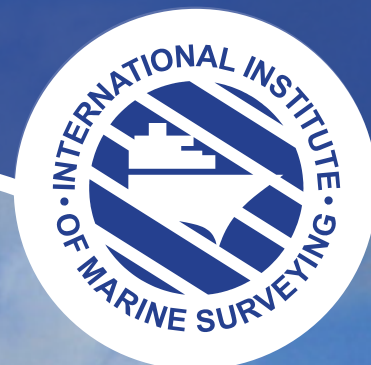


THE REPORT

The Journal of The International Institute of Marine Surveying

SEPTEMBER 2014



ENCLOSED SPACES WHY ARE MARINE SURVEYORS DYING IN THIS DAY AND AGE?

THE PAKISTAN SHIP
BREAKING INDUSTRY: **PART II**

**DIGITAL IMAGES:
PRESERVING THEIR
EVIDENTIARY VALUE**





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EDITOR'S LETTER

The International Institute of Marine Surveying

www.iims.org.uk

Murrills House, 48 East Street, Portchester, Hampshire,
PO16 9XS, UK

President:

Capt Bertrand Apperry (FIIMS)

Vice President:

Mr Adam Brancher (MIIMS)

Deputy Vice President:

Capt Zarir Irani (FIIMS)

Chief Executive Officer:

Mr Mike Schwarz

Immediate Past President:

Capt Satish Anand

Head Office Team:

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<i>Mrs Anne Liversedge</i>	Student Support Administrator
<i>Mr Craig Williams</i>	Graphic Designer
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Dear Member

It gives me pleasure to welcome you to The Report Magazine September edition, which is published for IIMS members and others with an interest in the world of marine surveying.

At the IIMS Conference in June, Adam Allan and his colleague, Capt Michael Lloyd, from Mines Rescue Marine, spoke eloquently for an hour about the topic and dangers of working in enclosed spaces. This is an area of operation of grave concern for anyone who enters an enclosed or confined space as part of their job. The audience listened intently to this presentation and there was an eerie feeling and silence in the room. Put simply, it seems absurd and unnecessary that there are incidents resulting in serious and fatal injuries happening to marine surveyors (and others) in this day and age as a consequence of working in such environments. The topic was then aired and hotly debated recently on the IIMS LinkedIn discussion group. It seemed appropriate to invite Adam to write a feature length article about this topic for The Report and I would urge members to head to page 16 to read it.

Technology has advanced so rapidly in recent years. In fact in many years to come history may well compare the technological revolution of the past twenty years akin to the impact of the industrial revolution, which took place in the 18th Century. Rapid change and development it seems is never more so apparent than in the area of digital photography. Indeed, the digital camera is a key component in a marine surveyor's armoury of tools of the trade. But have you ever thought that the simplest, minor alteration can render

your image unusable in a court of law? Milind Tambe has written a fascinating article (see page 34) entitled 'Preserving Evidentiary Value of Digital Images'.

Continuing on this theme, the art of report writing is another key skill that all marine surveyors need to excel at. But as the world becomes ever more litigious, even the most experienced marine surveyor could potentially find himself/herself with an issue. John Kilhams has written a timely refresher of what a good report should contain (see page 32).

IIMS Vice President, Adam Brancher, has written from Australia (see page 41). Following major legislative changes over the past year, the Australian Maritime Safety Authority (AMSA) has become the national regulator for domestic commercial vessels in Australia. Adam updates IIMS members with the significant changes this has led to.

Life at the IIMS head office continues apace. There have been a number of changes and developments this year. For example, we implemented new accounting software and new accountants were elected at the AGM. The Marine Surveying Academy, the training division of the IIMS, was launched earlier in the year. On page 52 you can read about the progress MSA is making.

Best wishes to you.

Mike Schwarz
Chief Executive Officer
International Institute of Marine Surveying





THE PRESIDENT'S COLUMN

Dear IIMS Members

There is a new part to the maritime business where surveyors can participate in the improvement of global maritime transport.

As a result of the most recent maritime accidents, (Costa Concordia, Sewol and so on), where the main cause was poor management within the companies, is not better self assessment the solution?

- as the principle of self-assessment is currently used in modern management systems
 - as the internal verification audit allows an in-house correction independent of the certifying authority
- ...for all industries, the internal audit seems the best instrument for correction and continuous improvement!

Indeed we have to admit that the internal verification system is still not working very well in our industry and the reasons are always the same. Internal audits are of a poor quality due to an old paradox and finding non conformities is considered as a blame culture!

Despite a lot of effort from the IMO human element working group and/or the Nautical Institute in UK, the day to day operation of safety or

quality management systems of our companies and organisations is still missing good internal evaluation.

Today, the QACE is unhappy with its internal verification system. Costa had not detected internally any existing poor management practices on the bridge of the Concordia and the Korean Maritime Authority authorised a bad ship to sail with passengers. So what is the solution?

For years, marine surveyors have been involved in proposing their expertise for helping safety and quality management systems to work successfully even outside the certification process by ensuring internal audits. Recently (June 2013) IMO published a modified circular (MSC-MEPC.7/Cir.8) for 'guidelines for the operational implementation of the ISM code by companies' where an important amendment concerns the mandatory training of internal auditors. This circular is included in the new paper edition of the ISM code (2014) and some IMO member states are considering including the circulars as mandatory. This is logical but there are still some bottlenecks.

Indeed, another part of the ISM paradox is still resisting. Following the Guidelines on the implementation of the ISM code by Administrations or recognised organisations working on their

behalf, the external auditors cannot resist giving advice in a form of prescriptions on corrective actions for non conformities. This is absolutely prohibited as the shipping companies must find the solutions themselves. This is a recurrent problem and internationally the IMO members are forced to realise this is not the right way to improve the global safety of the maritime transport industry. At the same time the internal auditors of the company do not like to play the role of the 'black sheep' when performing their business.

So maybe specialist marine surveyors are the solution for better implementation of the ISM code?

My plea for a new speciality for marine surveyors is quite logical. We have an extensive experience in ships' operations and we are paid to detect and report what it is wrong in the management of the company and its ships. And then we use our expertise to propose solutions!

Training of specialised ISM internal auditors could be one of our targets in the future.

Capt. Bertrand Apperry

President

International Institute of Marine Surveying

Master Mariner ISM and ISPS surveyor and consultant

MARINE NEWS

PORT OF SALALAH IMPROVES CONTAINER PRODUCTIVITY

The Port of Salalah, the largest port in Oman, has enhanced its berth productivity levels to rank 15th globally and match top container ports in the world according to the independent research firm Journal of Commerce (JOC) which has produced the 2013 Port Productivity report for the second year running.

Based on the 2013 average container moves per ship, JOC has also ranked the Port of Salalah third in the Europe, Middle East and Africa region, having achieved an average of 91 gross moves per hour (gmp), a 26% increase over the 2012 average of 71 gmp.

"Our employees have been working hard at improving teamwork and internal processes at the port, and the benefits are shared by our customers as well," said Ahmed Akaak, Deputy CEO at the Port of Salalah, adding, "for example, we have reduced

waiting times at the gate from over 70 minutes to less than 30 minutes, and moreover an astonishing reduction in breakdowns and downtimes, and overall improved levels of work satisfaction and teamwork."

With its state of the art container terminal facility, the Port of Salalah is the country's leading terminal for direct sailing connections to USEC, Europe, Far East and East Africa, handling between 3 million to 4 million containers annually over the past seven years.

David Gledhill, CEO of the Port of Salalah added, "We are very proud of this recognition and attribute this success to the experienced teamwork and dedication that is happening every day at the port."

The JOC study used data from over 150,000 port calls during 2013, evaluating the individual performances of 443 ports and 771 terminals.



PRINCESS YACHT'S FOUNDER TO STEP DOWN

Having been one of the original founders of Princess Yachts in 1965, David King has decided to stand down as Chairman. Citing his wish for new minds to lead the company forward, Mr King will remain a director and focus mainly on new yacht design and development, an area in which he has always been heavily involved.

After a period of consultation, the Princess board of Directors has appointed Philippe Mellier as its new Chairman. Mr Mellier is the CEO of The De Beers Group, the world's leading diamond company, and was previously the Executive Vice President at Alstom s.a., the world's leading high-speed train producer. Prior to this, Mr Mellier worked in the automotive sector, holding senior and board-level positions within Ford, Renault and the Volvo Group. He brings to the role uniquely useful experience in high-quality, performance-focused product manufacturing, marketing and sales.

Princess Yachts' Managing Director, Chris Gates, said, "David King is and always will be a part of Princess. He has been a magnificent servant to this Company and the wider British boatbuilding industry. This change of roles will allow us to strengthen and grow the business while still benefiting from David's unmatched experience and skill in designing the best motor yachts in the world. We look forward to welcoming Philippe into the Princess family and benefitting from the vast experience he brings from the luxury goods and high-performance manufacturing sectors."

In a statement to the Princess workforce and wider family, David King said, "It has been an incredible journey since 1965. I could not have conceived of the growth and success we have achieved over the years, success that is entirely due to the wonderful people that work here and our Distributors around the world."



ARCTIC SHIPPING ROUTES CAUSE CONCERNS FOR MARINE INSURERS

The melting of sea ice presents opportunities for international marine transportation networks in the Arctic. Recent discoveries of oil and the potential financial and time savings are making the Arctic routes more appealing to the shipping industry. Two viable Arctic sea routes exist, enabling ships to move between the Atlantic and Pacific Oceans, thus cutting the distance between East Asia and Western Europe.

These new routes offer viable alternatives, but they are not without risk. Extreme climate and weather conditions create unique hazards, including floating ice, thick fog, and violent storms. Despite new safety features, vessels remain vulnerable to ice damage, machinery breakdown, and more. The harsh environment also creates challenges for crews, few of which have been trained for or have experience in such conditions, according to insurance broker and risk adviser Marsh.

The international shipping industry is keen to start maximizing the opportunities afforded by Arctic navigation. Yet the marine insurance

industry — essential to the commercial viability of Arctic transit — holds a host of safety and navigational concerns, which may limit and/or prohibit the possibility of rapid growth in Arctic transit for the foreseeable future.

Marcus Baker, Chairman of Marsh's Global Marine Practice, said: "While marine insurers are largely supportive of the development of Arctic shipping routes, they are extremely wary about incurring large, high profile losses while the market is still in its infancy. Currently, the majority of ships and their crews lack adequate experience, are unprepared, and the support facilities are not yet in place for full-scale commercial voyages through the Northern Sea Route and the Northwest Passage. In the absence of hard facts, it is extremely difficult for marine insurers to price an insurable risk, or even to agree to cover a voyage in the first place."

According to Marsh, in considering the provision of marine hull and protection and indemnity (P&I) insurance, insurers and P&I clubs require more detailed information about vessel capabilities and available salvage services, with wreck removal, pollution risks and crew health and safety of major concern to underwriters.

LLOYD'S REGISTER ISSUES NEW ENERGY GUIDANCE NOTES

The new Lloyd's Register energy guidance notes, launched at ONS 2014, are designed to assist designers, owners and operators of oil and gas equipment on how to assess fire loadings on an installation, and how to protect people and equipment against different fire scenarios.

"Protection against fires on board vessels and installations is critical to a safe operating environment," said Joar Dalheim, Lloyd's Register's VP Technology, Consultancy Services.

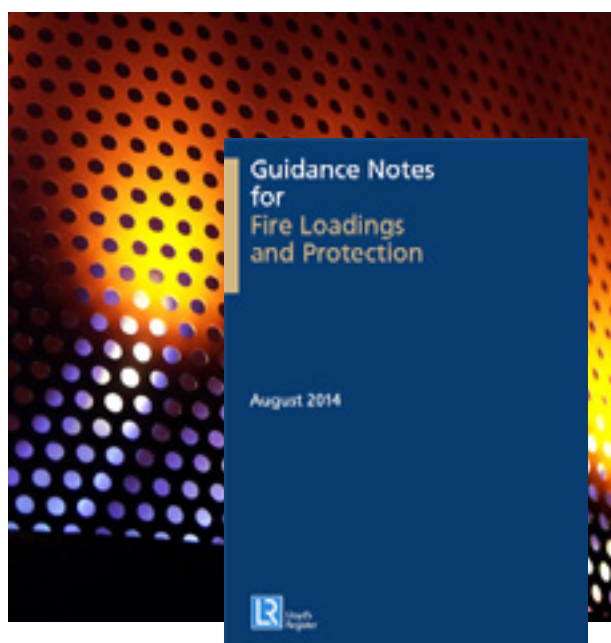
"Our Guidance Notes provide a significant reference document to guide oil and gas designers, owners and operators on different risk-based methodologies to establish what could be at risk, ranging from simple fire risk issues to highly technical and complex fire risk situations."

A primary goal for the launch of the new

Guidance Notes is to provide direction and criteria that help industry to increase the level of protection against fires on board vessels, mobile offshore drilling units (MODUs), mobile offshore units (MOUs) and offshore installations. It also covers land-based infrastructure.

"Fire and explosion continue to remain on the list of top safety hazards for any vessel and its crew," said Dalheim. "Minimising risk is critical as the challenges around deeper and more remote offshore exploration expand."

Offshore units must comply with fire safety regulations set out by the national administration in the area where the unit is located and/or country in which the unit is registered. A large part of these new industry Guidance Notes are dedicated to fire protection principles, fire mitigation measures and fire response which is an important part of the Fire and Explosion Evaluation (FEE) report, and which would be required for classification purposes.



MARITIME & COASTGUARD AGENCY TO BE OVERHAULED

It is reported that the UK Coastguard is undergoing a massive upheaval to help it cope with the demands of the 21st Century.

Between September 2014 and December 2015, the Maritime Rescue Coordination Centres (MRCC's) at Solent, Portland, and Brixham are due to close. Additionally, the sites at Liverpool, Swansea and Thames will become Coastal Operations Bases, but will no longer have a search and rescue coordination function.

The remaining nine MRCC's will be upgraded to Coastguard Operations Centres (CGOC's) and, together with a desk at the London Port Authority, will be networked through the new National Maritime Operations Centre at Fareham to create a fully resilient national command and control network.

The volunteer Coastguard Rescue Service will have

better access to training and support. The number of regular Coastguard Officers providing front line operational leadership to the CRS will increase by 50% to 96. From April 2015 the Agency will be taking on additional Search and Rescue Helicopter responsibilities. Helicopter search and rescue capacity will change from the current mixture of military and civilian arrangements to a single contract which will operate search and rescue helicopters across the United Kingdom. The Agency will manage this contract which will start in 2015 and will be fully operational across the United Kingdom by summer 2017.

New bases will open at Inverness and Humberside in April 2015; Caernarfon and Manston in July 2015; Cardiff St Athan in October 2015; and Prestwick and Newquay in January 2016. Three existing Coastguard helicopter bases, at Sumburgh, Lee-on-Solent and Stornoway, will transition to the new arrangements in 2017.



ECHO YACHTS

ECHO YACHTS FORMED IN AUSTRALIA

A Singapore based family has formed Echo Yachts, a yacht builder that is to be located in Western Australia's Henderson Marine Precinct. Their purpose is to undertake the building of the family's yachts, including the largest ever superyacht built in Australia. The new company has brought together what would seem to be a regional who's who of the Australian superyacht industry.

Commenting on the project, Echo Yachts director Mark Stothard said "Together with my partners Jurien Van Rongen and Nick Gardiner, we are thrilled to have been selected to head-up this project and we are very excited about the world class credentials of those who will be working with us."

The 84 metre aluminium vessel will be the largest tri-hulled superyacht ever built anywhere. Construction will take three years from start to finish. The superyacht's external design and interior styling will be led by Fremantle based (and world renowned superyacht designer) Sam Sorgiovanni. One2three Naval Architects, who operate from both Sydney and Henderson, will act as the project's naval architects.

NEW PANAMA CANAL MEANS INCREASED INSURANCE RISKS

As the Panama Canal prepares to celebrate its 100th anniversary, insurers are warning of the increased risks that will arise from its plan to double the cargo carrying capacity of ships transiting one of the world's most important waterways. Every year, over 12,000 oceangoing ships navigate the canal, a figure which could increase significantly following the anticipated opening of the new locks in 2015. It is forecast the expansion will enable between 12 and 14 larger vessels per day (approximately 4,750 additional ships per year) to pass through the canal. Significantly, many of these ships are expected to be new-Panamax class container vessels of 12,600 teu, which are far larger than the existing largest vessels able to access the canal (4,400 teu).

AGCS experts warn the increased traffic and larger vessels may challenge the Panama Canal's improved safety record over the past decade with the risks exacerbated through the initial period of the canal opening. Captain Rahul Khanna, AGCS's Global Head of



Marine Risk Consulting, explains the potential risk management impact of this expansion: "Larger ships automatically pose greater risks. The sheer amount of cargo carried means a serious casualty has the potential to lead to a sizeable loss and greater disruption. For example, a fully-loaded new-Panamax 12,600 teu container ship is as long as four football fields with a beam of up to 160 feet and could have an insured cargo value alone of \$250 million."

AGCS believes training is key to mitigating the new risks involved. As Captain Khanna explains: "The expansion of the Panama Canal will represent a new shipping environment for many mariners. Due to the increase in the number of larger vessels passing through this important waterway the level of training provided to pilots will be extremely important. Attempting to manoeuvre one of these vessels through such a restricted space in itself creates a much bigger hazard."

The Panama Canal Authority has invested heavily in training, including plans to charter a post-Panamax ship to practice manoeuvres through the new lane.



IRCLASS ACADEMY HIGHLIGHTS IMPACT OF UPCOMING REGULATIONS ON WRECK REMOVAL

Mumbai - The Nairobi International Convention on wreck removal was ratified by India recently and will be enforceable from April next year. This will place financial responsibility for the removal of certain hazardous wrecks on shipowners.

Acknowledging this change, the IRClass Academy of the Indian Register of Shipping (IR Class) held a one-day seminar on Managing the Risk of Wreck Removal Liability on 13 September 2014 at the Head Office of IR Class in Powai, Mumbai.

The convention will provide the first set of uniform international rules aimed at ensuring prompt and effective removal of wrecks located beyond a country's territorial sea and it also empowers governments with a right of direct action against insurers.

The invited speaker, Anthony Fernandez, a highly experienced Average Adjuster and Maritime Risk Management Consultant, addressed the senior members of the maritime community and began by highlighting the need for adopting risk management approach in dealing with maritime risks, threats and perils.

He cited cases and examples from the industry to illustrate the impact of the new legislation on various segments. Given the wide representation present at the seminar, there was a comprehensive exchange of views from different perspectives and a lively debate ensued.



According to the speaker, the Nairobi Convention goes much beyond the current liability for removal of a wreck that takes effect only when it is a danger to navigation. It recognises, for the first time, threat to environment also as a major consideration. The Convention empowers the Administration to effectively deal with wrecks that might occur beyond fairways and inland waters – up to the territorial waters.

Ash Mohammad, Deputy Director General (Shipping), spoke about the initiatives taken by the Indian Administration and some of the amendments to the legislation that are being considered.

