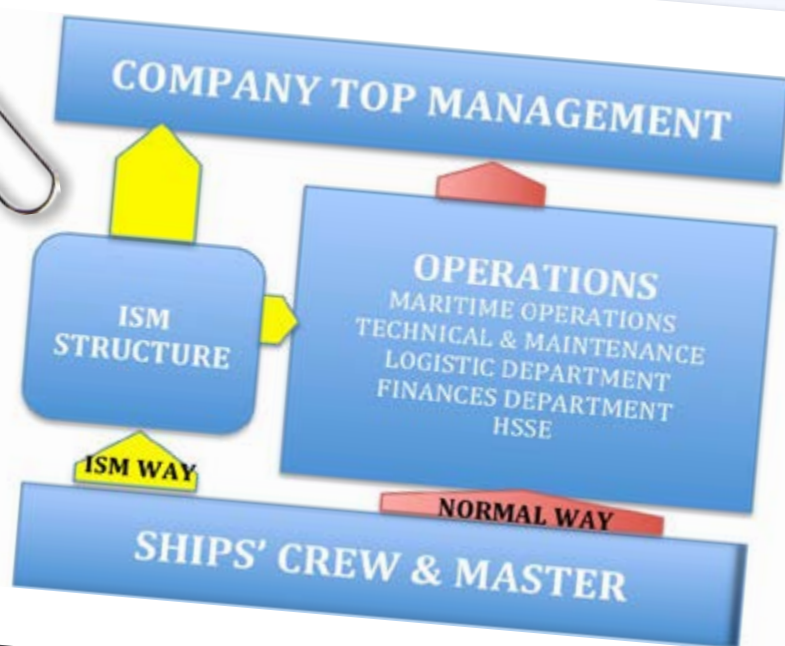


Figure 1:
Elementary flow chart of the ISM communication way

Consequently, the Safety Management System (SMS) of the company must envisage the operation of this connection:

- Reality of the possibility for the designated person to contact the CEO for a problem which can not be solved at the operational level
- Proof of evidence of transmission (email/recording/letter)
- The name and the role of DPA are known of all persons on board; moreover small posters on the bridge and in crew accommodations give all directions
- The designated person (or her substitute) can be contacted 24/7 mainly by telephone or email.

The SMS will not forget to specify the responsibilities for DPA in this transmission.

In the event of accident the court, looking for the cause, will seek who did not ensure "due diligence". The responsibility of the designated person could be required if by misfortune, he did not transmit to the head of company significant information concerning to a possible cause of accident, as it is his duty according to the ISM Code.

Often, to frighten a little, the designated person who had not seen these possible consequences of his acts, I speak of the maximum sentencing they risk in the event of judgement in the United Kingdom (£5,000 and/or 2 years)... and more in USA ... hard!

4.2 Monitoring N°1

It is materially impossible to ensure the monitoring of safety of the operations of each ship without having on each ship a person to do it!

Many authors have failed by proposing many solutions... except the good one!

Indeed, the DPA can ensure part of this monitoring via visits/ inspections on board during calls or trips, the follow-up of shipboard recordings as safety drills reports, familiarisation recordings, maintenance and periodic tests of all ship's equipment, safety and training meetings, orders for repairs or spare parts, captains reviews and of course the internal audits ... but it is only a control *a fortiori*!

Indeed, nothing is better than control on the spot, during the operations!

So do we need a representative of the designated person on board, a controller in situ in charge of supervising... the work of the others?

It is surprising that only a few persons, to my knowledge, have seen that the code itself had envisaged the solution: remember, the responsibilities of the Captain include that he must "verify that specified requirements are observed" (ISM Code § 5.1.4) i.e. he must supervise:

- that all ship's operations, all activities are carried out as they should be,
- that the ship must be in a state such as it has been envisaged by rules and regulations andthe SMS!
- etc.

...the Captain is thus the natural representative of the designated person on board !

These tasks of continuous monitoring and especially of remote monitoring for the DPA require obviously an excellent knowledge of the operations to be supervised.

The relations between the DPA and the Captain are thus privileged relations corresponding to the § 4 of the ISM Code

4.3 Monitoring N°2

This task includes the insurance that adequate resources and shore-based support are applied.

It is about the demands of the ship in a form of orders, work request, urgent or not, to be planned for the next dry-dock refit, replacement of officers or rating etc...

But even with ISM well trained crews, sometimes the limit between general claims and demands linked with safety is unfortunately not clear. Demands are often presented with an emphasis on safety in order to stress the demand. For example to reconsider the risk of fatigue, the manning crew level is considered as a possible cause of accident despite the validity of the safe manning certificate!

We do not forget the usual claims for money or holidays coming from all seafarers around the world!

The DPA will have to intervene for routine orders when the cost is high. The reasons of refusal are always the same: budget, high consumption, too expensive and so on... remember, a new transfer ballast pump for the HOFE was too expensive!

Then, the action of the DPA in addition of **control** includes a **moderation task** (the demands can be exaggerated (all seafarers always ask for more in order to get enough) mixed with a **mediation** in case of dispute about cost, delays and so on... especially when the safety of the ship or the marine environment can be in jeopardy.

Practically speaking, to allow the DPA to ensure this task of support,

he must be aware of the flow of communications between ship and shore managers to help him to intervene if necessary. Today, with electronic communications via intranet or internet, it is easy to put the DPA in copy of all mails concerning the shipmaster's demand and the final decision, the works ordered to the shipyard and the works effectively carried out for example.

Another method can be to **wait for claims** from the demanding people in case of refusal by their department. This way should be normally refused due to always the same reason: the crew sometimes prefer to abandon their demand because of a certain timidity or different culture as seen before and for this reason the link is really not guaranteed. As an alternative, this way can take the "reporting way" as exposed in the § 9 of the ISM code. The refusal is there considered as non-conformity and follows the process to reach the highest level. Sorry this way of reporting has not been designed for that; so if this way is common in the company, the DPA way is not working properly and the auditor should declare as a non conform management system. Unfortunately this system is quite frequent and I am used to losing my temper many times when trying to explain.

