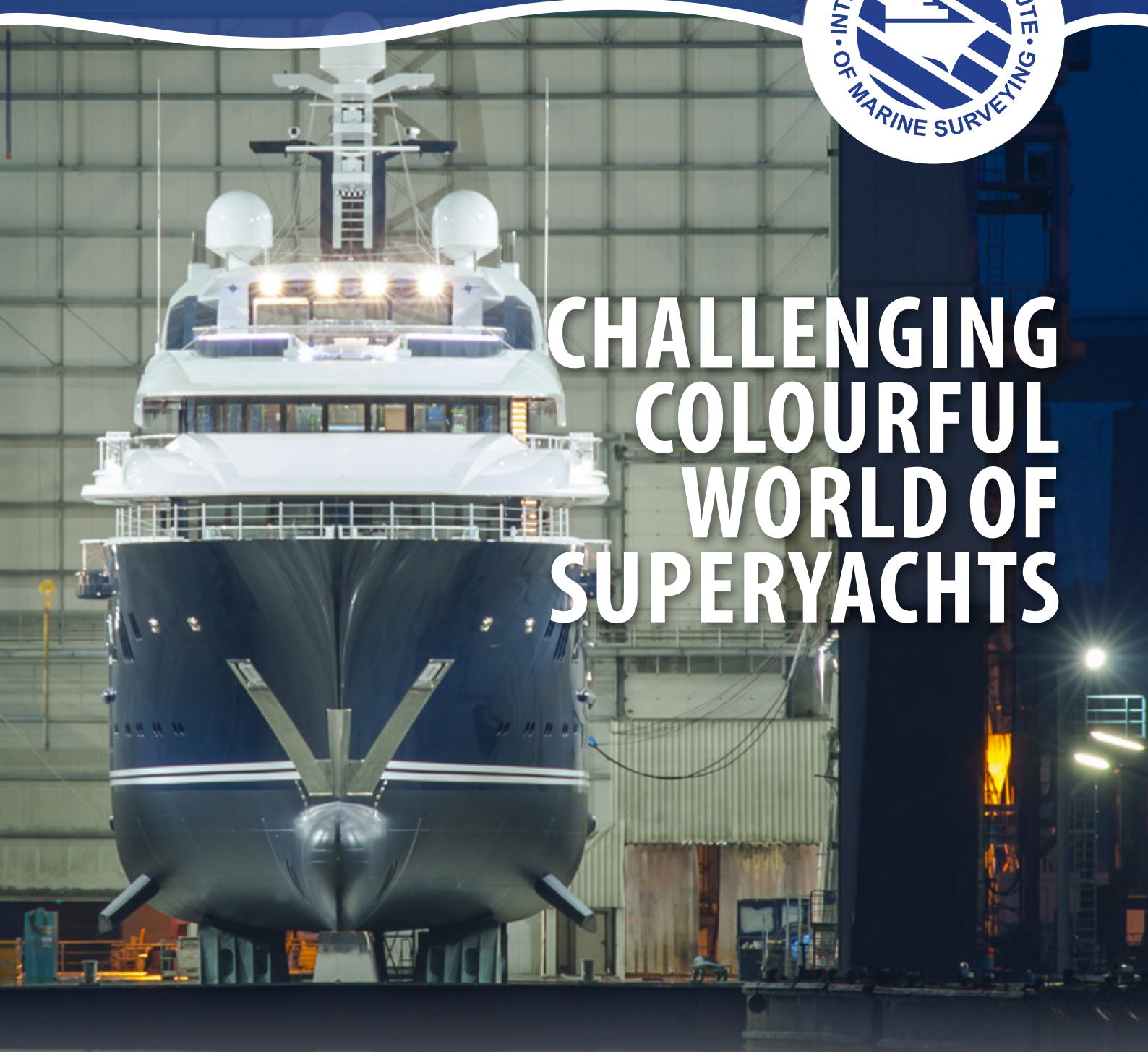
THE REPORT

The Journal of The International Institute of Marine Surveying

DECEMBER 2014



CHALLENGING COLOURFUL WORLD OF SUPERYACHTS

INDIA BRANCH CONFERENCE REPORT:
'Synergies in Marine Surveying'

A STUDY OF A KEEL

PROFESSIONAL INDEMNITY INSURANCE SCHEME FOR IIMS MEMBERS

matrix INSURANCE SERVICES LTD

This specialist marine surveyor's professional indemnity scheme has been set up specifically for members of the Institute and its benefits include:

- Automatic £2 Million cover for third party death or bodily injury under professional indemnity section
- No claim discount scheme
- Cover for handling and operation of vessels available
- Tools cover available
- 365 days a year commercial advice helpline for UK business law excluding employment matters staffed by qualified barristers and solicitors
- MCA Code of Practice and Boat Safety Scheme limits of liability available
- Third Party Non-marine Liability extensions available
- Low policy excess unless otherwise requested
- Claims handled by professional claims staff

We are able to arrange insurance cover for all types of marine and commercial risks in addition to the IIMS Surveyors Professional Indemnity Scheme. For further information about this scheme contact us by telephone on 01892 724060 or fax 01892 724058 or email at enquiries@matrix-ins.co.uk. Certain countries legislation may require you to access our scheme through a local broker. Our website is located at www.matrix-ins.co.uk.

Matrix Insurance Services Ltd is an independent insurance intermediary regulated by the Financial Services Authority (FSA registration no: 439075) located at Matrix House, Orchard Business Park, Furnace Lane, Horsmonden, Kent, TN12 8LX. The scheme is underwritten by Travelers Underwriting Agency Ltd with 100% security provided by Travelers Syndicate 5000.

the IIMS MERCHANDISE eshop

IIMS CORPORATE TIE
£8.33
excl. VAT

IIMS HIGH VISIBILITY VEST
£7.50
excl. VAT

KODAK SOLAR CHARGER
£12.50
excl. VAT

The ties are made of 100% silk and features the motif from the IIMS logo.

Please visit **members.iims.org.uk/eshop** and login to see the full range of merchandise available and to place your order today.

www.iims.org.uk

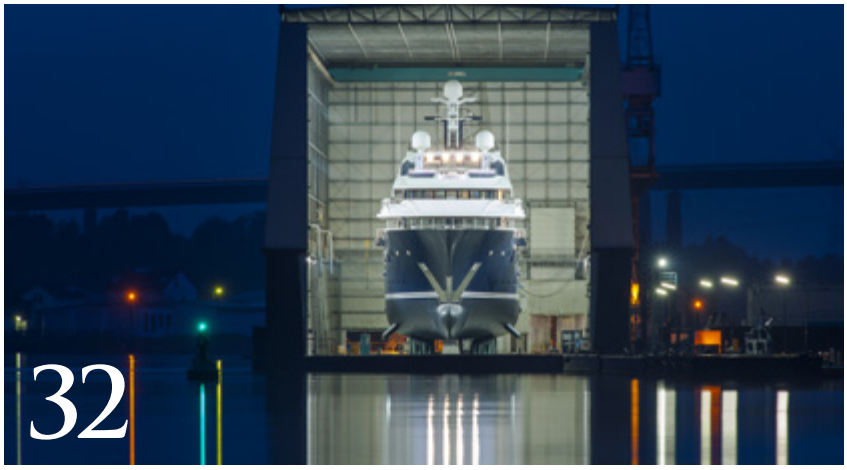
INTERNATIONAL INSTITUTE OF MARINE SURVEYING

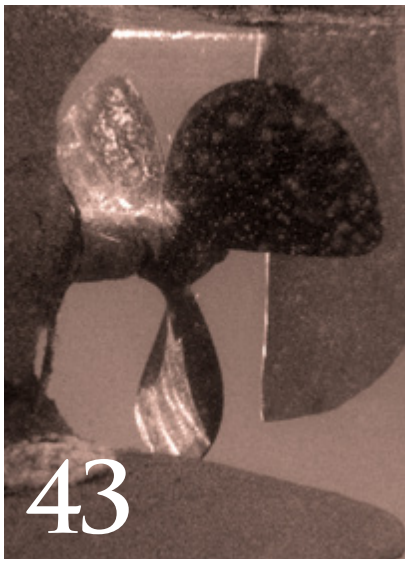
THE REPORT

The Journal of The International Institute of Marine Surveying

December 2014

Contents





The International Institute of Marine Surveying
www.iims.org.uk
Murrills House, 48 East Street, Portchester, Hampshire, PO16 9XS, UK

Editor's Letter

Dear Member

As I write, we are fast approaching mid-winter in the UK. This can be a dreary time of the year. But against that backdrop, life at the IIMS is far from dull as we approach the end of an absorbing twelve months full of change and new opportunities.

Our growing interest in the superyacht business as a result of launching the Registered Marine Coatings Inspectors course and qualification, presented the perfect excuse to invite Robert van Tol, Operational Director of the Superyacht Builders Association (SYBAss), to write the lead feature article for this issue (page 32).

There is plenty of members' news in this issue. From reports on the two recent small craft working group training days in Palma and Scotland, to a detailed overview of the recent IIMS India Branch Conference, including a spread of photos, you are sure to find something to interest you. On the subject of small craft, my thanks to John Excell (Chairman of Small Craft Surveying) for agreeing to be interviewed about his hopes and aspirations for this area of the business, both in the UK and overseas. The interview spans pages 40 to 42.

Jeffrey Casciani-Wood has written two excellent technical articles for The Report. I would particularly commend his thought provoking writing entitled 'A Study Of A Keel', written in the aftermath of the CHEEKI RAFIKI tragedy earlier this year.

For those of you who have any exposure to salvage and wreck removals, John Noble's article on page 47 will be of keen interest as he looks back over many years operating in that field and assesses the role of the surveyor in this particular area.

Having alluded earlier to a year of change, I hope you may find my own personal and candid account of the last twelve months of interest in the article entitled, 'That Is The Year That Was' on page 20. I have tried to give an honest overview of some of the challenges we have faced in my round up of 2014.

Nicholas Parkyn and Luc Verley both conclude their long running and highly interesting series on Knowledge Management (page 50) and new shipping routes (page 38) respectively.

Whether you use the new IIMS web site that was launched in October, or not, I recommend you turn to pages 28 – 30. The site is a valuable resource and a mine of information, but did you know just how much is readily available to you at the click of your mouse?

Make sure you do not skip over the President's column on the facing page. Bertrand Apperry argues passionately about the role of the marine surveyor in helping to make this a safer world in which to work. And he has a point.

So that's it for this year.
Good luck for 2015.

Mike Schwarz
Chief Executive Officer
International Institute of Marine Surveying

The President's Column

Dear IIMS Member

Can marine surveyors contribute to the maritime security business?

We are marine and maritime experts, who bring knowledge and intelligence in the many fields pertaining to the maritime industry

Our tools: first the ships, their management and their operations according to relevant international, or national regulations.

Finally we survey everything from small yachts to large container ships while passing by the carriages of goods, or hydrocarbons where we check or provide management advice according to existing norms.

Our marine and maritime services are especially suited to improve safety and security for ships and ports.

We have been doing that for a long time now and we have certainly contributed to an improvement of the work and transport conditions at sea and conditions of working operations in ports.

Today, more than ever, for the reasons you know, security takes a very significant dimension in our industry. It is a question of protecting people, ships, terminals, ports and the goods travelling by sea as well as those transiting the ports.

So how can we intervene as marine surveyors?

We know all about the sea, sailors, ships, ports which is already a lot. We also know how to organise, control and seek the causes of accidents or a dysfunction (damages). We know how to follow regulation, to detect non-conformities and to find the solutions to avoid recurrences. We know how to create or evaluate already established procedures and then assess their operation, effectiveness and give advice to improve them, if necessary. We know how to prevent the entry of stowaways on board and know by experience where they are likely to hide on board, or on the quayside.

In a word we know how to protect our assets against the inconveniencies of life of maritime transport and its risks. Security requires us to protect these assets against illicit acts while following rules which are finally very simple and full of good sense too.

We protect ourselves even in our trade on board ships, or in ports against robberies and sabotages in a quasi-natural way by locking our accesses and while making it difficult to pass without the necessary authorization and by detecting the wrongdoers in advance.

For the documents required by Maritime Security, we have already been 'risk management' specialists for a long time and we find by instinct the best solutions to reduce these risks, while proposing the relevant protection procedures. Again this is our job!

As regards to the arrest of wrongdoers, or their judgment, it is the police force and legal authorities job and it is final.

In conclusion

Can we work in maritime security? Can we be credible in offering our services to ship owners for organising the protection of their ships by respecting a standard (i.e. the ISPS code) and can we launch the protection of terminals and ports against any terrorist attack, or against any other illegal operation including the traffic of illicit products while following a reference framework such as simple and detailed as the ISPS code?

I think yes – we can - and we've proved it!

Finally the presence of non-military marine surveyors is very appreciated by the transport-by-sea industry or in the exploitation of sea bottom resources by the offshore industry.

Capt. Bertrand Apperry
President
International Institute of Marine Surveying
Master Mariner ISM and ISPS surveyor and consultant

Marine News

Australian Government
Australian Maritime Safety Authority

AUSTRALIAN MARITIME SAFETY AUTHORITY TO LAUNCH THE SURVEYOR ACCREDITATION SCHEME

What is the Surveyor Accreditation Scheme?

The Surveyor Accreditation Scheme (the Scheme) is how the Australian Maritime Safety Authority (AMSA) ensures that surveyors have the appropriate education, capability and capacity and are competent to survey domestic commercial vessels under the Marine Safety (Domestic Commercial Vessel) National Law Act 2012 (National Law).

The Scheme will take effect from 2 January 2015, but AMSA is unable to accept applications before that date.

The term of accreditation for a successful Accredited Marine Surveyor will generally be 5 years. The scheme is set up as follows:

Entry
Candidates apply to enter the Surveyor Accreditation Scheme through clearly defined entry points.

Accreditation scheme
Surveyors who are accredited under the National System carry out work within their field of competence in accordance with the obligations and requirements.

Renewal
Accredited Surveyors must renew their accreditation within 3 months prior to expiry.

This is just a brief overview about the scheme. For full details go to: www.amsa.gov.au/domestic/surveyors-manual

About the Australian Maritime Safety Authority
The Australian Maritime Safety Authority (AMSA) is a statutory authority established under the Australian Maritime Safety Authority Act 1990 (the AMSA Act). AMSA's principal functions are:

- promoting maritime safety and protection of the marine environment;
- preventing and combating ship-sourced pollution in the marine environment;
- providing infrastructure to support safety of navigation in Australian waters; and
- providing a national search and rescue service to the maritime and aviation sectors.

MARITIME COOK ISLANDS SEEKS MORE TONNAGE

"Cook Islands aims to be a flag of choice for quality classed tonnage and superyachts," says Glenn Armstrong of Maritime Cook Islands. He goes on to say that "We are young, ambitious and energetic and we hope to grow significantly over the coming years."

The Flag is based in the Cook Islands in Rarotonga and is the only Small Island Developing State with a serious open register that is actually based in their home country. The advantage of this is that Maritime Cook Islands is very close to their government and has an ability to get quick and sensible answers to difficult questions that take other Flags weeks and months.

Maritime Cook Islands is the administrator of the Cook Islands Ship Register. Under an agreement with the Ministry of Transport they have delegated to them responsibility for all Flag State responsibilities under the various IMO conventions and instruments. Given this responsibility, Maritime Cook Islands has recently employed Duncan Findlay as technical director, to assist their Deputy Registrars to provide timely, sensible, technical solutions to the problems that shipowners confront on a daily basis.

Maritime Cook Islands has a network of Deputy Registrars in 24 different Agents' offices around the world. The deputy registrars are authorised to register and certify vessels on the Cook Islands Flag provided the follow the MCI Quality Management System and use the online registry system – CIORE.

This means that clients should be able to enjoy instant service through the Deputy Registrar's office in their region, in their time zone and in their language. The network of Deputy Registrars also means that ships can obtain documents and certificates very quickly and inexpensively by having them issued by their closest Deputy Registrar.

The Deputy Registrars are what make Maritime Cook Islands different and what give them their competitive advantage over other registries. Each Deputy Registrar is a person of standing and experience in the Maritime industry and is well known and respected in their home port.

They are typically former master mariners, or marine engineers who have come ashore and established an impressive variety of successful maritime businesses from surveying, to management to brokerage, finance and law. They know the business, they know the industry, they know the people and they are authorised to respond and act to give clients first class service.

Part of this service comes from their network of surveyors and ROs. Maritime Cook Islands hase more than 160 surveyors around the world who can attend on board to assist with issues a client may have. Cook Islands has formal agreements with the IACS Class Societies and five other selected non-IACS societies.

The Cook Islands flag has grown rapidly. They have more than 450 vessels with a total of over 1,250,000 Gross Tons registered.

RESCUE OF MIGRANTS AT SEA IS AN OBLIGATION

The rescue of all persons in distress at sea, including illegal migrants, is an obligation under international maritime law, as well as being a long established humanitarian duty, says the International Chamber of Shipping (ICS). ICS is the global trade association for commercial ship operators, whose ships are currently involved on a daily basis in the rescue of refugees at sea in the Mediterranean.

Whatever may be decided by policy makers in EU Member States, the legal and humanitarian obligation of merchant ships to provide assistance to anyone in distress at sea will remain unchanged, says ICS.

Commenting on new reports that some European Union Ministers have expressed concerns that search and rescue operations have acted as a 'pull factor' for illegal migration, encouraging people to make dangerous crossings in the expectation of rescue, ICS notes that merchant ships are legally required to rescue persons in distress at sea by the UN International Maritime Organization's Safety of Life at Sea Convention (SOLAS), to which virtually every maritime nation is a Party.

Under SOLAS, and the International Convention on Maritime Search and Rescue, the obligation of the ship Master to render assistance is complemented by a corresponding obligation of IMO Member States to co-operate in rescue situations, thereby relieving the Master of the responsibility to care for survivors, and allowing individuals who are rescued at sea in such circumstances to be delivered promptly to a place of safety.

The shipping industry is therefore very concerned by reports that the new EU Frontex operation 'Triton' will have a third of the budget of the current Italian 'Mare Nostrum' operation which it replaces, that its primary focus will be border control, and that search and rescue operations may be reduced in international waters.

It will clearly be much more difficult for merchant ships to save lives at sea without the adequate provision of search and rescue services by EU Member States. Moreover, whenever a ship performs its legal and humanitarian obligations, it will continue to be incumbent on EU Member States to ensure that those who are rescued can be readily disembarked at the next port of call, even when they may lack documentation.

NAMING OF THE WORLD'S LARGEST CONTAINERSHIP

Hyundai Heavy Industries Co, Ltd. (HHI) announced today it held a naming ceremony for the world's largest containership, the first of five 19,000 TEU containerships ordered from China Shipping Container Lines (CSCL) in May 2013.

The naming ceremony for the world's largest containership was attended by Xu Li Rong, chairman of China Shipping Group; Zhao Hong Zhou, managing director of CSCL; Qiu Guo Hong, Chinese ambassador to Korea; Choi Kil-seon, chairman and CEO of HHI and 150 other guests.

At this event, the world's largest containership was named CSCL Globe by He Li Jun, wife of Xu Li Rong. The containership, measuring 400m in length, 58.6m in width and 30.5m in depth, is as large as four soccer fields, and will be deployed on the Asia-Europe trade loop after being handed over to the owner this month.

The CSCL Globe will feature a 77,200 bhp electronically controlled main engine to enhance fuel efficiency by automatically controlling fuel consumption according to the ship's speed and sea conditions. With the installation of the high efficiency engine, the containership will burn 20 percent less fuel per TEU in comparison with the 10,000 TEU containerships.

HHI built the world's first 10,000 TEU containership in 2010 and since then it has built 82, the most number of such vessels carrying more than 10,000 containers in the world.

The world's largest containership has been named CSCL Clobe.

COASTGUARD SEARCH AND RESCUE HELICOPTER PROGRAMME

The UK Maritime & Coastguard Agency has reported that by the summer of 2017 there will be ten coastguard search and rescue helicopter bases established around the UK.

