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OF MARINE SURVEYORS

Shipshape

June 2024

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Front Cover: The fourth industrial revolution ("Industry 4.0") is introducing intelligent technologies and profoundly changing the roles and responsibilities of the workforce, including in the maritime industries. (See page 28.)



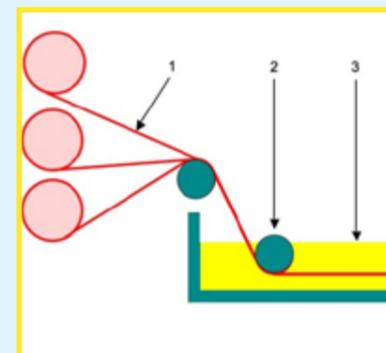
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ADVERTISING AVAILABLE

Advertising is now available in *Shipshape*, the official journal of the Australasian Institute of Marine Surveyors (AIMS). For all the information about advertising in our quarterly magazine, contact AIMS CEO Eric Perez at gm@aimsurveyors.com.au or on +61 492 881 737.

Small fry in a big pond

AS a marine surveyor, I am mostly afforded a level of respect in the workplace and, given my non-seafaring background, I do not see this as a rite of passage, but as a privilege. Ship's crews are generally polite and, in turn, I am respectful towards them. This extends to all on board, from the mess boy to the Master.

Terminal personnel also extend to surveyors a level of respect for the most part, and many of them believe marine surveyors are particularly well remunerated and probably earn way more than the terminal employees.

It is against this background that I reflect upon the position of the marine surveyor within the cohort of personnel involved in the shipping industry, considering what value we bring and where we really fit into the picture.

Working in central Queensland, where coal mining provides well paid jobs for miners, maintenance workers, train drivers, and coal terminal staff, I see the disparity between the salary of a dozer driver and what our profession can afford to pay cargo surveyors. Sure, we all do shift work, but I know of few other jobs where you are likely on call 24/7 every day of the year. I can best describe what I do as "management by crisis".

Even considering areas other than cargo surveying, where working hours are more aligned with other jobs, the role of the marine surveyor is one that commands high levels of understanding, experience and competence across a broad range of areas that would, on the surface, suggest attractive salaries to be the norm throughout our profession. Alas, this is not really the case at all.

Competition for contract work with shipping terminals, superintending companies, ship owners and other clients of marine surveyors has, over the last 15 years, diminished the rates charged for much of the high-volume work undertaken by our brethren.

Meanwhile, other costs across the shipping industry in Australia and globally, have continued to climb. Port service charges, terminal fees, tug and towage charges and pilotage have all seen consistent and considerable increases.

Marine surveyors, shipping agents and certain other maritime industry service providers have seen operating costs rise and profits fall.



As a service that relies heavily upon people, marine surveying has come up against the issue of how to properly remunerate employees within particular shipping industry sectors where other employees are enjoying comfortable salaries and yearly increases that exceed what is viable for marine survey business owners. Naturally, this tends to favour larger marine surveying companies who can offset surveyor employment costs against other income streams, further impacting upon small business operators who provide valuable experience and greater independence.

We all know that most clients like to get "solid gold service" for a "tin plated price". I am sure we all understand the need for value and cost effectiveness as we see living costs skyrocketing, so how do we bring our clients onboard with rate increases that reflect the value of the services we provide?

Most clients are seeking more for less at a time when small business costs are constantly rising. We need look no further than the costs of business compliance as many clients start utilising third party systems to handle quality and compliance.

My business is currently enlisted in four different such systems that basically require the same information but need it entered in differing ways. This becomes a time-consuming resource vampire that sucks time that is not included in the service provision rates. At some point, a growing marine surveying business will need to employ a dedicated quality and compliance officer to fulfil the many and various obligations therein.

Unfortunately, there are some within our profession, perhaps some within our membership,

who are happy to undercut already thin margins to get work. Uh-oh, I hear the cry "That is just the free market at work" but if, like me, you think this leads to a lower standard of service provision, you would be absolutely correct!

We must all continue to talk to our clients in efforts to maintain viable rates across the whole marine surveying sector, and to make them understand that competence, experience, ethical behaviour and quality reporting has a reasonable value.

As a marine surveyor representative body, we cannot stop people from undercutting prices; however, when this dictates sub-standard practice and unprofessional behaviour that result in poor quality outcomes, it reflects badly upon our profession. I would encourage such practices to be reported, especially where unacceptable or unethical practices are evident. Nothing will change if good people look away.

Where do we go from here? As business operators themselves, I believe that the majority of member's clients not only understand the need for reasonable reward for services but also would actually be sympathetic to the need. It is quite likely that many clients do not understand Australian workplace safety and compliance requirements or the vast distances around our coastline, for example.

Helping clients understand, and encouraging them to come see for themselves may support better deals for our members going forward. Clients must understand that surveyors need to extract a reasonable business profit to maintain continuity of the quality services they have come to expect from working with AIMS members.

It seems that, unless there is a shift in attitude by many of those who utilise the services of marine

surveyors, our profession will suffer as older surveyors retire, leaving an experience vacuum.

We must find ways to train more younger surveyors and, to do so, we need to compete on salaries and conditions. It would be in the best interests of our clients to make provision within contracts that encourage training to ensure a future with competent local surveyors.

Many could argue we can fill vacancies through immigration; however, in my experience, the majority of immigrant surveyors are not long-term and often seek a stepping stone to a better paying position in a capital city. There is nothing wrong with seeking what's best for one's future and there is no simple solution to this dilemma; nonetheless, the marine surveying community must endeavour to establish viable pathways for a new generation.