Milind Tambe, an experienced maritime

salvage consultant, followed on by explaining the practical aspects of surveys and assessments carried out on wrecks, using photographs from actual operations.

URP Sudhakar, head of IRClass Academy rounded up the session and said: "We are very pleased with the outcome of this seminar. We look forward to organising more of such events which essentially enhance the awareness of participants from industry. We hope that through such awareness, the industry will progress towards greener practices, efficient utilisation of resources and internationally uniform framework for resolution of issues. This will help us to hand over a better world to future generations".



NON MLC2006 COMPLIANT SUPPLY SHIPS COULD BE DETAINED SAYS EXPERT

Non compliance with the Maritime Labour Convention (MLC) 2006 regulation, which came into force on 7 August, could result in North Sea supply ships being detained says shipping and maritime law expert Katie Williams of Pinsent Masons.

Katie Williams said that although most UK operators were already compliant, vessels operating or passing through UK waters under other national flags could now be at risk of enforcement action. "The Maritime Labour Convention consolidates what has been in place in the UK for some years, but a major change is that for the first time it has an enforcement mechanism with real 'teeth,'" she said.

"Many shipping companies and charterers have invested significant time and effort in trying to ensure that they will comply with the new regime, however the Maritime and Coastguard Agency as the UK's enforcement body will be looking to set down a marker that they intend to rigorously apply the new laws. It would be a nightmare scenario for a boat which is chartered at thousands of pounds a day to be detained in port, but it is feasible that in extreme circumstances this could happen," she said.

In addition, she said that there was also a risk that

a British flagged vessel which would be viewed as compliant in the UK could be detained in a foreign port "in circumstances which we would find difficult to understand and this could lead to expensive delays". This could happen if a complaint was made by a crew member and local port authorities had taken a different approach to interpretation of the MLC, she said.

The MLC was established in 2006 by the International Labour Organisation, an agency of the United Nations that deals with labour issues; and entered into force on 20 August 2013. It applies to all commercial ships entering the harbours of parties to the treaty, as well as to all states flying the flag of a state that is a party. The UK became the 41st ILO member state to ratify the MLC on 7 August 2013 and brought with it the 'flag states' of Bermuda, Cayman Islands, Gibraltar and the Isle of Man.

Williams said that although the MLC would protect seafarers and make

owners and operators of commercial ships more accountable, those owners and operators should familiarise themselves with the requirements as they were now equally responsible for matters that had previously solely been a matter for employers.

"Traditionally, grievances or disputes over wages or other working terms would have been a private employment issue between seafarer and employer, but this law creates a new and specific complaints procedure which can be directed squarely at ship owners or operators who will face the same obligations as the employer," she said.

Kenya is the latest country to have ratified MLC 2006. Over the past few months Ireland, Bangladesh, Argentina, Mauritius, Iran and Belize have all ratified the convention. With Kenya's decision this brings the total number of countries ratifying to 64. Once a state ratifies it takes a year for the convention to come into force. The convention came into force just over a year ago for the first 30 countries that ratified.

Three major maritime countries, China, India, and the USA, have still yet to ratify the convention.

GOTHENBURG PORT TAKES EBOLA PRECAUTIONS

Since the beginning of the year, there has been a serious Ebola outbreak in West Africa. A small handful of ships come from the affected area of the 11,000 ships that call at the Port of Gothenburg each year. As a consequence, the port is taking extra precautions when dealing with these ships, the company said.

Thomas Fransson, Head of Security, is the person responsible for quarantine at the Port of Gothenburg. He said, "To ensure that staff handling these calls feel secure, we have taken extra precautions over and above what is stipulated in the international regulations. This includes close contact with the Institute for Infectious Disease Control and direct contact with the ships before they put into port."

The Ebola virus is not airborne but is spread by direct contact with body fluids. Consequently, freight cannot generally be a carrier of the infection. If it is suspected that the crew on board a ship have been infected, the harbour master is contacted and he in turn informs the Institute for Infectious Disease Control and the National Board of Health and Welfare.

"If someone is sick on arrival it is very serious and the duty infectious disease doctor will be contacted immediately. Special transport will then be sent to collect the infected person and other members of the crew," Fransson said.



MEMBERS' NEWS



THE BOAT DATA BOOK REVISED 7TH EDITION

By Richard Nicolson and Ian Nicolson

The Boat Data Book is a treasure trove of invaluable information for boat owners, designers, builders, marine surveyors and chandlers.

This updated seventh edition contains new diagrams and tables of lengths, widths, weights and strengths as well as new data on a vast range of equipment from anchors to masts, propellers to gas cylinders, cleat sizes to winch bases, and hatches to piping.

This is the book you need if you want to find out:

- What size winch to fit
- The breaking strength of stainless steel rigging wire
- The recommended size for seacocks
- What length and size an anchor chain should be

The Boat Data Book is an essential reference book for boat owners, crew – both amateurs and professionals.

About the authors

Ian Nicolson was formerly a senior partner at A Mylne & Co. He has built six yachts for himself over the past 30 years and sailed one single handed across the Atlantic. Professional yachting adventurer, Richard Nicolson, has rebuilt and repaired many yachts from classics to modern hi-tech flyers.

The Boat Data Book is published by Adlard Coles Nautical publishers at £25 and is available from online stockists. ISBN: 9781472907974. Web site: <http://www.bloomsbury.com/uk/special-interest/nautical>

HEAD OFFICE STRATEGY MEETING

On 16 September, the IIMS Head Office team left the office for several hours for a secret location! This is the first time the team has attempted something on this scale and the main aim of this get together was to talk strategy. In particular, the team looked at ways to improve and enhance the head office function and the many areas it is involved in.

The Head Office team



'SATISH' a'SAILING

At last the IIMS's hand-painted artwork gift to myself by our very own staff member, Chloe Bruce, has finally been framed and found its rightful place of grace on the inner wall of my basement Office at my residence at New Delhi. It is proud to be there, almost like a statement. It looks so real and I have heard many a 'wow' from the home members, staff and visitors alike.

I do want to thank the IIMS Head Office Staff and all Members of our Institute, especially Chloe, for this wonderful and apt 'farewell to the President' gift, which I shall always treasure. My yacht, even one framed, is still my yacht and me's going a'sailing.

Boat Ahoy !!!

Warm regards to all, as always.

Satish
Immediate Past President

IIMS LAUNCHES LINKEDIN DISCUSSION GROUP

The IIMS has recently started an online LinkedIn discussion group, which already boasts over 100 members. The aim is to set topics for discussion on a regular basis covering all aspects of marine surveying and associated areas. The first subject for discussion on enclosed spaces brought some very lively debate.



Anyone in the group can contribute, or start a new thread, even if just seeking advice from others. The group discussion will not be heavily regulated and a simple set of rules and etiquette has been published that group members are expected to abide by.

To access and join the discussion group go to www.linkedin.com and search for:

International Institute of Marine Surveying discussion group.



UK SCWG TALKS PROPELLERS!

The UK Small Craft Working Group attracted a good crowd, who met on 22 September at Grafham Water Sailing Club near Huntingdon UK. The day started with a presentation by Eur Ing. Jeffrey Casciani-Wood on the preliminary design and the survey of propellers. Mike Schwarz was in attendance and gave a short presentation to update those present with some of the latest head office initiatives and developments.

After lunch a trip to nearby Clements Engineering had been arranged for the group. Those who came were given the opportunity to look around this facility where propellers are manufactured and repaired.

WEB SITE SERVICE DELIVERS FIRST WORK FOR MEMBERS

Two IIMS members, Peter Morgan and Gaspar Villaseñor, are the first to have benefitted from the new web building service being offered by the Institute in conjunction with Steve Welsh of Lahive Creative Design.

Peter has had his existing site www.lithgow.co.uk totally redeveloped. Peter said, "We recently commissioned Steve to revamp and design our dated website. Quite

frankly, he exceeded our expectations and the end result was to our complete satisfaction, as well as impressing colleagues and some of our client base. We have no hesitancy recommending him to your care. We know a great job will be done and result in complete satisfaction."

Capt Gaspar Villaseñor simply said about his new site www.surveymex.com, "Thank you. I like the web site very much and would use three words to describe it - BEAU-TI-FUL".

Steve can build and host your new web site from as little as £575 + VAT. You provide the basic content for your web site and Steve with his team will build and deliver a simple, but captivating 5 page site that you can manage, optimise for search engines and update yourself (and that is more straightforward to do than you would imagine).

Steve will provide the completed web site to you, including one year's free web hosting (worth about £40), plus free registration of your chosen web site address (if you do not have one). IIMS will handle any requirements from members and will bill you for the work directly. Steve's has set up an example test site for IIMS members to look at <http://demo.lahive.co.uk>. You are also welcome to look at his main site which is www.lahive.co.uk.

MARINE SURVEYORS' TRAINING CAMP

Jakarta International Maritime Consulting is preparing a series of training courses. The first course is about Draught Survey, which is one of the most common methods used for determining the quantity of cargo loaded/discharged in to/from a vessel. This course is being held from 27-31 October at Valley of Blessing, Cipanas, Puncak, Indonesia and is of relevance to Marine Surveyors, Insurance Underwriters, Shippers, Receivers, Ship Owners, Charterers and Terminal Operators. JIMC has the knowledge and qualified personnel to teach you all about Draught Survey.

Speakers include: Capt Irawan Alwi, FIIMS, MNI, MBA, Capt Yahya Setiawan, AssocMIIMS and other JIMC Associates.

Course Content:

Principles and function of Draught Survey • A to Z of a technical Draught Survey • Draught Survey Calculation Exercises • Cargo Losses Prevention in Draught Survey • Examination

The cost of the course is: IDR 5.000.000 or USD \$600 for overseas delegates.

For more details contact:

Fery or Linda H
+62 (0) 21 0877 8020 0287
Phone: +62 (0) 21 8493 3374
Fax: +62 (0) 21 8493 2303
Email: registration@jakarta-maritime-consulting.com
www.jakarta-maritime-consulting.com

SEAWORK ASIA LAUNCHES IN CHINA

Hard on the heels of their success with the annual Seawork show at Southampton Docks, UK, Seawork Asia is the first commercial marine and workboat exhibition based in Shanghai. It is at the heart of this fast growing industry sector and a key meeting point for decision makers. Seawork Asia presents a unique opportunity for organisations to build and maintain their market positions in China and the East Asian Region. The show is taking place from 4-6 November 2014 at SWECC, Shanghai.

See www.seaworkasia.com for full details.

IIMS YOUTUBE CHANNEL LAUNCHED

If you missed notification in last month's News Bulletin, or have not yet had the chance to check it out for yourself, IIMS has set up its own YouTube channel.

Fourteen of the presentations from the June IIMS Conference were recorded and are now available to be watched online at the our new YouTube channel along with a couple of videos on the use of moisture meters.

We aim to increase the video content going forward and will notify members when any new content becomes available to view.

Our YouTube channel is called 'Marine Surveying IIMS'.



Keep your CPD points totals up to date...

For those members who have not yet provided their 2014 CPD record sheets to head office, can you please complete the forms which can be downloaded from the IIMS website. If you have any problems, contact Jan Cox on membership@iims.org.uk and she will email the form to you. If you are at all unsure of the amount of points you have submitted in the current three year cycle, Jan will also be able to provide you with that information. As it is now readily accepted and indeed expected that all professionals in whatever field of expertise or industry commit themselves to a CPD programme, your annual submission is extremely important.

As a reminder for anyone who is new to the Institute, or for those looking to become a member, here is how the IIMS CPD system works.

Members will be required to achieve a minimum of twenty four points accrued over a fixed three year period. i.e. January 2014 to December 2016. This means that every three years the system is reset.

Members will be sent a record sheet and guide on accruable points with their subscription form.

There will be members who are semi retired, or retired who wish to maintain their membership but, are unable to accrue adequate points. Dispensation can be awarded on submittal of a written application. Each application will be reviewed by the Director of the Professional Assessment Committee and considered on individual merit.

The Recording Process

Year 1:

Members will complete the record sheet during the year and submit the completed document at the end of the first year. HQ will log the accrued points. Members recording a "Nil" result, or who do not return their results will receive a reminder from HQ that they must participate.

Year 2:

Members submit their record sheet at the end of year. The points are then tallied and it is expected that a minimum of sixteen points should have been accrued at this stage. Those members scoring less than twelve points will be sent a reminder letter alerting them to the shortfall that they must do more to ensure compliance with the programme.

Year 3:

Members who have not attained the required twenty four points i.e. more than sixteen but less than eight points are sent a warning letter that they must do more to ensure continual development during the forthcoming "monitoring" year.

Score 6-11:

These members are issued with a warning letter that if they do not achieve the minimum eight points in the coming year their membership status will be reviewed and could possibly lead to demotion.

Score 0-5:

Those members who score less than eight points are advised that if they do not achieve a minimum of eight points in the coming year their membership of the Institute will be terminated.

CPD is the responsibility of the Director of the IIMS PAC committee and the Director's decision on all matters concerning CPD is final.

CPD does not mean you need to take a training course.

Picking up points at regular intervals is easier than you realise.

Subscription to a marine publication, journal or magazine:

1 point

Visiting a technical exhibition, boat or other maritime show:

2 points

Attendance at an IIMS organised seminar or training event:

5 points

Dear Sir

Life rafts versus life boats

I beg to differ with Mr John Guy regarding his views expressed in the June 2014 edition of The Report concerning the efficiency and suitability of life rafts as opposed to life boats fitted to ferries.

The main aim when a passenger carrying ferry is sinking is to make sure the passengers exit properly and speedily and have access to buoyancy devices and getting the passengers out of the water as fast as possible.

Buoyancy devices range from life jackets to the cushions or seats (even in aircraft) and the devices to remove people from the water range from the modern version of Carly floats to life rafts and life boats. The rigid rafts found on many Japanese ferries do an excellent job of getting people out of the water quickly.

To blame the large loss of life on the Sewol ho ferry on life rafts as opposed to life boats is unfortunate and in bad taste to say the least.

Korea is one of the major developed countries in Asia trying hard to emulate the Japanese, unsuccessfully, and a leader in technology. It is not some backward 3rd World Indo China entity as is suggested. I doubt very much that you would see any of Mr Guy's "...ageing tonnage ...bounced from European trades because of age or not meeting stricter safety criteria" operating in the Korean trade.

Having had to launch both life boats and life rafts at sea I prefer in an emergency situation of saving lives to be offered a life raft from a small ferry than the difficulty of launching and boarding a life boat in bad weather. Most sinkings do not occur in good weather.

Japan, from where the Sewol ferry was purchased, has one of the largest ferry fleets in the world and their technology is first rate. Their safety record is exemplary. Yet the Japanese prefer rafts both rigid and inflatable on smaller ferries. In Japan where safety is concerned money is not the ruling factor.

The Korean registered Sewol Ferry disaster and the loss of life was not due to the fact she was carrying rafts and not boats but to a number of mitigating facts and perhaps more of that may come out in the weeks ahead but in the atmosphere in Korea where the Government is hiding its incompetence or worse and embarrassment by demonising and crucifying the owners and crew to such an extent that the disaster is being blamed on a 4.5% decline in the annual GDP for the whole country and a 22% decline in the local economy where the ferry operated. This of course neatly shifts any blame from the Government.

The ship could have been fitted with 100 brand new life boats and it would not have altered the outcome of 302 lives lost. There was simply no one to get into the boats or rafts.

There is a Korean English language TV channel called Arirang. When I saw the disaster unfold as it was happening on Arirang TV it was like looking at the aircraft slamming into the twin towers or the Concord exploding in a fire ball in Paris. It was a movie set. It had to be.

For two hours I watched glued to the TV amazed at what was unfolding. Why weren't people getting out?

There were at least 325 small craft in the vicinity according to Arirang and I understand the US Navy offered assistance which was rejected. As later did the Japanese which was also rejected.

And then for the next 2 weeks whenever I had the time to watch Arirang I kept up to date.

The weather at the time of the capsized was perfect. Virtually no wind and no sea. Yet for 2 hours and more this rather large coastal ferry slowly capsized and basically no one got off, that's if you exclude the crew.

There were banks of life rafts on board (approximately 40 x 25 man inflatable rafts) and had they been deployed they would have floated, tethered alongside waiting for people to scramble on board. But no liferaft was freed except when a coastguard man landed on the by now listing deck from a helicopter and kicked 2 rafts into the water. Where was the crew? And despite the talk of strong currents those released rafts stayed alongside. And at this time the main deck was level with the sea and 302 people could have stepped off the deck in to the waiting life rafts. They didn't have to jump or slide down schutes just follow what the Capatin did. One leg over the rail at a time.

If the ship had been fitted with life boats which are harder to launch the same would have happened. Nothing. And you can't just kick a boat into the water. But it is a moot point because there was no one to use either life boat or life raft.

One of the salient features of an inflatable raft is that if it is not released by the crew when the sinking vessels reaches a pre-determined depth say 3 meters the hydrostatic releases cut the rafts free and they float to the surface. Lifeboats don't usually do that.

But on the Sewol ferry even after the vessel had sunk below the surface no raft surfaced. Why?

And even had they been released who was to get in?

The large casualty count in my assessment was not due to the lack of life boats as the author implies but to a culture and a badly trained and gutless crew.

The students were told to put on jackets and wait for further orders. They donned their jackets and waited in cabins and public spaces for orders and they waited for the orders and photographed one another and sent the images to their family and friends. And they waited for the orders that didn't come and by then it was too late and they drowned. If you want to give

advice to young people travelling on ferries first see where all the emergency gear is. Two, listen to the safety demonstration and if there is none ask for one and if there is an accident use common sense and your inbuilt sense of self preservation. You may be on a foreign ship with different culture and you definitely need to be looking after yourself if necessary.

The major fault for the large loss of life lies with a perhaps incompetent but definitely a cowardly Captain and the majority of his crew showing the same yellow streak. The Captain demonstrably deserted his ship when he climbed over the rail half-dressed into a rescue craft and he did so without issuing proper follow up orders and seeing them carried out, which is of course rather difficult from a small fishing boat.

It wasn't the fault of the life rafts.

Or do we condone the Captain of the Costa Concordia for falling into the life boat and going ashore to organise the disembarkation from terra firma? He did have a lifeboat which he used to great effect to take him ashore.

The hypothesis that life boats are better than liferafts has not been substantiated or that the lack of lifeboats caused the loss of 302 mainly young lives which is a rather sordid or unsavoury proposition. Boarding a raft from the water is far easier than trying to get into a boat. Boats traditionally do not have covers against the elements whereas life rafts do.

Modern boats do have awnings but try getting into one from the water. Good luck. Not that life rafts are any picnic to enter.

Life rafts are easy to deploy, most persons with a modicum of training can do it and in a coastal situation more practicable than boats all of which require more than one person of reasonable skill to launch and handle. Life rafts don't require that skill.

And there is the stability and weight consideration for owners. A well-built lifeboat capacity about 50 persons weighs about 2 tons. Plus there is a set of davits to house and launch it. No idea of the weight but say 500-700 kgs. Each boat then comprises of nearly 3 tons of equipment and fuel perched high above the waterline.