All ten bases will be operated by Bristow Helicopters Ltd on behalf of Her Majesty's Coastguard at the following locations:

- Central Southern England
- Northern England
- Northern Scotland
- North Wales
- Shetland Isles
- South East England
- Southern Scotland
- South Wales
- South West England
- Western Isles

Bristow Helicopters Ltd already provides helicopters and crew to the two coastguard search and rescue bases in Shetland and the Western Isles. Over the coming months, seven more coastguard helicopter bases will open and the current base at Lee on Solent, Hampshire will move over to the Bristow contract. As the new bases open, the military helicopters which currently carry out civilian search and rescue will finish their civilian obligations.

The new coastguard search and rescue crews will be highly experienced, many will be existing crew who are currently working in search and rescue either for the military or coastguard.

The helicopters will provide search and rescue many miles out to sea and all the way around the 10,500 miles of UK coastline. The coastguard helicopters will also operate extensively inland.

BURGESS MARINE TO REVIVE SOUTH COAST DRY DOCK

Britain's largest independent ship repairer, Burgess Marine, has partnered with Shoreham Port to revitalise ship repair in the commercially thriving Sussex Port.

Shoreham Port offers one of the few remaining dry dock facilities on the South Coast of England. The Port has had a dry dock facility since the 1930's and since that time has provided a valuable service to the marine industries on and around the South Coast.

Over recent years, through significant investment by Shoreham Port, primarily in the infrastructure, huge progress has been made in the operational throughput, efficiency and service provided by the dock. Burgess Marine is looking to reinvigorate the ship repair business in the Adur dry dock by attracting both its existing customer base and new clients into the facility.

The Adur dry dock has recently hosted square rigged sailing vessels, yachts, trawlers, tugs, workboats and small ferries, and Burgess Marine are open to enquiries from these and all other craft.

Brian Needle, Operations Director of Burgess Marine commented, "The facility is superb, as is its location between our existing facilities in Dover and Portsmouth. We already have colleagues living close to the Port and its proximity to our other sites means that we can easily cover larger packages of work and major refits. It's a win-win for us, especially as the Team within the Port are so 'pro' ship repair."

Tony Parker, Shoreham Ports Director of Engineering went on to say, "The Port has been looking for a suitable partner for some time and Burgess Marine ticks all our boxes. They have the scale, reputation and professionalism to deliver ship repair work here in Shoreham in a safe, sustainable, and commercial competitive environment. We look forward to working with them in building the credibility and customer base of the Adur dry dock. Hopefully this is the beginning of a long and fruitful relationship."

Miami International Boat Show gets a new home
The Progressive Insurance Miami International Boat Show and Friends of Miami Marine Stadium have announced a win-win agreement that will provide ideal accommodation for the world's largest boat show while paving the way for the restoration of Miami Marine Stadium – a long-shuttered masterpiece of modern architecture that in 2009 was declared one of America's most endangered historic places by the National Trust for Historic Preservation.

At a recent press event, representatives from the Miami International Boat Show announced that they have committed to hosting the boat show in 2016 and 2017 at the stadium and its grounds while exploring it as a long-term home. The announcement follows months of speculation over the future of the Miami International Boat Show in the city due to the renovation of the Miami Beach Convention Center, which is slated to begin in 2016.

The first confirmed reuse of Miami Marine Stadium and its grounds since their closure in 1992, the agreement with the Miami International Boat Show allows the restoration of the stadium to begin in earnest.

"In 2016, the Miami International Boat Show will celebrate its 75th year in Miami. What better way to commemorate the significance of this historic annual tradition than by bringing the show to Miami Marine Stadium – one of Miami's most iconic and beloved marine venues," said Thom Dammrich, president of the National Marine Manufacturers Association, which owns and produces the show. "With unique features to accommodate the more than 100,000 boaters who travel from throughout the globe to experience the best the boating industry has to offer, Miami Marine Stadium could be poised to be a home for the boat show in 2016 and beyond."

U.N. CONDEMNS SOMALI PIRATES

The United Nations Security Council today reaffirmed its condemnation of all acts of Somali pirates and all piracy and robbery at sea off the coast of Somalia, reiterating its calls for the international community to intensify their efforts in fighting what it said was a threat to the East African country's stability.

Adopting a new resolution, the Council stressed the need for UN Member States to engage in a "comprehensive response to repress piracy" and tackle its underlying causes, while also calling on the global community to "take part in the fight against piracy and armed robbery" by providing a consistent military presence to the region.

Acting under Chapter VII of the UN Charter, which authorizes the use of force, the Council renews its call upon States and regional organizations that are able to do so to take part in counter-piracy measures specifically by "deploying naval vessels, arms, and military aircraft, by providing basing and logistical support for counter-piracy forces, and by seizing and disposing of boats, vessels, arms, and other related equipment used in the commission of piracy and armed robbery at sea off the coast of Somalia, or for which there are reasonable grounds for suspecting such use."

Piracy "exacerbates instability by introducing large amounts of illicit cash

The type of skiff used by Somali pirates.

that fuels additional crime and corruption in Somalia," the 15-member body continued, as it urged all States to take "appropriate actions" against Somali pirates to prevent the illicit financing of acts of piracy as well as the laundering of its proceeds.

According to a 2014 report released by the UN Office on Drugs and Crime (UNODC), piracy in the Horn of Africa is currently "ebbing" with 49 victims of piracy currently known to be held hostage on land. Another potential 41 hostages are at sea, held on captured dhows – traditional seafaring vessels – used as "mother ships". Meanwhile, 11 victims who have been kidnapped by the terrorist group, Al Shabaab, are believed to be held by groups with piracy links.

Despite the diminishing number of incidents, piracy remains a lucrative shadow industry which can lure otherwise law-abiding citizens away from peace-time employment and into the clutches of criminality.

The total cost to the global economy caused by piracy is estimated at about $18 billion a year in increased trade costs, as well as a significant decline in tourist arrivals and fishing yields since 2006. In addition, pirates off the coast of Somalia and the Horn of Africa have made between $339 million and $413 million in ransom profits over the past seven years, according to a 2013 analysis published by the UNODC, World Bank and INTERPOL.

The Security Council commended the work undertaken by INTERPOL in assembling a global piracy database and facilitating "actionable analysis for law enforcement" and encouraged both flag States and port States to consider further safety and security measures to be implemented on vessels.

Turning to Somalia's role in clamping down on the scourge of piracy, the Council called on Somali authorities to make "all efforts" to bring to justice those Somali pirates using the country's territory to plan acts of piracy through land-based investigations and thorough patrols at seas.

INTERNATIONAL SAIL ENDORSEMENT SCHEME LAUNCHED

A new international qualification aimed at raising the professional standards and supporting the professional development of tall ship sailors has been launched by The Nautical Institute and Sail Training International.

The International Sail Endorsement Scheme is the result of two years work by experts from Sail Training International (STI) and The Nautical Institute (NI). It was launched at STI's annual meeting in A Coruña, Spain.

"The aim of the International Sail Endorsement Scheme is to establish, promote and recognise a high standard of knowledge, understanding and proficiency among those who sail tall ships," said Steven Gosling, Training and Quality Manager at the Institute. "The scheme marks the creation of the first international proficiency standard against which square rig and fore-and-aft sailors can be independently assessed and endorsed."

Steven Gosling, (pictured left), Training and Quality Manager at The Nautical Institute and Doug Prothero, Executive Chairman of Sail Training International at the launch of The International Sail Endorsement Scheme.

Doug Prothero, Executive Chairman of Sail Training International, said: "Sail Training International is continually working with the global fleet of tall ship operators and their respective national sail training organisations to raise the bar on safety at sea in sail training vessels. This joint venture with The Nautical Institute marks not only an important new tool for the industry and those who regulate them but we feel it has also set STI on a new course that will include other projects with the NI."

A group of tall ship experts from all over the world, many of whom are serving Masters, has put together the scheme. "This group understands the unique challenges of managing and operating these vessels safely and efficiently," said Mr Gosling. "This is a scheme devised by the tall ship sailor for the tall ship sailor."

"The Institute and STI have long recognised that people who sail tall ships require specialist skills and knowledge to do their job safely and proficiently," added Mr Gosling. "What has always been missing, however, is an international framework setting out what the sailor should know and be able to do to become proficient in the operation of fore and aft and square rig vessels.

"With the International Sail Endorsement Scheme, tall ship sailors will understand what the industry deems they should be capable of when standing watch on ship. It will also enable them to meet a recognised industry standard and be awarded an industry developed endorsement."

The scheme also provides owners, operators and Flag States the opportunity to raise professional standards in this specialist sector by aligning national schemes with those prescribed by the industry.

VANCOUVER SHIPYARDS FINISHES $170M MODERNISATION PROJECT

Seaspan's Vancouver Shipyards officially celebrated the completion of its two year, $170M Shipyard modernisation project ahead of schedule and under budget.

Funded entirely by Seaspan, this project has transformed Vancouver Shipyards into the most modern facility in North America that will establish a shipbuilding and ship repair centre of excellence on the West Coast, and allow for the effective and efficient delivery of non combat vessels for the Canadian Coast Guard and Royal Canadian Navy.

"Today is a celebration for Seaspan, and words cannot express how proud I am of the incredible transformation of Vancouver Shipyards," said Jonathan Whitworth – CEO, Seaspan. "We have built a state-of-the-art shipyard right here in North Vancouver, tailor-made to support Seaspan's role as the non combat capability provider to the Government of Canada's National Shipbuilding Procurement Strategy (NSPS)."

"Today's ceremony exemplifies Seaspan's commitment to prepare its shipyard and its people to build ships for the Government of Canada," said Brian Carter – President, Seaspan Shipyards. "With our new facilities now complete and operational, including Canada's largest permanent gantry crane, four new fabrication buildings and a new load-out pier, we have begun our work for the Canadian Coast Guard on the initial blocks of the first Offshore Fisheries Science Vessel (OFSV). We estimate the new vessel construction work we will do for the Canadian Coast Guard and Royal Canadian Navy will result in the creation of 5,000 direct, indirect and induced jobs over the next 20 years, produce almost $500 million per year in gross domestic product for B.C.'s economy, and mean thousands of people will get the opportunity for an exciting career in shipbuilding."

During the Vancouver Shipyard modernisation project, 25% of the construction work in our shipyard was performed by First Nations Joint Venture Companies. Once full production on the new vessels commences in the Spring of 2015, Seaspan will also create stable work over the next decade for suppliers throughout B.C. and across Canada.

STATE-OF-THE-ART SHANNON CLASS LIFEBOAT LAUNCHED BY THE RNLI

Hoylake RNLI volunteers are preparing for a new era of lifesaving with the eagerly anticipated arrival of their state-of-the-art Shannon class all weather lifeboat, which arrived on Monday 1 December.

The £2M new Shannon class lifeboat, named Edmund Hawthorn Micklewood, arrived by sea at the end of a five day journey from the lifeboat charity's headquarters in Poole.

Hoylake is only the fourth RNLI lifeboat station in the UK and Ireland to receive a Shannon class vessel, which is the first modern RNLI all weather lifeboat to be propelled by water jets instead of propellers. Designed by an in-house RNLI team, it is the most agile all weather lifeboat in the charity's fleet and has been developed with the safety and welfare of RNLI volunteer crews as a key priority.

John Curry, Hoylake RNLI Lifeboat Operations Manager, said everyone at the station has been looking forward to the vessel's arrival for months.

He added: 'The arrival of the new Shannon class lifeboat will bring Hoylake into a new era of lifesaving as the response times of the station will be dramatically improved. The Supacat launch and recovery vehicle travels at ten miles an hour to the water's edge and, once afloat, the Shannon class is capable of speeds of 25 knots, 50 per cent faster than our current lifeboat. These factors will enable the Hoylake RNLI crews to arrive at the casualty that much faster and increase the chances of saving the lives of those who find themselves in peril on the sea.'

The new £1.5M Launch and Recovery rig which accompanies the Shannon class lifeboat has also been funded by a legacy, from local businessman Roland Hough, and will be named in his honour. This bespoke piece of equipment is capable of operating on the most challenging of beaches due to its all-track drive system. It operates as a `mobile slipway` and will make the lifeboat launch and recovery process both faster and safer.

Matt Crofts, RNLI Divisional Operations Manager, said: 'The volunteer crew at Hoylake have shown a huge amount of dedication, spending many hours away from their families and in some cases taking holiday from work in order to fulfill the training requirements that come with a new all-weather lifeboat. Their commitment and hard work mean the transition to this new generation of lifeboat will be as smooth as possible and I know they are all very much looking forward to the enhanced lifesaving capability the Shannon will bring to the Wirral coast.'

The RNLI has delivered a new Shannon class lifeboat to Hoylake.

Image courtesy of RNLI/Nathan Williams

Members' News

REVIVED IIMS SCWG MEETS IN THE WESTERN MED

By Kim Skov-Nielsen

The Western Mediterranean IIMS Small Craft Working Group (SCWG) met for a training day in Palma de Mallorca in November, organised by John Excell and Kim Skov-Nielsen.

On Friday 7 November, a group of a dozen IIMS members met at the excellent training facility in the Port Authority building to hear a review of PI insurance and handling claims and disputes given by Karen Brain and Amanda Ridd of Matrix Insurance Ltd. Thanks are due to Karen and Amanda for coming over. Lots of feedback led to a lively discussion of terminology and different practices in Spain.

Kim Skov-Nielsen followed on with a short photos and discussion session where he showed a selection of horrible things he had seen up various rigs in the last 12 months. Again a good discussion of practices and recommendations was had amongst the group before heading off for lunch on the quayside in the sun.

Dragging themselves back to the classroom, they had some solid training from John Excell on Tonnage Surveys, how to carry them out and where to take the measuring tape to. It is fair to say that everyone learnt something.

It was great to see a number of IIMS Spanish members and some student members too taking part in the training, proving that the Institute has something to offer them as well. There was talk of holding a future training session in Barcelona next year which would work if a number of the South of France surveyors also showed up. Federico Rodriguez of Testia offered to do a session on NDT, perhaps followed by some training on coatings and corrosion.

Western Med SCWG delegates relaxing over lunch

A short Western Mediterranean SCWG meeting was held where Kim Skov-Nielsen declined for personal reasons to carry on as chairman, suggesting that John Walker should get some recognition for all the work he already does. Motion passed and John Walker is the new Western Mediterranean Small Craft Working Group Chairman. His challenge is now to put the WMSCWG back together and get some of the perrenial no-shows to start coming to trainings and to meetings.

SCWG SCOTLAND MEETS AT SILVERS MARINE

The IIMS Small Craft Working Group Scotland met for a two day training seminar on 17-18 November at Silvers Marine in Rosneath, near Helensburgh in the west of Scotland.

Under the capable Chairmanship of Tom Elder, the training session attracted a dozen IIMS members and made full use of the vessels and craft available to view at the yard. On the first morning, Mike Schwarz gave an update and overview on IIMS head office activity. This was followed by a lengthy walk through the yard and workshops to see the work being currently undertaken. Fraser Noble, Chairman of the IIMS Certifying Authority, was on hand to give an update on some of the key changes affecting the work of surveyors. The rest of the first afternoon was taken up with a Small Craft Working Group meeting.

The second day morning was spent looking at a couple of business themed topics. Briony McKenzie from IRW Systems (a leading Microsoft partner and web developing company) gave an informative presentation on 'What makes a good web site'. Tom then took up the theme of 'Marine Surveyors and a virtual office', extolling the virtues of Microsoft Office 365, including discussing back up, storage of data (especially digital images), cloud based storage and so on.

IIMS members inspecting a 6.5 ton Southerly yacht keel

One of the highlights of the two days was on Tuesday afternoon when the group visited the Denny Ship Model Experiment Tank at nearby Dumbarton – built in 1882 – for a working demonstration. The test tank was built to test ship hull designs and retains many original features including a water tank as long as a football pitch.

All in all a successful two day session, which was enjoyed by all involved.

The IIMS would like to express their thanks to the new management and staff of Silvers Marine (Gareloch Support Services Ltd) for their support and generous hospitality during the stay. A return visit is planned for 16-17 November 2015.

BUY A SINGLE EDUCATION UNIT

With the recent launch of the new IIMS web site comes a fresh opportunity for members to improve and brush up their skills in a variety of different areas.

It is accepted and understood that not every surveyor, (especially busy working surveyors) would want to make a significant financial and time commitment to study for the Institute's BTEC HNC/HND in Marine Surveying. So with this in mind, IIMS has made over 30 of the HNC/HND units available singly. There is no requirement to formally join the course. But for those who wish to do the accompanying assignment, it will be marked and a certificate of study issued to you.

All HNC/HND units are reasonably priced at £395 each and may be downloaded directly from the IIMS web site in PDF format.

NETWORKING AT THE LLOYD'S AGENTS CONFERENCE

John Noble and Mike Schwarz were invited as a group of just seven marine organisations to represent the IIMS at the Lloyd's Agents Conference, which was held in the city of London near Tower Bridge. It was pleasing to meet a few familiar overseas faces from the IIMS family. But it was also an excellent opportunity to promote IIMS, its range of membership services and the HNC/HND education programme to an appreciative audience at such a prestigious networking event. After a couple of hours on their feet, Mike and John were hoarse from speaking and had given out countless brochures and exchanged dozens of business cards.

David Lawrence, Controller Lloyds Agents, and Mike Schwarz at the networking event

IIMS Certifying Authority training day held at Portchester Sailing Club

CERTIFYING AUTHORITY TRAINING DAY HELD

More than 20 marine surveyors attended the IIMS Certifying Authority training day, held at Portchester Sailing Club on Wednesday 1 October. Participants came from as far afield as France, Spain, Holland and even India.

The day was presented as a workshop with John Excell, John Heath and Fraser Noble (Chairman of the IIMS Certifying Authority) leading the delivery and handling the resulting debate and comments.

The day proved to be long and exhausting, but productive as delegates got their heads around some of the more complex matters relating to the MCA directives and requirements.

John Excell gave a detailed presentation about tonnage measurement, including breaks in deck and multihulls. John Heath was next to speak on the subject of stability. The group then reviewed some of the necessary paperwork before Fraser Noble concluded proceedings by leading those present through some of the most often asked questions and areas of issue. All in all a most satisfying day for all involved.

The next IIMS Certifying Authority Training Day will take place on 13 May 2015 at a location and venue to be announced.

The 2015 IIMS Conference will be held in London

2015 IIMS CONFERENCE LONDON

At its recent meeting, the management board made a decision to hold the next IIMS Conference in London during September 2015. The conference theme and venue are subject to confirmation in due course.

The provisional dates for this prestigious event are 7-8 September and have been deliberately chosen to coincide with the International London Shipping Week (from 7-11 September), which is sure to be a draw for IIMS members in its own right. For now pencil the date in your diary and wait for a further news announcement in 2015. If you are potentially interested in presenting a paper at the Conference, drop the head off team an email to express your interest.

SPRING 2015 CERTIFYING AUTHORITY TRAINING DATE ANNOUNCED

If you are an IIMS Certifying Authority examiner, the next date for CA training has been set as Wednesday 13 May. Please put it into your diary. The venue is likely to be the south coast and the team are working hard to find a suitable location for some practical hands on, outdoor training involving heel tests and stability checks. More to come soon.

MSA DELIVERS FIRST RMCI COURSE ON BEHALF OF IIMS

The Marine Surveying Academy has just delivered its first Registered Marine Coatings Inspectors course on behalf of parent company, the IIMS. This is the culmination of several years work by Peter Morgan (and others) to develop course material fit for purpose to tackle what has become a serious issue in the superyacht business.

The first commercial course attracted 15 students, the maximum number, and was held at a hotel to the south west of Amsterdam from 6-10 December, immediately prior to the International Superyacht Coatings Conference. Gordon Bailey MBE was lead tutor, assisted by Joop Ellenbroek of ECS Ellenbroek, a familiar and well respected figure in the superyacht industry. The 5 day course included a multiple choice paper, a detailed questions written examination and a practical too.

Examinations are being marked still, but early in the New Year, the first RMCI Inspectors will be named and added to the register. For more information on this new standard, see **www.rmciinspectors.com**.

PAUL HOMER'S REPLACEMENT FOUND

Following Paul's decision to formally stand down as a member of the IIMS Management Board in mid 2014, (although he still attends in his own right as Director of the Marine Surveying Academy Ltd), his replacement can finally be revealed.

The rather handsome pipe smoking 'jolly tar' appeared in the IIMS head office recently, a generous gift from none other than Paul himself. And to prove that this gentleman is of fine stature and standing, we captured a photograph of IIMS President, Capt. Bertrand Apperry, sharing a private joke with him. This imposing life size statue is made of solid wood and is very heavy.