Marine surveyors have long been considered an important part of the marine and maritime industry; however, in certain areas we have become under-valued. I am under no illusion about the small space occupied by marine surveyors within the shipping industry juggernaut. Despite our position in the "food chain", I still believe our members deserve to be paid a decent salary that aligns with the sector in which they work, and their employers are fairly compensated, lest we continue to lose good surveyors.

The theme for the upcoming AIMS conference to be held in Brisbane on 27 September this year, "Embracing Change and Uncertainty", presents a great opportunity to highlight the value of our profession across the broad spectrum of shipping, maritime and marine sectors that utilise the services of marine surveyors.

John Holden
Chairman of the AIMS Board

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Time to say some “thank-yous”

WE are halfway through 2024 and some “thank-yous” are in order...

Thank-you to members who have participated in sub-committee work: your contributions are appreciated and valuable, and make a difference to the operations of the Institute.

Thank-you to my colleague Sue Brown, who is doing an amazing job in the training and professional development space for us, and for industry more broadly, and to those surveyors assisting in the development of training modules.

Thank-you to Susan Hull (previous AIMS CEO) and Andrew Graver (AIMS member and former founding Director) for their ongoing role in managing the AGSA Scheme.

Thank-you to those members who have contributed to our newsletter.

Boating Industry Australia partnership

The partnership with Boating Industry Australia (BIA) was announced on 9 April to support and educate the industry, and the public, for safer outcomes of new and used vessels.

The partnership between BIA, the peak industry body in Australia that represents the interests of boating, and the AIMS, the peak industry body for Marine Surveyors in Australasia. is a win for recreation vessel owners. More importantly, it is a win for the safety of recreational vessel owners.

Audio podcast platforms

As previously noted, members will have multiple ways to engage with educational, industry-specific content. We now have access to audio versions of our industry workshops and webinars. I will contact interested members to set up access to the audio podcast content.

Industry workshops

Workshop: Mark McIlwain, 10 April 2024

Mark led the discussion on a follow-up to his original workshop focussing on a basic overview of composites in the boatbuilding industry. Background – Mark completed his shipwright



apprenticeship with the internationally renowned McConaghy Boats, specialising in state-of-the-art offshore composite yachts and the construction of three America’s cup boats: Spirit of Australia, Challenge Australia, and One Australia. He sailed in numerous international races, including the Brisbane to Osaka and four Sydney to Hobart races, plus multiple programs in the USA and Japan.

Following a three-year sabbatical based in Boston and Isle of Wight working as a boat builder and managing sailing teams, he returned to Australia to continue his journey building boats and sailing. Mark started his commercial career in composites and resin systems in the mid-1990s and over a period of 20 years has worked for Australia’s largest



composite material suppliers, including ATL Composites, Fibreglass International and Summit Composites.

During this time, he worked as technical advisor, providing guidance to Australia’s largest boatbuilders on material selection and processes, and was responsible for introducing resin infusion technology into the Australian market. From 2015 to 2019, Mark worked as Project Manager for the world’s leading composite tooling manufacturers, Mouldcam, leaders in five-axis moulds for composites. As well as sourcing and procuring composites components from throughout Asia, he established the manufacturing facility in Batam, Indonesia. He set up Ocean Reef Marine Survey in 2020, as well as taking over the reins of George and Sim Marine Surveyors in 2021

Workshop: Jonathan Mamaril, 29 April 2024

The implications of the Closing the Loopholes legislation for organisations was the focus of the workshop.

Background – Jonathan Mamaril is the Director of NB Employment Law, focusing on providing practical value to clients. He advises on all aspects of employment law, including enterprise agreements, collective bargaining and interpretation of modern awards.

Jonathan has represented clients in unfair dismissal, general protections and discrimination matters, from conciliation conferences to arbitration in the Fair Work Commission.

Prior to joining NB Employment Law, Jonathan worked as an Industrial Officer for a trade union, and advised small to medium-sized businesses and not-for-profit organisations on all aspects of employment law at a mid-tier Brisbane-based law firm.

Jonathan regularly presents at seminars, conferences, workshops and summits for industry associations, business owners, human resource professionals, boards and executives. He is frequently consulted by media outlets, such as *The Sydney*



Morning Herald, IntheBlack, ABC News, RPM, Property Observer, The Real Estate Conversation and News.com.au for his expert commentary on legislation changes and significant cases.

In addition to his professional commitments, Jonathan serves on the board of the non-profit organisation, The Foundation of Student Horizons, which helps disadvantaged youth in Australia and New Zealand realise their dreams through group travel and experiential learning. He is also a member of the Queensland Malt Whisky Society and Australasian Interim Executive Association.

Continuing Professional Development

Continuing Professional Development (CPD) is a mandatory requirement for all levels of membership of the AIMS, apart from students. The Institute requires all members to undertake activities which will keep them abreast of professional developments and new skills, and broaden their experience.

Members are required to obtain a minimum of 10 points per calendar year; however, points can be accrued and rolled over to the following year where a member has exceeded the minimum points in one year.

Members will need to provide evidence that they have obtained 10 points per calendar year or 30 points during each consecutive three-year period.

Evidence is required to support your activities, and this may include a receipt, a copy of a certificate of attendance, email confirmation or trail, diary notation or log, or any other means of confirming your activities.

Please send through your CPD to the office at gm@aimsurveyors.com.au

Newsletter contributions

I encourage members to make a contribution on a marine survey issue to the newsletter or contact me if there is a particular issue you want covered.

Your Institute

Please contact me on +61 2 6232 6555 or send me an email with feedback, and ideas at gm@aimsurveyors.com.au.