In conclusion, the DPA will not be able to ensure that the company brings its adequate support to the ship, **only being aware** about the needs expressed by the ship/crew and the conditions of these requests.

So, the DPA must be on the circuit of the ship's requests about safety and prevention of pollution in normal conditions (stores or demand of repairs or technical refit and the repairs effectively carried out or not) or in emergency (specific Captain's requests to help him to manage the situation). So the DPA must be in the crisis cell to see and ensure the Master's needs to deal with the emergency.

The DPA, and this is linked to our § 4.1 above, often has the possibility to answer requests refused by another budget but, at a certainly lower financial level (the management is there for removing a pain in his neck because he doesn't want to see their officers squabbling and thus avoids arguments for often ridiculous amounts).

In conclusion, our study of the § 4 of the ISM code lays down a DPA well apart from the normal operational circuit of a shipping company; so much apart that nothing prevents the DPA not being an executive of the company. The designated person can come, for example, from the head office, from another part of the group or from a specialized sub-contracting company. Numbers of small companies see in this solution the response to their problems and sometimes I see plans to share the same designated person between a few small companies!

All that is theory... see now what is the real practise!

05 Inventory of fixtures today:

In real terms, the job of the DPA is not always the same according to the companies and their safety culture, and all companies do not have the means "of having" such a qualified person in charge of supervising the operations of the ships everywhere around the world and who will be necessarily "expensive".

Indeed, I encounter DPA really apart of the operational management only in "rich" companies" or those of a certain size.

In the others it is one of the executive officer, already in place who ensures this role. When it is about a person not having responsibilities in the operations, maintenance or safety in general, **is acceptable**. But when the **director of the fleet, already responsible for safety, takes the role of the ISM designated person, it is not acceptable**.

We will study the 3 solutions, one after the other.

First case: the DPA is the Safety Officer, the fleet or marine superintendent or his assistant. **The connection task** with the persons on board was traditionally provided by him and ensured with the entire crew. It was sometimes in a form of paternalism, sometimes the Marine superintendent "passed" by the galley or the kitchen before going to see the Captain with the intention of getting information from the field or "gangway gossip". Information or demand, which would not have passed the Captain's office, can thus theoretically go through this superintendent passage on board! Very strange! Easier said from done!

And especially it is not immediate; but a letter (or e mail now) directly to the Superintendent is of course also possible in this case. Except perhaps a letter or mail sent directly to the marine superintendent which is the traditional method. In addition the fleet or marine superintendent is normally a person who has a direct access to the higher level of the company management. **So we see that the connection task required by the ISM Code is ensured.**

The monitoring task N°1

i.e. the monitoring of the safety aspects of ships' operations is theoretically possible via the inspections of the Captain himself, other inspections and audits which would be carried out by the Safety Officer or its representatives. That is not new either, you have known like me, these "just retired Captain-inspectors" who accomplished sometimes an entire trip on board and then submitted their reports to the CEO.

So, in theory, the requirement of monitoring task N°1 is also satisfied.

The monitoring task N°2

i.e. "monitoring that adequate resources and a support is given to the ship" does not make here much sense except for a request directed towards the engineering

department which can be totally independent of the traditional Marine Department. Indeed the marine superintendent or Safety officer cannot control or monitor himself; to receive a request of which he has the decision and... to make sure that it will be satisfied if it is necessary! **Judge and jury**, two caps on only one head: it is impossible!

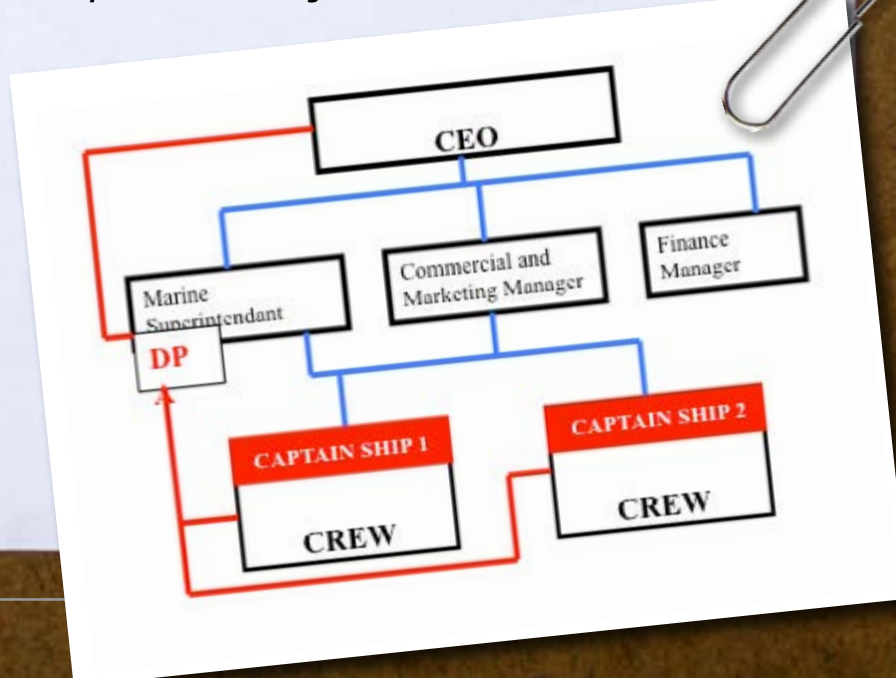
So this requirement of monitoring is not satisfied in this case.

Finally this solution does not seem in conformity because a requirement of the code cannot be satisfied and we are thus in major nonconformity (definition ISM Code, 2002 ed, § 1.1.10).

In this case also, the role of DPA is not easy because there can be contradiction or opposition between a limited budget and a request of a Master which cannot wait. For a DPA/Superintendent, motivated and convinced of the utility of the ISM Code, such an obstacle could be raised only at the "higher level" with perhaps the effort of persuasion as you can imagine. Not really in conformity and not easy to run, especially for a motivated DPA.

From responsibility also the situation is sensitive (see above)

Figure 2: Example of first case diagram



Second case: The designated person is a manager who does not have already any responsibilities in the ship's operations, safety or maintenance: for example the financial or marketing or human resources or research and development manager or, better, the quality manager!