He is now standing peacefully in the board-room ready to greet any unsuspecting visitors to head office and is eating us out of house and home!.

Our thanks go to Paul.

Below: Paul Homer's replacement is unveiled.

2015 DATES FOR YOUR DIARY

The London Boat Show
9-18 January 2015

Registered Marine Coatings Inspectors Course Southampton
19-23 January 2015

Ocean Business Exhibition
14-16 April 2015

Certifying Authority Training Day
13 May 2015

IIMS two day training workshop
June Adelaide 2015

Seawork International Southampton
16-18 June 2015

IIMS London Conference
7-8 September 2015

IIMS Annual Dinner
7 September 2015

SCWG Scotland Training Day
16/17 November 2015

IIMS UAE Branch Dubai Conference
29/30 November 2015
(subject to final confirmation)

Photo: Delta Marine

REPORT ON THE INTERNATIONAL SUPERYACHT COATINGS CONFERENCE

The third International Superyacht Coatings Conference (ISCC) drew around 100 delegates to this prominent business-to-business event. With the theme of "driving quality, ensuring success", the conference took place on 11/12 December and was organised by Amsterdam RAI in association with the International Council of Marine Industry Associations (ICOMIA) and the Superyacht Builders Association (SYBAss).

Specialising in superyacht coating processes and related rules and legislation, ISCC has become much more than just a conference and networking event. Delegates are encouraged to participate and contribute, not merely spectate; and they certainly did just that at this year's event!

The two day programme was expertly chaired by Tony Rice from ICOMIA and was supported by an eminent line up of speakers and expert panels to back them up and to discuss some of the hot topics and issues that were raised.

The opening session, entitled 'Coatings Aspects of Yacht Management: Contracting and Delivery' brought a fair degree of intense opinion and much debate. Moderated by Tony Allen of Hill Dickson LLP who said that the superyacht industry drew more litigation than any other industry he knew of. The 'fall guy' was Patrick Renar, Head of Technical for Edmiston, who spoke of the confusion that he's experienced from the lack of regulations and standards, the accepted 40 per cent reduction in gloss that hull coatings undergo in two years, combined with the cost of the paint. He concluded that the situation as he sees it to be unacceptable. Delegates responded to his criticism strongly saying that the situation is far better, more managed, less risky and indeed even better for the environment than at any time in the past.

Next up was a session entitled 'Inspection and Assessments'. It covered the new Registered Marine Coatings Inspectors course moderated by Mike Schwarz and comprising a panel of Joop Ellenbroek, Rory Marshall, Robert van Tol and Gordon Bailey. Experienced surveyor, Rory Marshall, who had just completed the inaugural RMCI course said; *"It's what the industry needs."*

"Having certified inspectors and yard representatives means there is more control and more structure which can only increase the sense of professionalism in our business," Marshall said.

Delegates enjoyed an Amsterdam canal trip from the convention centre to the city centre followed by a walking buffet at the famous West Indisch Huis.

The second day brought more excellent presentations and discussion. It began with a presentation from Trevor Solomon of AkzoNobel, who spoke about driving innovations and benefits in today's world. A debate followed about why the superyacht industry has not yet adopted the new low solvent coatings that are now available. Whilst the products are available, the demand it seems is still not there and no definitive conclusion was reached.

Albert Willemsen from ICOMIA spoke about mitigating the demands of legislation. The latter part of day two was given over to understanding the ISO standard, in particular ISO11347 that governs the superyacht industry and also the ICOMIA guidelines. The final session considered the measuring quality of coatings.

The superyacht industry remains something of a cottage industry that seems to have yet fully matured in some aspects. It continues to cry out for further improvements and standards to be developed. All in all a thoroughly thought provoking two day conference that allowed participants to make their points of view well and truly heard.

IIMS India Branch Conference

'Synergies in Marine Surveying'

14 -15 November 2014 at Kolkata

BY **MILIND TAMBE** FIIMS

This overview of the conference has been prepared and written by Milind Tambe, Regional Director for IIMS India.

IIMS India Branch held its 3rd Conference themed Synergies in Marine Surveying at the Hotel Sonnet at Salt Lake, Kolkata on the 14th and 15th November 2014. The simple 'No Frills' event was well attended by 60 delegates at the cozy and comfortable venue of the Emerald Hall at Hotel Sonnet.

Overseas delegates and speakers made a representation too - with two delegates from UK, four from UAE, three from Bangladesh, one from Singapore and one from China, apart from those from various port, as well as hinterland cities of India.

It was a pleasure to see a total of 17 sponsors for the event; some of them were overseas sponsors as far and wide as Indonesia to UAE.

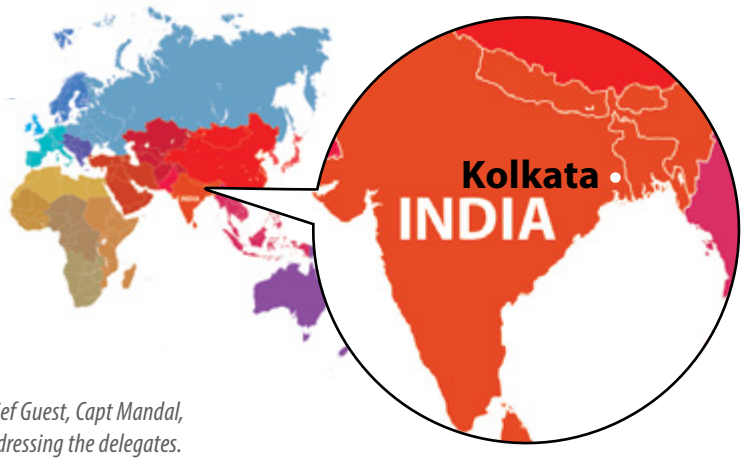
The theme was aptly echoed throughout the two days of the event not only by theme title on backdrops and mention of the word Synergy in the papers presented, but by actual synergizing between the attending delegates both from within the membership as well as those who were not.

The IIMS Regional Director for India

Mr Milind Tambe welcomed the delegates and also read out an address on behalf of the IIMS' CEO Mr Mike Schwarz, who could not attend the Conference due to conflicting schedules.

The Conference was formally inaugurated by Capt S C Mandal the Principal Officer MMD, Kolkata. The Chief Guest made apt references to incidences and success stories in Maritime industry where Synergies were harnessed. He also raised a thought provoking question at the end of his address asking why there is no representation from the other streams of the Surveyors at the IMO as an NGO in the consultative status, apart from IACS.

Chief Guest, Capt Mandal, addressing the delegates.



This was then followed by 16 presentations and one interactive session over the two days. It was a tough call for the organising team to request the delegates to temporarily cease their discussions with Speakers and fellow delegates on the papers presented till then and usher them back from the coffee breaks (aptly titled as Synergy Breaks) for subsequent sessions.

Some of the notable and much debated papers were by Capt Shailesh Karmarkar of IRS who spoke on the 'Carriage of Hazardous Bulk Cargoes', which invited a lively discussion during the Q&A session on various aspects related to loading of iron ore fines and related issues in India, with Capt Karmarkar and Capt Ruchin Dayal both giving some very vital inputs.

The session by Mr AWJ Fernandez on a case study on Professionalism aptly verbalized what should not be done and why it should not be done. As usual with his dynamic public speaking skills the 30 minutes that he was at the podium were of absolute silence with the delegates pondering over issued pointed out by him in the case study.

Capt Falah Al Rai of DNV GL spoke on the synergies within the Noble Denton Marine advisory group and how synergy is seen within the group. Ms Tina Chua followed that with her absolute straight forward and a "Matter of Fact" approach presentation on 'Synergy between surveyors a Myth or Reality'. Her pointers to the ground reality and suggestions were well taken by the delegates. The take home points for the surveyor delegates were:- Don't Criticise, don't be judgmental and don't be aggressive. How very valid!

Mr Uday Moorthi of Quest Marine LLC spoke on the issue of 'Catalytic Fines and their repercussions' in his ever effervescent style – emphasizing on the damages done by catalytic fines. He supported his words with apt illustrations, facts and figures which showed the depth of research he had done on the subject.

The day continued with very interesting papers by Mr Sanjeev Bhandari on 'Do Surveyors Owe a Duty of Care'; Mr TS Shrinivaasan fondly called 'Shrini' by fellow IIMS members, spoke on how synergies need to be developed between various stake holders in different types of surveys.

Mr John Lawrence the past CEO of the IIMS spoke on the importance of Practice in his paper titled 'Theory is good but practice makes perfect' and which he very aptly demonstrated with a lovely video clip at the start of his talk. He later apprised the audience of the various courses being developed by the MSA and how they could help Surveyors.

Capt. Zillur Bhuiyan who has been a supporter of the IIMS India Branch since its inception spoke on the 'Evolution of IMO Legislations'.

The day ended with a lovely delegate dinner that was sponsored by 'PT Total Marine & Claim Services - Indonesia'. It was good to see all unwind with a free flow of light spirits and sumptuous and mouth watering Thai menu. The organizing committee celebrated the birthday of Mr Devkant Sharma (which coincided with the Conference on 14th November 2014) who has been associated with the branch and has shown his support to it ever since it was formed.

The party that continued until much later the previous night did not deter the delegates from making it on time at the venue on day two of the event. The second day started off with Mr Mark Openshaw of Cordstrap's China Office conducting an interactive session on the new CTU code and modular lashing methods using Cordstrap equipments. The interest of the delegates was apparent from the way Mark was being contacted during the Synergy Break by the delegates who were involved in CTU consolidation and lashing/ securing supervision activities.

Capt Shailesh Karmarkar presenting a Paper on Carriage Of Hazardous Bulk Cargoes.

Mr AWJ Fernandez presenting a Case Study on Professionalism.

Capt Falah Al Rai of DNV GL presenting a Paper on How DNV GL Has Applied Synergy Within.

Thereafter Capt S P Anand spoke on the 'Merits and benefits of attending seminars and conferences' a topic that is close to his heart. The two other remarkable presentations of the day were by Mr Mandeep Singh Pruthi and Capt Zarir Irani who presented on 'Offshore construction Market and challenges faced by Marine Surveyors' and 'Challenges in Rig Moving' respectively. It was very nice to see a young Naval Architect like Mandeep speak passionately and authoritatively about the challenges faced by the marine surveyors involved in Marine Warranty Surveys. Some very valid take home points made by Mandeep were:

- ***A proactive & technically Qualified MWS does make a difference.***
- ***Marine Warranty Surveyors can only reduce but not eliminate risk!***
- ***The amount by which the MWS can effect risk reduction is directly related to the level of support given to them by the assured.***

Capt Zarir Irani spoke about the various challenges that could be faced during a rig move with very apt illustrations and demos well assisted by Mr Sujith Mathew of DNV- GL.

The event concluded with a Valedictory function where an Honorary membership was awarded to Mr P Sridharan, Honorary Fellowship to Capt S P Anand, Fellowship to Mr P K Bhattacharya and Mr AWJ Fernandez. Members of the organizing team who contributed with their outstanding efforts were also honoured and the awardees were Ms Asha Shetty, Mr Devkant Sharma, Mr Pervez Kaikobad and Mr Chinmoy Bhattacharya. The Branch Chairman Mr AWJ Fernandez concluded the session with his thanks giving address to the forum.

All in all a very good event and all the credit goes to the Conference Organizing Committee comprising of Mr Sanjeev Bhandari, who guided the team under the leadership of Mr Pervez Kaikobad and the team comprising of Mr T S Shrinivaasan, Mr Chinmoy Bhattacharya, Mr Indranil Aich, Ms Asha Shetty, Mr Devkant Sharma, Mr Ashik Ali, Mr Rajesh Bharati and Ms Falguni Bose.

The members and delegates demanded that the next conference scheduled for 2016 be held at Goa! It is now a year of hard work throughout 2015 for the Branch Committee to see that all goes well at Goa.

A conference in Goa would mean that delegates would be having a healthy balance of work with pleasure – as no visit to Goa is complete without the associated fun and frolics! See you all in Goa for a short break in 2016!

Speakers from India, UK, Singapore and the UAE came to bring their points of view to the conference audience. As with every conference, the networking is sometimes more important than what is said in the conference hall and this was no exception in Kolkata. The first morning session delivered quality speakers with a depth of knowledge and presence.

Pre-dinner drinks were available at 19:00 hrs. The evening was a great success and I am sure that the normal IIMS family atmosphere was certainly maintained.

Day two featured a strong line up. The conference ended with the presentation of membership certificates to several members of the Institute for their contribution not only to the Indian Branch but also to the IIMS in general.

I am sure that I speak for all the guests and the visiting speakers when I send my congratulations to the Indian Branch Conference Committee for their hard work and superb organisation of another excellent conference.

John Lawrence
HonMAMSBC

Ms Tina Chua presenting a Paper on Synergy Between Surveyors Myth Or Reality.

Mr Uday Moorthi presenting a Paper on Catalytic Fines.

Mr Sanjeev Bhandari presenting a Paper on Do Surveyors Owe A Duty Of Care.

Chief Guest lighting the Ceremonial Lamp.

Mr T S Shrinivaasan moderating a session.

The Synergy Breaks did indeed see delegates synergizing.

A glimpse of the Delegates Dinner sponsored by PT Total Marine and Claims Services Jakarta.

Capt Kapil Dev Bahal presenting a Paper on Pollution Risk Assessment And Compensation Regime.

Mr John Lawrence presenting Theory Is Good But Practice Makes Perfect.

Capt Zillur Bhuiyan presenting a Paper on Evolution Of IMO Regulations.

Delegates keenly listening to the speakers.

The Organising Team ensuring the event proceeds as planned - setting right some deviations that had to be made.

The delegates at the end of the conference.

Mr Mark Opensahw conducting the Interactive Session on New CTU Guidelines.

Capt Satish P Anand presenting a Paper on Benefits Of Attending Seminars And Conferences.

Capt Zariri Irani presenting a Paper on Challenges In Rig Moving.

That is the year that was

IIMS Chief Executive Officer, Mike Schwarz, takes a look back at some of the highlights of his first year in office during what has been a challenging, but ultimately rewarding and fulfilling twelve months.

As I come towards the end of my first year as Chief Executive Officer of the International Institute of Marine Surveying, I wanted to take a moment to look back at the events that have shaped the past twelve months. This is my opportunity to give my personal highlights on IIMS head office life as I see them.

Not coming from a marine background could be considered as a blessing and a curse! So to say this has been a year of steep learning for me personally would be an understatement! The actual day to day running of the Institute membership has been relatively straightforward. However the same cannot be said of other areas where I have had to learn and learn fast. Some of the work we are involved with is highly technical and specialist. One such example is the UK Marine & Coastguard Agency Certifying Authority coding work. This area has challenged me and I still have much more to learn. And it was brought home to me at our recent audit when I realised that the UK Government authorises us by contract to carry out the work. Failure, or getting it wrong, can lead to serious consequences. That sharply focuses the mind.

I had prior knowledge before starting the job that the Institute had been through a rough financial trading period over the past couple of years, so that became my number one priority. A redrafted budget was presented for the Management Board's approval early in the year. Once this was agreed, it was a case of making sound business decisions to settle IIMS back on to an even keel - pardon the nautical pun. The key costs that the IIMS were paying for goods and services were reviewed. As a consequence of this process, it was decided to recommend a change of auditors (which was formally agreed and voted on at the AGM in June). The result was that we are now with a local firm called FAB Accountants and it has proved to be a good business decision. It was also decided to bring the web site in-house to save money – not an easy decision it has to be said and this led to a period of rebuilding the site from scratch. Even renegotiating the photocopier contract made worthwhile cost reductions! The end result is that costs this year have been reduced in the region of 10%. And after two years of losses, IIMS is back in the black once more. This is a satisfying outcome.

LEARNING HOW TO EDUCATE

The IIMS education unit and the BTEC Marine Surveying HNC and HND study programme are important for two reasons. Firstly the education programme helps to give new skills to the present, as well as the next generation of marine surveyors. Secondly it is an increasingly valuable source of revenue for the IIMS.

We currently have one hundred plus students engaged on the course and recently awarded our first HNC certificates to half a dozen students. But it has not been plain sailing. We started the year in a bad position when Pearson

edexcel (the awarding body) had blocked our ability to successfully certificate the course following an ill-fated, aborted external verification visit. But we worked with Pearson edexcel over a couple of months to better understand their requirements and what they needed from us. The result was a successful inspection in late spring when our status was officially unblocked. The transition from diploma to HNC/HND has been a rocky road but we are getting to where we need to be finally.

One recent and new innovation is making available the HNC and HND units available to buy singly for members and non-members alike. We understand not every marine surveyor wishes to formally study for a year or more. So we have made it possible to purchase any of the thirty plus units directly from the web site. This is proving to be a popular option too and we expect the demand for this service to grow. Once purchased, there is no obligation to formally complete the assignment; but the option exists to get a 'Certificate of Study' if you do.

DEVELOPMENT OF A DIGITAL STRATEGY

Given my media and digital background, I was keen to develop and implement an integrated digital strategy for the Institute. It is clear that in these days, like never before in my opinion, that people like to receive and disseminate their information in a variety of ways using various delivery platforms. Therefore, it is important to be active on the many different platforms to ensure people can access the information they want, when and how they want it in a format to suit.

So we have become very active on Twitter this year and as a result have managed to drive our number of followers up to almost 400 - @IIMSmarine will find us. Chloe Bruce is responsible for feeding our Twitter account, which she does so at regular intervals.

Next we tackled the medium of YouTube. Videos are now so popular on the internet and are a great way of bringing web site traffic in and also a good way to distribute information. We had the 2014 IIMS Conference filmed. This generated more than a dozen video films which have been loaded on to our YouTube channel. More will be added in the coming months and members notified.

The next piece of the jigsaw was to get active on LinkedIn, by no means a medium that appeals to all! A LinkedIn discussion group was established in August and now has around 160 members and growing daily. Topics can be put up for debate by any of the group members and they do just that. It is proving to be a useful platform and has already stimulated some very lively debate.

And the final strand of the strategy was the launch of the new IIMS web site, rebuilt from scratch. There is a detailed article in the issue of The Report about the intricacies of the web site. But early stats for the first couple of months are very encouraging.

LAUNCH OF THE MARINE SURVEYING ACADEMY PROJECT

This is a part of our organisation that has really started to blossom as the year has gone by. In early 2014 the Marine Surveying Academy (MSA) was set up as a wholly owned subsidiary of the IIMS. Its purpose is quite simply to deliver ad hoc training for marine surveyors and to provide accreditation for other organisations.

Former IIMS CEO, John Lawrence, was retained on a twelve month basis to help to establish the business. We started the company with an existing bit of business. For a year we have been conducting the examinations, marking and certification for the International Registered Marine Insulation Inspectors (IRMII) qualification on behalf of Wood Group Integrity Management. Somewhere in the region of 80 inspectors have now qualified in this specialist area of inspection. This year, courses and exams have been conducted in Norway, Aberdeen and Perth. More are planned for 2015. See **www.irmii.co.uk** for more details.

The last quarter of this year has been taken up with the final development and implementation of the Registered Marine Coatings Inspectors (RMCI) course and qualification. Have a look at www.rmciinspectors.com for more information. Past President of IIMS, Peter Morgan, developed the basis of the syllabus several years ago. His vision was shared by leading industry associations ICOMIA and then Superyacht Builders Association (SYBAss). So the industry has come together to create a new qualification, standard and certification for the superyacht building industry to try and resolve what has been a long standing issue in new build and refit yards. The industry has been beset with many legal claims relating to the quality of the coatings finish and it is time to try and upskill those involved in the inspection process. The result is the new RMCI course, jointly accredited and certified by IIMS and the Institute of Corrosion.

In September I joined Peter and lead course tutor, Gordon Bailey MBE, at the pilot course held at nearby Portchester Sailing Club. This attracted a dozen of the very best from the European superyacht industry including representatives from new build and refit yards, applicators and paint manufacturers. Their mission? To review and critique the course material and to sit the examination.