Dr Eric Perez
Chief Executive Officer

2024 AIMS Awards for Excellence

THE 2024 AIMS Awards for Excellence are open and I encourage members to nominate a member across six award categories.

Award Categories

The 2024 AIMS Awards for Excellence categories 1, 2, 3, 5 and 6 are open to all organisations and sole traders and individuals that are AIMS members in any capacity.

The award for Category 4 – Excellence in Technology or Business Services is open to all organisations, partnerships, sole traders and individuals who are registered to operate in Australia. AIMS membership is not a prerequisite for this category.

Category 1

Mike Bozier Award

This award is open to all members and is a tribute to Mike Bozier and all he achieved for the AIMS and the industry generally through his tenacity, innovative approach and futuristic thinking.

Category 2

Marine Survey Practice Award

This award is open to all AIMS members in a marine survey practice of any size.

Category 3

Marine Surveyor Specialist Field Award

This award is open to all AIMS members and congratulates an organisation or individual's leadership in their specialty.

Category 4

Technology or Business Services Award

This award is open to both

members and non-members, and congratulates leadership through the practical application of technological solutions for new and existing marine survey needs resulting in a commercial, environmental and/or social benefit to the industry.

Category 5

Student of the Year Award

This award is open to any AIMS member currently undertaking an AIMS training package, has completed their course in the last 12 months or any other recognised training relevant to marine surveying.

Category 6

President's Rising Star Award

This award is open to any AIMS member. A key element in

the future of the marine survey industry will be the calibre of the leaders that we are developing in our businesses today.

Further information

For further information and an information form, go to:

AIMS Awards for Excellence Entry Guide

AIMS Awards for Excellence Nomination Form

Nominations must be received no later than close of business on Friday, 28 June 2024. Forward nominations to the AIMS CEO at gm@aimssurveyors.com.au.

Dr Eric Perez
Chief Executive Officer

AIMS Conference 2024

Friday 27 September
Stamford Plaza Brisbane

Theme:
Embracing Change and Uncertainty

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2024 Sanctuary Cove International Boat Show



I WAS fortunate to attend my first Sanctuary Cove International Boat Show (SCIBS) in May. A brilliant event and I want to thank members who volunteered to help me engage with attendees at the event – a huge thanks to William Burton, Andrew Laughlin, Eric and Mark McIlwain, Michael Fitzallen and my colleague Sue Brown, AIMS Professional Development and Training Coordinator.

What are my takeaway learnings? The public have some but limited awareness of the breadth and scope of marine surveying. I have developed some ideas to help address this on behalf of my sector but, more critically, my members.

Individuals buying and selling vessels are unclear why engaging a marine surveyor is beneficial or the difference between the role of shipwrights and naval architects

versus the very distinct skill sets applied by marine surveyors.

When you stop learning, you risk losing relevance as a professional and I had a top tier lesson from my members during the event on why the professional service they provide is important from a recreational, commercial and vessel safety perspective.

Eric Perez
CEO

Lithium battery BMS installation follow-up

RECENTLY, I received a comment posted about my article and accompanying video on my YouTube Channel, on lithium battery BMS installations, and the dangers of an incorrect installation. The comment asked to differentiate between the different types of lithium batteries, as the viewer was under the impression Lithium Iron Phosphate (LiFePO4) systems were safer.

Although my article focussed on the communication required from the BMS to alarms, power control equipment (PEC), charging and cooling systems, they did raise a good point that providing an explanation on the different types of lithium batteries would be useful.

An internal BMS with no external communication on a single battery may be considered suitable for the shore (RV) market. However, it starts to get interesting once you start to investigate multiple battery installations. With an internal BMS and no hard wire comms, monitoring can be by Bluetooth connection and is to one battery at a time only.

This then requires the operator / owner to select which battery to monitor. Plus, there have been reports involving Bluetooth conductivity with multiple batteries to the operator's / owner's mobile app and these have been known to have erratic conductivity connection to the monitoring device for multiple battery installations.

Control measures for safety are critical for all battery systems. Lithium is not alone; for example, gel-type batteries

can only be charged at a max of 14.1Vdc, with a typical alternator charging between 12.6 to 14.5Vdc. Charging at a higher voltage can overcharge the gel battery, causing damage and leading to increased risk.

The point raised in the contributor's comment regarding lithium iron phosphate (LiFePO4) being the safest of the lithium family of battery types I would agree with. But to say there is no risk of thermal runaway is misleading, as all



Figure 1: Highlights of Cell 2 testing



Figure 2: Post-test photos.

lithium batteries can have thermal runaway, with lithium LiFePO4 batteries being at the lower end of the risk scale.

To highlight this point, the photos are of a lithium LiFePO4 battery being tested for thermal runaway for Class Society – Type Approval Certification.

While there was no evidence of flame being caused at the battery during testing, it was witnessed that high temperatures had been reached. I further referred to a paper published (Fei Gao et al 2021)¹ on “The Study on Temperature Change of LiFePO4 Battery Thermal Runaway under Overcharge Condition”.

The study involved the testing of different amp-hour battery types during a thermal runaway event. It was noted that temperatures of 313 to 514 degrees Centigrade had been attained.

When you take in the effects of the radiant and conventional heat being generated, the ignition of flammable materials is a real possibility if not installed with structural fire / heat protection. Additionally, the gases produced during one of these events are known to be flammable and toxic.

The main point I was trying to relay and explain from my own research on the risks (high and low) of lithium batteries is that there are four points that the Industry should take into consideration when designing and installing any type of battery (stored energy device).

The importance of following AS/NZS Standards and don't look for a workaround.

Electrical installation designed to meet the relevant AS/NZS Standards.