Two x 25 man rafts weigh 120 kgs each and their cradles 15 kgs each. Total 270 kgs approximately. There is a significant difference between 0.27 tons and 2.7 tons x number of passengers divided by say 50.

Then there are the maintenance costs.

The reduced weight of the rescue equipment plus the added stability equals an increase in the passenger number and or cargo comparing life rafts over life boats.

You would have to be pretty obtuse not to see the advantage to the ferry operator of rafts over boats and no loss of passenger safety.

Perhaps an enhancement of safety with properly trained, proper seamen.

Written by Mr P Sharp

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ENCLOSED SPACE MANAGEMENT SYSTEM

ARTICLE BY:

Adam Allan, MBA, C.Mgr., MCMI, Managing Director, Mines Rescue Marine
Captain Michael Lloyd, MNM, FNI, Marine Adviser, Mines Rescue Marine

Of all those who board ships and enter enclosed spaces, the surveyors are most at risk. In many cases the spaces they are about to enter are an unknown quantity, therefore they are totally dependent on the ships management team having these spaces properly prepared with a trained rescue party adequately equipped and standing by.

It is now a matter of record that ships have more incidents, accidents and fatalities involving enclosed spaces than any other component of the marine sector. These accidents and subsequent fatalities are predominantly the result of people entering, working in or ironically attempting

rescue from those spaces. This unacceptable situation is no longer tolerable and concerted efforts to address the safety aspects of entry and rescue from these spaces is currently under way. The first step toward this change process began with the identification, (and acceptance), that a problem existed. Many reputable organisations have written about the problem and suggested potential solutions but until legislation is enacted

governing purposeful training and dedicated equipment, the problems and accidents will continue.

The Mines Rescue Service, a non-profit organisation, was formed over 100 years ago by Government Legislation to provide rescue and guidance to the mining industry in the UK. Through this, mines rescue became the UK authority on enclosed space problems. In recent years mines rescue were allowed by the Government to use that accumulated knowledge to the benefit of Industry ashore not just in the UK but in many other countries.

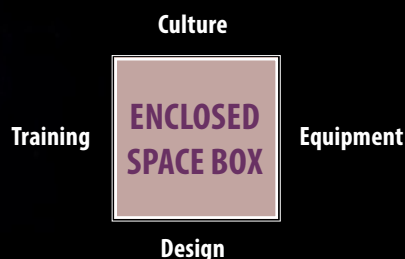


Five years ago it was brought to our attention about the growing casualty rate in enclosed spaces in the marine industry and that, at that time, they had no expertise in dealing with this particular problem. Mines rescue responded by agreeing to set up a specialist division to assist the marine industry and Mines Rescue Marine was established.

Since that time, while engaged in a systematic work and study programme of the often extremely complex enclosed space problems within ships and in the Offshore oil and gas industry, Mines Rescue Marine defined our results in a series of papers on what we saw as the immediate problems with suggestions for improvements to assist in coping and reducing the accident rate.

Our findings were that basically, the contributory causes of enclosed space accidents and fatalities may be seen as a four sided dilemma which may be shown graphically and termed as the 'enclosed space box.'

THE ENCLOSED SPACE BOX



DESIGN

We make no excuse for leading with design as it is not only the most neglected part of the problem but we feel it is from this that all other problems originate.

Basically, it is our contention that if human beings have to enter those spaces, work in them and, if things go wrong, have to be rescued from them, they should be designed in such a way to allow personnel adequate room for entry and rescue. In industry ashore, entry, work and rescue problems are a major consideration in the design of any such space (CDM regulations). If the aforementioned can be accepted as the criterion, then when applied to ships at sea today, many spaces would fail to meet what would be termed as acceptable standards, certainly by shore standards.

So why should ship design be different?

Of course it is recognised that a ship is in itself an enclosed space and that the size, and the structural strength in certain cases will limit what can be achieved but it would seem that at the present time there is no consideration for human activity within enclosed spaces, either in legislation or in the design phase of a ship's construction.



There are many manufacturers and suppliers of excellent equipment, designed to do whatever the buyer requires of it, but before purchasing, always ask yourself two questions:

- **Is it the correct equipment for the job?**
- **Is the equipment 'Fit for Purpose'?**

To be able to answer these questions a high degree of subject knowledge is required. Undoubtedly one of the main considerations will be cost, but the quality of the equipment, ease of use, ease of maintenance and the safety of the people using it, should always be the main drivers in this process.

Enclosed space equipment falls into two categories;

Entry Equipment
(in addition to standard PPE)

1. An Oxygen/Gas detector
2. Proven communications
3. Hands free lighting
4. An EEBD
5. Rescue harness

Rescue Equipment

The worst case scenario during any enclosed space entry is to have to effect a rescue of casualties. To ensure this happens quickly, efficiently and effectively dedicated rescue equipment is essential. In selecting rescue equipment, three key features should be considered:

The Space

When considering human activity in these spaces, the design factors which affect human survivability are;

- **Ease of access into the space**
- **Ease of movement within the space**
- **Rescue Capability**

If at the earliest stages of the design process, these factors could be assessed, and where possible, a standard established, then undoubtedly many improvements can be made to the present situation.

As a prime example, manhole design has hardly any legislation beyond a brief mention that tankers and bulk carriers should have accessibility to allow entry of a man wearing a BA set and should therefore be a minimum size of 60cm x 80cm. It is quite incredible that there is no specific requirement for ALL ships. This lack of minimum requirements for access manholes into tanks and spaces on ships has led to entry into and movement within these spaces becoming extremely difficult even without wearing a breathing apparatus. In such circumstances, any attempt by the ship at rescue from these spaces becomes virtually impossible as even if any rescuer could get in, getting a casualty out on a stretcher would ultimately test the abilities of even highly trained personnel, from this we can see that we appear to be still designing ships with spaces that people cannot be rescued from.

EQUIPMENT

This is where the unofficial motto of the worldwide marine industry 'It's not required by SOLAS' is often repeated as currently there is no specific requirement for enclosed space entry or rescue equipment. For this reason, in the majority of cases, the protection of enclosed space entrants is wholly reliant upon equipment used for fire control. Too often, enclosed space rescue equipment consists of a length of rope and a breathing apparatus drawn from the fire equipment store with which the wearer cannot effect an enclosed space entry wearing the BA to attempt a rescue.

Case studies have shown that the use of such equipment, which is not designed for enclosed space use, has been instrumental in several deaths and accidents.



- *Is it 'fit for purpose'*
- *Can it be easily operated*
- *Can it be easily maintained*

This additional equipment should be immediately available at the point of entry and include;

1. *Breathing Apparatus*
(that can fit through the entry point whilst being worn)
2. *A tripod or quadpod*
3. *A man riding winch arrangement*
4. *A resuscitator*
5. *A first aid kit*
6. *A dedicated rescue stretcher*

In consideration of the number of casualties which continue to occur in enclosed spaces, there must come a time, in line with industry ashore, when enclosed space working and rescue equipment becomes mandatory. Fire fighting equipment is for fighting fires, enclosed space equipment is for enclosed space entry and rescue. They are very different disciplines and should be seen as such.

TRAINING

On the majority of dry cargo ships, those entering the tanks and spaces have to rely on fellow crewmembers who have had no formal training to rescue them and those directing the attempt also having had no formal training in enclosed space rescue management. Regrettably, even on Tankers and Gas carriers, where there is far more concern and knowledge of the problems, there is too often only basic training carried out by unqualified personnel.

Specific Training

Although required in many industries ashore, formal training in enclosed space entry and rescue is as yet not required for seamen on ships other than tankers and chemical carriers. Yet the Marine Accident Investigators' International Forum have found that of the 93

deaths that have occurred at sea since 1997, 76% of these are on ships that were not tankers or chemical carriers.

In their findings, which will not come as any surprise to those at sea, they list amongst the areas of concern;

1. *Lack of knowledge, training and understanding of the dangers of entering enclosed spaces.*
2. *Personal Protective Equipment or rescue equipment not being used, not available of appropriate type, improperly used, or in disrepair.*

In essence, this meant that any enclosed space skills and knowledge is being taught on board often by those with no experience.



In Industry ashore, (in the UK), legislation was enacted to protect all persons when entering, working in and exiting a confined space (enclosed space) in the event of an emergency situation developing. This legislation is reasonably comprehensive and governs all aspects of confined space entry from the identification off a confined space to emergency arrangements. The common thread throughout, remains that adequate training should always be undertaken prior to entry. It also highlights the need for personal protection, in that entrants should be aware of the

environment before they enter the confined space, monitor the air quality continuously, communicate frequently and carry escape breathing apparatus. Additionally, rescue equipment and manpower should be 'available for immediately deployment' in the event of an emergency. Rescue equipment should include breathing apparatus, rescue stretcher, mechanical winch and anchorage point (tripod, quad-pod, etc.), oxygen resuscitator, first aid equipment and any other specialist equipment deemed necessary for that particular entry.



RESPONSIBILITIES FOR SHORE PERSONNEL

A recent judgement in the High Court of the Hong Kong special administrative region was made concerning the death of a surveyor and an assisting crew member from oxygen depletion in an enclosed space on board a ship. The following is an extract;

'A harsher criterion was applied to the conduct of the Master who was found to be 50 per cent to blame. The court started from the premise that the Master is in overall charge of the vessel and responsible for the safety of all persons on board, including lawful visitors. The relevant safety codes provided for a planned entry into any enclosed space with a competent officer or other person appointed specifically for that operation. There was no such operation planned in this case. The fact that the Master had offered the services of the Chief Officer whose presence might have avoided the accident, and that the Surveyor rejected this offer, did not detract from the overriding responsibility of the Master.'

The most important finding of the court was on the question of whether the Master was entitled to assume that the Surveyor was qualified and competent to carry out the tasks expected of him and to follow safety procedures, in particular those relating to entry into enclosed spaces.

'The court held that the Master was not in possession of sufficient information to make a decision about the ability of the Surveyor to deal with any dangerous situation that might arise. The Master could make no assumptions in this respect.'

This confusion was even more apparent when, in conversations with ship owners and dockyard managers, it was revealed that there was a practice in place of the yards, 'giving a letter', stating that they now assumed responsibility for the safety of workers on ships and installations, even though

At sea, before any entry is made into an enclosed space, it is essential that all crew members entering the space ask themselves, are they adequately:

- trained
- equipped
- protected in the event of an emergency

If the answer to any of the three questions is no, then those spaces should not be entered until a positive answer can be given.

CULTURE

Changing the inherent views (culture) of people within the marine industry, toward the problems of enclosed space entry is a formidable undertaking, however as stated earlier in this paper 'the change process' is already underway with the industry generally now acknowledging that there is a serious problem.

Too often, those at sea in senior positions tend to dwell on the past and how they behaved and were trained. 'It was good enough for me when I was learning the job so why change?' There also exists a macho type culture. 'We're seamen, we don't need these shore attitudes out here on the ships'.

Even with those coming on board. Surveyors impatient to get on with the job, limited time to check that

the ship has made all the proper arrangements, the pressure on people to get on with the job as the ship is only in port for a short time or there is another ship waiting.

The culture of safety, like water, flows down. If the Captain is concerned, then those under him will be. If the Chairman of the Company and board are concerned, then the Captains will be. If the owners of the survey company require all necessary procedures to be taken before entry, they will be.

In the majority of shipping companies and marine administrations, the shore culture is still welded to SOLAS. As the ships continue to modernise and change, ports and shore industry keep a pace with that change, unfortunately the various requirements of SOLAS regarding enclosed space training and equipment have not and are being left behind, often now to the endangerment of those it is designed to protect.

Increasingly in the shipping industry, as crews become smaller and ships become larger, the employment of shore labour at sea as well as in port is becoming more common. In the oil and gas fields, on the FPSOs and installations, this type of labour employment is quite normal. Strangely, responsibility for the safety of contractors or shore workers, whether the ship is at sea or in port or dry dock is a grey area in the marine industry.

these were still under the command of Masters or the responsibility of the installation managers.

This assumption in many companies that contractors are responsible for the safety of their workers or that a port or dry dock can issue an indemnity stating they accept responsibility for safety of shore workers while on board the ship or installation is very unsafe, especially when considered internationally, as many countries are quite definite in their legal interpretation that, while the ship or installation is under management, in other words, not a 'dead ship', then the Captain or manager, of that ship or installation is responsible.

Fifty years ago, Hopkins in 'Business and Law for the Shipmaster' wrote;

'Stevedores and other contractors who board a ship as invitees and persons who come on board as licensees for their own private purposes or as guests, are all entitled to adequate provision against pitfalls and traps. Apart from specific regulations, the Master has a common law duty to provide such protection.'

Certainly there is no confusion by Hopkins!

THE 'ENCLOSED SPACE MANAGEMENT SYSTEM'

During the course of our studies into enclosed space problems in the Marine Industry it became apparent that the methods for coping with enclosed spaces on ships and installations are in many cases based around a risk assessment system that can be very flawed. These systems range from, 'a risk assessment created for every space' to just 'one generic risk assessment created regardless of the space'. It is very rare that any assessments exist which give consideration to design problems or particular areas of concern relating to the degree of difficulty to enter and work in that space. It would seem that in the majority

of cases, intimate knowledge of particular spaces rests with the that gained experientially by those on board and when they leave, that knowledge goes with them leaving the relievers to start from the beginning again. It can be said that on the majority of ships, regardless of their safety regimes, there appears to be little consistency in the overall control and protection of these spaces.

The situation is worse for any shore workers who are required to enter these spaces as they will have no previous knowledge of any of the design or pitfalls, risk assessments, (if one exists for that particular space), or indeed rescue procedures and equipment availability to get them out if things go wrong.

For these reasons, two years ago we began developing an enclosed space management system that would attempt to deal with these problems whilst at the same time deal with changing the culture on board.

We started with simple aims, they were that the system must.

- Offer protection to all on board.
- Provide knowledge for the initial entry of all enclosed spaces regardless of their type.
- Provide the ability to contain all relevant information.
- Deal with the responsibility issues.
- Cope with a disparity of ships, installations and their procedures.

Once in place, the system must;

- Provide the ship/installation with a definitive guide to all of the enclosed spaces.
- Be a living document that can be improved and added to as required.
- Attempt to reduce existing paperwork.
- Be easy to access and understand.
- Provide a protection system for all who may enter any enclosed space.
- Be able to be implemented in any fleet or collective of installations regardless of their disparity in size or type.
- Provide both ship/installation and office ashore with instant information regarding any space.
- Deal with the responsibility issue between the ship/installation, company and outside contractors.
- Most importantly, cope with a continuous change of crewing while providing the same protection.



ENCLOSED SPACE AUDIT METHODOLOGY

Whilst recognising that the audit process will undoubtedly be time consuming, once completed, it will not have to be repeated, unless major modifications to the space have been made.

Although comprehensive in design it is relatively simple to implement with downloadable audit sheets as well as Hints & Tips to support the auditor.

The audit itself covers an assessment of the Entry Points, the Space Internally and Rescue Requirements, examples being, the physical size of manholes, difficulty of entry, ability to rig a man riding winch, availability and effectiveness of communications, dimensions of the space, internal design features and the ability to operate whilst wearing a breathing apparatus. The audit also goes on to record all of the manpower and equipment requirements for both entry into and potentially rescue from the space.

On completion of the manual audit the information is uploaded onto the Management System held on the ships computer which automatically categorises the space based around a simple traffic light warning system already implemented and working successfully in industry ashore. Under this system the enclosed spaces on a ship/installations will have one of three categorisations based on the degree of difficulty to get into, operate inside and rescue from each space. They are:

- **Green** - **Low or Very low degree of difficulty**
- **Amber** - **Moderate degree of difficulty**
- **Red** - **High or Very High degree of difficulty**

N. B. Any space from which it is considered there is a degree of difficulty in rescue will be classified as a Red space regardless.

The system also makes provision for uploading current procedural documentation such as risk assessments, action plans, permits and rescue plans. Photographs, relevant ships drawings and notes can also be added as required, making each individual enclosed space record a 'living document'.

The simplicity of the plan should now be apparent. Any worker wanting to enter any enclosed space would be able to refer to the computer for information. That referral will allow the browser to view all available data relevant to that individual space and where necessary, download printed reports to study, use for Tool Box Talks or in some cases email to a third party. As stated earlier, the system should be regarded as a living document providing continuous and permanent (albeit updatable) information regarding all of the enclosed spaces on the ship or facility whilst simultaneously coping with the endemic problems personnel changovers.

At the same time, the computerised enclosed space system for that particular ship or installation is instantly available to the office ashore, enabling ship/installation - company to view the information together and in real time discuss any problem, all having access to the same information. For the office ashore they will then have a fleet wide enclosed space information system.

SHORE PERSONNEL

Increasingly, contractors are being used on ships and installations. The master of a ship or manager of an installation and in particular, their safety officers, are responsible for the safety and safe working practices of these contractors.

In order to help shore personnel, the management system can produce a full printout of information on the space concerned together with procedural documentation, rescue equipment and manpower requirements, they can then be sent directly to the surveyor or contractor for their attention. They will then have the same information as those working on board. Should they not be satisfied with any aspect of the information provided (risk assessment, action plan, etc.) they can be in a position to contact the office directly and discuss any anomalies prior to boarding the vessel/installation. In this way, everyone, whether from the ship, installation or from ashore has access to comprehensive information regarding the space and will ensure that opportunities are available for an exchange of safety information between the ship or installation, the

managing office and the surveyors or contractors.

Think of this management system like a library. Initially empty, but as the various audits take place it gradually becomes populated with relevant information on each of the enclosed spaces and becomes a permanent updatable living comprehensive on board guide. It does not interfere with the ships existing documentation such as risk assessments or ISM guides, rather it incorporates them into the library.

We are pleased to say that in conjunction with VideoTel International Ltd, (world experts on digital marine training and media) the Enclosed Space Management System will be available in DVD format or on line in early September allowing for the very first time, ships/installations to establish their own comprehensive enclosed space library available to all who need to enter enclosed spaces.

Finally it is pleasing to note that a few months ago the IMO issued the following;

SOLAS ENCLOSED SPACE RECOMMENDATIONS

Owners should carry out a risk assessment to identify all enclosed spaces on board the ship. This risk assessment should be repeated periodically to ensure it remains valid. The process of carrying out a risk assessment to identify enclosed spaces should be repeated at regular intervals as circumstances may change.

Competent and responsible persons should be trained in enclosed space hazard recognition, evaluation, measurement control and elimination.

Crew members should be trained, as appropriate, on enclosed space safety, including familiarization with on-board procedures for recognizing, evaluating, and controlling hazards associated with entry into enclosed spaces.

Enclosed space entry and rescue drills are required at least once every two months to ensure that crewmembers are familiar with the actions to be taken. Internal audits by the Owners of the ship's safety management system should verify that the established procedures are complied with in practice.

We could not have said it better!

MASS FLOW METERING IN BUNKERING

The end of the bunker quantity surveyor?