The outcome was positive. A review meeting was then set up between the stakeholders to take on board their collective comments and to finalise plans for launch. All was running well when unexpectedly, Peter Morgan was taken seriously ill and suddenly had to disappear from the loop. Losing the main driving force behind the project presented a number of key challenges in the immediate short term. We were in a state of limbo for a week, but with the help of other stakeholders we managed to pull things together. So at short notice I found myself deputising for Peter. That meant a trip to Amsterdam to brief and update the influential SYBAss Coatings Committee at the METS exhibition. Then a couple of weeks later I was back to Amsterdam to give a presentation and to moderate a session about the RMCI qualification at the International Superyacht Coatings Conference. Interesting times for sure.

The first RMCI course was held at Amsterdam from 6-10 December, attracting the maximum number of fifteen students. At the time of writing, the exam papers are still being marked, but very shortly we will be introducing the first qualified Registered Marine Coatings Inspectors. The second course is planned for Southampton in January and further courses in Genoa and Hamburg in the spring of 2015. There are likely to be further courses announced for the autumn too. What is pleasing is that ICOMIA and SYBAss have both formally endorsed and got behind this new standard. So it likely that within a relatively short time, new build and refit yards will only entertain RMCI qualified inspectors in their yards.

Currently IIMS is in final negotiations with a well known marine organisation to launch another large accreditation scheme in 2015. Codenamed Project TRADEWINDS that is all I can say for now! But do watch this space for more details very soon.

So whilst some of the activities that MSA are engaged in are not directly relevant to IIMS members, they are providing a valuable income stream to enable us to enhance and underpin the Institute going forward.

LIST WRITING AND PRIORITISING

Now do you remember that golden rule that we were taught many years ago? Write a list! Even though I have a decent memory, I have rediscovered this most noble and useful of aids. Because at head office we are involved in so many different activities at the same time, noting things to do down and prioritising them is essential as I have found out to my cost at times. There is something pleasing about completing a day's work having been able to put red lines through what was on the list. However prioritising tasks is more challenging.

MEMBERSHIP COMMUNICATIONS

This year we have worked hard to greatly enhance the material we provide to members. This started back in January when the monthly news bulletin for members was given a total and welcome makeover. Now produced monthly in pdf format, the link is mailed to members in an emailer. The aim is to provide relevant information and news to members in an easy to digest format.

In March The Report magazine got the same treatment and was given an overhaul. The result, according to members, is a thumbs up. We are now commissioning articles from members and non-members too. The result is a modern magazine that is relevant to members. Editorially there is a mix of industry news mixed with news from around the IIMS family. This is balanced with some hard hitting full length features, as well as educational and informative articles too. My thanks to our designer, Craig Williams, for using his design skills on the publication.

THE IIMS HEAD OFFICE STAFF

I am grateful to the IIMS head office team. They welcomed me into the organisation and have been not only supportive, but also a source of strength as the year has gone by. During the year I have imposed some significant internal changes that have certainly stretched each of the team in different ways and they have risen to the challenge magnificently, sometimes in difficult circumstances. Thank you.

AND SO TO CONCLUDE

My first year has simply rushed by – full of challenges with plenty of highs and a few lows too of course. Now as I look back to the end of 2013, I am grateful to the interview panel of Paul Homer, John Heath and Geoff Waddington for choosing me. I look forward to 2015 with relish and wish all in the IIMS family a prosperous 2015.

A STUDY OF A KEEL

BY **Eur. Ing. JEFFREY N. CASCIANI-WOOD**
HONFIIMS

The recent loss in mid-Atlantic of the a.s.v. CHEEKI RAFIKI and the sad loss of four lives has brought very clearly to public and professional attention the problem of fin or pendulum keel detachment and consequent capsize of many apparently perfectly good boats. This is a very serious problem from a marine surveying point of view and the author has made a detailed study of a very similar loss that took place in February 2007 in the English Channel.

> **"...investigated 72 of those that had been reported since 1984 and that involved no fewer than 24 deaths by drowning."**

To put the matter into perspective it was first necessary to look into some published historic data. Because of their concern over the number of reported keel failures, the International Sailing Federation (ISAF) developed a Keel Structure Working Party to investigate and report on the problem. As a starter they produced a data base of known failures and investigated 72 of those that had been reported since 1984 and which involved no fewer than 24 deaths by drowning. Their basic analysis is shown in the Table opposite. The problem with the data, however, is that it records only the worst cases in which the keel had been pulled off or otherwise lost from the hull usually resulting in a capsize and an actual total loss. The marine surveyor investigating such a casualty will frequently find that it is very difficult to establish the prime cause of failure and, in particular, to differentiate between a loss caused by a design and/or manufacturing fault and a casualty resulting from human error such as a collision or a grounding. He must be particularly careful to avoid listening and paying credence to usually ill informed bar room or internet gossip.

It may be considered that the number of deaths when compared to the number of people sailing for pleasure is very small **BUT IT IS STILL TWENTYFIVE DEATHS TOO MANY!**

The Casualty

It must be stated at the outset that this study is not intended to point the finger of blame at any person or group of persons but only to enable marine surveyors to understand the possibilities and to increase his skill in, not necessarily forensic, examinations of small craft. The vessel whose loss is considered in this study was Bermudan sloop rigged, of 10.65 m LOA x 3.32 m breadth and 2.2 m mean draught. The depth of the hull was not given. The boat was of frp and pvc foam sandwich construction and the ballast keel was of the lever bulb type with the arm constructed of prefabricated steel. In late 2007 she had sailed from Plymouth towards Southampton following an out of season repair and maintenance. In the early hours of the following morning the pendulum keel became detached and the boat capsized, causing the loss of life of one crew member. She was the first of ten boats in a class developed by a Dutch naval architect for use in Recreational Craft Directive (RCD) Category B waters and had, apparently, been designed using the American Bureau of Shipping (ABS) standards and had been built and marketed in Holland. Unknown to the designer, however, the builder had sub-contracted the construction of the hollow keel attachment and stem to another steel fabricator who had no marine experience. The fabricator had changed the design of the keel to make manufacture easier and to reduce costs but without adequately assessing the stresses to which the keel stem would be subjected to in service. Additionally, the owner had contracted a British yacht designer to optimise the yacht for IRM and IRC1 racing and that had involved adding a further 160 kg to the pendulum type keel torpedo ballast bulb. At the end of a successful racing season, the yacht had been delivered to Plymouth for repairs and maintenance. When she was taken out of the water, a considerable amount of detachment of the keel's epoxy filler and loss of anti-fouling paint was found. It would appear that there had also been some evidence of the likelihood of fine cracking in the steel adjacent to the fillet weld but that had gone undetected before the boat was refloated for the voyage to Southampton.

The wreck was eventually salvaged and taken into Plymouth where investigation showed that the fabricated keel had failed just below the fillet weld connecting the fin to the taper box which was inserted into the hull. Detailed inspection of the wreck showed that defects were also found in the keel taper box welds and that two of the three keel bolts had also failed. Laboratory metallurgical analysis confirmed that the keel had suffered fatigue failure in the fillet weld area, which had been subjected to high bending stresses. The fabricated unit was unable to withstand the bending stresses developed in service and that had led to a condition of fatigue failure and resulting in the keel stem cracking just below the hull and consequent loss of the keel and capsize of the boat. Another yacht of the same type had also suffered a very similar fracture of its keel stem but, in that case the cracking had been noticed before the keel had completely failed. The existence of the second case provided confirmatory evidence about the structural inadequacy of the keel design and manufacture.

The ISAF Analysis of Yacht Keel Failure Incidents

Cause of Failure	Number of Defined Incidents	Percentage of Total Incidents
Welded Fin Failures	11	15.3
Grounding or Collision	8	11.1
Hull/Internal Structure	8	11.1
Keelbolts	3	4.2
Canting System	2	2.8
Total Defined Incidents	32	44.5
Undefined Incidents	40	54.5
Total Incidents	72	100.0

Defined incidents were those where the prime cause of failure was definitely established.

> "Independent analysis of the original design calculations confirmed that the keel had not achieved the required Safety Factor."

Independent analysis of the original design calculations confirmed that the keel had not achieved the required Safety Factor. Further analysis of the keel design, as built, showed that that also failed to achieve the required safety factor and by an even larger margin and that the subsequent addition of the extra bulb weight had exacerbated the situation.

Some Essential Definitions

The tensile strength of a material is the maximum amount of tensile

stress to which it can be subjected before failure. The definition of failure can vary according to material type and design methodology. The idea of tensile strength is an important concept in engineering, especially in the fields of materials science and mechanical and structural engineering.
The marine surveyor should be aware of and understand the three typical definitions of tensile strength. The various definitions are shown in Figure 1 which shows a typical stress-strain graph for low-carbon or mild steel.

1. The yield strength is the stress that a material can withstand without permanent deformation. It occurs at the yield point which, unfortunately, is not a sharply defined point for mild steel but is usually accepted to be the stress which will cause a permanent deformation of 0.2% of the material's original dimensions.

2. The ultimate strength is the maximum stress a material can withstand.

3. The breaking strength is the coordinate on the stress-strain curve of the point of fracture.

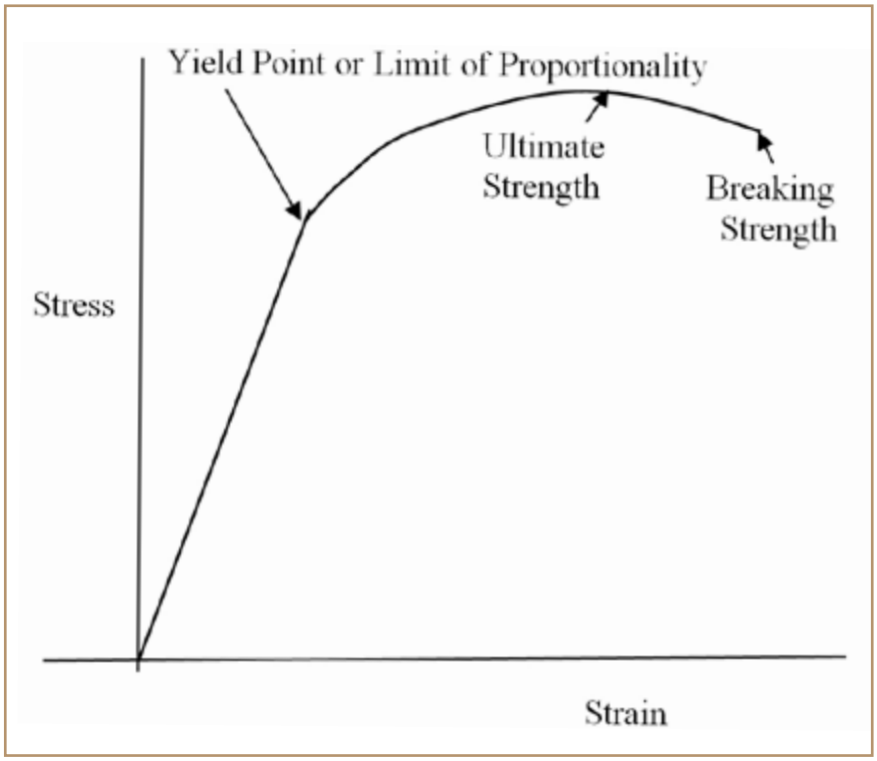


Figure 1 The Stress-Strain Relationship

The Keel

The original keel design had the keel stem encastré with the head box which, in turn, was bolted to a cruciform matrix inside the hull. The modification, made by the fabricator, attached the stem to the head box by means of fillet welds. The construction as originally designed is shown in Figure 2.

The maximum bending moment and shear force would be applied at point A in the sketch and would have been increased in direct proportion to the addition of the extra ballast weight in the torpedo bulb.

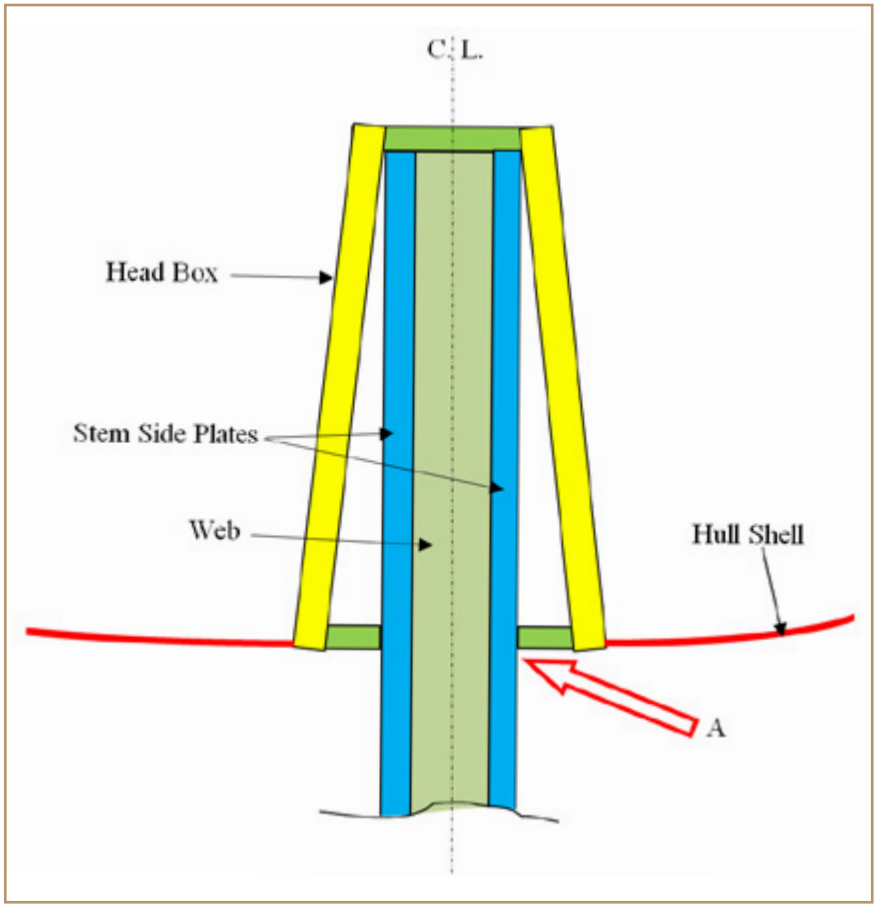


Figure 2 Head Box and Stem as Originally Designed

The Lessons

What lessons are there in this particular disaster for small craft marine surveyors?

It is frequently assumed that, when a keel is lost, the casualty can be attributed to the failure of the keel securing bolts. That is not necessarily so and, while it does happen, in truth, there are many other ways in which such a disaster can happen. Probably the most common cause of failure happens when the boat is driven hard aground through bad navigation or stress of weather. Such a casualty often results in her starting to break up in the inevitable pounding or where attempts to tow her off have resulted in extensive bottom damage.

> "It is essential that the marine surveyor adopts good practice..."

It is essential that the marine surveyor adopts good practice when examining an frp pendulum keel boat when she is in a travel hoist or, better, in a steel cradle, and for to take hold of the bottom of the pendulum and try to move it from side to side looking for any traces of movement between the keel and the hull. If there is any such movement then a much more detailed investigation is essential. It is recommended that the marine surveyor when examining pendulum keels to use a dye penetrant all round the stem at the point where it emerges from the hull paying particular attention to any welds in that area. If any damage is found it would be considered good practice to ask for one or more of the keel bolts to be withdrawn for close up examination. A close up visual examination of both sides of the stem or traditional fin keel should be carried out looking for any staining, rust or signs of a gap between the top of the keel and the underside of the hull.

With traditional fin keels fitted with external ballast, a stain at the top of the ballast may be nothing more than a cosmetic defect but if the stains are in way of the keel bolts or their surrounding areas then the marine surveyor should expect that a serious problem is developing. The discolouration of a cast iron keel is probably nothing more than a cosmetic defect but rust on a steel fin keel may mean a serious corrosion problem or even the clear sign of structural failure. Semicircular gelcoat cracks in way of the ends of the keel or stem are clear indicators that the vessel has suffered a grounding. If that is so they will probably be tensile cracks at the leading edge of the keel and compression cracks at the after end. There will also probably be similar cracks around the heel of the rudder horn if the vessel is so fitted.

The marine surveyor instructed to apply his skill to a yacht whether it be for pre-purchase or insurance purposes should, of course, regardless of the boat's material of construction always lift the cabin sole boards and examine the bilge space underneath. Any signs of water should be investigated. He should have the space dried out and, if the water returns while the vessel is afloat, carry out a more detailed investigation to find the source of ingress. Any dust, particularly white powdery dust on an frp boat should be carefully investigated as it may well be the indicator of a serious structural problem. It is good practice in his survey reports to suggest that his Clients inspect the space under the sole boards of their boats on a regular basis.

The keel bolt nuts should be closely inspected and hammer tested. A rusty nut on its own probably means nothing but the rust should be cleaned off (Coca Cola makes a good rust cleaner), the nut lightly coated with Vaseline and the nut regularly inspected. Again any reoccurrence should be closely investigated. Similarly any discrepancy in the appearance of the nuts should be investigated. A rusty washer probably means that the bolt is leaking or that another serious issue is arising. It should

be thoroughly investigated. Any cracks in the hull or liner radiating outward from a keel bolt are serious and must be fully investigated. Loose keel bolts are an obvious defect and, if they can be tightened, it probably means that the ballast keel has started to part company from the hull possibly due to an undeclared grounding.

It is common practice on boats of frp construction to fit an inner liner or matrix which is bonded at various places to the outer hull. In many areas that bonding is inaccessible but it is also often defective having disbonded because of vibration or other reasons. The marine surveyor should, wherever the bonding is accessible, tap test it with a light hammer. A change in the note of the hammer contact will show up such disbonding and, if such is found, he should investigate the reason why. It may be no more than an easily repaired local defect but it may also be a sign of an existing or developing serious defect. It is possible to investigate such defects ultrasonically or by shearography or thermal imaging but such methods are very expensive. Any fractures, transverse or longitudinal, in the structure of the matrix especially if there are fractures or breaks in any nearby joinery work or cracks in the gel coat or surface paint indicate a serious problem and should be investigated thoroughly.

The final thing that the marine surveyor should look for is any signs of repair work. If any are found then the repair including its history should be investigated very carefully indeed.

It is also imperative, should the vessel be involved in grounding, that, as soon as possible, she be taken from the water and a detailed inspection of the bottom of the hull and especially the keel, stern gear and rudder be carried out by a recognised competent person. In such circumstances an inspection of the engine mounts is also advisable.

Needless to say all defects noted should be recorded on dated photographs.

While there are no legal obligations for pleasure craft owners to record inspections of their boats, the author is of the considered opinion that the marine surveyor should recommend to the Owner for their own benefit that they keep such a log of dates and details of all inspections ashore or afloat of the hull, rig and machinery warrants a specially dedicated logbook including copies of all Reports, repair specifications and invoices.

An important lesson for all marine surveyors to learn is that he must understand the characteristic of the materials from which the vessel is built and the conditions in which she will be operating and that not only at the time of the casualty. This necessarily requires that the marine surveyor MUST adopt and carry out a Continuous Professional Development programme.

> **“The final thing that the marine surveyor should look for is any signs of repair work.”**

One final point deals with the question of what should the marine surveyor do if he finds and reports a serious defect but the owner decides not to do anything about it. If the defects, in his opinion, seriously affect the boat’s seaworthiness he should report that fact to the boatyard or to the harbourmaster or both as well as in writing to the owner. If the boat is subsequently lost and somebody dies as a result the owner could be facing a charge of manslaughter and if he has not warned him in writing the marine surveyor could well find himself similarly charged as an accessory.

So **BEWARE.**

The IIMS is looking good on the web

marine surveying

About 1,630,000 results

International Institute of Marine Surveying
iims.org.uk/
The International Institute of Marine Surveying is an independent organisation promoting the professionalism and training of marine surveyors worldwide.
IIMS Students - Join IIMS - News - Membership Benefits

Definition of what makes a good website:

"No matter what its purpose, a good web site should be useful, rich in relevant content, simple to navigate, uncluttered, easy to find and meet its purpose." Anon

Well it took some five months from the decision to bring the IIMS web site in-house and redesign it totally from scratch to the actual conclusion of the project. But it was worth taking the time to get it right, not just visually at the front end, but also the back end of the site too, which is of critical importance – the engine which drives the searches and feeds Google with what it needs to rate and rank the site and so on. It was a complex site to build. The above quotation is interesting, especially when it is read after the completion of the project! But the new IIMS web site would seem to fit the bill well.