The General Manager or the President specified when he nominated this DPA, that he had a direct link with him and that he could, and even had to contact him constantly when it was necessary.

In this case, it is easier to ensure a reliable link between the personnel on board and the upper management level of the company, to ensure the monitoring of ship's operations for safety and prevention of pollution with the assistance of the Masters, as we have seen above and finally to check that if a support is provided to the captain, he can ensure his task and his responsibilities at all time and not only in emergency.

In this case, the three minimum requirements are satisfied.

Then, we can entrust the management of the Company's SMS to the DPA, whereas the code did not envisage it at all but the 2013 MSC-MEPC circulars have clarified this point.

A well made SMS, envisages about all the ship's life and the "SMS Manager" should be able with the help of the Captains and all the instruments of the ISM code, "to supervise" or to monitor the operations of each ship in connection with safety and environmental protection.

The organization above is satisfactory concerning the conformity with the ISM Code but there is a doubt about the ISM technical skill except if the Company asks for external advice or provides complementary training as required by IMO (MSC-MEPC.7/Cir.6 of October 2007).

NB: In the above cases, even for a small company the ISM structure is at its limits: external auditors have their doubts with good reason. It is not easy to prove that the system can really work. Indeed the workload for the person in charge with two caps is often too heavy! However, these companies often choose to use specialized consultants particularly to help them for one of the most significant parts of the internal verification of conformity or operation: the internal audits.

Sometimes also, these small companies, which belong to a

great group, call the corporate HSE department of the group to ensure certain tasks related to the SMS:

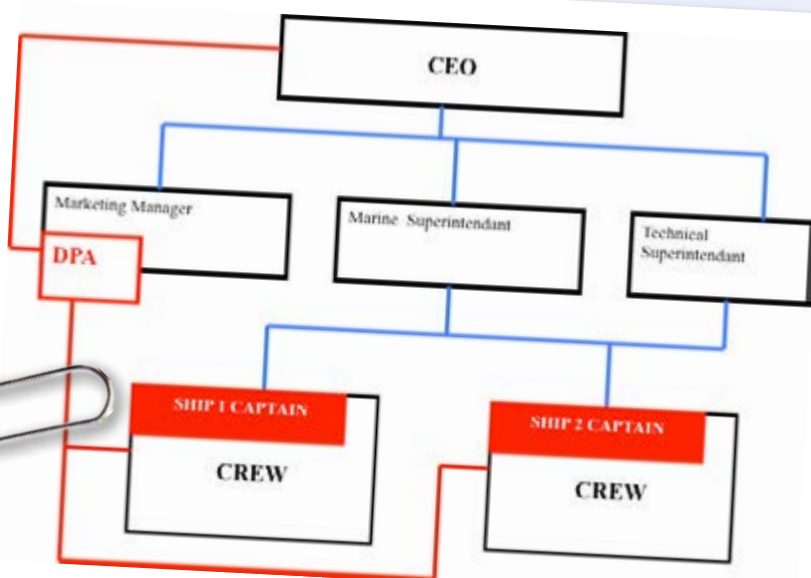
- Hygiene/Safety/Environment Inspections and audits
- Accidents or near-misses analysis
- Edition and control of SMS documentation
- Internal audits, etc.

Third case: The application of the ISM code led important companies to create an ISM structure with staff, office and budget.

This structure ensures the total management of the SMS including:

- Communication between crews and the general manager
- Communication with the Masters for monitoring
- Verification if resources have been provided by the company following the demands
- Ensure moderation when some demands are exaggerated
- Ensure mediation when the refusal of a demand can set the operation of the ship in jeopardy in matter of safety and security
- Control of effectiveness and evolution of the SMS
- Edition, corrections, revisions of SMS documents
- Inspections and internal audits
- Follow-up of nonconformities or other observations
- Analyzes of the Captains' reviews
- Analyzes of accidents and near misses.
- Preparation of the Management review
- Organization of ISM Training on board or ashore

Figure: Second case flow chart (example)





- Organization of conferences or training courses identified as necessary
- Regulation watch-over including the analysis of amendments and the transmission of all information to the ships
- The information of the company on improvements stated
- Recording of DPA's activities and follow up & so on...

In this case, all the requirements of the code for the designated person are satisfied in addition to the requirements with the § ISM 9, § 11 and mainly the §12.

In addition, the recommendations of the associated circular are covered. So we can go with the ideal diagram shown above.

This correct structure is the best undoubtedly for conformity with the ISM code and the associated circulars.

06 In conclusion

Only the third solution is satisfactory if we compare to the text of the Code and the associated circulars. It is the only satisfactory solution for the certifier, the company and... for the designated person himself! But it is a long day from theory to reality! The problem of the designated person does not seem to be highlighted:

- we sometimes wonder if many of the external auditors have actually read the code before coming! They use only their check list!
- with certain companies who interpret the code in their own manner; guess why?

Even with the ERIKA trial as well as the COSTA CONCORDIA one, this problem was not highlighted and not solved unfortunately!

07 Perhaps we could try to solve this problem of interpretation?

In an aim of clarification, very frequent at IMO, we could propose the following minor amendements :

Amendement N° 1

§ 1.4 Functional requirements for a safety management system
add a sub paragraph ...
.3 Create a designated person structure to ensure:

- a link between the company high level and those on board,
- the monitoring of the safety and pollution aspects of company's ship operations
- adequate resources and shore-based support to ships are provided as required

...this is really missing when companies can forget to nominate a DPA?

Amendement N° 2 : to complete the § 4 Designated Person(s)

Modify the last sentence:

... and ensuring that adequate resources an shore-based support are applied for ships as required »
This to avoid the confusion with the requirement of support and resources set up in §3.3 for the (DPA and the same requirement for the company's ships in §4

And to add in fine :

« ... the Designated person(s) should be independant of the company's operational departments » or something similar.
NB : this is already the case for the internal auditors (see ISM 12.5)

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GOLDEN°GL°BE°RACE

Photo credit: © TimBisMedia/PPL *** 2018 Golden Globe Race

The type of non-digital equipment GGR entrants will carry aboard - traditional Walker speed log and a Nikonon waterproof 35mm film camera. Items that were not available to Sir Robin Knox-Johnston during his record setting solo circumnavigation back in 1968 are banned. That includes GPS, satellite phones, iPods, electronic sailing instruments and digital cameras.