¹ Fei Gao et al 2021 IOP Conf. Ser.: Earth Environ. Sci. 631 012114

Link: <https://iopscience.iop.org/article/10.1088/1755-1315/631/1/012114>

Understand the risks involved with all energy storage batteries (accumulators).

Ensure that the supplier understands these three above points.

I remind all that AS/NZS are minimum standards and a guide to ensure that the battery installation risk to people, environment and property is always to be “as low as reasonably possible” (ALRP).

This part of reducing risk is legislated within each of the Australian jurisdiction's Electrical Safety Acts. This is highlighted and, to paraphrase the requirements, ensuring electrical safety all relevant matters are to be taken into consideration:

- the likelihood of a hazard or risk;
- the degree of harm;
- the designer / installer knows, or ought reasonably to know, about;
- the hazard or the risk; and
- ways of eliminating or minimising the risk;
- the cost associated with eliminating or minimising

the risk and is the cost disproportionate to the risk.

Lastly, in the video I posted, I was attempting to make the point to highlight the difference between onshore and offshore battery installation, in that, if it all goes wrong (and you should always plan for this), you need to escape a life-threatening event.

In a car, the option is to pull over to the side of the road, to escape and watch the caravan go up in flames. Being offshore, the risks are greater, and your last option will be to get into the water. This is the last place you would want to be in for survival.

As an ex-seafarer, the adage was “Never step down to lifesaving appliances! Always step-up to them!”

You can see the YouTube video channel, SET Maritime & Electrical at: <https://youtube.com/yqprDLfYZ4k?si=ws5FLTz4Ih2bRqI>

Mark Smith
SET Maritime & Electrical
AIMS Member



Figure 3: Typical internal arrangement for a lithium battery (courtesy of Sunbeam Systems).

Composite and synthetic standing rigging for yachts

THIS is part one of a series of articles on both composite and synthetic rigging but will focus more on synthetic rope rigging, which is emerging as the area where marine surveyors can expand their service offerings and add additional value.

Standing rigging comprises the fixed lines, wires or rods that support each mast or bowsprit on a sailing vessel and reinforce those spars against wind loads transferred from the sails. This term is used in contrast to running rigging, which represents the moveable elements of rigging, which adjust the position and shape of the sails.

Standing rigging components on a sailing boat are the tension-only members, that carry only tension loads and typically remain in constant position while the vessel is under way.

“The primary function of a rigging system is to transfer tensile forces between several points in space to prevent excessive deformation between those. As a result, continuous fibres are generally placed next to each other in mainly longitudinal orientation.” – A. Winistoerfer

The rigging of sailing vessels, particularly standing rigging, has always evolved to take advantage of the best materials available at the time. Most recently, man-made fibres have revolutionised yacht rigging.

Man-made fibres are used in two forms to replace metal rigging:

- ❑ composite rigging, which replaces metal (rod, oval and aerofoil) shaped rigging; and
- ❑ synthetic rigging in fibre or

rope form, which replaces metal wire rope rigging.

“Composite and synthetic rigging is disruptive technology that in time will replace stainless steel rod and wire-rope rigging.”

1. Composite rigging

A composite material is a combination of two materials with different physical and chemical properties. When they are combined, they create a material which is specialised to do a certain job, for instance to become stronger, lighter or resistant to electricity. They can also improve strength and stiffness.

The reason for their use over traditional materials is that they improve the properties of their base materials and are applicable in many situations.

Composite rigging is the replacement for metal (stainless steel or Nitronic 50®) rod or airfoil shaped rigging. It is fabricated using high performance fibres, including carbon fibre and Kevlar set in an epoxy resin matrix using:

- ❑ fibre winding; and
- ❑ pultrusion.

Composite rigging is a single unit, or bundle of pultrusions or

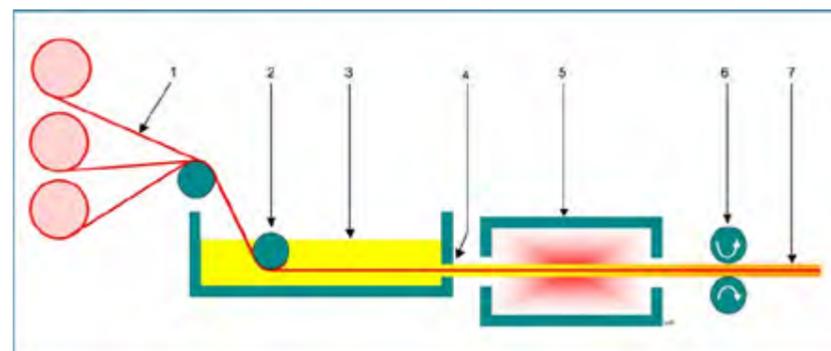


Figure 1: Pultrusion process. (Diagram by Laurens van Lieshout, March 2007, in public domain.)

resin-infused fibres enclosed in a cover (sheath).

2. Fibre winding

- ❑ Singular carbon fibre thread is wound continuously around two horizontal spindles set apart at the length of the rigging element.
- ❑ Technora fibre is hoop-wound around the cable diameter to compress and protect the cable's carbon fibres.
- ❑ Proprietary UV stabilised and flexible resin is applied to seal the cable.
- ❑ Electrical current is applied to complete the curing process.

Examples are the carbon fibre rigging offerings from Light Speed.

Pultrusion is a continuous process for manufacture of fibre-reinforced plastics with constant cross-section. As opposed to extrusion, which pushes the material, pultrusion pulls continuous carbon fibres, combined with a resin matrix, through a heated steel forming die. This type of construction offers a high stiffness to weight ratio rod or airfoil shaped form with incredible linear strength, due to the orientation and straightness of the carbon fibres, and accurate tolerances.