The original design brief, bearing remarkable similarity to the above, which was presented at the IIMS June Conference was:

- **Easy to navigate**
- **User friendly**
- **Aesthetically pleasing**
- **Content rich**
- **Strong surveyor search capability**
- **Developed on a modest budget**

The site officially went live in early October. We use Google Analytics to monitor the health and performance of the sight, which can be done real time, hourly, daily, weekly, or as required. In the first month the IIMS web site attracted 6,000

By MIKE SCHWARZ

visitors, many of whom will have been members curious to have a look. In November, the site was busier still. For a specialist site, this is exceptionally strong visitor numbers.

So let's consider the ease of navigation and user friendliness of the site first. Everything is easily accessible from the home page. The smart icons at the top of the home page allow members to log in and access their secure area and students to get into their private pages. Also available is a direct link to a selection of relevant videos and importantly, the enhanced surveyor search. Immediately under these icons are the main headings with an easy to use drop down list of page options from each one making it simple to find the information you are looking for. The main graphic on the home page gives visitors the option to go straight to the about section, membership, education, or how to choose a marine surveyor pages. To the right of the site visitors will find links to the most recent news stories. Also to the right of the page is a tag cloud featuring news categories. So if a user is interested in just IIMS or superyacht news, they can access relevant stories and those stories alone. A neat feature.

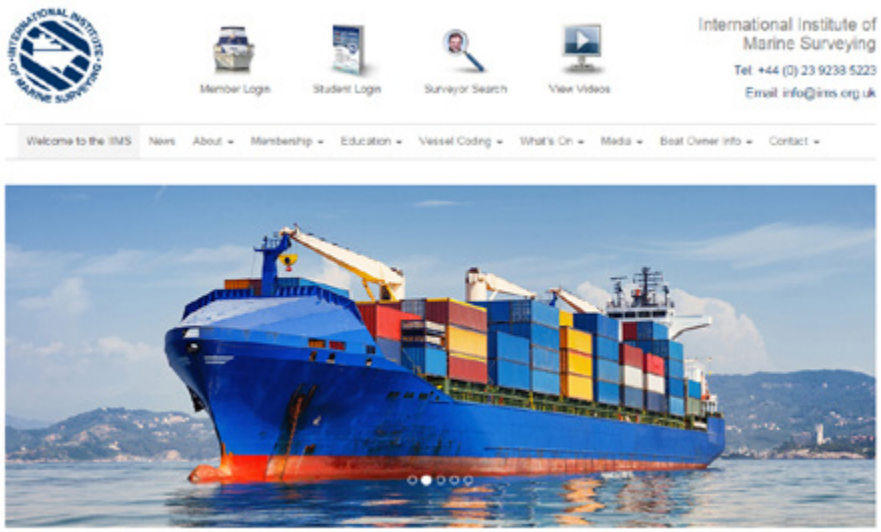
Making the aesthetics of the web site pleasing was an important consideration. The site has a bright and modern feel to it using a lot of white space. The bold and impactful images that power the slider at the top of the homepage were carefully chosen to reflect the many areas of marine surveying that IIMS members operate in. Wherever possible, stories and features are depicted with good quality images, all of which makes for a pleasing experience for the site user.

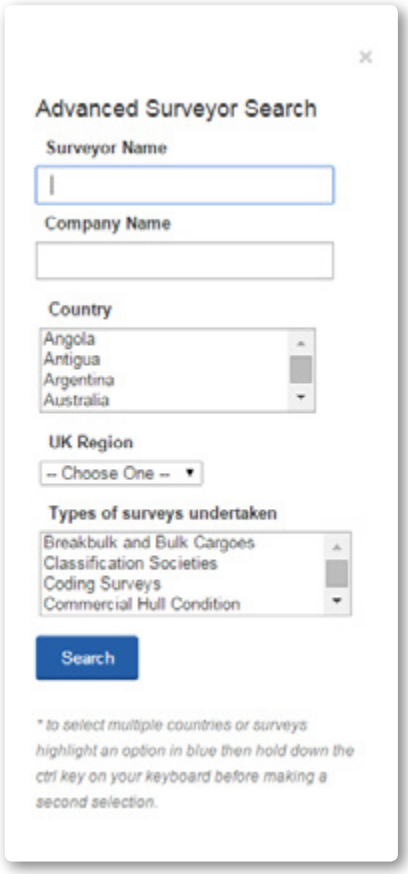
The old saying back when the internet was in its infancy was 'content is king' and it seems nothing has changed much over the past 20 years in this respect. Having a site that is content rich and that is relevant to its target audience remains of key importance. The IIMS site benefits from a powerful news engine. Already there are over 100 stories and news articles available to view. Of course they include IIMS news stories, but also a broad range of marine subjects too as diverse as the state of piracy off the east coast of Africa to the new Surveyor Accreditation Scheme being implemented by AMSA.

There are a number of full length feature articles too, which are attracting a steady flow of visitors, ranging from the importance of preparing a competent surrey report to the role of stevedores. Not surprisingly, given the depth of content, statistics show that on average people spend nearly four minutes on the site, which in web site terms is very high indeed.

Designing the structure behind the surveyor search was one of the most complex parts of the build process. The result is that there are several ways to drill down to a member surveyor. It is possible to search by surveyor name or company (if you know it). Or try one of the geographic search options by choosing a country to reveal all the members in that area. Those looking for a UK surveyor can perform a regional search from one of the 13 available options e.g. East Anglia, South West, or the North East.

Spending some time browsing the site will reveal some useful resources. The Marine Links page offers access to many of the leading marine organisations and is an excellent resource. Also of interest is certain to be the Marine Resources page. For example, if you ever





wanted to find a glossary of Dutch Barge or Propeller terms, you will find them here – and others too. Also under this page are some important presentations that can be downloaded, as well as links to the whole list of Maritime & Coastguard Agency Marine (M) Notices.

Also worth exploring is the Media tab. Under this tab you will find a page which displays the member news bulletins for the past year. And this very magazine – The Report – can be found in this area of the site too with links to back issues of the publication, which can be opened instantly and read in a modern e-reader format.

The final feature of the site I would draw your attention to is the 'Buy A Unit' page under the Education tab. Here you will find the 30 plus units that make up the distance learning HNC/HND in Marine Surveying run by the IIMS. We understand that not every surveyor wants to make the financial or time commitment to study for a formal qualification. So, for the first time, it is possible to purchase one of the course units singly by downloadable PDF from the site. There is no obligation on the purchaser to complete the assignment that accompanies the unit, but they may do so in which case it will be marked and a certificate of study issued if successful. Purchasing individual units does not commit the person to entering into the full HNC/HND programme. Since the launch of the site, this has proved to be successful.

If you have yet to find your way to the site, or spend some time exploring it, I commend it to you. It is your web site and it is entirely free to use. Make sure you make the most of what is a highly valuable and constantly growing resource on a regular basis.

Study the IIMS BTEC HNC or BTEC HND in Marine Surveying

INTERNATIONAL INSTITUTE OF MARINE SURVEYING

Internationally recognised and the only ones of their kind in the world.

Approved and awarded by

edexcel

- Study Online at Home and at Sea
- IIMS Student Membership included
- Access to Institute Professional Indemnity Scheme
- Courses start every three months
- One and Two year courses

For more info email
education2@iims.org.uk
Tel: +44 (0) 23 9238 5223

Specialist Units in:
Yachts & Small Craft, Cargo, Commercial Vessels and Engineering

The Challenging & Colourful World of Superyachts

By Robert van Tol, Operational Director,
Superyacht Builders Association

The phenomenon of superyachts is known by most people and speaks to the imagination. They are often to be spotted at a tropical holiday destination or on television as back drop of Formula one races in Monaco and the Middle East. Superyachting can be seen as the ultimate leisure activity and is only accessible by the very few in the world.

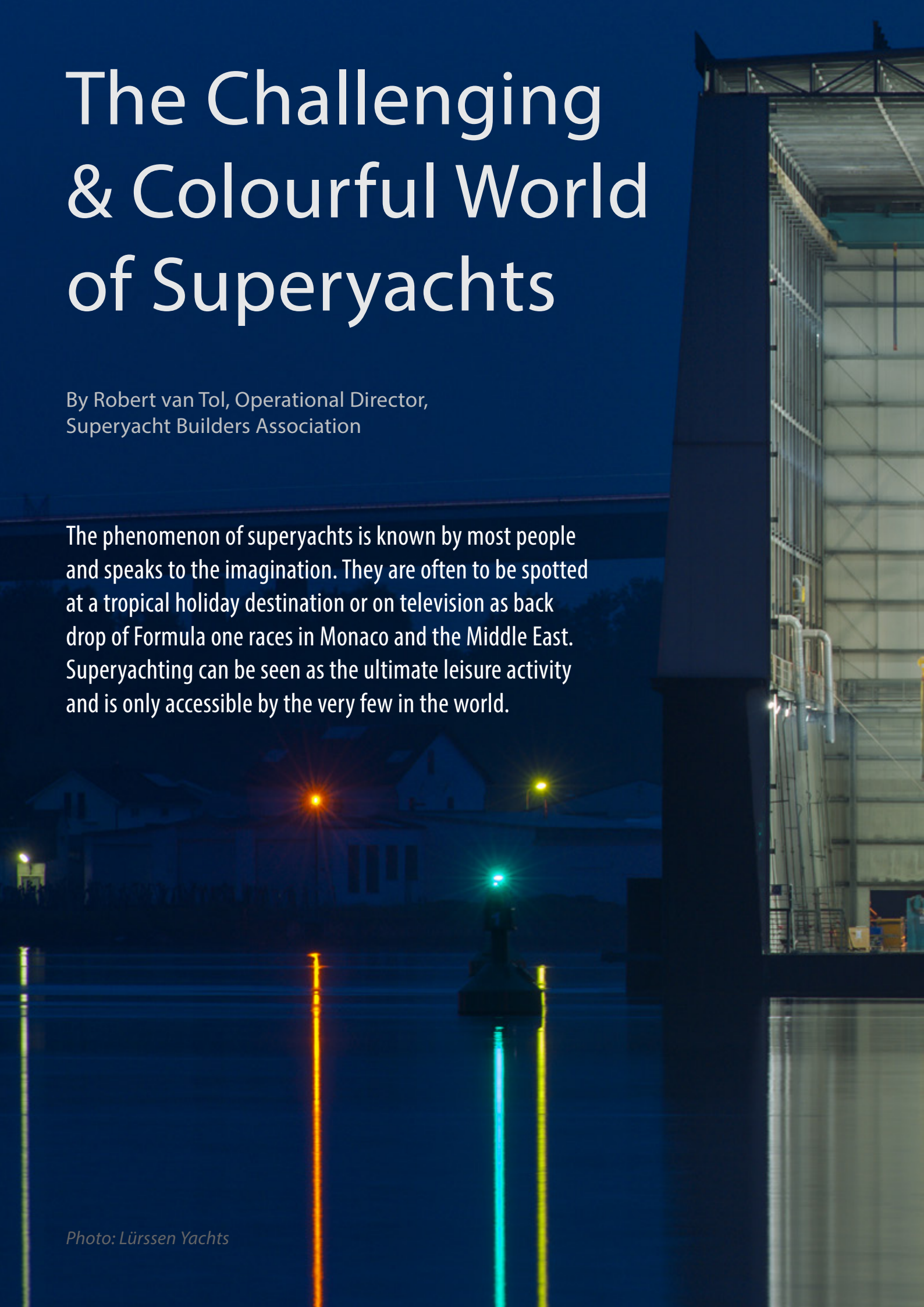


Photo: Lürssen Yachts

The global fleet of superyachts sailing the world's oceans totals some 4,500 with those over 40 metres in length comprising around 1,500 in total[1]. Nowadays the average number of superyachts over 40 metres delivered worldwide per year is 80, whereas only fifteen years ago this average was 30. It is therefore a fairly young industry that has experienced significant growth in demand in a relatively short period of time. Similar growth trends have been seen in the number of Ultra High Net Worth Individuals (UHNWIs), the target audience that are able to afford commissioning these vessels.

The superyacht industry is often perceived as small and therefore squeezed between the maritime leisure and professional marine industries. Yet the output of the superyacht building industry is similar in Compensated Gross Tonnage (CGT) to the passenger shipbuilding industry, which is often considered to be much larger[2]. (CGT) is a macro-economic indicator that provides an estimate of the amount of work involved in building a ship of a certain type and size, ultimately expressed in man-hours per gross ton (GT). Currently also a global economic impact study is being conducted to analyse the economic value of this industry.

1 Source: Boat International Media
2 Compensated Gross Tonnage study conducted by the Delft University of Technology in 2011, on behalf of the Superyacht Builders Association (SYBAss)

SUPERYACHT COATINGS

The polished appearance is where superyachts ultimately stand out. The finish of a superyacht is paramount and takes up a significant share of building time and costs, more than for any other vessel type in the maritime industry. It is not just the glossy top coat that is unique for superyachts, the entire underlying coatings system is seen nowhere else. Where the paint for other types of vessels is a necessity, for superyachts it is an asset and of critical importance.

Together with the design, the paint job - combined the total visual appearance - of a superyacht is what influences the emotion. A high gloss, successfully applied finish contributes to the perception of the overall quality of a superyacht and can even influence the resale value when well maintained. It is considered a must in the superyacht world.

At the moment the coatings process is a major topic and with legislative restrictions the industry is challenged to deliver to the ever increasing high demands and expectations of their distinguished customers. While challenges are common practice for the shipyards – coping with ground breaking designs, complex and rare materials and challenged to come up with innovative solutions – collective actions were requested from their representative bodies to develop standards and training programmes to enhance professionalism in all facets of the coatings process. The costs and time involved for coatings have such an impact on the total project, yet there is so much room for further improvement.

The requirements related to coatings systems increases constantly, while legislation (products, facilities and the application process) makes it more and more difficult to achieve the high quality demands. The pressure increases on the various parties involved in the process, not only the shipyards, but often also the subcontracted applicators and the paint manufacturers. Despite every party having their own roles and responsibilities, in the end the shipyard carries all the risk towards their clients.

Improvements are required in the multiple sub-stages of the coatings process, and therefore affects multiple stakeholders involved in this process. Only by cooperation between these various players and on their own initiative, can the coatings process can be improved.

CHALLENGES AND SOLUTIONS

Over time the superyacht industry has grown by demand. On top of the increased demand in quantity, the wish from owners for bigger, more extreme and ever more voluminous yachts has forced this industry to exceed its previous performance every time. In the meantime legislation has enforced stricter requirements to the operations of the yachts, as well as the build process and the facilities.

Inter-/national legislation

In terms of coatings, legislation - both European and global - applies various demands and limits specifically related to:

- Emissions of, and exposure to, solvents in paint products and underlying systems;
- Substances (mostly named biocides) used in anti-fouling;
- The application process inside the facilities of the shipyard, interior supplier or applicator;
- Chemical structure of the various paint products and coating systems.

The legislation makes a differentiation in legislation for companies and 'do-it-yourself consumers', in the latter category this can also include the crew of yachts when the captain instructs them to paint something on board the yacht.

The task of the representative trade associations is to provide legislators and governments with information and accurate data, which also provides an opportunity to guide towards good and constructive legislation. Close cooperation between the various international organizations, such as ICOMIA and SYBAss, but also the European Confederation of Paint, Printing Ink and Artists' Colours Manufacturers Associations (CePe) and the International Paint and Printing Ink Council (IPPIC) is important.

Photo: Benetti Yachts

Standardization

Yachts of 40 metre and above are mostly semi or full custom yachts, one off projects that are a vision of the distinguished owners. While the shipyards, at least those that are member of SYBAss, are very experienced with building yachts and continuously optimize their building process, it is still possible to optimize certain parts of the process further. There are obviously shipyards that build yachts in series or on pre-engineered platforms, but the possibility for customization always remains and so will the challenges.

The call for standardization in certain parts of the process becomes stronger. Remaining focused on coatings, there were multiple areas identified that could be subject to standardization. These ranged from the coating environment and surface preparation, to the actual application process and inspecting the coating. Coating inspections refer to how to measure and what to measure. And subsequently what and how to report.

Besides regulations deriving from the International Maritime Organization (IMO) and/or the European Union, there is also self-regulation. An industry can set up a working group on specific subjects and invite all major stakeholders involved and set up self-regulations. The ideal platform to do so is the International Organization for Standardization (ISO). With an increasing need for standardization of certain processes and procedures, a specific sub-committee for large yachts ISO TC8 SC12 has been set up. ICOMIA and SYBAss members are active in this sub-committee, of which working group 5 focuses specifically on 'the finishing acceptance criteria for large yachts'.

The ISO standards mostly provide guidance and are referred to in order to establish a minimum performance level. ISO standards also provide classifiable opportunities to stand out from a certain minimum.

The following ISO standards related to coatings have been developed:

- ISO 11347; how to measure; this standard has been used for 3 to 4 years and will be updated based on experiences and developments;
- ISO standard with criteria for a successful application process is currently being developed;
- ISO 12944; covers the preparation of the hull and superstructure prior to the paint job. This used to be only for steel due to the larger vessels. Standards for the preparation of aluminum, composite and stainless steel will be developed and added to this standard;

ICOMIA published an ICOMIA Technical Guideline: Minimum Acceptable Finish and Appearance for Super Yacht Gloss Coatings in 2011 and will publish a similar document on tolerances for contract acceptance this year. These documents are guidelines, not to be confused with standards that one can refer to.

Quality

Because of its importance, coatings quality is often judged by the visual appearance, with the potential risk that it is different than expected and/or can be perceived as low quality. Difference in perception of a paint job leads too often to a dispute. Accurate measurement results must prevent such conflicts and provide objective data on the paint job. However, sometimes the measurements do indicate that the specification has been met but still the visual appearance is not satisfactory. Choice of colour and the shape of the surface can highly influence the visual appearance and therefore the perception of the quality of the paint job and even the entire yacht. Reliable advice and guidance in the choice for colour is therefore very important and must be made at an early stage in the process.

In addition, variety in inspection report formats, or the lack of a format, results in incomparable measurement results, and two parties that defend themselves with different parameters. There is a need for a standardized and widely adopted report writing format. In this way the results of the measures, taken with the prescribed measuring equipment and delivering the determined variables in the ISO standards, can be reported in a consistent and reliable manner.

Next is the interpretation of the results. The role of an inspector, and the boundaries of this role, is very important here. The judgement of inspectors can have an enormous impact and has resulted in the rejection of complete yachts before. Obviously the impact of a rejection is tremendous. Delivery date gets delayed, which delays the next project in the shipyard. Profit margins are under pressure;

but, vitally, it causes a negative experience for the client.

RMCI COURSE & QUALIFICATION

Besides their own measurements, the shipyards often rely on the inspections executed by external surveyors on behalf of the owner's team. As stated before, too often inspections have different outcomes and this causes a dispute. One of the areas found with room for improvement was the knowledge and understanding of the specific nature of superyachts and the unique coating systems applied compared to other maritime sectors among surveyors. In addition a commonly agreed format for report writing was missing to be able to compare 'apples with apples'.

The Superyacht Builders Association (SYBAss) and the International Council of Marine Industry Associations (ICOMIA) have approached the International Institute of Marine Surveying (IIMS) to develope a dedicated Inspectors course. Several respected industry representatives have contributed to the development of the Registered Marine Coatings Inspector (RMCI) course and its tailored course manual. IIMS is the appropriate independent professional body for providing such a course.

For course registration a minimum level of NACE, FROSIO or ICorr Level 2 is required. Experienced superyacht inspectors can apply without these pre-qualifications but have to have a minimum number of years' experience in the superyacht industry and provide sufficient references that will be checked by the registration committee.

By passing the exam and upon certification it will be ensured that the participant knows the specific nature of superyachts and the unique coatings systems that are applied to these vessels. Also the role of the inspector is made clear and the participant knows what the boundaries are and when to refer to other experts. This has been captured by the code of ethics. The certification proves a minimum level of understanding but is no guarantee for expertise. Expertise needs to be built up by surveys carried out over time. On the RMCI website a register will be published with the certified surveyors for the industry to find a certified surveyor, but also to check if one is certified. This register will include the references of the surveyor, which are kept by the online personal logbook. The certified surveyors are encouraged to become a member of a professional body such as IIMS and to carry personal professional indemnity insurance.

The RMCI course is part of an industry wide programme for improved professionalism in the area of superyacht coatings. Over time the RMCI certification is expected to become the standard for coatings surveyors and inspectors operating in the superyacht industry.