BY **BARRY PICKTHALL**
2018 GOLDEN GLOBE RACE MEDIA CO-ORDINATOR

The Golden Globe Race 2018. Great opportunity for surveyors across the world to get involved

The International Institute of Marine Surveying (IIMS) has developed a survey programme for yachts being prepared for the 2018 Golden Globe Race yachts to provide insurers across the world with common survey reports.



The 30,000 mile round the world race is being staged to commemorate the 50th anniversary of the original *Sunday Times* Golden Globe Race back in 1968/9 which led to Sir Robin Knox-Johnston becoming the first man to sail solo non-stop around the world.

Like the original *Sunday Times* event, the 2018 Golden Globe Race is very simple. Depart a UK South Coast port on June 16th 2018 and sail solo, non-stop around the world, via the five Great Capes and return. Entrants are limited to use the same type of yachts and equipment that were available to Robin Knox-Johnston in that first

race. That means sailing without modern technology or benefit of satellite based navigation aids. Competitors must sail in production boats between 32ft and 36ft overall (9.75 – 10.97m) designed prior to 1988 and having a full-length keel with rudder attached to their trailing edge. These are all well proven production boats, heavily built, strong, sturdy and similar in concept to Robin's famous 32ft Colin Archer styled *Suhaili*. A few skippers are contemplating new builds, but the vast majority have elected to go with pre-owned boats and to give them a complete refit or refurbishment – hence the need for common survey reports.

One insurance company with close historical ties to the original Golden Globe Race and Sir Robin Knox-Johnston is MS Amlin having provided marine insurance under the brand name Haven Knox-Johnston for 30 years. Ric De Cristofano, MS Amlin's lead underwriter explains: "We are very pleased that the IIMS has stepped in to standardise survey results for these boats which are currently spread across the world. Their surveyors will be able to monitor these refits and we as insurers will have the assurance from their reports that the yachts are fully prepared for sailing solo around the globe."

PHOTO ABOVE

A GGR chart showing the journey each competitor must take around the globe.

PHOTO RIGHT

The original sign and logo advertising the 1968/9 *Sunday Times* Round the World Race.



Mike Schwarz, CEO of IIMS adds, "We are very proud to be associated with the 2018 Golden Globe Race. The IIMS has more than 400 professional small boat surveyors registered around the world who will be working to provide comparable reports for these yachts and make it much easier for insurers to assess the risks involved."



In contrast to the current professional world of elite ocean racing, The 2018 Golden Globe Race travels back to a time known as the 'Golden Age' of solo sailing. *Suhaili* was heavily built of teak and carried no computers, GPS, satellite phone nor water-maker, and Robin completed the challenge with no outside assistance or aid of modern day shore-based weather routing advice. He had only a wind-up chronometer and a barograph to face the world alone, and caught rainwater to survive. But he was at one with the ocean, able to contemplate and absorb all that this epic voyage had to offer.

This anniversary edition of the Golden Globe Race is a celebration of the original event, the winner, his boat and that significant world-first achievement. Competitors in this race will be sailing simple boats using basic equipment to guarantee a satisfying and personal experience. The challenge is pure

and very raw, placing adventure ahead of winning at all costs. It is for 'those who dare', just as it was for Sir Robin. They will be navigating with sextant on paper charts, without electronic instruments or autopilots. They will hand-write their logs and determine the weather for themselves. Only occasionally will they talk to loved ones and the outside world when long-range high frequency and ham radios allow.

PHOTO ABOVE:

Robin Knox-Johnston, the first man to sail solo non-stop around the World, aboard his 32ft Sin yacht SUHAILI. Pictured here returning to Falmouth, England on 14 June 1968, to complete the 30,123 mile voyage in 313 days - an average of 4.02 knots.



Photo credit: © Pedro Rodriguez - All rights reserved



The number of entrants for the Race is limited to 30, and the event is already oversubscribed. Those currently registered and paid-up for the race have a remarkable range of backgrounds and sailing experience. They are from Australia (4), Brazil (1), Estonia (1), France (7), Ireland (1), Italy (2), New Zealand (1), Norway (1), Palestine (1), Russia (1), Switzerland (1), UK (5), and the USA (4). Their average age is 48. The youngest are 27 (one British woman, an American and a Swiss entrant). The oldest is a 71 year-old Frenchman. Professional sailors and adventurers dominate but the competitors also include an architect, farmer, furniture maker, foreign exchange trader,

engineer, teacher and social media technologist. All have considerable short and single-handed sailing experience, one having logged five solo circumnavigations.

The competing boats are of a broadly similar size, design and rugged construction as Sir Robin's *Suhaili*. So, no high-tech hull construction and no swing or bulb keels. The same principles apply to on-board equipment and systems. So, no computers or other digital devices, no satellite communications or electronic navigation aids, no outside weather routing, no electronic self-steering gear, no water-maker, no freeze-fried food.

The designs chosen so far are:

Tradewind 35 (2)
Biscay 36 (2)
Rustler 36 (5)
Babe 35 (2)
Camper & Nicholson 32 Mk XI (2)
OE 32 (1)
Belliure Endurance 35 (1)
Lello 34 (2)
Suhaili replicas (2)

For navigation, these sailors must use paper charts, a sextant, trailing log and a wind-up chronometer. For weather forecasts they must rely on a barograph, their own observations and whatever they can pick up from radio bulletins. For steering they must rely entirely on themselves and simple wind-vane self-steering equipment. For nourishment, they will have only canned food and whatever they can catch at sea, and they will have to capture and store whatever water they need whenever it rains. They will have to record their adventures in a hand-written log, on a battery-powered tape-recorder and on mechanical cameras with celluloid film.