The typical pultrusion process

is detailed in Figure 1/ Steps in the process include:

1. continuous supply of reinforced carbon fibres;
2. tension roller;
3. resin impregnator;
4. resin-impregnated fibre;
5. die and heat source;
6. pull mechanism; and
7. finished hardened fibre reinforced form.

Examples include the carbon fibre rigging offerings from Future Fibres:

- ❑ The patented multi-strand technology utilizing bundles of separate pultruded carbon rods:
 - ECsix™
 - ECthree™
- ❑ Solid Carbon Rigging
 - RAZR™

3. Synthetic Rigging

Synthetic rigging is continuous fibres sheathed or fibres platted to form a rope. These are not composite forms, as only raw fibres (with no resin binder) are used.

The progression from natural fibre ropes (hemp and cotton) through steel wire and rod rigging has now led to man-made

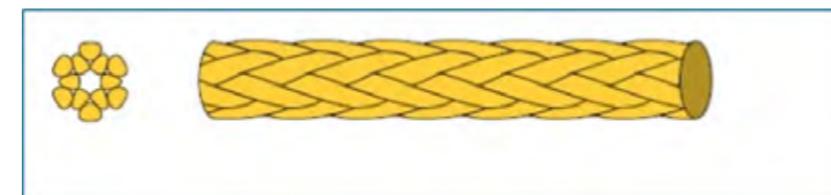


Figure 2: 12-strand braided rope construction. (Diagram adapted from Rui Pedro Faria [Lankhorst Euronete].)



fibres in rope or composite form being used for rigging.

“Wire rope will be a 150-year anomaly in the history of sailing boat rigging.” – Brion Toss

“Wire rigging is, after all, the attempt of a previous generation to do with wire what they had previously done with rope. A couple of hundred years later, we are just running things the other way.” – Brion Toss

In rope form, typically, a 12-strand braided construction is used. The same construction is used for both standing and running rigging but different fibre grades / variants may be used, based on specific requirement of standing and running rigging. (For example, standing rigging requires fibre grade / variant with lowest creep.)

Twelve-strand braided rope:

- ❑ is constructed from two groups of six separate twisted strands that go in different directions;
- ❑ is a hollow braid, as there is an empty space in the middle, making it easy to splice and inspect for damage;
- ❑ is a light, flexible and easy-to-handle rope, with a round and smooth surface, which makes it resistant to abrasion; and
- ❑ is based on its construction a non-rotating torque balanced



Figure 3: 12-strand braided Dyneema rope of a 12-strand braided construction. (Image: Nick Parkyn.)

rope, which can be used in either static or dynamic rope applications.

Synthetic rigging (man-made fibres) was first introduced in the late 1980s, with wider adoption and usage from around 2002.

The naval architecture of super-yachts does not stack up unless a lightweight mast and synthetic rigging is used (Figures 3 & 4). The use of composite / synthetic rigging can result in weight reduction aloft of 65 per cent to 70 per cent over standard steel rigging.

“Carbon composites are virtually indispensable in high-performance racing yachts and



Figure 4: The 192.26ft (58.6m) LOA superyacht “Seahawk”. (Image: Nick Parkyn.)

the so-called superyachts, which are, as they say, ‘too big to fail’. Superyachts have gotten so big that the naval architecture doesn’t work out unless a lightweight mast / rigging package is specified,” he explains.

The key to tall-masted yacht stability is concentrating weight low in the water. “Most of these boats, today, actually must have some sort of composite standing rigging, rather than steel, to maintain the centre of gravity.” – Tony Reaper, Sales Manager, Composite Rigging

4. Fibres

Many new types of synthetic fibres have been discovered in recent years. Typically, they are initially used in aerospace applications and later become available for other application where high performance is required. Most of the high-performance fibres are characterised by impressive tensile properties, which, apart from carbon fibre, significantly exceed their compressive strength.

With yacht rigs, the mast, spreaders and struts are the only

components taking compressive force, and the shrouds (stays) operate as tension-only structural members. Consequently, the impressive tensile properties of modern fibres make them ideal for standing rigging.

Currently available fibres used for synthetic rigging include:

- ❑ PBO (Zylon).
- ❑ Carbon Fiber.
- ❑ Aramid.
- ❑ HMPE.

PBO (Zylon)

PBO (short for polybenzoxazole) is a trade-marked name for a range of thermoset liquid-crystalline polyoxazole. This synthetic polymer material was invented and developed by SRI International in the 1980s and is manufactured by the Toyobo Corporation. In generic usage, the fiber is referred to as PBO.

Carbon fibre

Carbon fibres are long, parallel chains of carbon atoms that are formed by stretching and heating certain forms of organic filaments. Carbon fibre laminates have fatigue limits far in excess

of steel and excellent vibration damping characteristics but have poor impact strength.

Carbon fibre is a commonly used high performance fibre extensively employed in the marine industry for high performance structures including hulls, masts and rigging. Carbon fibre is typically classified as high, intermediate and standard modulus with related performance and cost.

Aramid

A para-aramid synthetic fibre with the trade name Kevlar was developed at DuPont in 1965 and first used commercially in the early 1970s. A similar fibre to Kevlar, called Twaron, with roughly the same chemical structure, was developed by Akzo in the 1970s, with commercial production started in 1986. Twaron is now manufactured by Teijin.

HMPE

Spectra fibres were first introduced into the marketplace in 1985, after a decade of intensive research, engineering and development by the Allied Fibres division of Allied Signal Technologies.

Spun from a solution of ultra high molecular weight polyethylene (UHMWPE), HMPE fibres combine a very high degree of molecular orientation with a very low density, which results in fibres with unique and quite extraordinary performance profile. Even among the so-called high-performance fibers, the unique physical properties of HMPE place it in a class of its own.