Members of SYBAss and ICOMIA encourage coatings inspectors to complete the RMCI course so that a collective performance is delivered that each client can expect from a professional superyacht industry - with certainty and confidence.

Profile ICOMIA

ICOMIA, the international trade association representing the global marine industry since 1966, unites 35 national marine industry associations in one global organisation and represents them at an international level.

ICOMIA's Superyacht Coatings Applicators Group, which comprises leading independent paint applicators, acts as a centralised body to serve, inform and update the superyacht applicators of new international regulations that they specifically need to comply with and to maintain good relations with international organisations, Governments and other bodies on behalf of the industry.

With the support of its members throughout the world and in conjunction with the appropriate associations, ICOMIA lobbies international authorities and major organisations, organises international events, publishes documents and guidelines and produces tools to facilitate the growth of the industry.

Profile SYBAss

The Superyacht Builders Association (SYBAss) unites and represents the world's leading builders of custom and semi-custom yachts over 40 metres in length. The association's activities are divided over Promotion, Regulation and Professionalism. Consultative status at the International Maritime Organization (IMO) allows us to give the superyacht industry a voice within the maritime world at large. Safety on board and emissions are the main topics that are monitored on behalf of the member shipyards. Good relations and cooperation with the Maritime Coastguard Agency (MCA) and classification societies result into more alignment and constructive legislation rather than disruptive.

The efforts in the field of coatings are related to our activities under 'professionalism'. The SYBAss Coatings Working Group exists of a mix of shipyards from various regions in the world and meets annually to discuss the coatings process. Existing projects are reported on and new needs for collective action are identified.

Multiple stakeholders are involved in the coatings process and only by working together can the level of professionalism be increased. The Coatings Working Group therefore always invites other stakeholders of the coatings process to join the meeting and seeks collaborations to collectively come to solutions.

sea WORK 2015 INTERNATIONAL

16-18 June 2015

ABP Port of Southampton, UK

COMMERCIAL MARINE & WORKBOAT EXHIBITION & CONFERENCE

Seawork International is the biggest and fastest growing event for the commercial marine and workboat sectors in Europe, attracting 550 international exhibitors and 7,350 high-calibre visitors from 70 countries

- Provides a one-stop shop for buyers and maritime sector specialists
- Visitors and exhibitors linked to the marine surveying industry
- Dive Tank showcasing products for the commercial underwater industry
- Walk on and trial more than 60 vessels on the pontoons
- Learn from industry leading experts in topical seminars
- Test real products with over 550 international exhibitors in attendance
- Events and demonstration schedule from true innovators in your industry
- Network with maritime professionals in numerous restaurants and bars

Contact the team on +44 1329 825335 or info@seawork.com

seawork.com

A Mercator Media event mercatormedia magazines|events|online

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 the final part of this four part series, Luc Verley introduces us to The Kra-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 IV: THE KRA-CANAL PROJECT

BY **LUC VERLEY** MIIMS

The Kra-Canal project, sometimes also called the Thai-Canal, is an ambitious plan that would create a connection between the South Chinese Sea on the East in the Gulf of Thailand with the Andaman Sea in the West by passing through Southern Thailand.

This would shorten shipping distances by 1.200 Nautical miles around peninsular Malaysia and Singapore. Ships would avoid passing through the piracy risky area in the Strait of Malacca. The Strait of Malacca is one of the busiest shipping lanes in the world, with 60.000 passages annually.

At the narrowest part of peninsular Thailand, in Kra Isthmus the width is only 44 kilometres, the challenge however is a mountain stretch which reaches 75 metres above sea-level. Therefore, most proposals for the Kra-Canal vary with lengths between 50 to 100 kilometres in order to minimise the excavation. The idea has always been to construct a sea-level canal without the use of sea-locks. If the canal would be able to accommodate vessels up to the size of 500.000 DWT and have the possibility of two lane traffic, with a transit speed of 7 knots (international navigational speed standard), it would require a canal with a depth of 33 metres and a bottom width of 500 metres. These impressive dimensions indicate clearly the enormous volumes that will need to be excavated.

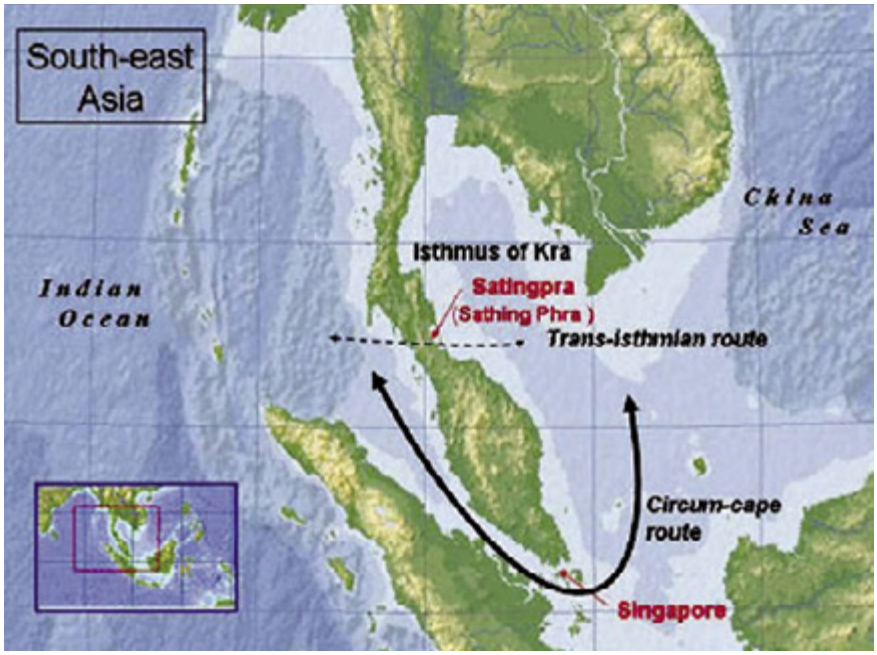
Historically the idea for the Kra-Canal has been launched several times over the past centuries. The earliest one dates back to 1677 when the French engineer De Lamar made a study ordered by the Thai king. In addition many other studies where made in the 18th and 19th Century. Among them even in 1882 the engineer of the Suez canal De Lesseps looked into this. In the 20th Century several other attempts surfaced with suggested funding from institutions as the World Bank, Japanese Global Infrastructure Fund and the Asian Development Bank. The most spectacular was a Japanese proposal to use so-called 'nuclear excavation', whereby nuclear devices are used for excavation. In 2005 'The Washington Post' published a

leaked internal report of defence secretary Donald Rumsfeld claiming that the Chinese are looking into funding and constructing the Kra-Canal. This raised concerns about Chinese influence and strategic investments in the region.

In addition, the Singapore government has also voiced its opposition to the Kra-Canal as it would challenge the unrivalled and important position of Singapore as a major shipping hub in South East Asia.

The Chinese plan to construct the Kra-Canal was budgeted at 25 billion US dollar and the construction would take 10 years and employ 30.000 construction workers. Initially the Thai government tentatively approved the Chinese plans in 2007. Until recently not much progress has been made, due to environmental concerns and mainly the political turmoil in Thailand.

However in March 2014, the Chinese Newspaper 'China Daily Mail' reported: "China's huge state-owned LiuGong Machinery Co. Ltd and XCMG, and private Sany Heavy Industry Co Ltd have taken the lead to set up a preparations group for the construction of Kra-Canal".
Source: http://chinadailymail.com/2014/03/16



Picture source: Shiller Institute

Vessels using the Suez Canal actually save approximately 6.400 Nautical miles by avoiding to circum-navigate around Africa, while vessels using the Panama Canal save approximately 7.800 Nautical miles by avoiding circum-navigating South-America. Therefore, it is questionable if the construction of the Kra-Canal would justify the huge investments and large scale construction and excavation, only to save around 1.200 Nautical miles in avoiding eclipsing peninsular Malaysia and Singapore. However, there is a much bigger picture behind the idea of the Kra-Canal. The Kra-Canal could be of an enormous economical benefit to Thailand and it could become a centre of gravity for trade between the Pacific and Indian Ocean. The plan is to develop an industrial zone for heavy industry, including dry-dock and ship-building facilities and a deep-sea port at the canal entrances. This would make the Kra-Canal the ideal and major transhipment port for Asia, comparable to Europort in Rotterdam.

Historically the idea for the Kra-Canal has been launched several times over the past centuries.

Will Chinese investments bypass the Malacca Strait with the Kra-Canal in Thailand?

An INTERVIEW WITH the Small Craft Surveying CHAIRMAN

John Excell FIIMS, Chairman of Small Craft Surveying and an IIMS Management Board member, agreed to be interviewed for this issue of the Report. Mike Schwarz poses the questions about the aims and future strategy of the Small Craft Working Groups, which offer a valuable training resource for IIMS members.

JOHN EXCELL, FIIMS

Q.
John, how long have you been a member of IIMS and what made you join the Institute?

I have been a member of the IIMS since 2001. I joined because of the need for recognition of belonging to 'one' of the recognised associations as our industry is not a chartered industry. I quickly established that the IIMS was, and is, a very friendly bunch of people and that it puts great emphasis on training for surveyors which can only be a good thing.

Q.
Please give readers of The Report Magazine an overview of your background and areas of specialism as a marine surveyor.

I have been in the marine industry for 31 years and have been sailing for some 40 years. I have worked in many facets of the industry ranging from boat repairs, new vessel commissioning, warranty and after sales, marine engine manufacturing and installations, sail making, rigging and as professional yacht crew. I even have spent a year's stint on a trawler!

My specialisms are Yacht and Powercraft up to approximately 30 metres.

Q.
What do you think are the key challenges facing small craft surveyors in today's ever changing world?

In no particular order of importance, I would say:

1. The need to report in ever increasing levels of detail.

2. The importance of being capable not only of carrying out good practical surveys, but also to convey this in a legible format by writing good reports in a well presented manner.

3. The levels of complexities of vessel systems and machinery. For example a small 12 metre powered vessel's engines will be managed by computer software and therefore, only a technician with access to the diagnostic software can actually give a true account of what is going on. So don't be frightened of introducing specialists to the survey to assist you with your overall reporting. The same applies to hi-tech sailing vessels where there is the need for structural analysis using infrared or ultrasound and so on. if you are not trained and do not have access to this type of equipment then do the sensible thing and get someone in who is a specialist in these areas.

4. As most of us are one man/ woman bands, the need to be an efficient all round business person is vital and I often see that this is a big area that Small Craft Surveyors could do with help on.

Q.
How can IIMS help them to handle and deal with these challenges?

By running relevant and useful CPD training days and courses. By providing networking opportunities so that Surveyors get to know each other and therefore build relationships whereby in the future they may share assistance.

Q.
Can you outline the basic aims of the UK Small Craft Working Group Training days?

Yes it is to provide CPD training and opportunities for Surveyors to network with one another. Our business is often a lonely one and therefore it is good to get together and share problems and ideas.

Q.
How often do they happen? Where do they take place and who attends?

UK: Three times a year.
Scotland: Once a year.
West Mediterranean: Twice a year.
East Mediterranean: Once a year.

I am also hoping that our friends in the Southern Hemisphere are going to re-launch their Small Craft Working Group training days very soon.

The training days are attended by all grades of membership and we are also open to any students who wish to attend. We even have the occasional big ship surveyor attend … in other words all are welcome and we keep the days deliberately affordable for all..

Q.
Can you give me a few examples of some of the types of recent presentations that have been well received?

We recently held an electrical installations training day in the UK. To help with this, we brought in an industry expert who has designed and installed luxury yacht systems. For the day he had contacted a number of suppliers of equipment and set up mock ups of a full vessel electrical system including introduced faults to help surveyors identify problematic areas.
The Western Mediterranean group held a day's training on how to handle a potential insurance claim. This was hosted by Karen Brain and Amanda Rudd of Matrix Insurance. We also had a couple of hours on rigging inspections and what to look for, plus some MCA CA training on conducting tonnage surveys.

The UK group met in Cambridgeshire recently and visited a propeller and stern gear manufacturer for in-depth specific training on propulsion issues.

The Scotland group met in Helensburgh during November and had two days of various subjects which importantly involved not only marine related subjects but also office/technology based advice too, helping surveyors make use of the technology available to them.

Q.
Ideally, could the Small Craft Working Group concept be adopted internationally and what should overseas members do if they are keen to develop the concept locally?

Absolutely it can be adopted anywhere. It's really very simple and doesn't involve as much time organising as you would think. This is how it works ….

1. Someone volunteers to run it (arm twist another person to assist if you can).
2. You find a local venue e.g. sailing club, shipyard or marina with a meeting room. These tend to be cheaper than hotels.
3. Decide on a subject or subjects. Try and find experts in that subject local to yourself and invite them to come and present.
4. Promote your event via Head Office and the IIMS website.
5. Arrange for lunch and refreshments.
6. Ensure that the event breaks even on cost. If possible it should make a small profit.
7. Host the day and then plan the next one!

The groups are very much volunteer led with full support offered by Head Office. If anyone would like to establish a group local to themselves then please contact Head Office or myself and we will do all we can to help you support this.

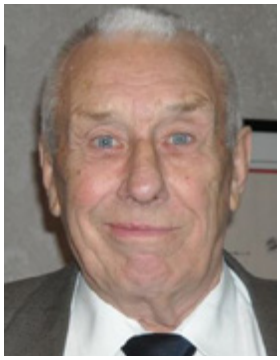
Q.
What resources and knowledge can you and the IIMS head office team offer to members who would be interested to run a Small Craft Working Group session in their area?

See the previous answer.

Q.
Finally do you have a personal message for IIMS small craft member surveyors?

It is often a lonely world out there surveying so come and join in the SCWG training days and meet your fellow members and get some support.

It is very much YOUR IIMS. The more you put into it the more you will get out. If you've been put off in the past then come back and try again. You will find its very different now.



BY **Eur. Ing. JEFFREY N. CASCIANI-WOOD**
HONFIIMS

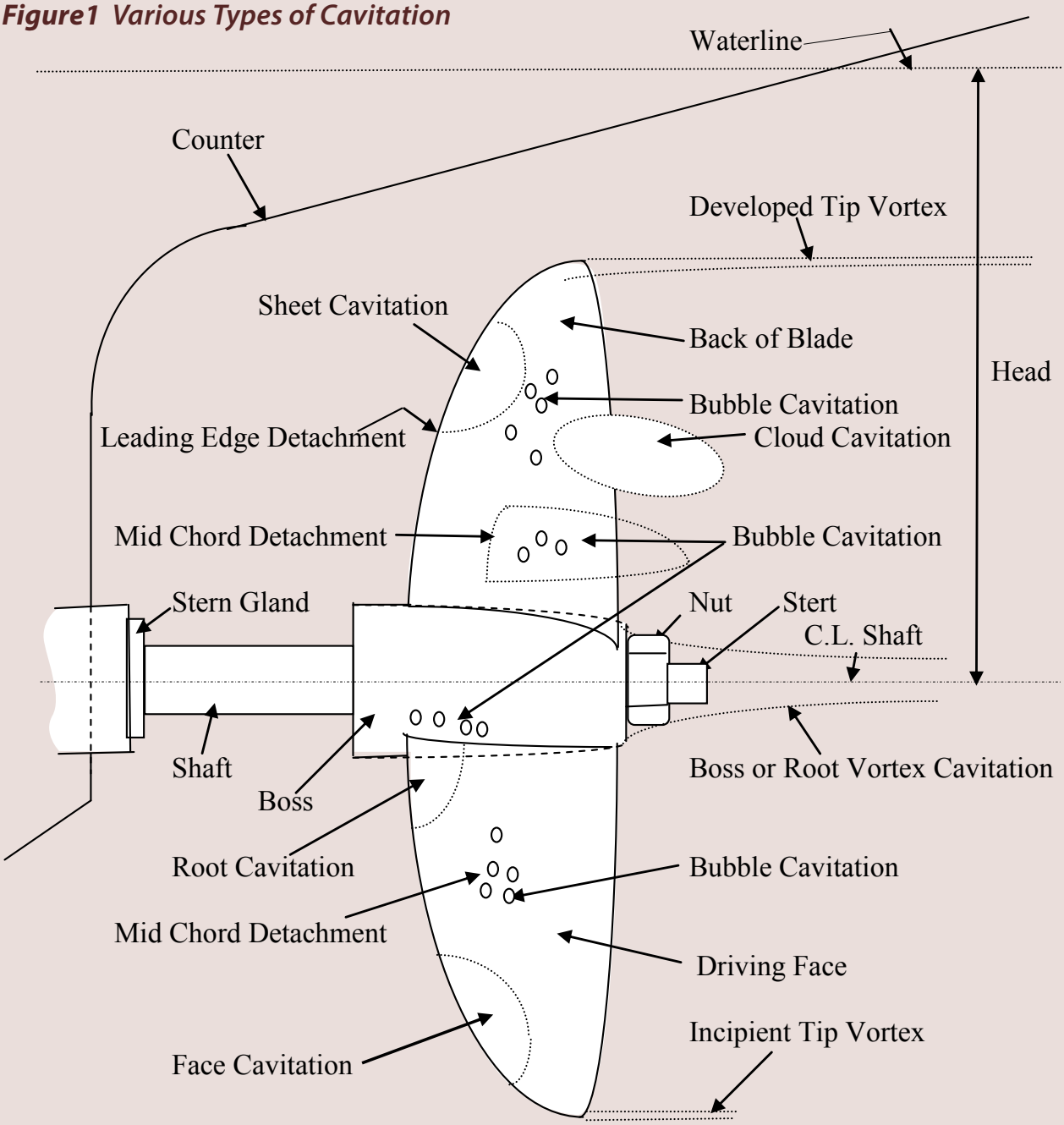
An Introduction to Propeller Cavitation

As the propeller turns it absorbs the torque developed by the engine at given revolutions *i.e.*, the delivered horsepower - and converts that to the thrust which, in turn, pushes the vessel through the water.

According to Bernoulli's law the passage of a hydrofoil (propeller blade section) through the water causes a positive pressure on the face of the blade and a negative pressure on its back. It is the resolution of the pressures that results in the torque requirement and the thrust development of the propeller. The negative pressure causes any gas in solution in the water to evolve into bubbles similar to those found when opening a bottle of lemonade or champagne. These bubbles collapse and can cause hammer like impact loads on the blades often in excess of 7 kg/cm^2. It is the collapse of these bubbles that results in the observed damage to the propeller blade surfaces.

The ratio of the absorbed power or the delivered thrust to the total blade area of the propeller is called, respectively, the power and the thrust loading. If either of these exceeds a certain value which depends upon a complex relationship between the propeller type, the flow in which it works and its mean depth below the water relative to its diameter then the flow pattern of the water over the propeller blades breaks down causing a severe loss of thrust and, eventually, physical damage to the surface of the propeller blades and, also, the rudder and local steelwork of the vessel's hull. That flow breakdown is called cavitation and is strictly analogous to the water hammer often heard in old plumbing systems. Cavitation is a highly complex phenomenon and the pitting damage it causes usually - but not necessarily - appears on the back of the blade following a clear radial pattern. It can also appear as similar damage on the driving face of the propeller in which case, almost certainly, a further factor has entered the problem in the form of an incorrect pitch distribution along the length of the blade. Most small craft propellers are usually of constant pitch over the blade length and that regime is accurate enough for 99% of boats but on high speed boats with large propeller loading factors the pitch should vary over the length of the blade *i.e.*, the boat should be fitted with a *varying* pitch propeller. The effects of cavitation including loss of speed and damage to the propeller blades can be minimised

Figure1 Various Types of Cavitation



by ensuring that the propeller has sufficient blade area relative to the area of the circle described by the propeller blade tips.

It is often said that cavitation is analogous to boiling with the former taking place at constant ambient temperature and the latter usually at constant ambient pressure. While the destructive potential of collapsing vapour bubbles is usually the main interest to the small craft marine surveyor, he should also keep in mind that there are also important issues of noise and vibration due to the radiating pressures involved to be considered and taken into account. The phenomena experienced in cavitation attack are usually found to be a function of the type of cavitation met, its proximity to the water surface and the rate of change of the cavity's volume. The marine surveyor should also be aware that when the water cavities violently collapse, the local temperature in the vicinity of the cavity may also change. Experimentally it has been found that with mild steel temperatures near the cavity have locally risen to as high as 400°C when the specimen has been deeply submerged in water with a constant ambient temperature of only 25°C. Careful examination of the metal surface in way of severe cavitation damage may also reveal shades of colour due to the metal being tempered. Different metals have different resistances to attack from cavitation.