BY LUC VERLEY MIIMS

During the Singapore Bunkering Symposium held on 8 of April 2014 the Singapore Minister of Transport Mr. Lui Tuck Yew announced that the use of a (Mass Flow Metering) system will become mandatory for marine fuel deliveries from 1 of January 2017. Therefore all existing bunker tankers operating with a Singapore harbour craft license must be equipped before 31 of December 2016 with an MPA (Maritime Port Authority of Singapore) approved Mass Flow Metering system.

All new bunker tankers applying for a harbour craft licence after 31 of December 2014 must be equipped with an approved Mass Flow Metering system.

Singapore being the world's leading bunker port in terms of volume, with over 40 million tonnes of marine fuels sold annually, takes a key step forward towards improving transparency, accuracy and efficiency of bunker supplies and will become the first port in the world to mandate the use of

Mass Flow Metering for marine bunkering. The first commercial transaction with the use of a Mass Flow Metering took place in Singapore in June 2012. Currently, 17 Singapore bunker tankers are equipped with Mass Flow Metering systems and are part of a test program of MPA.

Singapore also announced the opening of research lab and test facility to set the standards for Mass Flow Metering in bunker deliveries. This facility is a co-

operation between National Metrology Centre (NMC) and a local firm called Mogas. On a global level, the standards are set by OIML (International Organization of Legal Metrology), Singapore is an observing member of OIML.

As a result of high bunker costs, fuel is 50 to 70% of the operational cost of a vessel (depending on the vessels type). Indicative prices for marine fuels (based on mid-April 2014 Singapore prices): HFO380 (Heavy Fuel Oil 380 centistokes) 588 USD / ton, IFO180 (Intermediate Fuel Oil 180 centistokes) 604 USD / ton, MDO (Marine Diesel Oil) 925 USD / ton and MGO (Marine Gas Oil) 935 USD / ton.

Because of the many factors that are influencing the bunker quantity: temperature, density, low viscosity (MDO and MGO) and very high viscosity products (IFO and HFO) and flow changes during the operation (empty piping system at the start and stop and formation of air, so-called cappuccino effect), it is a complex process with lots of options for an error on the total quantity (intentional or unintentional), even a small error in the total quantity can cost an owner huge amounts of money. For example a 1% difference on the total quantity of a 3.000 tonnes bunker supply of HFO380 fuel costs 17.640 USD! Measuring accurately is of prime importance the bunker industry.

The current methodology for determining the quantity of received bunkers exists out of an old-fashioned process of dipping tanks, measuring temperatures and making calculations (bunkers are sold in mass but measured in volume). Often, independent bunker surveyors are engaged to carry out a bunker quantity survey on behalf of the vessels owner.

Even with the appointment of a bunker quantity surveyor the discussion over the received bunker volumes often result in very big disputes between supplier and receiver of the bunkers. Also several un-ethical practices have been taking place.

With the introduction of Mass Flow Metering bunker volume determination should be as simple as taking fuel for your car; the received quantity can be read from a meter.

However, the measurement is a bit more complex than the fuel delivery for your car in a filling station. Mass Flow Metering is based on the Coriolis flow meter theory.

A coriolis meter exist out of flow tubes and a series of sensors, in the meter the force is measured that vibrates the flow tubes, this vibration and the deflection caused is converted into a mass flow measurement. Furthermore, the temperature and density is

measured. Out of this combination of measurements a volumetric flow is calculated.

The accuracy of a Mass Flow Metering system is +/- 0,5%. The biggest advantage of the Mass Flow Metering system is that the measurement is done directly in mass, no volume conversion required.

Installation of a Mass Flow Metering system on a bunker tanker costs all inclusive around 300.000 USD. The Singapore government is helping the industry by offsetting part of the cost. Currently, the systems of 2 manufacturers (Emerson Process Management and Endress + Hauser) are approved by MPA for use in Singapore.

Some major shipping companies such as Maersk and Evergreen are installing Mass Flow Metering systems on the bunker receiving line of their vessels to check received bunker quantities. The Mass Flow Metering system on a bunker tanker works in both directions for receiving and delivering bunkers. The system onboard of receiving vessels is only working in one direction for receipt of bunkers.

Mass Flow Metering is a new technology that will enable bunkering operations to be more transparent.



Picture source:
Martin's Marine Engineering Page

USEFUL WEBSITES:

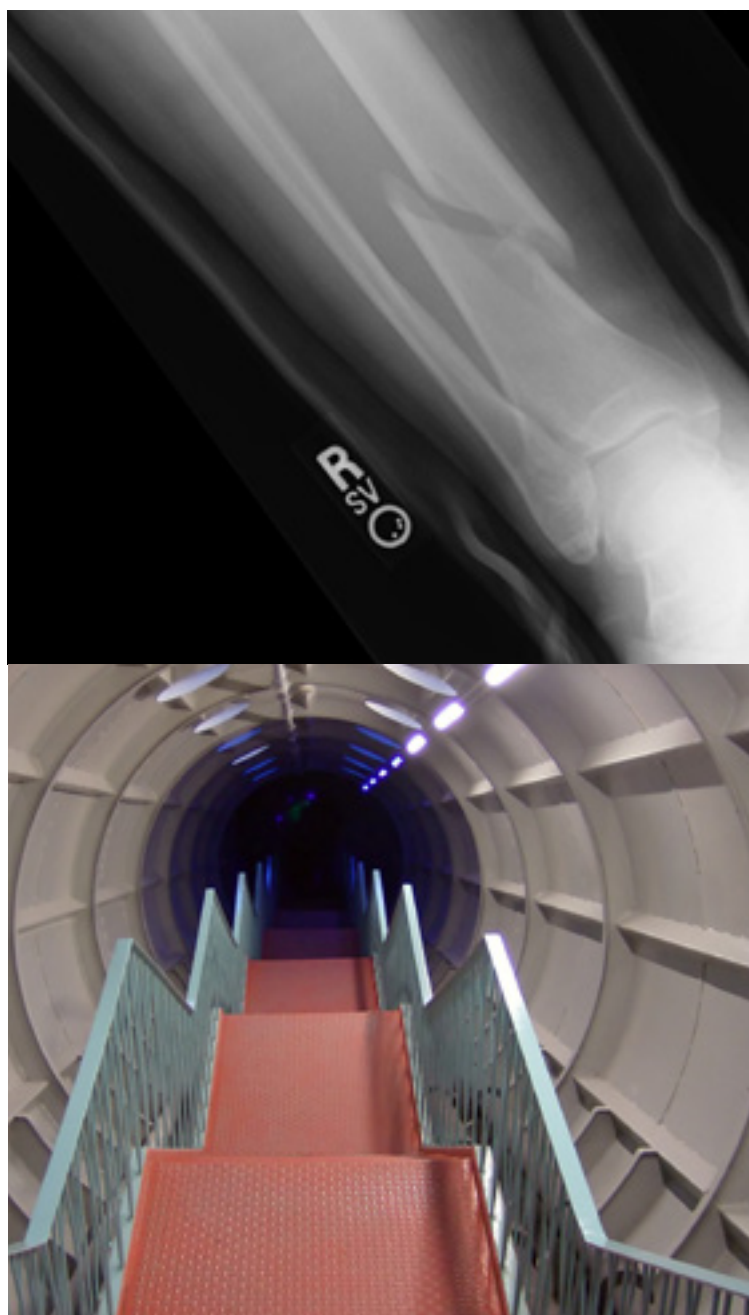
- Websites of MPA approved manufacturers for bunker fuel mass flow metering systems: <http://www.sg.endress.com/> <http://www2.emersonprocess.com>
- Website of MPA Maritime and Port Authority of Singapore: <http://www.mpa.gov.sg>
- Website explaining the Coriolis Flow Measuring Principle: <http://www.youtube.com/watch?v=XIIViaNITlw>

CONFIDENTIAL REPORTING OF SHIPPING INCIDENTS:

The Mariners' Alerting and Reporting Scheme (MARS)



There is an important free resource available to the whole of the shipping industry that makes a major contribution to safety and that surveyors can help to improve. This is the Mariners Alerting and Reporting Scheme (MARS) operated by The Nautical Institute. MARS is a free resource and The Nautical Institute hopes that surveyors will help to make its existence known to the maritime world. The Nautical Institute wants as many mariners and, indeed, as many in shipping as possible, to benefit from lessons learned from accidents and near misses. Surveyors can spread the word to let mariners and companies know the resource is there.





The background to MARS is known to all; across the major transportation modes and in many other fields, human error looms as the leading cause of both accidents and incidents. In recent years, the definition of human error has been expanded to include concepts such as unsafe supervision and organisational influences (e.g. resource management and operational processes). In the maritime industry approximately 90 percent of accidents can be traced to human error despite the promotion of regulations, training and quality management systems.

As onboard systems become 'smarter' and more heavily used, the fear is that human operators will fall behind in their training and ability to safely operate the new technology. These and other technology changes, coupled with greatly increased numbers of operations, increase the risk that incidents and accidents will occur. The feedback from incident reporting systems is a vital early-warning tool for decision makers and planners tasked with improving safety margins. So MARS was devised. It is now a substantial database from over 25 years of reporting to The Nautical Institute.

How can surveyors help? We all know that reporting of incidents goes against our natural instincts; pride and prejudice are strong influences and it is human nature to want to hide such events rather than broadcast them, especially if there were no severe consequences. Since nothing bad happened,

who will be the wiser? And why tell anyone, anyway? Surveyors with their multiple visits to vessels are well placed to help promote a reporting culture. We all know this is not easy and that it takes firm leadership and commitment to the principle of continued improvement. Masters need support in establishing such a culture.

Without data, nothing can be analysed. Trends cannot be identified and the unsafe conditions lurking just below the surface cannot be corrected. Creating a 'just' or 'no-blame' culture is one of the single biggest factors in encouraging and enabling a widespread reporting culture.

Reporting in the marine industry is accomplished on many different levels and marine surveyors are in a unique position to help. Their employment takes them on board many different vessel types. This means they can observe generic problems across the industry – problems such as preparations (or lack of) for entering into enclosed spaces; hydrostatic release systems wrongly attached; markings/warning notices obscured and poor procedures.

Reporting these experiences can contribute to the database of common trends in the industry and alert others to take preventative action. As Captain Zarir Irani AFNI FIIMS, of Constellation Marine Services in Dubai says: "MARS is an extremely important initiative. It benefits the entire maritime industry by enabling us to learn

from one another's mistakes and avoid accidents. Recollecting the details of a published MARS report can mean that someone somewhere, at sea or ashore in the management office, could take avoiding action in a similar situation." At The Nautical Institute we understand surveyors are employed for a specific purpose, but the industry would value reports of a generic nature which would not compromise the confidentiality that surveyors need to adhere to.

Clearly, it is just as important to report violations of procedure as it is to report close calls, or actual casualties. Not only do violations of procedure tend to increase risk, these 'rogue' acts are a symptom of a malaise that must be addressed. And that is not the only bad news. If violations become prevalent yet due to luck, no major accident ensues; the risky behaviour will be validated.

The only way to sustain a state of intelligent and respectful wariness is by creating a safety information system that collects, analyses and disseminates the knowledge gained from incidents, near misses and other 'free lessons'. To achieve this, it is first necessary to engineer a reporting culture – not an easy thing, especially when it requires people to confess their own slips, lapses and mistakes.

So how can surveyors help? They can become correspondents and send MARS confidential reports on incidents, no matter how small.

A confidential report provides the opportunity to alert colleagues in the industry to potentially dangerous situations without fear of incrimination. The reporting scheme creates awareness of trends and potentially dangerous minor occurrences leading up to major accidents.

MARS reports can be submitted online directly through The Nautical Institute's website: www.nautinst.org/mars or e-mailed to mars@nautinst.org

Those making reports are asked to pass information on confidentially but not anonymously, which ensures reports are not manipulated by those promoting a particular issue, or that a series of reports are filed by an individual purporting to be several reporters. Anonymous reports would make the scheme unreliable and generate grave doubts about its credibility. Confidentiality is maintained at all times. Reports are received by the editor, who works independently of NIHQ, and who may contact the reporter if further details are required. Ship and personal names and any identifying characteristics are then removed from the report before publication as a supplement in The Nautical Institute's monthly journal *Seaways*. The original report is then deleted. The only information kept by The Nautical Institute is the published report.

MARS is open to all and differs from accident reports to flag state authorities and international organisations in that it provides

an information service; whereas an official report may be the result of investigations by authorities. These authorities are perceived to be enforcers and prosecutors by mariners and there is reluctance to submit reports where they may be incriminated. They need have no such fear about MARS.

Surveyors could also help to ensure that MARS reports are used widely throughout the industry so the lessons learned can be disseminated. This is, after all, their purpose. Reports are available for free through The Nautical Institute's website and can be analysed and linked to other reporting systems to create reports of meaningful data for use in understanding causes and trends of marine accidents.

The MARS database is fully accessible to the general public and can be searched by key words or phrases, by subject, by year and by the report number. Official reports from accident investigation boards such as UK Marine Accident Investigation Branch (MAIB), Australian Transport Safety Bureau (ATSB), Transport Safety Board of Canada (TSB), and USCG, are also included as well as reports from P&I Clubs and from sail training vessels. MARS reports are used by a number of organisations throughout the shipping industry – P&I Clubs, shipping companies and shipping journals all regularly publish MARS reports as a matter of routine.

The system has now been going for long enough that it

is recognised by most seafarers as a forum to raise awareness of hazards and to bring them to the attention of others without fear of reprisal. Reports are read by seafarers and used in discussions at safety meetings onboard ships. Companies study MARS reports to see if there is a requirement to alert ships in their fleet and a number of companies are now submitting safety management system reports to MARS with the added advantage of a 'lessons learned' section within them.

Confidential incident reporting systems are not a foolproof method of data acquisition. They are subject to the biases and fears of the humans who use them. Voluntary incident reports also cannot be considered a representative sample of the underlying population of events they describe. But as MARS has demonstrated for many years that, if the people at the 'sharp end' of day-to-day operations are encouraged to report safety problems they encounter to a programme they can trust, safety goals will be reached much sooner than if stories of those lessons learned go untold.

All sectors of the marine industry are invited to make the best use of this resource, to promote the contribution of reports to the scheme, and to use the published reports to improve safety. We urge surveyors to take the message to the ships they visit and help us all to make those vessels safer for all who sail on them.





THE PAKISTAN SHIPBREAKING INDUSTRY

or as it is also known

THE GREEN SHIP RECYCLING INDUSTRY

PART 2

BY CAPT. KHALIL U KHAN

Shipbreaking is a hazardous industry for (a) the workers and (b) the environment. It is a fact that at present Pakistan is one of the world's largest shipbreaking countries and it ranks fourth by volume in the annually scrapped ships around the world. Until now only minor attention has been paid to this important sector in Pakistan, both by the Government as well as other business sectors. Although dangers are presented in shipbreaking, workers in Pakistan are still not protected.

In the 1980's, the Gadani ship breaking yard was described as the world's largest, with more than 30,000 direct employees producing about 1 million tonnes of scrap. By 2001, only about 160,000 tonnes of scrap were being produced. High customs duty and competition from ship breaking yards in India and Bangladesh have reduced Gadani's output. A reduction in taxes on scrap metal improved production modestly, but it is still much below its past volume. Gadani employs around 5,000 workers.

The legal status of ship breaking in Bangladesh and Pakistan is unclear and there is no specific regulation even after 30 years of operation.



i) Status of existing rules and regulations in ship breaking yards in South Asian Countries

As under;

Parameters	India	Bangladesh	Pakistan
Specific Rules for Ship breaking	Yes	No	No
Cargo Free Certificate	Yes	Yes	Yes
Gas Free Certificate	Yes	No	No
Waste Disposal Facility	Yes	No	No
Labour Insurance	Yes	No	No

ii) Global ship dismantling activity

Country	No of Vessels	* Sum of LDT	% of all Vessels	% of LDT
India	2,245	16,135,949	58	45
Bangladesh	529	7,737,562	14	22
China	379	4,794,533	10	13
Pakistan	192	3,521,888	5	10
Vietnam	29	372,882	1	1
Mexico	18	75,746	0	0
Turkey	109	379,641	3	1
Spain	18	59,439	0	0
Unknown	241	1,255,762	6	4
Total	3,760	34,333,402	97	96
Clarkson's total	3,877	35,681,405	100	100
Others	117	1,348,003	3	4

Source: Clarkson's Demolition Data

*LTD : Light Tonnes Deadweight.



THE CUTTING PROCESS

India and the other major ship breaking countries such as Pakistan, China, Bangladesh, Vietnam, Mexico, and Turkey follow the beaching method, rather than the more advanced dry dock method. In the beaching method, the ships come ashore at high tide; as the tide recedes, the beach becomes the work station.

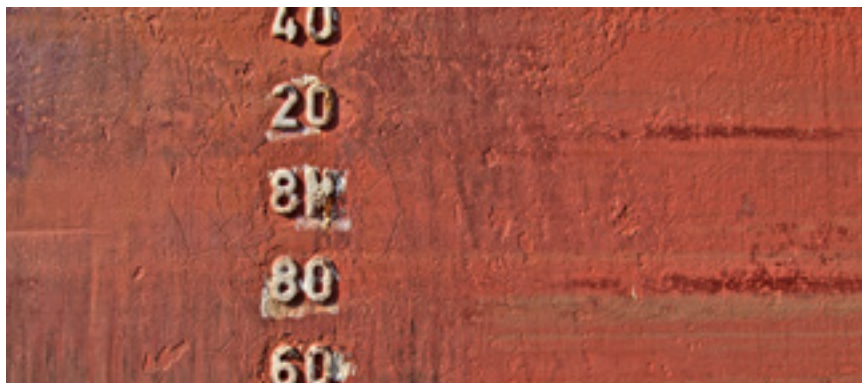
iii) Average price realization

Country	Average Price paid per LDT
Bangladesh	US \$ 325
India	US \$ 300
Pakistan	US \$ 300
China	US \$ 280

Source: Clarkson's Demolition Database, 2004

iv) Ship breaking in million dead weight tonnage

Country	2001	2002	2003	2007	2008	2009
China	5.7	5.7	10.5	n.a.	n.a.	n.a.
India	7.9	10.8	8.7	0.5	1.9	2.5
Bangladesh	9.4	8.8	4.5	n.a.	n.a.	n.a.
Pakistan	3.7	1.7	1.3	n.a.	n.a.	n.a.
Others	1.1	1	1.2	n.a.	n.a.	n.a.
Total	27.8	28	26.2			



SHIPBREAKING INDUSTRY UPS AND DOWNS

In the year 1978, Gadani beach was full of activities. That same year Gadani was classified as a port and reduced import duties. More than 150 ships were scrapped and produced approximately one million tonnes of scrap. This time was witnessed because of our green industry. It was possible that marine and industrial components were available at a very competitive price. The ship scrapping industry made it possible by providing jobs to thousands of people (i.e approx 30,000), however it was destroyed to a downward level, later around 1980's due to unattractive government policies and taxes on this sector.