It is marketed under the trade names of Spectra and Dyneema. The most common HMPE is that sold under the Dyneema™ trade name.

5. Some materials science

5.1 Conventional stretch

This is elastic extension under normal loading. The rope is experiencing what is known as viscoelastic extension:

- ❑ this extension is immediately recoverable upon release of the load;
- ❑ the extent of this stretch is based on the modulus of elasticity of the material; and
- ❑ this stretch is not tolerable in standing rigging applications, and we need to limit this to the same amount of stretch we would have in our wire rope rigging.
- ❑ evolution in synthetic rigging has resulted in significant reduction in stretch characteristics. However, the size for synthetic standing rigging is not chosen by the equivalent strength but by equivalent stiffness (stretch sizing).

Constructional stretch

Constructional stretch, or “bedding in”, is the result of individual fibre components in the rope and splice settling in to their preferred position when under load and is permanent. Construction stretch is related only to synthetic rope rigging of braided (not parallel strand) construction and is typically removed at the time of construction.

5.2. Creep

The stress-strain curves show an ideal relationship, where small stresses result in elastic deformations that return to normal. In materials science, creep (sometimes called cold flow) is the tendency of a solid material to move slowly or deform permanently under the influence of mechanical stresses. Creep typically occurs as the result of long-term exposure to stress that is well below the yield strength of the material. Polymers typically experience significant creep and

show creep at typical workloads but carbon fibre does not.

5.3. Expansion

Unlike metals, the fibres used for synthetic rigging typically exhibit thermal expansion that is inversely proportional to temperature. As the temperature increases, the fibres shrink (grow shorter); they exhibit negative expansion.

When using a carbon fibre mast with composite rigging, the mast and composite rigging will, when subjected to thermal expansion both exhibit the same tendency (to become shorter), consequently rig tension will remain the similar. As indicated, metals exhibit thermal expansion that is proportional to temperature and increase in length (grow longer); they exhibit positive expansion.

When using synthetic rigging on an aluminium mast, the tension of the rigging will increase with increasing temperature as the mast length increases with increasing temperature and the rigging shrinks with increasing temperature.

Colligo Marine, who have rigged more than 2,000 yachts with Dynice Dux (HMPE) synthetic rope rigging, have not yet seen – and do not expect any – over-tensioning issues related to thermal expansion.

Different approaches are used to create synthetic rigging solutions.

For composite rigging:

- ❑ fibre bundled rod rigging – using thin pultruded rods, bundled together to achieve target strength; and
- ❑ fibre solid rod rigging – the rigging elements are formed as a solid rod-like traditional rod rigging, not bundled.

For synthetic continuous fibre and rope rigging:

- ❑ continuous rigging – using continuous fibres, the vertical and diagonal shroud elements are fused to form a single, homogeneous piece of rigging. In continuous rigging, the structural tensile elements are continuous from their attachment point at a diagonal tang on the mast down to the deck. This means that each diagonal fibre runs from its tang over any number of spreaders to the bottom. A significant benefit of this arrangement is the low-profile spreader tips, requiring essentially no additional hardware and therefore the lightest and lowest drag solution possible.
- ❑ endless winding of single elements – using a process that involves continuous winding of fibres around two thimbles until the target cable strength or required cable stretch has been reached.

Separate element rope rigging:

- ❑ fibres in parallel strand form encased in a protective polymeric sheath (e.g. Colligo Marine Para-D). The use of parallel strands avoids constructional stretch which occurs in braided forms;
- ❑ fibres in a rope form, typically 12-strand braided construction; and
- ❑ rope rigging is separate terminated rigging elements, as was typical with the stainless-steel wire rope rigging it replaces.

5.4. Terminations

Different types of termination are used for the different solutions:

- ❑ with continuous rigging and endless winding, fibres are wound around terminals as part of the manufacturing process (see figure 6);
- ❑ with fibre rod rigging, the fibre bundle is typically bonded into terminal fittings;
- ❑ with parallel fibre type, special terminals are used (see figure 7); and

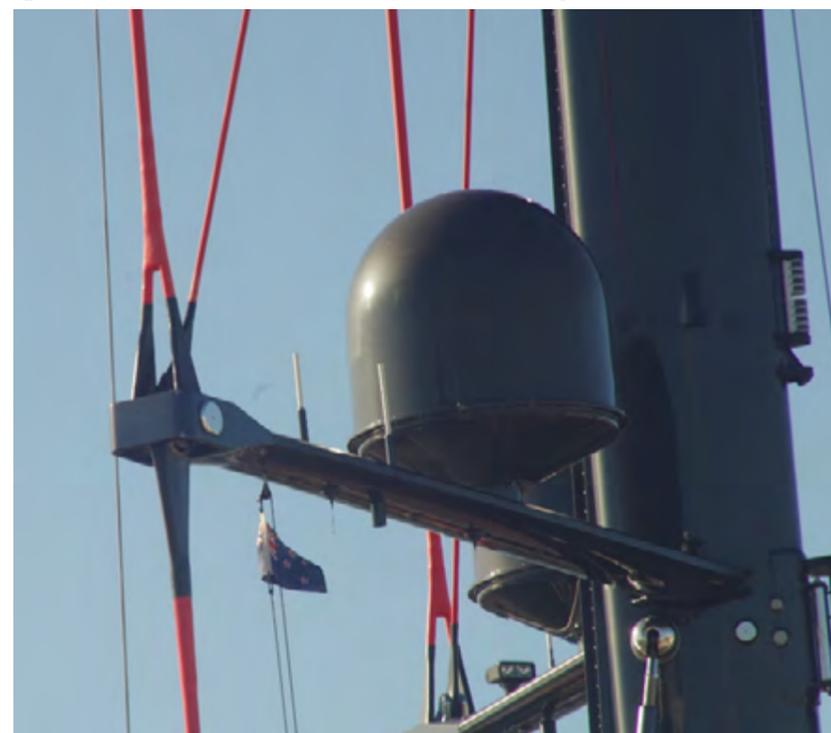


Figure 5: Seahawk carbon fibre masts and rigging. (Image: Nick Parkyn.)