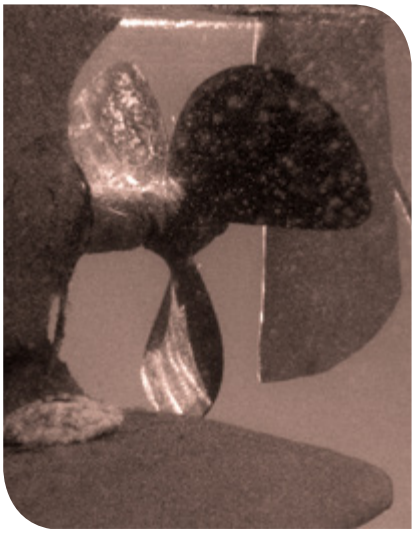
When a vessel's propeller suffers cavitation the material's surface is subjected to a continuous bombardment of impacts from a fluctuating pressure field. The propeller's material is ductile at normal sea water temperature and, usually, the first sign of a problem is the so-called orange peel effect where the surface suffers ductile deformation leaving it looking like the surface of the familiar fruit. After that preliminary stage and depending upon the severity of the attack, damage may either cease or continue. Micro-hardness testing of both damaged and undamaged blades shows that, under conditions of cavitation attack, the material in the layers immediately below the surface work hardens and, therefore, becomes brittle. The tests show that, for undamaged blades, there is a relatively minor alteration in hardness just below the surface probably due to the manufacturing and finishing processes. On the blade surfaces that have suffered cavitation damage, however, a rapid change in hardness can be measured in the two millimetres or so closest to the area of cavitation attack. The marine surveyor should, therefore, expect that the material will fail under cavitation attack and that the failure will contain a strong element of brittleness. Experiments also show that a major influence on the rate of erosion and damage growth is the local electro-potential of the material.

There are different patterns of cavitation that can occur on a marine propeller as illustrated in Figure 1 and these are usually grouped as:

- tip vortex cavitation
- sheet cavitation
- cloud cavitation
- bubble cavitation
- root cavitation
- face cavitation
- boss vortex cavitation

Some of these forms are relatively benign but others can be very aggressive in their effect on the propeller's material.

Tip vortex cavitation is due to low pressure within the vortices shed at the blade tips. Boss or hub vortex cavitation is usually due to a high angle of incidence between the direction of flow of the water and the blade leading edge in way. It can result in the outer edge of the blade looking a bit moth eaten. That form of cavitation is usually the first to show and is strongly influenced by, *inter alia*, the radial distribution of the propeller's loading, the nature and variation of the vessel's effective wake field



in which the propeller operates and the local design of the blade tip. The latter is particularly true of propellers operating in Kort nozzles. When the propeller has a high or sometimes even a moderate degree of skew, vortices can also appear on the outer regions of the blades leading edge which can interact often quite aggressively with the ordinary tip vortex. The vortices can often collapse on the leading edge of the rudder or rudder horn causing severe erosion and pitting damage there. The author remembers one case where, after a short time in service, a line of deep pitting appeared on all four blades of the starboard propeller of a twin screw vessel while the port propeller was left undamaged. The damage was eventually traced to a vortex running off a padeye that had inadvertently been left welded to the shell.

Blade sheet cavitation occurs when large suction pressures build up near the leading edge of the blade resulting in the back of the blade being covered with a sheet of bubbles and is largely a function of the angle of attack of the propeller blade sections to the varying wake field encountered as the propeller rotates. The greatest pressure reductions occur on the back of the blade and this is where most sheet and bubble cavitation takes place and high tip speeds increase the possibility of such cavitation. If the sheet is relatively stable then

damage to the blades is less likely than if the sheet demonstrates any form of instability.

Cloud cavitation is frequently found close to the collapse area of sheet cavitation and is extremely aggressive due to the damaging effects of the collapse of large numbers of bubbles and should always be treated with caution and, where possible, eliminated.

Bubble cavitation usually occurs at mid chord and is usually associated with too high a curvature or camber of the blade sections. It can be eliminated, if its presence can be suspected, in the design stage.

Root cavitation may appear at different times in the propeller's rotation if the circulation round the root is sufficiently strong and can be sufficiently aggressive to cause erosion damage to the boss. When the root vortices have passed down stream beyond the propeller they unite into the boss vortex and often appear in the form of a stranded rope with the number of strands equal to the number of blades.

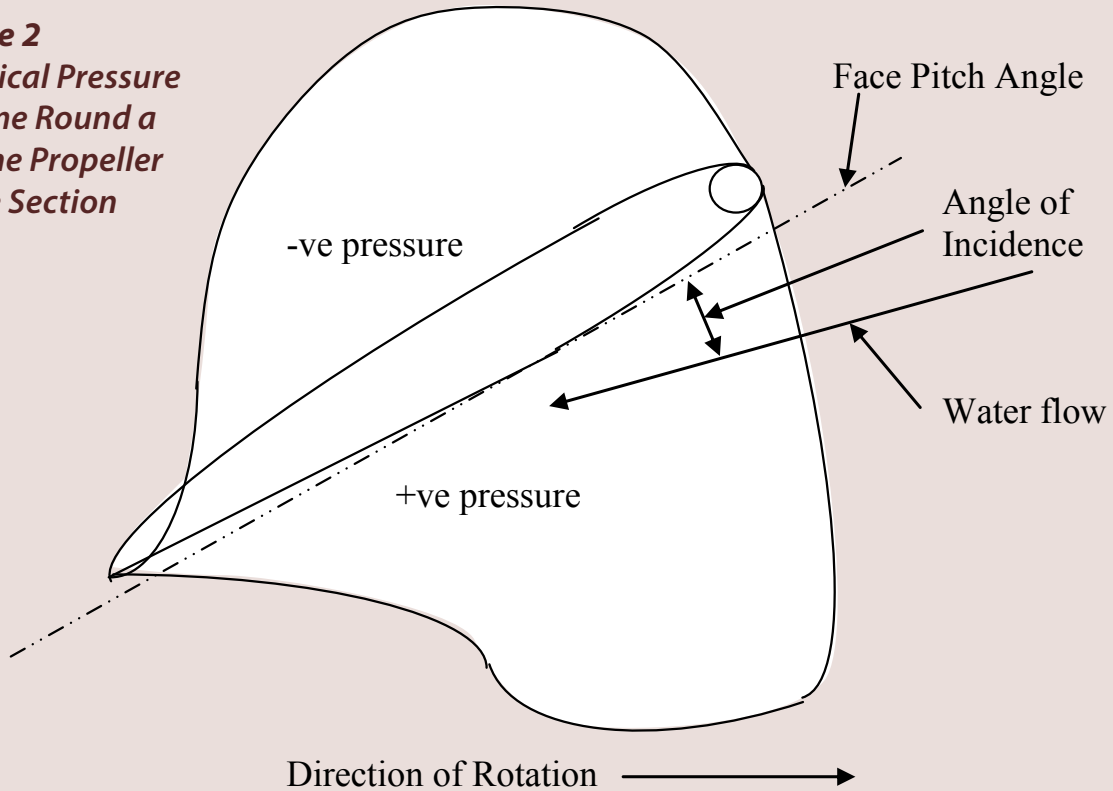
If, as is usual on single screw vessels, the rudder lies immediately abaft the propeller the rope of bubbles can collapse causing severe damage to the leading edge of the rudder or rudder post.

Face cavitation occurs on the driving face of the propeller and is often due to an incorrect pitch distribution along the length of the blade resulting in the tip pitch being too small and the blade sections developing a negative angle of attack. Its results are frequently found on controllable pitch units. On one cast iron propeller of the author's knowledge such face cavitation resulted in a hole right through each of the four blades through which it was possible to pass a man's hand to shake hands with another man on the other side of the propeller. In the past this form of cavitation was usually considered to be very dangerous but recent research suggests that that is not necessarily so. Nevertheless, where possible, it should either be avoided or relieved by suitable design.

An associated phenomenon is called propeller-hull cavitation and sometime occurs at slow speed high load conditions such as when the vessel is accelerating from a dead slow condition. It is due to the fact that, under such conditions, the propeller sometime cannot draw enough water from ahead to satisfy its flow need and, instead pulls it in from astern. The region most affected is ahead of the propeller under the sternframe arch and the phenomenon may result in small areas of erosion and pitting on the hull. The collapse of the bubbles in the blade tip and root vortices can often lead to cavitation damage in the form of pitting on the leading edge of the rudder. When on trials, if the propeller is cavitating badly the resulting noise sounds like gravel being forcibly thrown against the underside of the hull.

A propeller is said to be fully cavitating when the whole of the back is covered in sheet cavitation. This phenomenon is also called super cavitation and is a whole new ball game.

Figure 2
A Typical Pressure Regime Round a Marine Propeller Blade Section



A CAREER IN SALVAGE AND WRECK REMOVAL

with a look at some current issues

BY **JOHN M NOBLE,** FIIMS

INTRODUCTION

This article serves to offer to the wider marine surveying community a personal view into the specialist area of salvage and wreck removal under the overall umbrella of marine surveying within casualty response.

In 1980 I opened the London office of Murray Fenton & Associates, initially to provide a cargo surveying service. Soon the work developed into a range of surveying related activities culminating in casualty response. In this article I look at some interesting activities in salvage and wreck and examine briefly the recent developments in the Lloyds Open Form!

GENERAL BACKGROUND

In the early 1980s the P & I clubs would not become involved in cases of salvage at the time of ongoing salvage operations, but rather usually waiting until claims of causational unseaworthiness came to the surface. P & I Clubs did get involved where a wreck removal was contemplated and the circumstances fell within the Clubs' rules. Put simply, wreck removal would only apply once the Hull and Machinery Underwriters had paid in full the claim for a total loss. An important element at the time was that there had to be a legal liability on the owner to remove the wreck. Now-a-days this might seem obvious, but back in the early 1980s relatively few countries had such provisions in their laws. In the UK for example, often as not, the responsibility of keeping a port open and free from wreck lay with the Harbour Master, not the owner.

Countries that contained the Napoleonic law often did have specific provision that the responsibility for removing wreck lay with the owner. Where that was the case the requirement could not be ignored. Arguments were often put forward that a wreck was not obstructing a fairway, or causing a navigational hazard, thus the "requirement" was watered down and wreck removal avoided.

My first major wreck removal job as a surveyor took place in Lybia (1982) and proved to be the first of many where usually the continuous attendance was provided by the surveyor! Any lawyers in attendance would keep their activities brief and low-key and the presence on site of P & I or owners representatives was rare indeed! Not without some justification, there was a feeling that any person representing the owner at an incident was jail fodder!

Generally in pre-SCOPIC (see right) days, the transition from salvage to wreck removal could take months or years, but there were exceptions to the rule. In Bermuda in 1984 a tanker in ballast ran aground on the reef just off the entrance to St Georges on the North of the island. It was clear that she would be a Constructive, if not Actual Total Loss. Very soon the salvors decided there was no hope of a Lloyds Open Form salvage award (the tanker was in ballast, so no safety net provisions applied) and decided to demobilise. All of a sudden the authorities in Bermuda were contemplating being left with a 120,000 ton tanker aground on the reef.

After some brief deliberation the P & I Club involved agreed to pay to keep the salvors on site for 24 hours in the hope that the issues of transferring an operation from salvage to wreck removal could be sorted out next day! They were. The operation continued as a wreck removal; possibly a record at the time, LOF salvage to Wreck Removal in less than 24 hours

THE DEVELOPMENT OF LLOYDS OPEN FORM AND INTRODUCTION OF THE SCOPIC CLAUSE

At a time when salvors were willing to "walk away" from a casualty without any repercussions, the incident outlined above represented a truly revolutionary approach to casualty response. With hind sight it is possible to look at the Bermuda incident and reflect on the present day practice of salvors remaining on site when the salvage contract includes the SCOPIC (Ship Owners' Casualty P & I Club) clause. Implementation of the SCOPIC clause when it is incorporated in a LOF allows salvors to remain at the casualty in certain circumstances. Essentially, if the salvor does not think the normal salvage award will generate sufficient reward, SCOPIC may be invoked to allow salvors to be reassured that their efforts will be compensated at the agreed rates that are published as Appendix A. This allows contractors to remain working at the casualty whilst wreck removal and other issues are dealt with. In effect, this is what happened back in 1984 off Bermuda; salvors remained on site, being paid while wreck removal issues were resolved!

PRE-SCOPIC

In September 1992 the tanker Nagasaki Spirit suffered a collision with the Ocean Blessing. The litigation following this incident ended up in the UK House of Lords and in February 1997 the Law Lords gave the ruling that effectively signalled the end of "Article 14". Instead of encouraging the salvage industry by allowing an element of profit when working on site, when it was apparent that the situation had gone beyond an Article 13 salvage award, they only allowed "expenses", without profit.

SCOPIC DEVELOPMENT

The SCOPIC system of compensation was drawn up directly following the Nagasaki Spirit ruling. How could ship owners and their underwriters offer a system to salvors that might encourage them to remain with a casualty once the circumstances had changed and the possibility of a traditional salvage award (Article 13*) had receded?

**Note: To appreciate what is meant by Article 13 and Article 14 please refer to the 1989 International Salvage Convention.*

The response from the salvage industry, through the International Salvage Union, the Hull and Machinery plus other property underwriters and the P & I Clubs, was to try and devise a simple and clear clause to offer an option to Article 14. The main aim was to encourage salvors, already on site to remain, at rates for their men and equipment that would be profitable, even generous! A subcommittee was set up where lawyers and others representing the ISU, P&I Clubs, hull and property interests sat down and hammered out a Clause that would be mutually acceptable. It had been realised from the start that any initiative to compensate salvors for their continuing efforts would have to come initially from the P & I Clubs in cash terms. SCOPIC also requires that the P & I Clubs provide security. This was a new concept and would bring the Club system into salvage operation payment much sooner than hitherto. Thus the SCOPIC clause was created.

THE EFFECT OF SCOPIC ON SALVAGE

When the SCOPIC clause was introduced in 1999, there had been a considerable amount of discussion and preparation. The intention was to offer salvors encouragement to remain on site in the form of financial compensation. For more detailed information go to www.lloyds.com or use a search engine under the term SCOPIC and you will be swamped with background and current information.

By offering salvors an incentive to remain on site and acknowledging the pre-arranged nature of the services now offered, the reality was that resources to deal with the casualty were immediately available and the transition from salvage to a potential wreck removal operation could begin without delay.

My own role in the development of SCOPIC started with me on one hand negotiating equipment rates on behalf of the International Group of P & I Clubs with the International Salvage Union (Mike Lacey) on the other. After much to-ing and fro-ing an agreed scale of rates was published as Appendix A to SCOPIC and it remains widely used today. During the Rate revision negotiations that took place in 2011, I was acting as negotiator for the salvors in my role as general manager of the ISU! Some might say gamekeeper turned poacher!

Whereas before the P & I Clubs were little involved in immediate casualty response activities, the implementation of the SCOPIC clause resulted in a complete volte-face in the role of the clubs. For the first time, the salvors who had invoked SCOPIC, were able to receive funds without having to wait the termination of a LOF and associated negotiations. Perhaps as important a factor, was the early involvement of the Clubs and the swift transition from salvage to wreck removal. That is not to say that all is sweetness and light, but the level of cooperation between all the paying parties involved is now far greater than it used to be.

THE SURVEYOR INVOLVEMENT

So what of the surveyor? The traditional roles remain, dealing with issues arising as they crop up on behalf of the instructing party. When an operation is being performed under a LOF, with SCOPIC activated by the salvor, there is likely to be on site a Special Casualty Representative.

The role of the attending SCR surveyor is vital to the outcome. There are some 46 SCRs on the panel at present. I am often asked "what are the requirements to become an SCR"? Essentially live experience in salvage and casualty response is an essential prerequisite. A committee of experienced representatives will sift through applications and if approved will recommend appointment an applicant to join the SCR panel. SCRs will have to have a good knowledge of salvage and wreck removal operations, but also be able to approach the task as a true independent as his reports will be circulated through the Lloyds Salvage Arbitration branch to all parties with an interest in the outcome.

The SCR is appointed by the Owners' P & I Club, but he or she is there to monitor salvage operations and report back to all the interested parties through the Lloyds Salvage Arbitration branch. For many surveyors being on the SCR panel is a "badge of honour" in that their expertise in salvage matters has been duly recognised.

When I was employed by the International Salvage Union, I was asked to put together a book that would help those faced with having to deal with the issues arising from a major incident. The result was a Nautical Institute/ISU publication entitled "Casualty Management Guidelines" (see www.nautist.org); the contributors to this publication have attended many major incidents and have passed on the benefit of their experience voluntarily. Any surveyor with an interest in casualty response is well advised to at least read through this book to gain an insight into the surveyor's role.

ENABLING KNOWLEDGE MANAGEMENT

PIM challenge professional services end-to-end activities share logic information hardware proof computers store learning unaltered form skills PKM formal training annotation trust organizations software retrieve gather search authority providers KM solutions concept characteristics directory data sources classify IIMS concepts growth personal interaction PC credentials tagging structuring application social bookmarking people-based businesses capture

INTRODUCTION

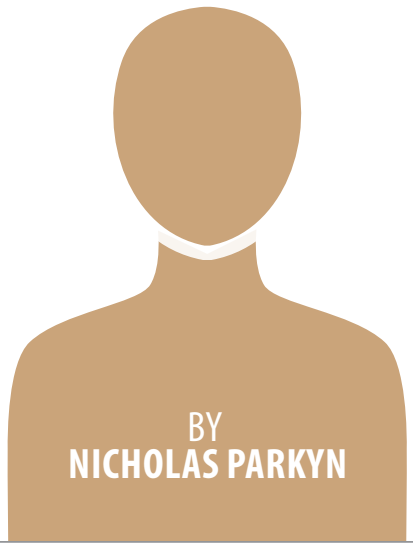
Personal knowledge management (PKM) is a set of activities that a person uses to gather, classify, store, search, retrieve, and share knowledge. PKM is based on the concept that knowledge workers increasingly need to be responsible for their own growth and learning and represents a bottom-up approach to knowledge management (KM).

Today we have a challenge that our ancestors did not have: the "general" knowledge base doubles every four to five years, making knowledge management especially important.

Knowledge management is a particularly important activity for professional services, organizations and providers like marine surveyors as these are people-based businesses whose service delivery is intimately linked to the knowledge and skills of the practitioners (those delivering the service).

In this is third and final article in the series on Knowledge Management we will explore further aspects and concepts of Knowledge Management including:

- Aspects of proof and trust and how they apply to information
- Hardware and alternate software for your Personal Knowledge Management solution
- End-to-end knowledge management.



BY
NICHOLAS PARKYN

PROOF AND TRUST

The web motto "Anyone can say anything about anything" makes the web a unique source of information, but we need to be able to understand where we are placing our trust!

Trust is an integral component in many kinds of human interaction, allowing people to act under uncertainty and with the risk of negative consequences, for example choosing between conflicting sources of information[6].

Many aspects of marine surveying are based on trust! The marine surveying environment is based on interaction with professional "Engineering Discipline" and factual reporting. The structures and items that we survey were typically designed by naval architects and marine engineers so the environment is one where proof and trust prevails. Proof and trust related to the knowledge we source and the knowledge we use for surveying and reporting is essential!

In order to *Trust* information we must understand:

- By whom it was provided (chain of providers)
- The credentials of the providers
    - Are they an authority on the subject?
    - Do they have formal training on the subject?

In order to have *Proof* that information is valid and has value we must understand:

- How has it been derived and with what logic?
- Which data sources were used?
- Is it being provided to us in an unaltered form?

Tim Berners-Lee the "father" and founder of the internet had this to say:

When you go onto the internet, if you really rummage around randomly then how do you hope to find something of any of value!

With information found on the internet, there is no specific application of proof and trust and the information presented is often based purely on personal opinion. While the internet "seems" to be a great source of information, what we find there must not just be "blindly" accepted and used. Before we use information or structured information (knowledge) it should be validated based on proof and trust. If it is not validated, it may have no value or be incorrect and if applied, could have serious implications. Within organisations moderation is typically applied information or structured information (knowledge), by subject matter experts, to determine correctness, proof and trust before it is sanctioned for use.