However during the regime of Nawaz Sharif i.e, in the year 1992-93, the Gadani beach turned into the largest ship breaking industry in the world and made it more than \$1 Billion industry. Later on the same Prime Minister imposed strict tariffs on the ship scrapped at the Makran coast. These strict steps and policies by the government destroyed the largest shipbreaking industry in the world. We obtained ships at scrap value and were able

to provide valuable ship engines and components and other repair material to entire industry marine and non marine in Pakistan. It was pride to us that the Gadani beach also provided raw materials to Pakistan's Re-rolling Mills at a very low cost. However, this situation was halted the industry by early 2000's.

The Government imposed heavy taxes which ruined the booming industry. This was not only because of this but also various reasons of our social and financial set up. Then it was felt to revive the shipbreaking in Pakistan. It was decided by a group of this industry who have successfully lobbied for reducing duties and taxes. The Industry has thus recovered considerably although overall values remained far below of those of Bangladeshis and Indians.

At this time, the Pakistan shipbreaking Industry as well as the Indians needed something to boost their shipbreaking industries. Fortunately, this vessel 'Kapetan Machalis', the biggest tanker available for breaking in the market attracted interest from both countries. However, Pakistan was successful in acquiring the Kapetan Michalis for scrapping.

Being the world's largest ship for scrapping, it was considered the Kapetan Michalis would overcome the shortage of iron / steel badly needed for construction projects and it would revive the slow movement of this industry.

It was estimated that it will take about one year to dismantle this largest ever ship in Pakistan being scrapped. It was an experience for everyone in the industry. The scrapping of the Kapetan Michalis gave lot of opportunities to the people of the shipbreaking industry which was sinking at that time.

The shipbreaking industry was capitalizing in Europe at this time, but high wages and the increasing cost of keeping environment clean, hygienic conditions and safety standards, provided Asia to emerge as an alternative. Now, most of the vessels were on the beaches of India, Bangladesh and Pakistan, where environmental and other regulations are either non-existent or not clearly enforced.

SHIPBREAKING SCENARIO

Pakistan's shipbreaking industry started struggling since 1997 when the introduction of taxes, sales and higher duties on purchasing vessels for ship breakers made it difficult to earn a reasonable profit.

In the early 1990's, a 45 percent customs duty was imposed on ships imported for dismantling. This adversely affected shipbreaking activities at Gadani, almost halting the industry by the early 2000's. In recent years, ship breakers and local authorities have successfully lobbied for reducing duties and taxes. The industry has thus recovered considerably recently, although volumes are far below those of Bangladesh.

Shipbreaking is the largest industry in Balochistan province providing local employment to 20-25 percent of the total Gadani workforce and a major source of

tax revenue for the provincial and federal government and for the Balochistan Development Authority (BDA). It is reported that the federal government proposed additional taxes on ship breaking activities recently but that these were dropped after the intervention of the Chief Minister of Balochistan.

As I approach the end of my article, I would like to impart some very interesting information as to our most important shipbreaking industry.

At Gadani there are 132 ship breaking plots. Some two-thirds are under private ownership, the rest are owned by the BDA. At present, about 30 active ship breakers operate on land leased either from these local landlords or from the BDA. There is a lot of attraction to get scrap steel for the considerably usage in the construction sector.

About 75 percent of the ship breakers are from the Gujarati community, 20 percent are from the Punjab, and the remaining 5 percent are of Pathans and other descent.

The main entry barrier is the availability of shipbreaking yards and plots. Actually, there is no real exit hindrance, and plot owners can leave at will. The Pakistan Ship Breakers Association formed in 1979 is the main organization in the SBRI in Pakistan.

Given the present political conditions in Pakistan, it is difficult to get a clear picture of current market conditions for ship scrap steel. Ship plate and melting scrap from Gadani are used as an input to the 50–60 re-rolling mills in Sindh and Balochistan. The research primarily indicated that some 70–75 percent of Gadani's production is destined for Karachi's re-rolling mills and 25 percent for the Punjab. The industry is thus significantly localized, with small re-rolling mills in particular dependent on ship breaking for their production.

Pakistan's steel industry has undergone a difficult period in the past decade. Total consumption in 2005 was estimated at 4 million tons. In the so-called unorganised sector, there are,

- I) 80 scrap melting plants (mainly induction furnaces)
- II) 334 re-rolling mills. Most of them are located in Punjab
- III) 250 in Lahore, 16 in Islamabad, and 16 in Gujranwala
- IV) 52 in Karachi, Sindh.

Gadani ship scrap contribution to Pakistan's steel consumption and production is also significant, though difficult to assess. With an average output of 500,000 tons per year, it could account for up to 15 percent of Pakistan's steel production.

DESIRABLE ACTIONS FOR SOUTH ASIAN COUNTRIES TOWARDS THE SHIP BREAKING INDUSTRY

At present, according to the Shipbreaking Platform, India and Bangladesh are the world's largest ship breaking countries. Pakistan is in terminal decline.

- More investments are needed in Pakistan to achieve an adequate institutional capacity,
- Provide ground-level protection for SBRI workers,
- Enforce environmental regulations.

Although the SBRI industry is situated in a relatively unpopulated area, infrastructure improvements are needed in the capacity and safety of the main road for transport of all waste and reusable materials generated in the ship recycling yards.

Significant infrastructure and capacity development in the hazardous waste management sector is required in particular in the long term in order to achieve proper storage and disposal levels leading to compliance with national regulations, the Hong Kong Convention, and other relevant international agreements.

Investments in hazardous waste management and waste disposal may present opportunities for engaging in public-private partnerships to the benefit of the local urban area of Hub, the greater urban zone of Karachi, the Port of Karachi, and the ship breaking and recycling industry.

Environmental protection and workers' safety are matters of great concern. Sea water, soil, ground and surface water and air are all being polluted. However, the research community is divided on its severity. Casualties at the yards, mostly due to fires and falls, are declining in Pakistan but are still high and not all cases may be reported.



REPORT WRITING *is certainly not a dying art!*

BY JOHN KILHAMS

The art of report writing is the 'key weapon' in a marine surveyor's armoury. It is what he/she lives or dies by. It is your intellectual property. It must be accurate, thorough and consistent. But do your reports actually do what they should? Time for a refresher! The Report asked John Kilhams, recently retired from IIMS head office, who runs the Institute's report writing one day courses, for some tips and advice on good, basic report writing techniques and habits.

A good report should give the information to your client to enable him/her to make an informed decision on the condition of a vessel and whether to proceed with the purchase.

Even the most experienced marine surveyor can potentially get caught out in this day and age as society gets ever more litigious with clients and lawyers seeking to push the boundaries, looking for a scape goat when something goes wrong. Therefore, your report must provide you, the surveyor, with protection under the law in the event of a disagreement, or a claim made by your client for omissions, or errors possibly made by you in the execution of the survey.

This is why the Institute have a strict membership upgrade requirement for applicants to provide a survey for inspection by the membership committee. In recent years they have found that surveys are regularly falling short of the required standard. That is also why IIMS offers one day courses on report writing to assist upgrading members. The aim is not to set out to totally change your report

writing style, but is to make you aware of how you should protect yourself against possible litigation and still provide the information required by the client.

An absolute essential requirement is that you have in place a full Terms and Conditions sheet that the client can see. This should clearly point out the scope of your services - what you will do in the course of the survey and, more to the point, what you will not do. It should also state your payment policy. You may need to have the vessel ashore so you need to explain to your client his commitment in this area. The client also needs to understand that the survey remains your property and you only release a copy to him, which should not be copied or passed to any third party without specific agreement by you in writing. Any liability relating to the survey can only be claimed by your client and not passed to future holders of the survey. Your terms and conditions are important and you should provide a copy to your Personal Indemnity Insurers for clearance. They will almost certainly ask to see a copy anyway, prior to offering cover.

The next most important item is the Contract. It has become apparent that some surveyors are operating without adequate Contracts in place, or without getting these signed by the client prior to starting the survey. The Contract should reinforce the terms and conditions and confirm the main points. So for example, if you are not an engineer you need to clearly define this in your Contract and the extent of the engine inspection you are able to provide. Anything you put in the Contract has to be reasonable as seen by the law. You can put in that you restrict your liability to one year or twelve months, but if the case is contested in court the judge will over-ride this as in law you are liable, although this reduces annually, for up to six years. If you cease trading tomorrow you have to keep your PI going against possible future claims.

The Contract is where you can give notice to the client on specific issues with the vessel, such as the craft is stored in a position which restricts access to a particular section of the hull. This needs to be written into the Contract and signed by the client before starting on the survey. It is a continual criticism that there is insufficient time to get the documents signed, but with modern technology this can all be completed by email. A good system is to have your Contract and your Terms and Conditions in one file so they

are always sent at the same time so preventing the possibility of forgetting anything. Alternatively, if you are dealing in hard copy, have your Terms and Conditions printed on the back of your Contract.

It is important that the report is produced in good written English. This requires careful attention to spelling and grammar. If sentences are constructed poorly they can be read as meaning something completely different from what you intended. Do not rely totally on spell check systems. Have all reports carefully proof read by a third party if you feel you are not competent in this area. This will delay delivery of the report a little but is necessary if you want to be seen as a professional surveyor. You may feel that if you read through your work a few times that you will pick up the errors. This is not the case. You need a different pair of eyes to find these.

The collection of data in this modern age is easy as we are fortunate to have all the digital tools available to assist us in this task, but do not throw away the note book and pencil. Digital technology is good and useful but should be used with care.


Some surveyors use hand held dictaphone systems to record their findings. This works for some, but has limitations as in high wind conditions the recording can become obscured by background noise. You may also find this system inconvenient if you have confidential data to record. I have seen laptop computers and tablets being used but I consider these vulnerable in their use afloat.

The area that has expanded extensively over the past ten years is photography. The new digital camera can put pictures into your report within an hour or so. This has meant that reports are now in some instances turning up as a list of pictures with captions. This is a dangerous situation and should be avoided. You should use pictures to emphasise or support the text you have written, but only if it is really necessary. Some clients will benefit from the picture if their knowledge is limited on a particular area of the craft. Great care should be used when choosing a picture for insertion to ensure that there is nothing in the picture that you have not explained in the text. You should always have an indication of scale included in the picture. I would advise you take a lot of photographs but keep them for your own reference, only using in the report those that are really of assistance in enabling your client to fully understand the point you are making.

Digital cameras can be pushed behind joinery, or into lockers, under keels and deep into the darker corners of the craft structure. This raises a further issue which needs to be covered, which is to say in your Contract that you will only report on areas of the hull which are accessible without removal of fittings and fixtures and then start showing pictures which you have taken of areas which are clearly not normally accessible. You need to make sure that you cover yourself should you be asked to justify how you are able to cover some areas and not others, such as by putting a caption to the photograph saying something like - "This picture was obtained by insertion of a digital camera and the image it has produced indicates the need for removal of joinery, or other items for further inspection. A full analysis cannot be made from this image".

This is a brief introduction to the type of issues that are discussed in the report writing course. We all think that our reports are excellent and a common statement that is made is that - "My clients are happy with what I produce". Your client may well be happy with a report that offers you no protection, so maybe it's time to meet up and discuss the way reports can be improved.

The Institute runs report writing courses at Portchester several times during the year and these will be advertised in this magazine, newsletter or on the website. Just call the office for more details of the next report writing course, or to register your name for the next one on +44 (0) 23 9238 5223.



PRESERVING EVIDENTIARY VALUE OF DIGITAL IMAGES

In the Marine Surveying profession we are never out to do a survey without a camera. Understanding imaging techniques and preserving the evidentiary value of the images you have taken is no less important than the physical survey you carried out!



BY MILIND TAMBE FILMS

When I first touched on this subject in my book *Imaging Techniques for Marine Surveyors* and spoke about it in the workshops that were conducted on the same topic it came to light that this is one aspect of marine surveying that needs a lot of deliberation and discussion.

There are several myths that surround this subject, most of them owing to ignorance.

The aspect of the evidentiary value of the photographs that you would take as a Marine Surveyor could be challenged when cases you have handled end up on the tables of arbitrators, or the court of law.

So, irrespective of whether as a surveyor you are involved in such cases or not it does make good sense to have a sound understanding of the whole issue including the basics of digital imaging.

Today there are very few individuals who do not have access to an imaging device. When I say imaging device it does not mean a dedicated camera. Today a lot of electronic devices have imaging capabilities and that is the basis of my statement! Pens, Phones, Tablets, Goggles – I must ask the teenage generation for more input in this area! All of these capture images digitally.

I am not going into how digital images are captured and how they are different from analogue images,

but rather I shall touch on a level above this. I shall discuss this topic partially as an article and partially as a DIY tutorial.

Before I go ahead here is my disclaimer! I am not here to promote either traditional film photography or digital photography. I learnt both and I love both. Both are unique in themselves. I will just use the two to compare techniques for understanding. I don't claim to be an expert in photography, nor am I one; but I rather claim to be a student of photography.

A FLASH BACK

When I started my career in marine surveying, traditional photographic films were being used for image capturing. I remember having a stock of film rolls in my survey bag of different ISO's stacked in plastic pouches just to enable me to be ready for that imaging situation that I may encounter anywhere on the ship, including the deck to the engine room to the double bottom tanks, et-al!

That meant many a time a partially used film was rewound halfway through to change to a film of higher ISO to cater to change in lighting situations. That also meant having to develop the right technique to keep the winding tab sufficiently out to enable using the film again from the frame last used +1 (ask me how and I shall tell you, but some of you of course know how simple it is with an SLR camera). And yes of course I had the blue cooling filters for capturing images under tungsten lights on deck at night and the FL-D and the FL-B filters for the fluorescent light conditions in the engine rooms.

If my survey was to take a long time to conclude and it would take me long to get back to my office to have the film (s) processed, it was necessary to have them duly marked to be able to identify which film had what images. In the geographic area where I practice,

it also meant that the films would often have to be protected from moisture. The magic grains always came handy – silica gel. I loved the way the gel granules would change color from pink to deep purple to clear transparent on heating to get rid of the moisture and to make the silica gel hygroscopic once again.

Then was the time to take the exposed film to a professional processing lab to have the films processed and printed (that was easier than hours in the dark room – at least while on work none of the survey firms I worked for had dark rooms, so I was saved of the labour and I would have had to process films for others too). Then came the archiving of the films with id numbers/codes labeled on the sleeves with details of the date and place where the pictures were taken at times jotting down the special noting of apertures and shutter speeds used (that was limited to some few pictures which may subsequently need explanation on the technique).

Sounds familiar to many, does it not?

FAST FORWARD

How many of us do that today? Or let me rephrase it - How many of us have to do that today?

Today I go out with perhaps just one camera and a memory card and may be a spare set of batteries for the camera. I can change my ISO between two subsequent images at a flick of a button (without having to know how to rewind the film mid use so that it can be used again).

I can change the white balance of my camera to adjust between the lighting condition of the last image that I took on the deck and the next one that I am about to take in a fluorescent tube lit Engine room – again with maybe a couple of flicks on the settings button of the camera. No lugging around fragile filters anymore (they were pricey at that time at least in this part of the world).

Though I carry spare memory cards (the present day equivalent to the film of the past), I generally do not need to use them during a course of a normal survey when I have an 8 GB card already installed in the camera. The second one is just as insurance backup. Life has become easy!

Now one may ask why you carry a second card; an 8 GB card should be able to store a considerable lot of images and yes it does! But then I always set my camera to capture images at the lowest compression ratio that it is capable of.

A most common approach by many is to try and accommodate as many images as possible on the card during a prolonged survey by reducing the image resolution of the camera, thereby allowing more images to be stored on the memory card.

This is done by a process called image compression. The camera guesses what details are not required in the image in order to reduce its size and goes about its own in removing details from the image to compress the image size (high compression ratios) on the memory card. The first mistake!

If one now wants to make large prints of such compressed images for purposes of evidence, you don't have enough detail in the image to give you a sharp crisp and detailed image. The final prints of say 8 x 10 inches would turn out to be grainy. Would you want to prove your point with such an image? It is unwise to use the high compression mode just to accommodate more images on your memory card. Rather carry spare memory card in your pocket and take images at the lowest compression ratios to preserve detail.

Some cameras of lower resolution may not be suitable for making images that need to be presented as evidence. As warned by experts in the field of digital imaging, any camera with lower than one megapixels would yield images of questionable quality¹. Now I am sure many of you would ask me who uses a one mega pixel camera any more when even mobile phones have 40 Mp cameras.

1 [Can Juries Really Believe What They See? New Foundational Requirements for the Authentication of Digital Images - https://law.wustl.edu/Journal/10/p267_Witkowski_book_pages.pdf](https://law.wustl.edu/Journal/10/p267_Witkowski_book_pages.pdf)

Now that we know what not to do in terms of image compression ratios and camera resolution, we start off taking images thinking we can now have images that have a sufficient evidentiary value. That is partially true but we are not at the mark yet.

We all know that our images contain metadata? And that such data is discoverable? When was it the last we checked the metadata? Not often - right? Don't be surprised. Neither do I, unless necessary. But then do we know when is it necessary to check the metadata or what happens to this data when we save, copy of change the images? It's worth knowing.

Here comes the DIY tutorial!

We will see what metadata is. (I am going to use one my own photos to avoid copyright and model release issues.)

Out of the set of the photos on the memory card I select one photo here which is circled: I have not yet down loaded this from my memory card and I select the photo and right click and select properties (I am using windows 7 OS by the way).