Figure 6: Factory sheathed and terminated parallel aramid rigging. (Picture courtesy of Aramid Rigging.)



Figure 7: Termination fittings. (Image: Nick Parkyn.)



Figure 8: Specialised thimble used for spliced termination on stranded HPME rope rigging. (Standard Terminator™ – Pictures courtesy Colligo Marine.)

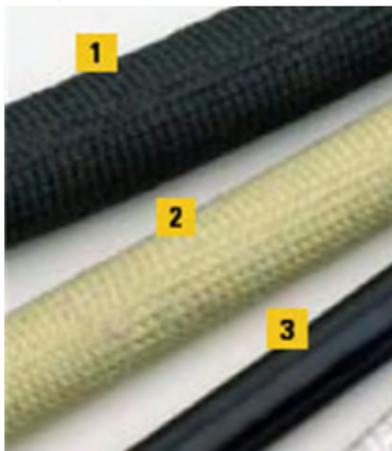


Figure 9: Sheathed Aramid rigging. (Picture courtesy of AramidRigging.)
1. Aramid black braid with a special coating
2. Aramid pure (yellow) braid with a resin coating
3. A sturdy black PE cover

□ with braided rope form is spliced using a locked Brummel splice around special thimbles (see figure 8).

5.5. Sheathing

Except for solid carbon fibre and HPME fibre-stranded rope rigging, the fibres are typically packaged in some form of sheathing to protect the product from physical damage and exposure to the elements, particularly moisture and UV light. (See figure 9).

5.6. Rope rigging

Rope rigging made from HPME fibres is not adversely affected by moisture and only degrades slowly when exposed to UV light, so it is typically not sheathed but may be surface-treated to provide protection and abrasion resistance. For example, HMPE Dynice Dux is impregnated with Durapur for abrasion resistance. Durapur gives the rope a smooth and slippery surface. Sheathing on synthetic rope rigging increases the diameter, which relates to increased aerodynamic drag.

Solid carbon fibre rigging is not affected by moisture and UV light, as the resin matrix holding the fibre bundled will not degrade when exposed to UV light.

Initial performance of a standing rigging system primarily depends on:

- fibre used in the system;
- packaging density and degree of orientation;
- properties of such fibres;
- durability of the chosen fibre's fatigue life; and
- choice of continuous or non-continuous rigging system.

Spectra® / Dyneema® fibre rope is the most used and most suitable synthetic rope rigging for both standing and running rigging on yachts. Spectra® and Dyneema® are UHMPE fibres (Ultra High Modulus Polyethylene, also known as UHMWPE or

Ultra High Molecular Weight Polyethylene) and is available in several different grades, which all have excellent fatigue resistance (cyclic bending), and UV and abrasion resistance.

Since standing rigging components on a sailing boat are the tension-only members, that carry only tension loads, the fibres of most interest are those with exceptional tensile properties and low creep.

Fibres with impressive tensile strength and lower compressive strength (including Kevlar and Dyneema / Spectra), have limited use in hull structures and spars where good compressive strength is also important. They are, however, the fibres of choice for rigging elements, which are tension-only members and where tensile strength is the required property and compressive strength is of no significance.

Carbon fibre is the exception, as it has similar impressive tensile and compressive strength, however it is only the tensile properties that are fully utilized for yacht rigging.

5.7. Usage and maintenance

Composite rigging – like the stainless-steel rod, aerofoil and oval rigging it replaces – is used for niche applications on racing yachts and super-yachts. Composite rigging is typically maintained and serviced by the manufacturer, typically under a service contract with clearly defined service intervals and schedules.

Consequently, the marine surveyor can offer little value-add with respect to composite rigging, except to ensure that there is proof that the rigging of the vessel being surveyed had been maintained in strict accordance with the manufacturer's maintenance requirements (or enlisting the services of a rigger certified to inspect the rigging system fitted to the craft being surveyed).

With synthetic fibre rigging, most rigging systems have manufacture-defined service intervals and checks which are specific to the manufacturer and type. This rigging must be inspected by a rigger who is approved to inspect it.

With synthetic rope rigging, there are additional services that can be provided by the marine surveyor, as this rigging is easily inspectable in service. Detailed surveying is prudent, as some forms of synthetic rope rigging can and will be done by yacht owners as DIY projects.

Composite / synthetic rigging is gaining acceptance and widespread use on sailing craft of all forms, from monohull to multihull, racer and cruiser. Typical usage is indicated in Table 1.

HMPE is the type of synthetic rigging that marine surveyors will typically find on modern cruiser / cruiser-racer yachts, particularly those under 45ft (13.7m) in length. HMPE standing rigging terminations, unlike those on stainless wire rope rigging and rod rigging, can be fully inspected by the marine surveyor. This allows marine

surveyors to provide additional rig-related services for HMPE (Dyneema) rigging.

Further articles in this series will enable a good understanding of HMPE rigging and its inspection.