PHOTO ABOVE:

Left to Right: Nabil Amra (USA/Palestine and Antoine Cousot (France) with their Biscay 36 ketch rigged production yachts, VISCAYA and ELE MAY being fitted at the Falmouth Boat Co, Flushing in readiness for the start of the 2018 Golden Globe Race from Falmouth on 16th June 2018.



Photo credit: Barry Pickthall/PPL*** 2018 Golden Globe Race

Although the principal goal for all the competitors will be to finish and return safely to the UK, winning will be on the minds of many. Best estimates suggest the first to return will take around 260 days. The adventure for all of them will have tested every aspect of their character, endurance and maritime skills. They will have faced the debilitating torment of fierce storms and mountainous seas, and the vile frustration of prolonged calms. They will surely have had to deal with damage and wear to their boat and her gear, and perhaps also to themselves. They will have had to draw on all their reserves of courage, energy and confidence, not least in their ability to navigate with the basic tools available to mariners in the distant past and to manage their vessel to survive the ordeal.

The race organisers fully expect that several competitors may not finish, and that among those that complete the circumnavigation there may be some that will have been forced to stop en route to deal with emergencies. To recognise

that this would in itself also be a major personal achievement, those who stop only once will be recognised in a 'Chichester Class'. (Sir Francis Chichester completed a singlehanded solo circumnavigation in 1967 with one stop in Sydney, Australia, and was the progenitor of the 1968 Sunday Times Golden Globe Race.

The only concession to the 21st Century will be their satellite phone, (with GPS info disabled) voice and text link exclusively with Race HQ and the ability to transmit news res. digital images for onward distribution to the media using a mobile phone connected to an Iridium Satellite link.

It is now possible to race a monohull solo around the world in under 80 days, but sailors entered in this race will spend around 300 days at sea in little boats, challenging themselves and each other. The 2018 Golden Globe Race will be a fitting tribute to the first edition and it's winner.

Safety is a priority feature of the event. Each competitor must have sailed a minimum 8,000 ocean miles, and at least 2,000 miles solo. Skippers will also be subject to a stringent pre-race medical check, and their boats will undergo scrutineering of all on-board safety equipment just before the start.

PHOTO ABOVE:

Two Biscay 36 ketch rigged production yachts, VISCAYA (right) and ELE MAY (left) return to the Falmouth Boat Company in Falmouth where they were built in 1975 and 1990 respectively for extensive refits in readiness for the start of the 2018 Golden Globe Race from Falmouth on 16th June 2018. VISCAYA, the first of these production yachts designed by Alan Hill, will be campaigned by Antoine Cousot from France, while Nabil Amra, an American born Palestinian, will sail ELE MAY, the last in line of these traditional long keeled designs.



While the basics of the race are set in the 20th Century, safety is very much 21st Century. Each boat will be fitted with a sealed satellite communications phone and GPS chart plotter for emergency use only. If the seal is breached, the competitor may be disqualified or relegated to the 'Chichester Class'. There will also be a locked solar-powered communications unit accessible only to Race HQ. This will provide fleet position tracking and voice/photo communications to feed the event media operation and website. Each boat will also carry a full medical kit and competitors will have round-the-clock access to professional medical services via Race HQ.

PHOTO ABOVE:
Tradewind 35 long-keeled production cruising yacht designed prior to 1988, and one of 13 type approved yachts available to enter the 2018 Golden Globe solo non-stop round the world race.

History of the GGR

Robin's race was a seemingly endless series of dramas, failures, broken gear and near catastrophe. In fact, the voyage went from bad to worse: a serious leak just two weeks into the race, the unwelcome attention of a shark he finally had to shoot, a debilitating attack of jaundice, a massive knock-down in the Southern Ocean throwing him and everything else on board all over the cabin, a complete failure of his wind-vane self-steering gear requiring him to hand-steer from Australia back to England, and then another storm and near dismasting during which *Suhaili* was suffering so much Robin prepared to launch his liferaft. But for Robin, this race was not just about finishing. He believed he could win. He kept in touch with how the other competitors were doing as often as was possible via single-sideband radio, but that too failed long before the finish. He didn't know for sure

that he was going to win until he was close to Falmouth. He landed to a hero's welcome and massive public acclaim ... and eventually, after other achievements, a well-deserved knighthood.

None of the other eight competitors finished the race, but they all had powerful stories of their own. Some pulled out with damage to their boats or themselves. Frenchman Bernard Moitessier, who along with three other competitors, had started from Plymouth, decided he'd had enough of civilisation and, 'to save my soul', decided to continue sailing round the Southern Ocean rather than return to Europe. He eventually dropped anchor in a Tahiti lagoon. British sailor Donald Crowhurst began to falsify his positions early in the race. He eventually decided to hide in the waters around the Falkland Islands and planned to sail back to the UK behind whoever would win (to avoid too much scrutiny). It looked like this would be another British sailor, Nigel Tetley; but his



Photo credit: © PPL

The Race in numbers

- The course: **30,000** miles with **4** rendezvous gates
- **30** entrants plus **7** on wait list. (some entrants remain confidential until sponsorship is announced)
- Competitors represent **15** countries
- America (**4**) Australia (**3**) Brazil (**1**) Britain (**5**) Estonia (**1**) France (**7**) Germany (**1**) Ireland (**1**) Italy (**2**) New Zealand (**1**) Palestine (**1**) Switzerland (**1**)
- **Oldest** competitor: aged **71**: Jean-Luc van den Heede (FRA)
- **Youngest** competitors: aged **26**: Roy Hubbard (USA), Susie Goodall (GBR), Neree Cornuz and Eduardo Raimondo (ITA)

Background on Don McIntyre (60) Race Founder

Don is an inveterate sailor and recognised as one of Australia's greatest explorers. Passionate about all forms of adventure and inspiring others, his desire is to recreate the Golden Age of solo sailing. Don finished 2nd in class in the 1990-91 BOC Challenge solo around the world yacht race. In 2010, he led the 4-man *Talisker Bounty Boat* challenge to re-enact the Mutiny on the Bounty voyage from Tonga to West Timor, in a similar boat and with same limited supplies available to Captain Bligh 221 years before.

boat sank 1,200 miles from home. Crowhurst's deception (and the fear of being found out) drove him to commit suicide. His story is told in the book *The Strange Last Voyage of Donald Crowhurst*, and soon to be released full-length Hollywood feature film, *The Mercy*. [Photograph of Crowhurst above.]