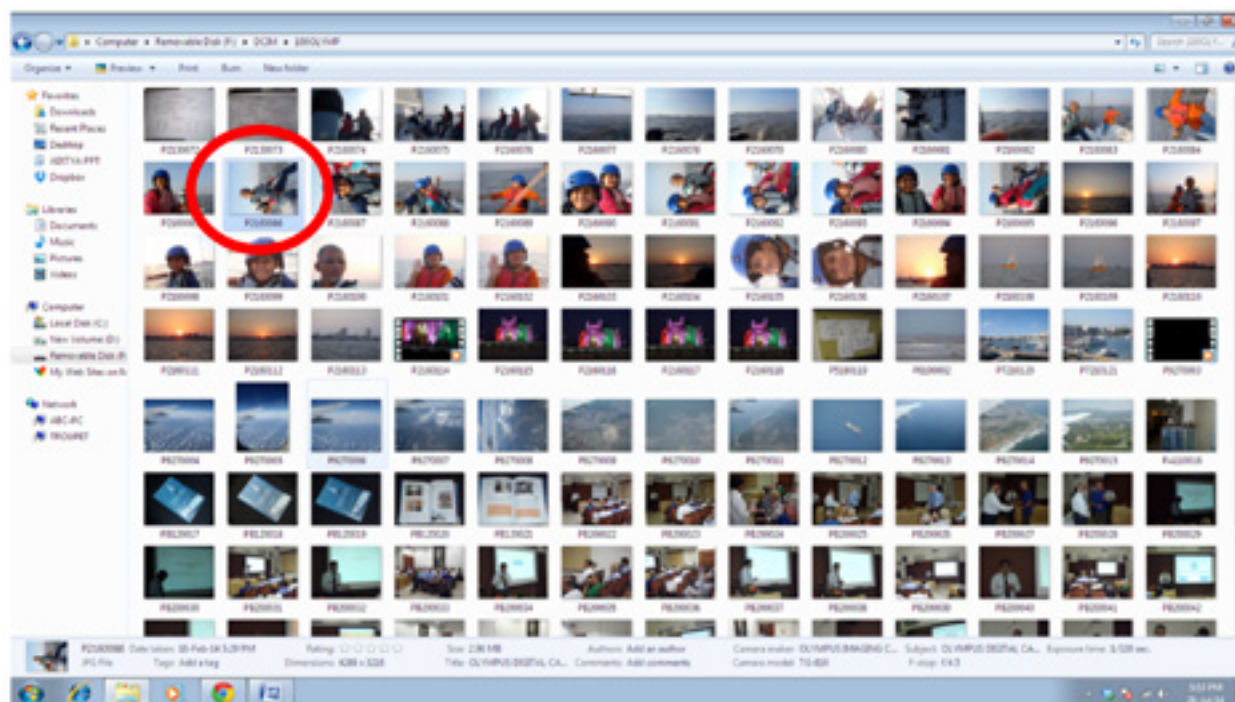


Figure 1

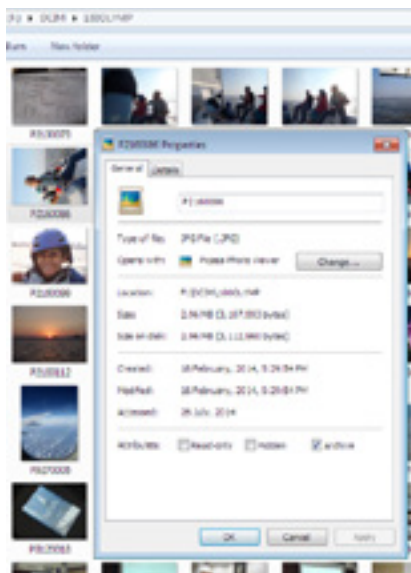


Figure 2

Now here you can see the meta data (Figure 2) that was tagged to the image the moment it was taken in the camera. In the image here in the general tab you see the type of the file which is JPG here. Images could be either RAW, TIFF or JPG depending on the camera that you may use. Then is seen the location where the image is saved F:/ which on my machine is the memory card slot, size of the image which is 2.96 MB, the date created, date modified and the date accessed. Now you will note that that there is no difference in the date the image was created and modified meaning the image has not been modified after it was taken.

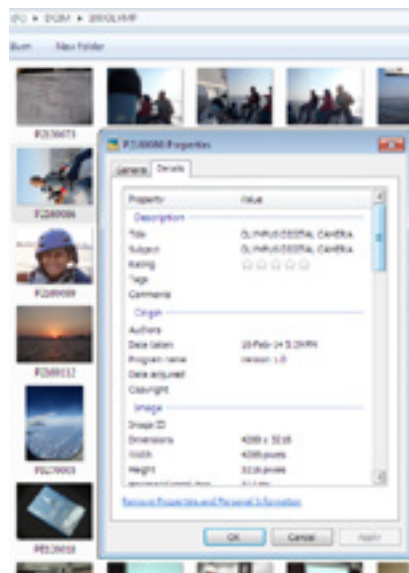


Figure 3

Now I click on the details tab (Figure 3) and we can view more details of the metadata like the date it was taken, the film ware version that was in use, the image dimensions with the width and height, bit depth, note the compression is blank meaning the image has ZERO compression (NIL loss of detail).

On scrolling down further (Figure 4) you can see the make of the camera, model, the aperture setting, shutter speed, ISO setting, exposure compensation used, focal length of the camera at which the image was taken, maximum aperture of the camera at that focal

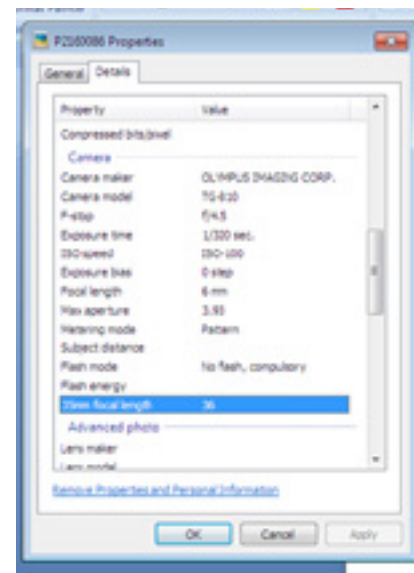


Figure 4

length, metering mode, subject distance (if the focusing was set to manual), flash mode and finally the focal length of the lens of an 35 mm equivalent format (equivalent focal length changes depending on the size of the sensor).

On scrolling further (Figure 5) there are yet more information parameters like lens make and model, flash model (if external flash was used), contrast setting, brightness, light source, exposure program, saturation, sharpness, white balance etc.

Now assume I am back from my survey and I save the photo from

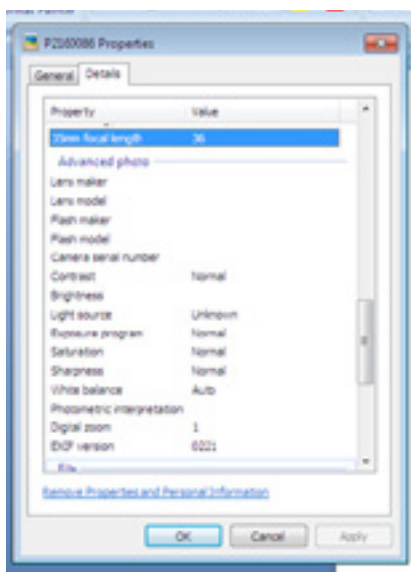


Figure 5



Figure 6

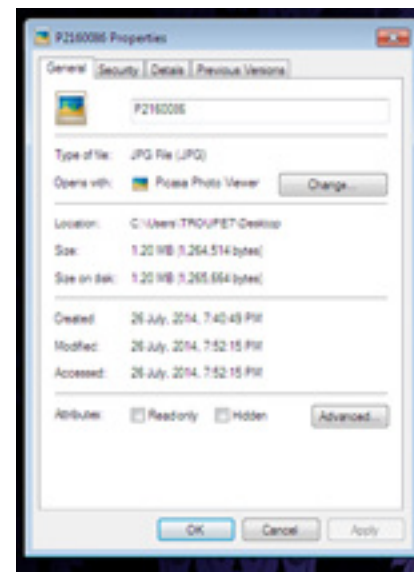


Figure 7



Figure 8

my camera memory card to my desktop let us see what happens to the metadata that was seen in Figure 1. The metadata now looks like this as in Figure 6. Note the change in the date created which has changed to the date when I saved this photo on my desk top which in this case becomes the date created and the date is shown as 26 July 2014. A simple copy paste of the image from memory card to the desk top has changed the metadata. No other parameters of the metadata have changed except for the date created.

The original image looks like this as in Figure 6. The metadata is seen as in Figure 7.

Here you see a helmsman holding the tiller extension and the main sheet! I now want to enhance the overall look by increasing the contrast a bit and I do the enhancement in a photo editing software say Adobe Photoshop and save the image which looks like in Figure 8, then the basic metadata (as we saw earlier) now looks like this as in Figure 9. Note the change in the date created and modified.

The exercise was just to illustrate what metadata is and how it is captured on every modification of the image. No matter how many changes you do each change is logged in the metadata.

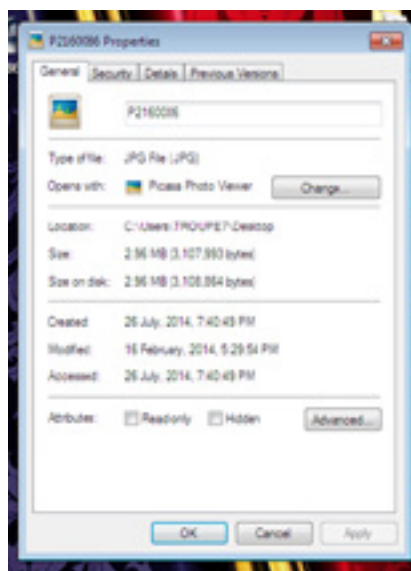


Figure 9

When a photograph is presented as evidence it is important to have a master copy of the image with the original metadata. That implies that the original memory card (in the camera) on which you save the image when you took it needs to be preserved.

If you happen to be conversant with the photo editing software you will see a lot more metadata about the images in this software. Let us skip those but remember that any changes to the images, enhancement, or manipulations are discoverable!

Now that we have mentioned enhancements and manipulation let us understand what changes constitute as enhancements and what constitutes as manipulation. Enhancement or manipulation both needed a good level of technical expertise when the analogue imaging (traditional films) techniques were being used. Digital imaging has brought both within easy reach of anyone with a camera, PC and an image editing software.

An image can be said to be enhanced when no physical aspects of the image are changed, ie. there is no falsification of information. The only changes that are made are to enhance the overall appearance of the image for better reproduction. In simpler terms



Figure 10

adjusting brightness and contrast in moderation to ensure that the image prints well can be termed as enhancement and is generally acceptable as I have shown in the illustration above.

But if I choose that I do not want anyone to see the main sheet that I am holding in my right arm and use a stamp clone tool in editing software to make the image look like the one in figure 10, I have changed the basic elements of the image! You now have a helmsman who is not manning the main sheet. And this is blatant manipulation!

Manipulation disqualifies the image as evidence and it has now lost its evidentiary value. Beware all this is discoverable through the metadata itself. The basic metadata screen (Figure 11) now shows the program by which this image was created and is now seen as Adobe Photoshop instead of Version that was seen in figure 2 earlier when the image was yet in the memory card.

Though you can enhance the images and yet be able to present the images as evidence, the enhancements must be reproducible. If need be, one who presents the image as evidence must be able to produce the original and recreate the same visual effect as in the image presented for evidence.

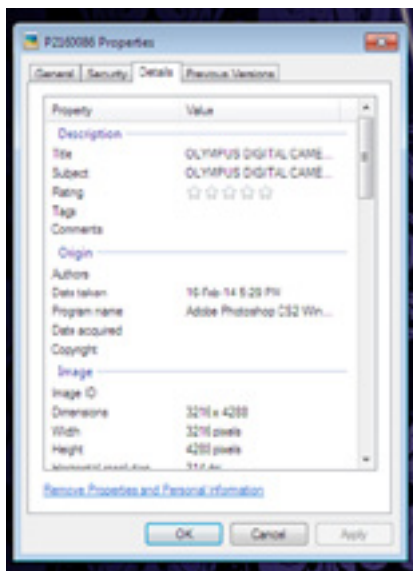


Figure 11

Understanding the workings of the photo editing software and how to save workflows is important. If you are just adjusting contrast and brightness it would be worthwhile at least to note the levels or percentages of change made to each so that you have a record should you need to reproduce the image.

Better still would be to use the correct photographic techniques in the first place so that there is no need to enhance the image post creation. Today with the instant viewing capabilities of the cameras, you can always anticipate if you need an increased contrast or a brighter image. If so take another image (if the situation permits) by changing the contrast and saturation settings on your camera. If you are not sure of the exposure bracket the exposures (by 1/3rd incremental stops up to three images either side – a bit too technical?) and you will have one that prints perfectly. You then do not need to enhance the photos post creation and they preserve their evidentiary value.

Should you still need to enhance an image remember apply the enhancing to the entire image and not only to a part of it. Partial enhancement of images can be construed as manipulation as you are not presenting the image in correct contextual reference. But

again image enhancement tools like dodge and burn (those who have messed around in dark rooms know what I am taking about) are traditional enhancement techniques and again can be used in moderation. But selective saturation of color or selective contrast adjustment, which can distort the correlation between the enhanced area and the other parts of the image, could be termed and construed as manipulations.

Some say that images should be reproducible bit by bit. But (in my personal opinion) this is not possible. If I do the same level of enhancement as you would which are visually indistinguishable from each other the background 'bit' information created by my machine would not be the same as yours.

There are several myths surrounding digital imaging and its evidentiary value. The SWGIT Scientific Working Group for Imaging Technology has an excellent article which demystifies the myths surrounding the evidentiary value of digital images and is worth reading².

Having come all the way to this point one may ask what and how do we go about this? Does it mean that we use new memory cards for each survey we do and do we need to preserve the same? Well we would have had some answers to our questions if we read the SWGIT document.

2 SWGIT – Digital Imaging Technology Issues For The Courts - <http://www.crime-scene-investigator.net/swgit-section17.pdf>



SOME QUICK POINTERS DOS AND DON'TS

1. When a digital image is created in the camera, it is stored in a predetermined file format on the storage medium of the camera (RAM, SD Card or Micro drive). The camera automatically creates a self-auditing trail of the images by numbering them sequentially with metadata which we saw earlier.
2. Whilst using the camera always ensure the 'system date and time' of the camera are correct, more so if you travel between countries and time zones to attend jobs. This becomes very crucial and important. If not you will end up capturing wrong metadata for your photographs. We all make mistakes!
3. The photographs from the camera storage can be downloaded or copied on any computer conveniently along with all related information. As the stored image is a binary image (comprising of a complex combination of the numbers 0 and 1), there is no loss of quality irrespective of the number of copies made. However, keep the original storage media intact (if possible) with the original directory structure dates, file sizes and names etc., as created by the camera. However, if the same storage media is being used between two separate files/ jobs, it is important that an adequate separation between the two sets of photographs for each file/job be maintained, by either a blank image or an image of the name of the new file/job, or any such other separation scheme. The photographs then could be downloaded and copied in their respective files.
4. Whatever the case may be, have a well-documented standard operating procedure (SOP) for photograph creation and archival, and follow it rigorously. You should be able to substantiate with evidences what you do and how you do it.
5. Whilst downloading or copying images do not be tempted to change the original file names. If you need to change the naming convention to suit your archiving system do so, but on a copy of the photographs - not the original.
6. If multiple people in your office handle the photographs, it is a good idea to save the photographs as read only files, thereby eliminating any changes to the photographs.

File	Date Created	Image Size	Focal Length	Focus Mode	Aperture	Shutter Speed	ISO Sensitivity	White Balance
DSCN4202.JPG	13/11/12 10:59	3648 x 2736	8.1mm	AF-C	F/4.5	1/25s	ISO 100	Auto1, 0, 0
DSCN4203.JPG	13/11/12 11:00	3648 x 2736	6mm	AF-C	F/4	1/10s	ISO 100	Auto1, 0, 0
DSCN4204.JPG	13/11/12 11:00	3648 x 2736	6mm	AF-C	F/4	1/10s	ISO 100	Auto1, 0, 0
DSCN4205.JPG	13/11/12 11:00	3648 x 2736	6mm	AF-C	F/4	1/13s	ISO 100	Auto1, 0, 0
DSCN4206.JPG	13/11/12 11:00	3648 x 2736	6mm	AF-C	F/4	1/10s	ISO 100	Auto1, 0, 0

7. As far as possible, maintain a log of all photographs with the metadata duly logged in. There is software available that can prepare contact sheets of your photographs with metadata appended as CSV or tab separated values. Some advanced software also print metadata along with the photographs or export it separately. Metadata exported to a CSV file using a custom software looks as in table above (only a section of the data is shown above for purposes of formatting).
8. Should there be any need to enhance the photographs for contrast brightness etc., save the enhanced image with a new file name and with details of the enhancement processes applied. Do not overwrite the original.
9. If at all the photograph needs to be enhanced, it is always advisable to present the original as well as the enhanced photograph as evidence and specify why the enhancement process was required. If necessary be prepared to demonstrate the process in the court of law whilst being cross-examined.
10. Personnel who are required to prepare photographs as exhibits must be trained in digital image processing techniques.
11. If the results of an enhancement of a photograph are crucial evidence, it is always prudent to hire a qualified professional, who can testify on the enhancement process when the photograph is offered as an exhibit.
12. If necessary have a professional photographer hired in the first place, or master the photographic skills and be proficient yourself.
13. If you are on a case where your photographs may have to be produced as evidence in a court of law, consult your

legal advisor beforehand for your state's laws and rules of evidence.

14. If you use software like Photoshop and you append other data to the metadata or Exif data like metatags; do so on the copies and not on originals, as appending additional information on the original will reflect as a modification of the original metadata and make authenticating the photographs more difficult.
15. Cameras do not always expose the scene perfectly specially when the contrast between highlights and shadows is extreme. This may warrant changes/ adjustments in contrast to enhance a part of the image. This may lead to allegations of alteration of photographs. It is best to bracket your exposures by 0.3EV (1/3rd stop on the exposure compensation dial) on either side. This way you can be sure to get at least one photo in the bracketed set with acceptable results.
16. Remember that all digital cameras number the photographs sequentially. Resist the temptation to delete the photos that turn out dark or blurred. No matter how bad the photograph is exposed or composed - keep it. It is vital if you need to prove an audit trail of photographs taken on the job.
17. The above only acts as a guide to good practices. Whatever method you happen to use for archival, audit trail and recording of enhancement to photographs - document the method and follow it to the 'T'.
18. Remember minor changes to enhance over all brightness or contrast of the photographs, presented as evidence may be acceptable in courts of law. Blatant modifications of the photo may not.

TO CONCLUDE

The potential for manipulation may provide a basis for admissibility challenges; however digital images are rarely challenged in court. One possible explanation to this could be the legal community's lack of awareness towards the characteristics of digital images that could make them less reliable as evidence than traditional photographs³.

But an informed professional making good use of the digital imaging technology can at times guide and help the legal community verify the evidentiary value of photographs presented by opponents. It is not only about how you preserve the evidentiary value of your photographs but also how you verify the evidentiary value of your opponents' photographs.

It makes good sense for us as marine surveyors to master the imaging skill and have a good understanding of the digital imaging process. The medium of imaging is ever evolving and hence a CPD in this field helps.

³ Using Digital Photographs in the Courtroom - Considerations for Admissibility - http://www.securitymanagement.com/archive/library/feature_August2004.pdf



The Continuing Evolution of Domestic Commercial Vessel Regulation in Australia



BY ADAM BRANCHER

The Report magazine invited Adam Brancher, Manager Standards Domestic Vessel Division AMSA and IIMS Vice President to give an overview and update on the changing face of maritime safety in Australia. The AMSA surveyor accreditation scheme will be of particular interest to IIMS members. Adam picks up the story...

It's been just over a year since the Australian Maritime Safety Authority (AMSA), became the national regulator for domestic commercial vessels (DCV) in Australia following major legislative changes. A domestic commercial vessel in Australia is, in simple terms, a vessel used in connection with commercial, governmental or research activity, although there are exclusions.

Previously the states and territories had regulated under their own legislation, which resulted in there being difficulty in some cases when a seafarer or vessel moved between locations, and had to reapply for qualifications or for vessel survey requirements.

The move to a single regulator was designed to allow the free movement of people, vessels and to for nationally agreed standards to be used consistently around the country, and when fully realised should have significant safety and economic benefits.

The National System provides a platform from which the effectiveness of marine safety regulation can be improved and the government's deregulatory goals can be met. In November 2013, national Transport Ministers agreed that a 'Streamlining Review' should commence immediately, to ensure that the National System achieves significant safety and economic returns.