THE INTERNET LEADS THE WAY!

Hate it or love it, the Internet has become a great thought sharing platform! *[Pascale Kalambaie]*

The Internet has led the way in showcasing concepts which have broader use and particular application to knowledge capture and annotation. In the last article we covered the video-sharing website YouTube and its use by the IIMS for tacit knowledge sharing, however another concept, that of tags and tagging also has direct application. The use of tags and tagging was pioneered by Flickr and Delicious image sharing / social bookmarking websites.

Tagging, which is one of the defining characteristics of Web 2.0 services, is a form of annotation which allows users to collectively classify and find information. It has direct application for annotating and thereby allows further structuring of knowledge in a knowledge base.

In the last article we learned that a basic Knowledge Management System can be enabled on a personal computer (PC) and

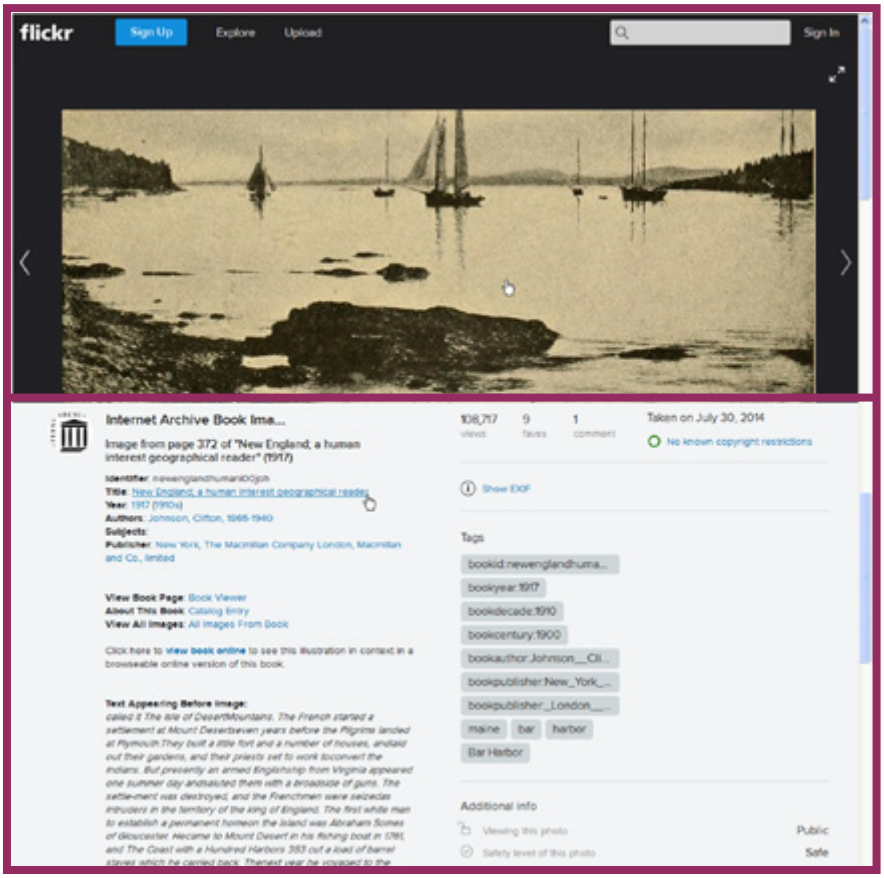


Figure 1: Image from Flickr site showing tags (highlighted in grey)

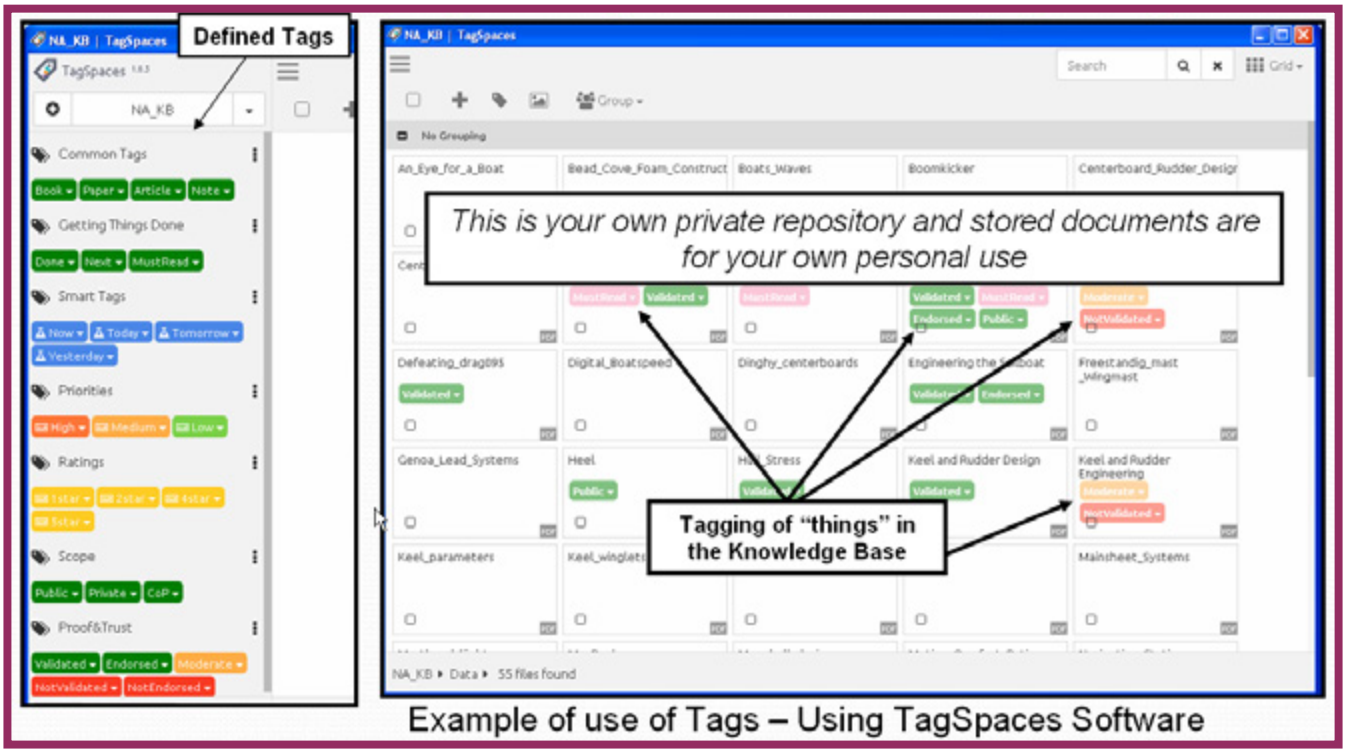


Figure 2: Usage of TagSpaces software for a Knowledge Base[2]

is typically layered on top of a Personal Information Management (PIM) system. A PIM solution that supports tagging can be used as the basis of a Knowledge Management System. TagSpaces[4] is an open source software package which allows annotation of structured information (knowledge) by tagging. The concept and use of TagSpaces[4] is illustrated in figure 2.

Typically the directory and file structure is based on the taxonomy to structure the information, while in software like TagSpaces[4] the tagging provides additional unstructured annotation.

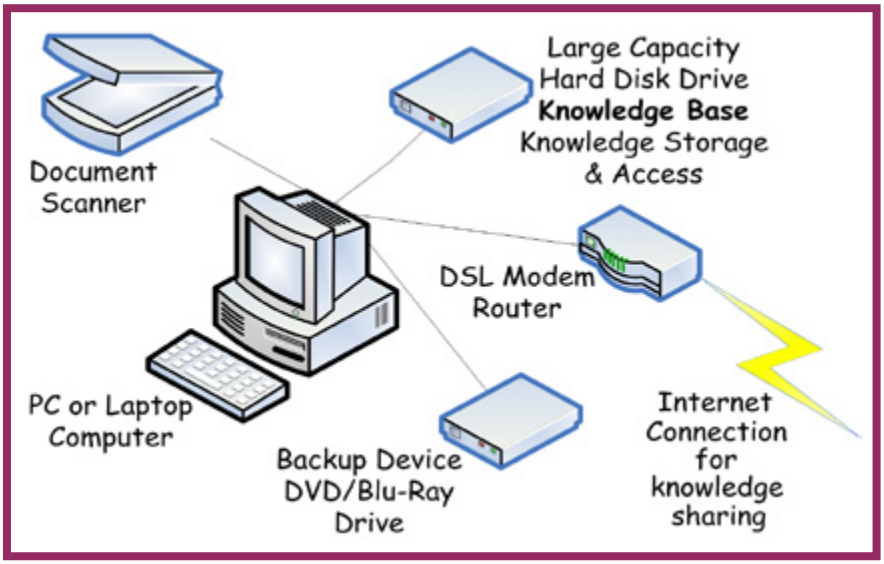


Figure 3: Basic Knowledge Management System Hardware

[Diagram from book: Computer Based Knowledge Management and Knowledge Bases - A Practical Guide for Yacht & Small Craft Surveyors - www.nparkyn.com]

HARDWARE REQUIREMENTS FOR YOUR PERSONAL KNOWLEDGE MANAGEMENT SOLUTION

In the previous article we considered the software components required to implement a Personal Knowledge Management System, but computer hardware is also required for the solution. A basic Knowledge Management System can be enabled on readily available low cost personal desktop or laptop computers (PCs). The complete set of hardware components required is indicated in figure 3.

The hardware components and their function:

Hardware Component	Function
Desktop or laptop computer (PC)	To run software for KM system
Hard disk drive internal or external	Storage of structured information (knowledge)
Document scanner	To allow paper based information to be captured and stored in electronic form
DSL Modem/Router or other device	To enable internet connectivity for knowledge sharing
Backup device DVD/Blu-Ray Drive with ability to write Blu-Ray disks	To enable permanent copy of knowledge base content

Typically your existing computer can be upgraded to provide the necessary functionality and the additional devices added.
Of particular importance to the solution are:

1. The document scanner which allows capture of paper based information to be converted to electronic form and stored in the Knowledge Base.

2. Large capacity hard disk drives, since increasing amounts of knowledge are stored in the Knowledge Base

3. Backup device which will allow you to create incremental permanent copies of your knowledge base to ensure it can be recovered if your hard disk were to fail. This storage device would create a non-volatile (permanent) copy of the data. Since the knowledge base is large in size, typically many hundreds of times the capacity of a DVD, a Blu-Ray drive based on its much higher capacity represents a practical solution for backup.

There are many other options and ways to configure the hardware and software which are covered in reference 1 indicated in the list of references.

ENABLING END-TO-END KNOWLEDGE MANAGEMENT

To maintain their competitive edge, organizations need to build their intellectual capital and mushroom their knowledge management initiatives [5]. These initiatives require an enabling environment that encourages member involvement in the "social" processes of knowledge creation [5].

With respect to end-to-end knowledge management there are two aspects.:

1. The "top down" aspect driven by organisational initiatives

2. The "bottom up" aspect driven by personal initiatives

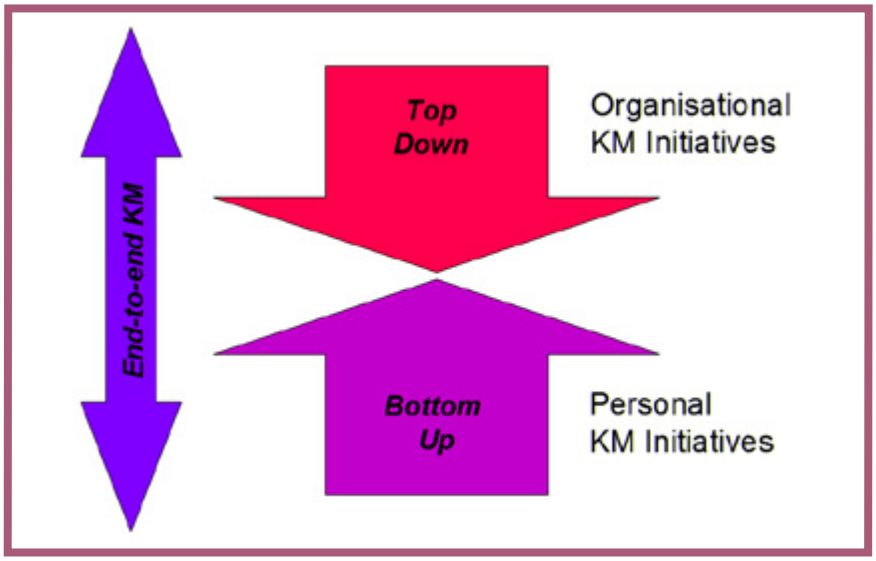


Figure 4: End-to-end Knowledge Management

The IIMS is actively pursuing innovative KM initiatives to further enable its members. This represents the "top down" aspect of knowledge management. However to derive maximum benefit from knowledge management IIMS members should enable their own Personal Knowledge Management initiatives, the bottom up aspect!

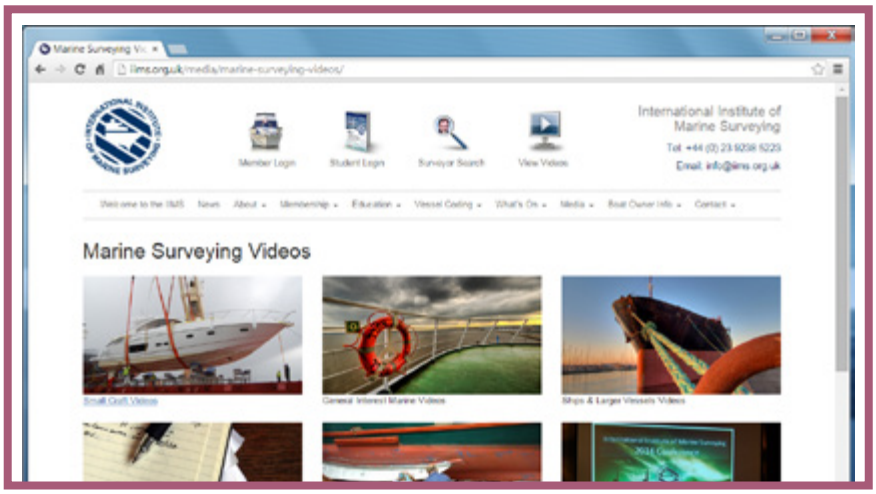


Figure 5: New IIMS website enables knowledge sharing

This series of 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 1 below).

References

1. Parkyn, Nicholas (2012 - 2014); eBook: Computer Based Knowledge Management and Knowledge Bases - A Practical Guide for Yacht & Small Craft Surveyors - published 2012. www.nparkyn.com
2. Parkyn, Nicholas (2014); Paper: "Knowledge Management – An Enabler for SNAME & Naval Architects" presented at Society of Naval Architects and Marine Engineers - Maritime Convention, Houston, Texas - October 2014. www.nparkyn.com
3. Parkyn, Nicholas (2012); Computer based Knowledge Management for Marine Surveyors – Presentation at IIMS Marine Conference –Sydney Australia, August 2012. www.nparkyn.com
4. TagSpaces: open source personal data management software - www.tagspaces.org
5. Malik, K. P. and Malik, S. "Value Creation Role of Knowledge Management: a Developing Country Perspective." The Electronic Journal of Knowledge Management Volume 6 Issue 1 2008, pp. 41 - 48, available online at www.ejkm.com
6. Artz, D. and Gil Y. (2007) "A Survey of Trust in Computer Science and the Semantic Web" Information Sciences Institute, University of Southern California gil@isi.edu

Fifty Shades of Insurance: Chapter Three

In her third article in this series, Amanda Ridd of Matrix Insurance Services Ltd., advises...

DISCOVER OUR NEEDS & UNDERSTAND THE DEMANDS OF OTHERS

We made a presentation at the recent IIMS conference in Southampton from which we received requests for more! So here we are...

Because we are living in an increasingly litigious society Professional Indemnity Insurance or PII as it is commonly known is accordingly increasingly important and in some cases a requirement of a client. Never assume that it "won't happen to me" as it very well might! So if you have PII cover you have some form of financial protection for your assets as well as more peace of mind in this otherwise stressful world. BUT make sure you have the correct cover! There is no point in paying a premium to find out that your insurance policy will not be providing indemnity for a particular occurrence.

Check your policy provides:

- cover for personal injury and death arising from professional negligence
- an adequate indemnity limit for personal injury and death arising from professional negligence; some policies give an annual total indemnity limit (often termed in the aggregate) and others an indemnity limit specified for each claim, sometimes with an overall policy or section aggregate indemnity limit;
- cover for claims arising from accidental personal injury and death of a third party as well as accidental damage to third party property, with an adequate limit of indemnity
- the cover you are expecting to receive such as the countries where you will be undertaking work and where your client may commence proceedings; some policies may restrict cover to claims that commence in UK courts and/or to UK judgements; the latter may be a problem if your client is resident in another country. So read your schedule, policy document and any endorsements carefully particularly the exclusions, limitations and warranty clauses.

So you are happy with your insurance cover, what about your trading terms and conditions (T&Cs). Applying your T&Cs from the beginning of a job could alleviate substantial stress in the future. What does this really mean? Well it means getting your T&Cs to your client either before they accept your quotation to do the work or with your quotation. Perhaps refer in your quotation to your T&Cs on your web site or automatically attach them to an email with your quotation - better still get your T&Cs signed by your client as acceptance of your quotation. Yes we know it can be difficult!

T&C's agreed and hopefully signed and you are away! But beware, this doesn't mean you can embark on a survey thinking that you can do anything in the belief that your T&Cs will defend you against any claim. Clauses in contracts are not always applied by a court of law and less so if they are restrictive or limit liability and you are dealing with a consumer. Also, different countries have different laws and if you trade with persons in another country perhaps say the EU you may find that the claim is litigated in the country that the claimant is resident.

Okay so not all clauses may be applied even if they are in a contract but they may be a deterrent to some people who may consider "just having a go". So, some basic clauses that should be considered are clauses that limit the amount you may be liable to pay to a claimant should you be found liable to them, and time restrictions on the period in which a claimant can commence a claim against you. Another useful clause is a " Force Majeure" clause. This essentially protects you from circumstances arising from events beyond your control and which prevent you from undertaking your obligations under your contract with your client, such as completing the work you agreed to undertake. These are just a few clauses to think about including in your T&Cs and it is always worth reading other contracts you sign or agree to during your everyday life as many contain interesting clauses.

On a final point of this chapter, it is always a good idea to make notes of any conversations you have had with your clients or potential clients immediately or as soon as possible after the conversation has taken place and to date and sign your notes and then send them, where possible, to the client. This could be your saviour!

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

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.

Mines Rescue Marine

HEAD OFFICE:

HETTON ROAD

HOUGHTION-LE -SPRING

TYNE AND WEAR

Co DURHAM

UNITED KINGDOM

DH5 8PB

Tel: +44 (0)191 584 0144

For more information please call - +44 (0)191 584 0144

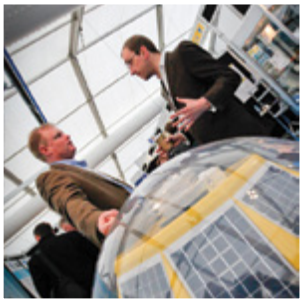
or Email: marine@minesrescue.com

ocean business 15

The hands-on ocean technology exhibition and training forum

National Oceanography Centre, Southampton, UK • 14-16 April 2015

We're back…
only bigger and better
Have you registered yet?



- **Join** 5,000+ visitors from over 65 countries
- **Explore** an exhibition of over 300 companies representing the world's leading ocean technology suppliers and service providers
- **Experience** 180 hours of hands-on demonstrations in classrooms, in the test tank, on the dockside and at sea
- **Network** with exhibitors and visitors throughout the week at the welcome drinks, wine trail and famous gala dinner

Incorporating:

offshore survey 15

Ocean Careers 15

Organised by: diversified COMMUNICATIONS UK

In partnership with: Society of Maritime Industries

Hosted by: National Oceanography Centre, NATURAL ENVIRONMENT RESEARCH COUNCIL

REGISTER FREE ONLINE NOW

For more information contact:

T: +44 (0)1453 836363

E: info@oceanbusiness.com

Ocean Business

@OceanBusiness

#oceanbiz

www.oceanbusiness.com