1969 was a year for extraordinary firsts. It was also the year in which Neil Armstrong became the first man to set foot on the moon. Many more people have been in space since then than have completed a solo non-stop circumnavigation under sail. And no one has yet repeated Sir Robin's achievement with the kind of small boat and traditional equipment he had. So, the 2018 Golden Globe Race will make history as well as repeat it.

The GGR will be run under the auspices of the Royal Nomuka Yacht Club based in Tonga. His Royal Highness, Crown Prince Tupouto'a Ulukalala of Tonga is Patron of the Race.

“They will be navigating with sextant on paper charts, without electronic instruments or autopilots. They will hand-write their logs, cook with kerosene and determine the weather for themselves. Only occasionally will they talk to loved ones and the outside world when long-range high frequency and ham radios allow.”

Don McIntyre, Race Founder

For further information, go to www.goldengloberace.com

SAFETY MANAGEMENT SYSTEMS FOR COMMERCIAL VESSELS

BY **MICK UBERTI**
OCEAN TIME MARINE

TELLING OWNERS THAT THEY NEED TO IMPLEMENT A SAFETY MANAGEMENT SYSTEM (SMS) WHEN THEY HAVE BEEN DOING THEIR JOB IN MANY CASES FOR DECADES IS ALWAYS AN INTERESTING CONVERSATION.

Since the ISM code was made mandatory in the big ship world, many Domestic Commercial Vessel regulators around the world have implemented their own “mini” or watered down ISM code to suit smaller vessel operators.

Many industry and regulatory “experts” suggest that implementing a SMS is difficult, time-consuming, and expensive.

This is not true.

If safety management activities are complex and expensive, then they are doing something wrong.

Managing safety is ultimately about managing risk – a simple concept that is often lost in academic models and 300-page safety manuals. Managing safety is not about making things more complicated and “user unfriendly.” An effective SMS that actually adds value while elevating the level of safety within an organisation and is easily understood and “user-friendly.”

I’ve had the opportunity to review the SMSs of several types of operators – large, small, international, domestic, and the most effective SMSs are not complex; instead, they are streamlined and easy to understand.

An example of reducing unnecessary complexity is an operator who tries to put every conceivable procedure in their SMS rather than their normal operating procedures. The operators with an

ineffective SMS seem to focus more on managing the complexities of their SMS rather than managing safety itself.

The safety information should be readily available and easily accessed for all employees. Employees should not be forced to perform several steps just to get the safety information in front of them to read. Also, the safety information itself should be as brief and to-the-point as possible. Simplify the reporting and form management by managing this all in one place is key. There are many smaller vessel operators now operating paperless and using technology effectively.

It is a myth that SMSs are better suited for large vessel operators, smaller operators actually have an advantage when it comes to incorporating an SMS because the smaller the operation, the easier it is to communicate and implement the steps needed to run an effective



SMS. Regardless of the size of the operation, all successful SMSs will include the basic elements as defined originally in the ISM code, however they need to ensure that:

- Top-level management is committed to safety
- Systems are in place to ensure hazards are reported in a timely manner
- Action is taken to manage risks
- The effects of safety actions are evaluated.

Effective SMSs make good economic sense. An effective SMS not only allows vessel operators to become more proactive in identifying and avoiding major hazards but also reduces the number of minor incidents an operator will experience over time. An effective SMS will lead to improved communication, higher workplace morale, and increased productivity.

Marine Surveyors often ask vessel operators if they have an SMS and they are also asked to assist with writing a SMS. Surveyors should always involve the vessel owners and crew in developing a SMS as an effective SMS has credibility, which leads to everyone's involvement.

If the SMS is just sitting there and not really doing anything to make the operation safer and more efficient, then you need to look at how they are really managing safety.

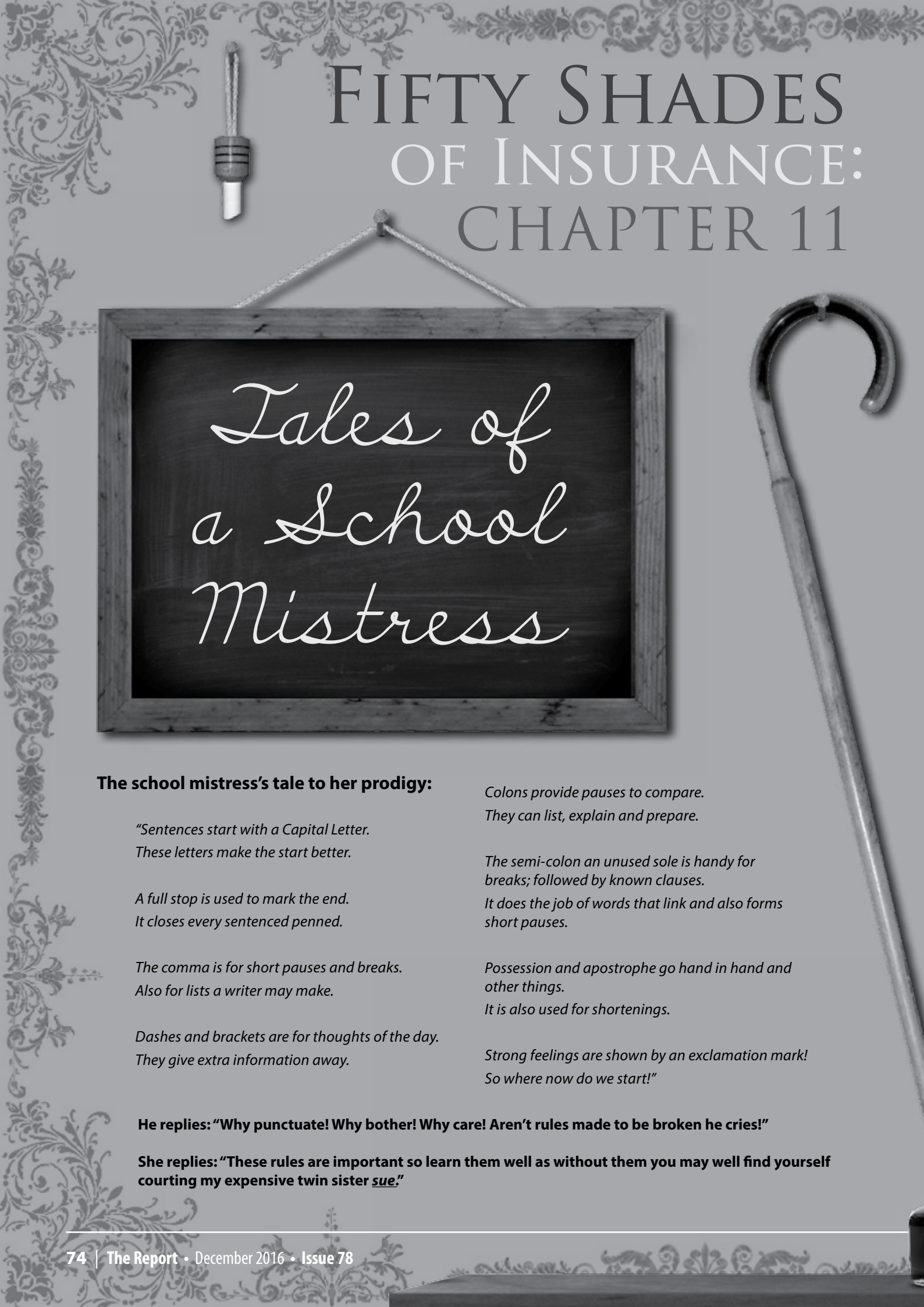
Chances are, the safety management activities are too complex and more reactive than proactive.