Potential streamlining opportunities, informed by a detailed risk analysis of the fleet, were identified in 13 key areas of the National System, including coverage, certification and survey. These concepts were described in consultation materials that were available on the Australian Maritime Safety Authority (AMSA) website (www.amsa.gov.au), including:

- [National System for Domestic Commercial Vessel Safety - Streamlining Concepts;](#)
- [The streamlining concepts at a glance;](#) and
- [Streamlining concepts long document.](#)

From May to July 2014, public consultation occurred on the Streamlining Review. As part of the consultation, stakeholders were asked:

- what they thought of the streamlining concepts identified;
- whether they had identified inefficiencies in the system that should be reviewed;
- whether there was anything in the rules that applied to them that did not make sense, particularly in terms of achieving safety outcomes;
- if there were any major safety failings that needed to be addressed; and
- how they would like to see commercial vessel regulation change.

Face to face consultations were undertaken around Australia, including at 24 open consultation sessions attended by approximately 800 stakeholders, one round table discussion with key industry representatives and presentations at industry association meetings. In addition, 75 written submissions were received.

The Streamlining Review was overwhelmingly supported by industry. Stakeholders saw it as a unique opportunity to resolve concerns with how the National System had been implemented, and to remove unnecessary red tape in marine safety regulation generally.

A number of the streamlining concepts were strongly supported nationally. In particular, the conceptual changes to the 'C' operational area category, increased National System survey 'cut-offs', reduced periodic survey arrangements and the proposed changes to the design and construction and crew competency standards were welcomed.

Other streamlining concepts met a mixed response. The certification arrangements were particularly vexed, as stakeholders held divergent views on the value of the Certificate of Survey and the Certificate of Operation. The conceptual changes to the 'non-survey' category were seen as undermining safety by some and 'not going far enough to remove red tape' by others.

All of the streamlining concepts have been modified – to varying degrees – as a result of the

consultation. Stakeholders suggested adjustments, alternative approaches and parallel or complementary reforms which will ensure that the reforms are meaningful. Additional, valuable streamlining reforms were also proposed by stakeholders, in particular the:

- need for a 'C-Restricted' category of operation;
- introduction of a new, entry level Certificate of Competency ('Coxswain 3'); and
- removal of out-dated equipment survey obligations

AMSA is now developing these proposals and putting them to a gathering of surveyors, naval architects and industry experts to be held on the Gold Coast in the third week of October. The Domestic Vessel Division (DVD), which is responsible for the technical standards that underpin the system, is working hard to prepare for the meeting with some 25 papers due to be presented there. The report on the consultation exercise will be posted very soon on the AMSA website and is well worth a read.

The other work that the Division has underway dovetails nicely with the streamlining work we are doing. Underway are significant reviews and revisions of some of the technical standards, the National Standard for Commercial Vessels (NSCV) that we work to here in Australia. Originally this work was done by a national committee but AMSA assumed that role when the committee dissolved at the start of the national system. The NSCV is an 'outcomes based' standard, rather than a prescriptive one. As an 'outcomes based' approach it needs a different mindset from surveyors and others more used to prescriptive requirements and a significant challenge we will face in the coming years is getting the skills and mindset right amongst the surveying profession so it is used appropriately. It's likely that the standard will shift shape and as a result of analyses we have

done become a more agile set of guidance material, called up simply under legislation.

In terms of the detailed work we are doing, members of the DVD team of surveyors, engineers and naval architects as well as one of the Class Societies have been working on a major review of the fire standard, C4 of the NSCV which is one of the more complex standards we have here. The outcome looks to be that it will remain as an option for designers and builders but that alternatives will be available to use, including ISO and some other national regulatory bodies developed standards.

The thrust towards the use of ISO and other international standards is a common theme to our work and one that particularly underpins the standard that light operations vessels will come under. It's designed to stand alone and provide a simple regulatory setting that can be easily grasped and met by a non-technical person. It relies heavily on the Recreational Craft Directive and other established regulatory systems to determine if vessels and their operations are fit for purpose. This work is likely to significantly simplify regulation in this significant sector and we are hoping to have it concluded very early in the New Year. As with all of our work we are drawing heavily on the expertise available in the maritime sector and several IIMS members have been involved in the work.

The other major complex piece of work we are doing is work on the watertight and weathertight standard, C2, which is the last major piece of the NSCV to be developed. Again, this is the subject of major consultation and it's well underway. The thrust, again, is to leverage international standards where it's possible to do so and a table linking Australian DCV with the load line convention requirements underpins much of the work.

In addition to this, daily technical questions and issues of interpretation arise from around

the country and internationally which our division answers. Where there are knotty ones we can call on expertise around the country in the form of a Technical Advisory Panel (TAP) we have established. We are always looking for suitably qualified individuals to join this and will be happy to discuss membership with any members who were interested. More information may be found at <http://www.amsa.gov.au/domestic/community-consultation/technical-advisory-panel/>. We have particularly strong links with New Zealand and work with them closely to ensure vessels and people can move backwards and forwards as safely easily as possible.

They have assisted greatly with our development of a proposed national surveyor accreditation scheme which we anticipate will come into being early in 2015. This has been a major focus over the past two years with significant input from AMSA staff and others in the industry including the various survey and naval architects associations here in Australia.

The National Regulator currently relies on the professional advice of 'attested' persons in determining whether a vessel meets the applicable safety, design, construction and equipment standards. The proposed accreditation scheme will formalise the relationship between the National Regulator and surveyors and naval architects through an amendment to the law. The proposed regulations will specify the entry pathway for current and future surveyors, and the specific categories of accreditation for which a surveyor may apply. The scheme is designed to allow new entrants to come into the Scheme and as skills develop upgrade to new areas of work.

It also ensures surveyors are committed to continuing professional development which may be achieved by membership of a professional technical association and specifies the required record keeping, insurance and other obligations a surveyor will need to meet under the scheme. It also

provides guidance on processes and tools that a surveyor might use to facilitate consistency.

The scheme identifies how surveyors can renew their accreditation and how they can exit the scheme. There is guidance on conflicts of interest and professional and ethical behaviour which is particularly important to maintain the integrity of the National System.

The surveyor accreditation scheme will provide AMSA, the National Regulator, a level of confidence in the abilities, processes and performance of attested surveyors and provide guidance, clarity and confidence to the individuals that work under its banner.

We will be letting the IIMS know more about this as I'm sure it will be of interest to many members.

*Photo below:
Adam Brancher in his 'workshop'*



KNOWLEDGE MANAGEMENT in MARINE SURVEYING

INTRODUCTION

This is the second article in the series on Knowledge Management. In this article we explore aspects of knowledge and investigate how Marine Surveyors would create, structure and use a Personal Knowledge Management System.

"Knowledge and timber shouldn't be much used till they are seasoned."

[Oliver Wendell Holmes (1809-1894)]

ASPECTS OF KNOWLEDGE

Knowledge by definition is a fluid mix of framed experience, values, contextual information, expert insight and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information. Knowledge often becomes embedded in documents and repositories.

There are two fundamental aspects of knowledge¹:

- **Explicit;** which can be codified and easily transferred without the 'knowing subject'.
- **Tacit;** which cannot readily be codified and can only be transferred via training (by the 'knowing subject') or gained through personal experience.

Tacit knowledge is the kind of knowledge that is difficult to transfer to another person by means of writing it down or verbalizing it. For example, the ability to design and use complex equipment requires all sorts of knowledge that is not always known explicitly, even by expert practitioners, and which is difficult or impossible to explicitly transfer to other users. While tacit

BY
NICHOLAS PARKYN

¹ Wikipedia: <http://en.wikipedia.org>

knowledge appears to be simple, it has far reaching consequences and is not widely understood. With tacit knowledge, people are not often aware of the knowledge they possess or how it can be valuable to others. Effective transfer of tacit knowledge generally requires extensive personal contact, regular interaction² and trust.

The traditional way for organisations to transfer tacit knowledge is through conferences, courses and other 'hands-on' training sessions where knowledge is transferred by the 'knowing subject'. Typically the limitation has been that the transfer was limited to those who were able to attend the conference or training session. The internet has provided new options for tacit knowledge transfer where presentations or training courses can be captured as video clips and presented via internet sites like YouTube to a broad audience on an "as and when" required basis..

The IIMS has been very innovative and is leading the way in the area of tacit knowledge transfer by establishing a YouTube channel where it has made available presentations and training material (Figure 1). This enables the effective transfer of tacit knowledge to members of the IIMS.



IIMS launches its YouTube channel

Following the IIMS conference in June, the institute has opened up its very own YouTube channel.

Currently there are 14 videos to watch of presentations made at the conference ranging from liquefaction to how to make LinkedIn work for you.

Figure 1: IIMS on YouTube

2. Goffin, K. & Koners, U. (2011). Tacit Knowledge, Lessons Learnt, and New Product Development. J PROD INNOV MANAG, 28, 300–318.

PERSONAL KNOWLEDGE MANAGEMENT

A Personal Knowledge Manage System refers to a system for managing knowledge of individuals and is based on a Knowledge Base (KB).

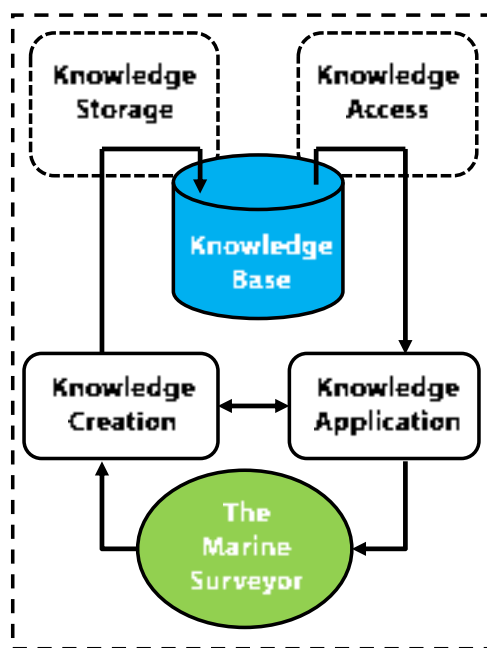


Figure 2: The Knowledge Base

Continuing on from the first article, in the diagram figure 2 above, you will note the concept of the Knowledge Base. We all "store" large amounts of Working Knowledge in our heads, which enables us to operate, manage, solve and troubleshoot problems related to our work (Marine Surveying). There is however a wealth of other information gathered by us or from

other sources, which if structured represents additional knowledge. This knowledge is outside of our set of Working Knowledge and is best stored in a repository where we can access it effectively on an "as required" basis. The logical place to store it is in the Knowledge Base. We can note from diagram Figure 2 above that we use the Knowledge Base for Knowledge Storage and Knowledge Access. The Knowledge Base is typically enabled by software and computer based storage.

ENABLING A PERSONAL KNOWLEDGE MANAGEMENT (PKM)

PKM is similar to Personal Information Management (PIM), but is a distinct topic based on the "information" vs. "knowledge" difference. A PKM system is a solution that provides functionality for recording, storing and managing the knowledge one derives from documents, whereas PIM is more about managing and retrieving the documents themselves. A PKM system is typically layered on top of a PIM system which is used as the Personal Knowledge Base (PKB) component.

The basic set of components required for a PKM would include:

- A Personal Computer (PC)
- PIM software (used for PKB)
- Software tools to manipulate documents and enable (scanning, OCR, annotating, linking, tagging).
- Structure applicable to your domain “taxonomy” (e.g. Yacht and Small Craft Surveying).

A PKB differs from a typical database in that it contains subjective material specific to the owner that others may not care about or identify with. A PKB consists of both knowledge and structured information, it is not simply a collection of documents or other sources an individual has encountered, collected and stored. To represent knowledge, the contents of the PKB must be structured and annotated with distilled knowledge the owner has extracted from those sources, other sources and experience.

A basic Knowledge Management System can be enabled on a personal computer (PC) using off the shelf software, which implements the core components of the solution proposed in Figure 3 above. The knowledge base would be structured inline with requirements and hosted on local PC disk storage or on external Cloud Storage accessed via the internet.

The structure use for the PKB should follow or be guided by the way we work with information in our profession. For example Yacht and Small Craft Surveyors would structure information in a similar manner to which they report on information, since reporting in itself is a structuring of information, the creation of knowledge! The structure that is used is referred to as taxonomy and should be normalised, logical and comprehensive. If a common structure is used, for example a structure proposed by a professional body or organisation, the structure would facilitate and enable sharing of knowledge between itself and members and also between members themselves see Figure 4.

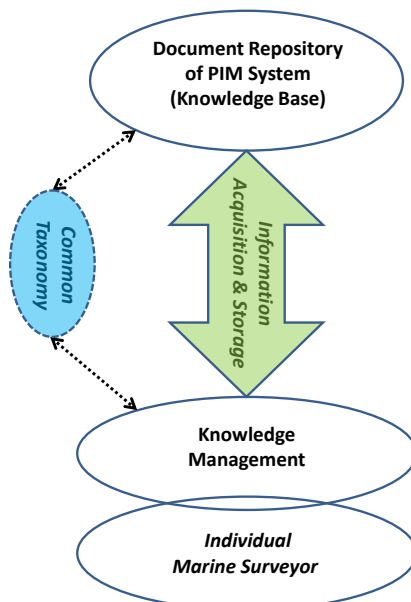


Figure 3: Personal Knowledge Management System

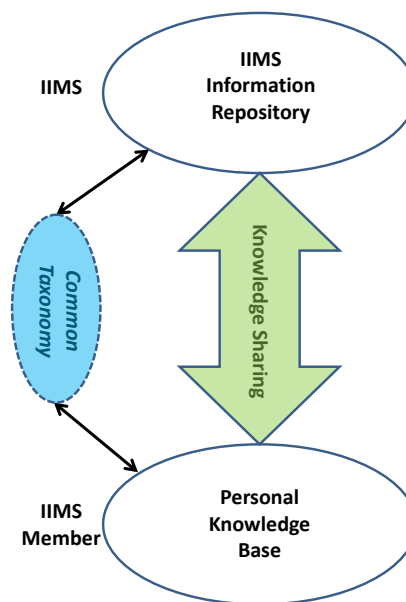


Figure 4: Common Taxonomy assists knowledge sharing

Typically the directory and file structure enabled in the PIM system is based on this taxonomy, which represents the way we would group or structure the information and

knowledge that we work with. The taxonomy typically only influences the knowledge base structure (see Figure 5).

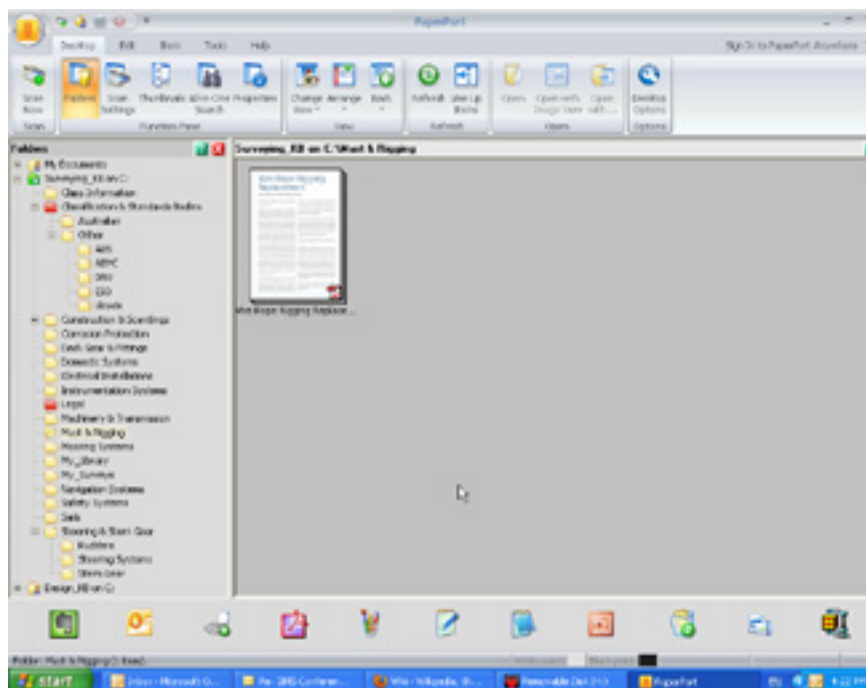


Figure 5: Knowledge base structured using the taxonomy

3. Parkyn, Nicholas (2012); Computer Based Knowledge Management and Knowledge Bases - A Practical Guide for Yacht & Small Craft Surveyors - eBook published 2012 www.nickparkyn.com
4. Parkyn, Nicholas (2012); Computer based Knowledge Management for Marine Surveyors – Presentation at IIMS Marine Conference – Sydney Australia, August 2012.
5. Parkyn, Nicholas (2014); Computer based Knowledge Management for Small Craft Designers – eBook www.nickparkyn.com

The taxonomy for a Knowledge Base applicable to a Yacht and Small Craft Marine Surveyor could be structured as follows:

- My Surveys
- My Library
- Legal
- Classification and Standards Bodies
- Class Information
- Construction and Scantlings (Wood, GRP, Steel, Aluminium)
- Deck Gear and Fittings
- Machinery and Transmission
- Steering and Stern Gear
- Mast and Rigging
- Sails
- Domestic Systems
- Electrical Installations
- Safety Systems
- Navigation Systems
- Instrumentation Systems
- Corrosion Protection
- Mooring Systems

The above structure represent the major sections which could be further decomposed into sub-section based on further specific requirements or choice. Other branches of Marine Surveying would structure their domain in a similar manner.

Once we have used this taxonomy to define the structure of the KB, we need to select the file format that we will use for all the information that we will store in the knowledge base. To reduce complexity the best approach is to work with a file format that represents documents in a manner independent of application software, hardware, and operating systems. The Portable Document Format (PDF) with a file extension of .pdf is a file format that achieves this requirement. Since we also need to search for content within the files, we will select the PDF searchable (full text searchable) variant of this file type.

Key functions related to Personal Knowledge Management include:

- Knowledge Creation
- Knowledge Storage
- Knowledge Access

KNOWLEDGE CREATION

Typically knowledge is created by the Marine surveyor in the course of doing business. Newly created knowledge in the form of your survey reports, notes and other artefacts is stored back into the Knowledge Base.

“To acquire knowledge, one must study; but to acquire wisdom, one must observe.” [Marilyn Vos Savant]

KNOWLEDGE STORAGE

When preparing Structured Information as Information Elements for storage in your Knowledge Base, the following steps are followed:

1. Using the software tools, paper documents are scanned and optical character recognition (OCR) is used to convert documents to **full-text searchable** PDF files

OR

- Electronic documents are converted to **full-text searchable** PDF format
2. Documents and content of documents are annotated to enrich the knowledge.
3. Documents are stored in the appropriate area in the structure of the Knowledge base determined by your interpretation of content and context
4. Title and keywords are chosen by you. Keywords are chosen based on what best describes the information in the document.
5. Title and keywords (aligned with the structure) are associated with the document to allow future searching based on keyword
6. Document is associated with the search capability (“search engine”) of the software being used for your Knowledge Base.