As complexity increases, participation decreases. Without participation, an SMS can never be effective. Keep it simple!

You can read more about developing an effective SMS on our site www.oceantimemarine.com

Ocean Time Marine has developed a range of measures specifically to improve safety at sea. Modern technology provides unprecedented opportunities to reduce the chances of human error and help enhance maritime safety, reduce casualties and the negative effect on the environment. The SMS template is developed in an acceptable format for Maritime Regulators.

Using the Ocean Time Marine dashboard this enables the vessel operator access to all the vessel information ashore or at sea. Reducing red tape has been a challenge and most operators when questioned point to the increase in paperwork and regulation that make the operation more difficult as well as compliance.



FIFTY SHADES OF INSURANCE: CHAPTER 11



The school mistress's tale to her prodigy:

*"Sentences start with a Capital Letter.
These letters make the start better.*

*A full stop is used to mark the end.
It closes every sentenced penned.*

*The comma is for short pauses and breaks.
Also for lists a writer may make.*

*Dashes and brackets are for thoughts of the day.
They give extra information away.*

He replies: "Why punctuate! Why bother! Why care! Aren't rules made to be broken he cries!"

She replies: "These rules are important so learn them well as without them you may well find yourself courting my expensive twin sister sue."

*Colons provide pauses to compare.
They can list, explain and prepare.*

*The semi-colon an unused sole is handy for
breaks; followed by known clauses.
It does the job of words that link and also forms
short pauses.*

*Possession and apostrophe go hand in hand and
other things.
It is also used for shortenings.*

*Strong feelings are shown by an exclamation mark!
So where now do we start!"*

We care about punctuation and grammar as it is a requirement for good report writing. No doubt at some time in your life you have wondered where to place a punctuation mark to make your point clear. So in this Chapter we consider the use of some of the common punctuation marks.



Karen Brain
*Managing Director –
solicitor non-practising*

Matrix Insurance Services Ltd
Tel: **01892 724060**
enquiries@matrix-ins.co.uk

THE COMMA

It is such a simple mark on a page. So what could go wrong with its use we ask?

Examples

- The vessel's colours are red, white and blue.

Does this mean three separate colours or red, and white and blue in some sort of combination? It's possible both so it would be good idea to follow white with a comma to avoid confusion.

- The drinks she liked most were lemonade, champagne and cranberry juice and cream soda.

There could be a drink called champagne and cranberry juice and another cream soda. To make it clear place a comma after the champagne if you wish it to be a drink on its own.

DABBLING WITH THE SEMI-COLON

It is a common quandary whether to first tackle the colon and then the semi-colon; or the other way around. The colon was the first on the scene but as the use of semi-colons considerably outnumber in everyday use its older sibling we will start with the semi-colon.

The semi-colon has been said to be:

"The semi-colon is used to break up long sentence; it relates clauses or sentences which have too strong a relationship to be separated by full stops."

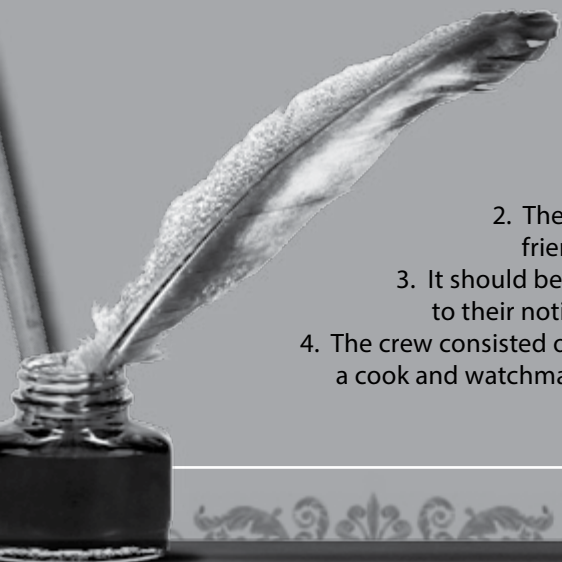
Examples

1. The MV Semicolon was once a poor vessel. Now it is a beautiful example.
2. The MV Semicolon was once a poor vessel now it is a beautiful example.
3. The MV Semicolon was once a poor vessel, now it is a beautiful example.
4. The MV Semicolon was once a poor vessel but now it is a beautiful example.
5. The MV Semicolon was once a poor vessel; now it is a beautiful example.