KNOWLEDGE ACCESS

To reference or extract knowledge, a Knowledge Base is typically be accessed by:

- searching or • browsing

When browsing we traverse the tiered structure of the Knowledge base to move between the sections

and browse the contents by title and then extract knowledge from the Information Element (document) containing the knowledge. When searching the Knowledge base, we request the search capability of the Knowledge Management System to search for keywords associated with or words which may be present in an Information Element (document) related to the topic you are interested in. The search function searches the KB and indicates in which Information Elements the keyword or word is matched. You can then open the Information Elements identified to extract the knowledge required.

KNOWLEDGE SHARING

Knowledge Sharing is essential to increase competitive edge, so organizations like the IIMS and its members need to continue to grow their knowledge management initiatives.

The IIMS has taken some innovative steps and approaches to Knowledge Sharing. However to further enable this, the IIMS and its members should collaborate to:

- Provide opportunities for the cross fertilization of knowledge within the organization
- Further Enable the capture of both explicit and tacit knowledge
- Enhance KM structures/models
- Create a culture of member involvement in Knowledge Management
- Build an inclusive culture that encourages member participation
- Enable interoperation with the Personal KM systems of its members

These articles unfortunately cannot cover all aspects of this subject. For those who wish to enable their own Personal Knowledge Management System, my e-Book: “Knowledge Management and Knowledge Bases - A Practical Guide for Yacht & Small Craft Surveyors” covers this subject in full detail (see reference 3).



then sends an electronic signal back to the gauge. The gauge then calculates the metal thickness using this information as well as the pre programmed velocity of sound of the material being measured.

It is therefore important that the gauge can be calibrated with varying velocities of sound. Just being able to set a gauge to 'mild steel' is not sufficient as there are varying grades of mild steel which all have different velocity of sound properties, which vary in the region of 5890 m/s and 5960 m/s.

The basic principle of ultrasound works well on steel in good condition with no coating, but if a coating is present then this has a different velocity of sound to that of the steel, generally in the region of 2000 m/s. Therefore, if a gauge is calibrated for steel, and the ultrasound also travels through the coating, it will take approximately three times longer to travel through the coating than it will an equivalent thickness of steel, resulting in a false reading.

There are two options to overcome this problem; the first is to remove the coating but this is costly, time consuming and means that the coating has to be re-applied wherever a reading has been taken. In some cases, where there is an excess of corrosion, it is common to take more measurements in that area. This would inevitably mean that more of the coating has to be removed to achieve accurate measurements.

A much simpler and cheaper solution is to use a gauge with multiple echo capabilities. Multiple echo completely ignores coatings, as long as they are solidly adhered to the surface, and measures just the metal substrate. Coatings up to 20mm, depending on the type of coating, can be ignored.

Multiple echo ultrasonic thickness gauges are not new.

But what are they, how do they work and why should a marine surveyor use one?

The Report spoke to Jon Sharland of Tritex NDT, a manufacturer of this type of equipment, in search of the answers.

Ultrasonic thickness gauges are used to measure metal thickness to determine corrosion rates over time. They are a useful tool to aid surveyors assess the condition when carrying out hull surveys. The metal thickness can be measured from one side only and corrosion levels checked to build up a good understanding of the overall condition of the vessel. They are often used in pre-purchase surveys to give potential buyers complete piece of mind prior to parting with large sums of money.

PRINCIPLE OF OPERATION

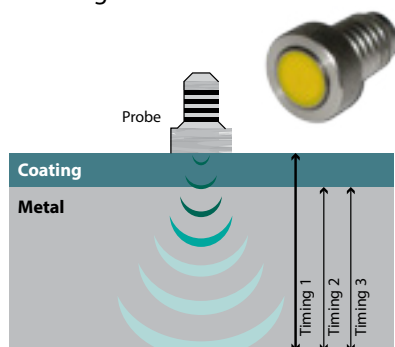
Ultrasonic thickness gauges consist of the gauge itself, probe and connecting cable. The probe houses a piezo electric crystal which vibrates and produces ultrasound when an electronic pulse is applied. This ultrasonic pulse is transmitted into the material being measured and the time is recorded for the ultrasound to travel through the material and return back to the probe. The returned ultrasound is detected by the crystal which

HOW MULTIPLE ECHO WORKS

An ultrasound pulse travels through both the coating and the metal and reflects from the back wall. The returned echo then reverberates within the metal, with only a small portion of the echo travelling back through the coating each time. The timing between the small echoes gives us the timing of the echoes within the metal, which relate to the metal thickness. The returned echoes need not be consecutive as the gauge will interpret them automatically and calculate the thickness. A minimum of three echoes is checked each time. This is referred to as the Automatic Measurement Verification System (AMVS). Multiple echo also means that no zeroing of the probe is required because the first echo is used as a reference.

With multiple echo, larger diameter probes can be used to better effect when measuring on badly corroded metal. They have the advantage of straddling pits on the rough front face and their larger size means that there is a better chance of detecting scattered ultrasound returning from the back wall. Any couplant underneath the probe is ignored like a coating.

Multiple echo technology, with single crystal probes, is recommended by class societies for firms carrying out thickness measurements on ships under class regulations.



ULTRASONIC PROBES

There are two common types of probes used with ultrasonic thickness gauges. These are twin crystal and single crystal probes. Twin crystal probes have a separate transmit and receive crystal on their face, which are angled towards each other, resulting in a 'V' shape ultrasound path. The 'V' shape means that the probe has to be in a certain orientation on curved or round surfaces, such as pipelines, because the angle at the bottom is otherwise affected. This is also the case over varying measuring ranges. Corrections are often programmed into the gauge to compensate for 'V' beam error. The advantage of using a twin crystal probe is that thinner metal can be measured.

Single crystal probes, as their name implies, have a single crystal which transmits and receives the ultrasound pulse. The ultrasound travels straight up and down ensuring there is no V-beam error associated with twin crystal probes, and it means they have a linear accuracy throughout their measuring range. Single crystal probes can be rotated through 360° without any change in measurement accuracy.

Multiple echo gauges allow the use of soft faced probes which have a protective membrane on their face. It does not affect the measurement and is ignored as if it were a coating. This protection means that the probe should last the lifetime of the gauge. Probes do not get worn down, scratched or damaged and the membrane is easily replaceable. Also, Teflon® membranes are available for hot temperature measurements without the need for different probes.

PRODUCT RANGE

Tritex NDT are constantly developing their range of products and actively producing new models. All products in the range use multiple echo technology with single crystal probes. The range includes standard hand held gauges, waist mountable gauges for keeping hands free whilst climbing, gauges which store measurements and transmit these to a PC using wireless technology, underwater gauges for use by divers and gauges designed to mount onto ROV's.

Tritex NDT considers performance to be the most important factor. The gauge should give reliable, accurate measurements in the most demanding of applications. Whether it's coated, bare metal, corroded or clean, the Tritex Multigauge range has proven to be reliable, simple, accurate and robust. Free annual calibration for the life of the gauge is part of the deal, as is a 3 year warranty. Multiple echo technology is used to completely ignore coatings and the Automatic Measurement Verification System (AMVS) ensures only true back wall echoes are measured. Intelligent Probe Recognition (IPR) perfectly matches the probe to the gauge for enhanced performance, even on the most corroded metal.



For further information: www.tritexndt.com or contact Mr Jon Sharland by email sales@tritexndt.com

The Report looks into the future of new shipping routes and canals that are in the pipeline. Some of them are very controversial and will probably never be developed, but others will go ahead. In part three of this four part series, Luc Verley introduces us to The Istanbul Canal Project...

In this series of articles we will look into the future of new shipping routes and canals.

Part I: The Northern Sea Route

Part II: The Nicaragua Canal

Part III: The Istanbul Canal Project

Part IV: The Kra-canal in Thailand

PART III: THE ISTANBUL CANAL PROJECT



BY LUC VERLEY MIIMS

The city of Istanbul in Turkey is split in two by a narrow sea strait, called the Bosphorus, also referred to as the Istanbul Straits.



The Bosphorus Strait is 19 nautical miles long and connects the Black Sea with the Mediterranean Sea. Bosphorus forms also the border that separates the European continent from Asia.

The Bosphorus has a width of 3.329 meters at the Northern entrance and a width of 2.826 meters at the Southern entrance, narrowest part of the channel is 700 meters wide. The Bosphorus has an average depth of 65 meters with the shallowest part being 13 meters and the deepest part of 110 meters. Navigating the Bosphorus is a challenging task with currents that can reach up to 8 knots and course alterations of 45 degrees.

The shores of the Bosphorus are heavily populated with the city of Istanbul at both sides of its banks, a city with a population of 12 million inhabitants. Traffic on the Bosphorus is very intense with annually more than 50.000 vessels passing through the Straits, among them 10.000 tankers, carrying annually 145 million tonnes of crude oil and petroleum products, 4 million tonnes of Liquefied Petroleum Gas (LPG) and 3 million tonnes of various chemicals.



Picture Source: Darrell Uruski Photography

Apart from the intense navigation 1,5 million people are transported across by 15.000 ferry journeys daily. The Bosphorus is commercially and strategically very important as it is a major sea route for Bulgaria, Georgia, Romania, Ukraine and southern Russia. Several maritime incidents occurred on the Bosphorus with a 1994 collision between an oil tanker and a cargo ship whereby 29 crew died. And in 1999, a Russian tanker broke into two parts at the entrance of the Bosphorus and spilled 235.000 gallons of oil, resulting in a major ecological disaster.

To relief the Bosphorus from maritime traffic a major piece of civil engineering has been proposed: Kanal Istanbul, an artificial sea level waterway to by-pass the Bosphorus and connecting the Black Sea with the Sea of Marmara and further down to the Mediterranean. This big ambitious project is planned to be completed in 2023 to celebrate the 100th anniversary of Turkish republic's foundation.

Estimates has budgeted the project cost to be up to 10 billion USD, financing will come from the Turkish treasury. The man-made channel will be 45 kilometres in length, a width of 150 meters and will be 25 meters deep.

Comparison to other artificial channels:

	Istanbul Canal	Suez Canal	Panama Canal
Length	45 km	193 km	77 km
Width	150 meters	205 meters	34 meters (locks)
Depth	25 meters	24 meters	12.8 meters
Vessels	55.000 / year	18.000 / year	15.000 / year



Picture Source: Rai Novosti

Historically, it is not the first time that such a project is proposed. The first time was way back in the 16th century, followed by many other initiatives and proposals including the plan in the 1920's to build a dam at Gibraltar on the Mediterranean side and another dam at Dardanelles on the Black Sea side to lower the surface of the Mediterranean sea by up to 200 meters.

The man-made channel will be 45 kilometres in length, a width of 150 meters and will be 25 meters deep.

THE ISTANBUL CANAL WILL BE AN UNPARALLELED FEATURE OF CIVIL ENGINEERING AND WILL BE OF CRUCIAL IMPORTANCE FOR RUSSIAN OIL EXPORTS.



Marine Surveying Academy sets sail...

The Marine Surveying Academy Ltd (MSA) is a wholly owned subsidiary of the International Institute of Marine Surveying. Established earlier in the year, the MSA is starting to make some headway and is developing some interesting new products and services. Mike Schwarz explains more.

The MSA has had a quiet launch, but is now starting to gain some traction as it seeks to develop and launch new commercial training and accreditation opportunities in the marine field. MSA is also dedicated to providing the best quality marine surveyor based training for IIMS members too, for example a one day Report Writing short course.

As the commercial arm of the Institute, MSA is able to call on a wide selection of members who have various skills and knowledge acquired over many years. On one level the aim of the MSA is to provide basic, day long, short courses for IIMS members in a range of subjects; but on another

level the MSA delivers training and examinations leading to formal accreditation and qualifications certified by the IIMS.

The MSA is being positioned to meet the growing demand from a number of international marine organisations for specialised skills based training and accreditation schemes. MSA will deliver these training solutions at various locations, using tutors and examiners who are highly experienced in these specialist areas.

The first bit of work that MSA became actively involved with was the examination and accreditation of the recently formed International Registered Marine Insulation Inspectors (IRMII) programme. To

date several courses have been organised in the UK and as far afield as Perth. This new standard and qualification has been drawn together by industry experts under the Wood Group Integrity Management business, who arrange and manage the courses. MSA is then brought in to invigilate the examination and to have the papers marked. Those who pass become formally qualified and accredited by IIMS as an IRMII inspector. This entitles them to a certificate, a five year IRMII card and a listing on the IRMII web site, which is www.irmiii.co.uk.

So far approaching 80 people have formally achieved this new qualification.



Background to the IRMI qualification

Increases in deep water HTHP (high temperature high pressure) developments has placed greater demand on thermal insulation systems and technology. The root cause of most subsea pipeline and insulation failures can be attributed to mistakes in material selection and application. This has led within the industry to a significant demand for greater technical knowledge and understanding of thermal insulation systems and inspection regimes.

Industry places high value on protective coatings and thermal insulation as they offer first line defence against premature structure and pipeline/flowline failures. The insulation coating when integrated with the protective coating system can offer excellent resistance to chemical attack as well as environmental conditions. However the prime reason for the insulation is to inhibit hydrate or wax formation within the pipe or flowline. Protective coatings extend the service life of structures and equipment and prevent degradation and when combined with insulation increase the resistance to thermal and chemical damage.

Technological advances and industry failures mean there is urgent need for a common, independent and recognised form of training and certification for subsea thermal insulation. It was with this in mind that the IRMI course and

qualification was designed to teach and give engineers and inspectors maximum technical knowledge of advanced thermal insulation systems and inspection regimes.

RMCI course and qualification

Similarly, MSA is managing the new qualification for the Registered Marine Coatings Inspectors (RMCI) course, which has just kicked off in September.

Until this qualification was introduced, there were none for Marine Coatings Inspectors. There are of course NACE and FROSIO qualifications that touch upon the marine industry, but nothing especially for Super Yachts and leisure/pleasure vessels.

The RMCI qualification was instigated by the Super Yacht Builders Association (SYBAss) in conjunction with the International Council of Marine Industry Associations (ICOMIA) and working with the International Institute of Marine Surveyors (IIMS) and the Institute of Corrosion (ICorr). The course, the qualification and the certification system were produced in response to the request from these bodies. MSA delivers the course and certification is awarded jointly by IIMS and ICorr (Institute of Corrosion).

Candidates for the course are expected to have NACE, FROSIO or ICorr Level

II qualifications or significant relevant industry experience.

Course tuition is being provided by Peter Morgan, (IIMS past President) who has been instrumental in developing the course material. He is ably assisted by Gordon Bailey MBE and other specialist in the coatings sector. The course itself runs for four and a half days and also includes a half day written examination on the last day.

SYBAss members, the paint companies, ship yards and coating facilities worldwide will only accept inspectors into their facilities who have this qualification in time. It is in the interests of all Marine Coating Inspectors to encourage their colleagues to undertake the course not only to raise the standards of inspection, but to standardise reporting and to ensure that the highest levels of independence are maintained.

The pilot course was held in early September at Portchester and brought together the stakeholders. Their goal was not so much to learn but to take the course and to critique it so that when rolled out live, any issues have been ironed out.

The first commercial course is scheduled to take place in Amsterdam from 6-12 December and will coincide with the International Superyacht Coating Conference.

For more details about the new RMCI qualification and standard see www.rmciinspectors.com.



THE LINCOLN BUSINESS SCHOOL'S Work Based Distance Learning (WBDL) Team recently reached a significant milestone with more than 1,200 students enrolled on their undergraduate and postgraduate programmes.

MICHAEL HOWITT

Head of Work Based Distance Learning Programmes

The students study at the University of Lincoln from 57 countries across the globe. The team's success has been built on more than 12 years of research and development to evolve what has been recognised by the Quality Assurance Agency (QAA) as "an innovative approach to learning".



Organisations and their employees have reported that traditional university campus based taught courses are no longer meeting their needs; hence the team's aim to break down the barriers between learning at work and learning at university. There are a suite of degree programmes on offer, which are aimed specifically at the needs of people in work who are unable to dedicate time to full-time campus based study.

Current undergraduate awards in Business, Engineering and Logistics Management, attract students from the UK and international executive market, as well as military managers from both home and overseas forces. These degrees provide the opportunity for busy managers to achieve academic recognition of their extensive work experience and, in some cases credit for previous educational and vocational qualifications.

Further to the above degrees, the WBDL Team has developed a BSc (Hons) Marine Management degree which has been designed to allow students who have completed a Foundation Degree, HND or an equivalent Level 5 qualification in a related subject area to undertake the programme. It presents a

distance learning framework to enable individuals to complete the programme within a three year period. The duration will reflect each individual's personal circumstances, accredited experience, prior learning and work commitments. This programme will enable students to complete a full honours degree following a part-time, distance-learning programme and being work based, it will facilitate study while students continue to develop their careers in employment.

The programme is designed to provide a learning environment within which students will:

- *Receive the input, feedback and support they need to enhance academic learning.*
- *Apply academic learning in the context of the formative experiences of current employment to increase promotion and general employability potential.*
- *Ensure that students gain a deeper comprehension of the dynamic nature of modern organizations and the environment in which they operate by combining the content of the programme with the experiences of employment.*

As students progress they will be asked to link the study topics in increasingly integrated and systematic ways. However, the world of work is changing and new challenges emerge almost every day. This programme is therefore also flexible and dynamic enough to reflect and to absorb change and to ensure that students gain the skills and knowledge that they will need in order to rise to those challenges.

Graduations take place twice a year in Lincoln Cathedral.



The WBDL Team's aim is to validate new degree programmes in line with identified market demand. Work is currently on going to develop degrees in retail and humanitarian logistics management as well as a foundation degree in logistics management. This is a real success story for the University of Lincoln and one that goes from strength-to-strength.



NEW...Enclosed space training aimed specifically at Marine Surveyors..

WHY HAVE MINES RESCUE MARINE CREATED THIS COURSE?

IIMS are committed to the safety of their people, therefore, this course was created to help marine surveyors become aware of the potential dangers associated with entering and exiting enclosed spaces on board ships whilst carrying out their routine work.



COURSE CONTENT...

This bespoke one day course is drafted inline with the requirements of the UK national occupational standard for entering an enclosed medium risk area (tank, double bottoms, cargo holds, void spaces etc.) and can be assessed to that standard. Included in the course will be a review of main procedural documentation such as risk assessments, action plan (SSOW), permit to work and emergency procedures.



It also identifies Personal Protective Equipment and offers a 'hands on' learning approach in relation to monitoring equipment, EEBD's and other entry & rescue equipment.

The course also discusses the involvement of personnel positioned outside the enclosed space who have designated responsibilities for controlling the entry and dealing with an emergency situation should that occur.

In line with the national occupational standard identified above, there is a practical element to the course which may involve self rescue techniques to be demonstrated from both vertical and horizontal entry points.



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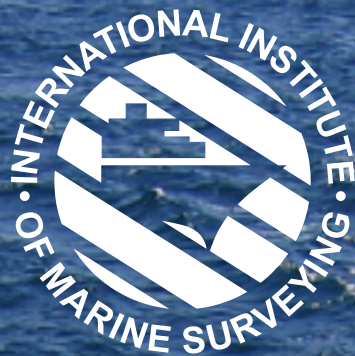
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