Hopefully it is obvious that the second and third examples are wrong. Using a conjunctive "but" is in danger of giving the sentence a different meaning. It has been said that the two statements scream to be together; the obvious conclusion is to write as in example 5 above.

As time is running short we invite you to prove to yourself that you have grasped the principles of commas and semi-colons and invite you to choose between commas and semi-colons in the following sentences. We will provide comments and answers in our next Chapter.

1. Everyone is wary of the waterfall; the face of which has weathered alarmingly.
2. The surveyor scarcely knew anyone at the meeting, and was slow to form friendships; having little enthusiasm for such events.
3. It should be stressed that certain behaviour is not acceptable, it should be brought to their notice immediately.
4. The crew consisted of qualified men, unqualified men, two female trainees and a cleaner, a cook and watchman and a skipper and deputy skipper.



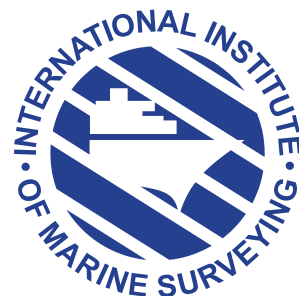
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Captain Peter H King FNI MIIMS is a veteran marine surveyor with 60 years' marine experience under his belt. Based near Felixstowe in the east of England, where his business is located, Peter decided to resume his membership of the IIMS in its silver jubilee year after a break.

Mike Schwarz poses the questions to Peter, the most charming of men, and seeks out his thoughts and opinions on a variety of topics.

A day in the life of... Peter King



Q1. Peter, what attracted you into the marine surveying profession and how steep was the learning curve at that time for you?

At age 60, with over 40 years' service in the maritime industry, I found myself needing a new career path – something which was challenging and one which would keep the mind active. The learning curve was certainly steep – and 17 years on, continues to be. That surely is one of the joys of marine surveying?

Q2. These days marine surveyors are increasingly bedevilled by red tape on many fronts. A good thing or not; and which causes you the most headaches to comply with?

Marine surveyors are no more bedevilled by bureaucracy and red tape than any other business! Most bureaucracy is driven by people protecting their own backs and people cashing in on the status quo. A recent, painful bureaucratic exercise has been the introduction of Workplace Pensions – in themselves an excellent concept, but the red tape trail attaching to implementation and operation, and the cost attaching to advisors and reporting is yet another burden which a small company has to bear.



Q3. Over the years you will have witnessed many changes in the shipping world. What would you say have been the most significant and why?

Over the course of nearly 60 years' service in the marine industry, there have certainly been monumental changes! By far the largest has been the containerisation of the liner trades. This has led in turn to a near-complete breakdown of old company structures and loyalties. From a seafarer standpoint, there has been a college-led movement away from mentor-based learning by experience at sea in favour of the lecture hall; this is only too manifest at the coal face! Too much reliance on electronic aids to the almost complete exclusion of spatial awareness. But this has its compensations for marine surveyors!

Q4. What key three tips do you have for young, aspiring surveyors who are making their way in this often challenging, but ultimately satisfying profession?

- The achievement of a high academic qualification is only a license to start learning.
- Always act with professionalism and integrity.
- The old f—t who has counselled you may just have a point; he/she has made the mistakes and survived = experience!



Q5.

Sticking with the next generation of surveyors, a subject close to your heart I know, what do you think will be the challenges for them, which are perhaps not so obvious just yet?

- Keeping abreast of a constantly changing industry while climbing the experience ladder.
- Participation in the elevation of the professional status of the marine surveying discipline.
- Securing the necessary under-pinning maritime experience.

Q6.

Please give me your thoughts on the importance of enhancing surveyor standards and why you believe it is important to keep your skills current in an ever evolving industry.

The standards exhibited by marine surveyors in the execution of their services vary hugely, from the pedantic ultra-professional to the downright incompetent. There is a huge need to introduce common professional standards, and here the IMS has a pivotal role. But I would counsel against going the way of some other professional bodies in the maritime industry who have alienated them-selves from their membership by pursuing an academic / theoretical approach to the profession. Continuous professional development as a means of keeping one's skills current is in some respects laudable, but it does tend to breed a class of professional developers – how do they find the time to get on with the business they are paid to do?



Q7.

If you had not become a marine surveyor what do you think you might have done instead?

Driven my wife mad....

Q8.

When you hang up your surveying boots at the end of a long days surveying, are we likely to find you on the golf course or enjoying fine cuisine and a glass of red how do you choose to relax and unwind?

Music; maritime historical research; technical illustration associated with research; sailing; walking; writing; and yes, the odd glass of red or two over a fine meal.

Q9.

I have heard you are on the last lap writing the story of The History of the Aberdeen Line. Please tell readers of The Report why this subject interests you so much and what inspired you to write about it.

My interest in the Aberdeen Line began over 30 years ago when working in Aberdeen. I became interested in the Line during visits to the Aberdeen maritime museum; I was struck by the complete lack of a definitive history of what was clearly in its time one of the greatest shipping lines in the world. I set about rectifying the deficiency. My late wife spent nearly six months working in

the cellars of the Aberdeen Custom House pouring through the Register of Ships as the foundation for the work. My researches have taken me to Cuba, B.C., Australia, S. Africa, and Hong Kong, in each of which I have made enduring friendships. And I have learnt so much along the way; history often has a direct bearing on the future! Altogether, a very worthwhile endeavour – whether anyone will read the finished product remains to be seen!

Q10.

And finally as we are on the dawn of yet another new year, what message do you have for IIMS members and the surveying fraternity for 2017 at what remains a troublesome time for the industry?

Troublesome times in the shipping industry are nothing new and invariably create opportunities for marine surveyors if the challenge is foreseen and grasped. Hanjin were until recently our biggest customer; they have gone, but others spring up! Professionalism and enthusiasm is the keynote. The biggest challenge facing the marine surveying discipline is rejuvenation in the face of an ageing surveyor population...

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