Resources

- The IIMS Marine Surveying Reference Guidebook “What a marine surveyor needs to know about synthetic (composite) yacht rigging” – <https://www.iims.org.uk/product/what-a-marine-surveyor-needs-to-know-about-synthetic-yacht-rigging/>
- Carbon Fiber Rigging, Yesterday, Today and the lessons learned along the way - A. Winistoerfer, Carbo-Link AG, Switzerland.
- Yachtbuilding Composites: Rigged for Success - Donna Dawson, Posted on: 3/2/2015, source: CompositesWorld.
- Future Fibres website <https://www.futurefibres.com/yacht-rigging/ecsix/> accessed 11/4/2024.
- Colligo Marine <https://www.colligomarine.com/>
- Lightspeed <https://lightspeedrigging.com/>

Trademarks

- ECsix is a trademark of Future Fibres <http://www.futurefibres.com/>
- ECthree is a trademark of Future Fibres <http://www.futurefibres.com/>
- RAZR is a trademark of Future Fibres <http://www.futurefibres.com/>
- Dyneema™ tradename which is a trademark of Royal DSM N.V. <https://www.dsm.com/dyneema>
- Spectra™ is a tradename of Allied Signal Inc USA now Honeywell International Inc.
- Dynice Dux is a trademark of Hampidjan.
- Standard Terminator™ is a trademark of Colligo Marine
- AramidRigging: <https://smartrigging.com>
- Nitronic 50® is a trademark of AK Steel.

Nick Parkyn
Marine Surveyor / Director
Nick Parkyn Consulting & Design Pty Ltd

Type of Rigging	Usage				
	Racer	Racer/Cruiser	Cruiser/Racer	Cruiser	Dinghy / Small Multi-hull
Synthetic (PBO)	✓	✓			✓ Possible
Composite (Carbon Fiber)	✓ (high/intermediate modulus)	✓ (Intermediate modulus / less than 60ft LOA standard modulus)			✓ For Racing e.g. Moth
Synthetic (Aramid)	✓	✓	✓		
Synthetic (HMPE)	✓	✓	✓	✓	✓

Table 1. Typical usage

Germany awards funding for Cargill-chartered all-electric, wind-assisted ships

This article was originally published by Offshore Energy in November 2023 regarding all-electric, wind-assisted vessels.

THE German Government has awarded a subsidy for fully electric, wind-assisted Damen Combi Freighter (CF) 3850 vessels being built for German joint venture Gerdes Green, which will be chartered by Swiss freight trader Cargill.

The subsidy, as part of the German Government's Namkü directive, was presented to Gerdes Green by Minister Volker Wissing at an event held at the Ministry of Digital Affairs and Transport. The directive aims at the modernisation of vessels in a bid to reduce emissions produced by the country's coastal fleet.

As a result of the subsidy award, Gerdes Green will invest in a number of options that will serve to further increase the efficiency of new CF 3850 vessels. This involves the inclusion of a battery-driven propulsion system.

With this, the vessels will be able to sail short-term fully electrically without local emissions, for instance when approaching ports and when passing through populated areas, thereby ensuring clean air, according to Damen.

The vessels will also feature wind-assisted propulsion in the form of foldable ventofails from Econowind. This innovative wing-shaped device harnesses the wind to provide additional propulsion force, lowering dependence on the engine, and thereby reducing emissions.

Furthermore, the ships will also be able to sail on B100 biodiesel, to reduce CO2 emissions. They will include a 130kW shore connection to eliminate

emissions when the vessels are docked.

"With this funding, we have achieved a significant milestone for our strategy to build a climate-neutral fleet," Gerdes Green Managing Partner Nicole Gerdes said. "The ships will make a valuable contribution towards our journey of reducing the environmental impact of supply chains, leading the way for decarbonising the short sea shipping trade in Europe."

"In this way, the first two climate-effective ships in our fleet can contribute to climate-efficient supply chains," Gerdes Green Managing Partner Dennis Clavier added.

"We're delighted to see Gerdes Green awarded with this subsidy to help further the efficiency of their vessels. This serves as confirmation that the steps we have taken together with Gerdes Green and with Cargill are relevant and will help support the maritime energy transition,"

Commercial Director of Damen Cargo Vessels Remko Bouma said.

This hybrid version has been developed in collaboration with Gerdes Green and Cargill. Gerdes Green is a joint venture between Reederei Gerdes and Over-C.

Reederei Gerdes has been active in the coaster segment for 30 years and has, for the last few years, been operating seven CF 3850 vessels from Damen.

The company partnered with the European coaster specialist and charter company Over-C to develop a fleet of low emissions, sustainable vessels.

Note: The author of this article is Fatima Bahtić, writing for Offshore Energy, and the original article can be sourced here: <https://www.offshore-energy.biz/germany-awards-funding-for-cargill-chartered-all-electric-wind-assisted-ships/>



A Gerdes Green wind-assisted vessel.

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- ✓ Plan your budget with better predictability

 Silver PACKAGE \$700 <small>(excl. GST)</small> UP to 2 Legal Hours per month	 Gold PACKAGE \$900 <small>(excl. GST)</small> UP to 3 Legal Hours per month	 Bronze PACKAGE \$300 <small>(excl. GST)</small> UP to 1 Legal Hour per month
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OR SCAN TO BOOK YOUR SUBSCRIPTION

Are sail-assisted ships an option or just a lot of hot air?

This very interesting article was originally drafted by Peter van Duyn in the March 2024 edition of the International Cargo Handling Co-ordination Association (ICHCA) Daily Cargo News.

SAILING ships have, for centuries, facilitated trade and allowed explorers to conquer new continents. With the drive to minimise GHG emissions from ships, there is renewed interest in the development of sail-assisted and sail-only ships. There has been much discussion about decarbonising shipping, especially now that the industry and the International Maritime Organization (IMO) seem to have accepted 2050 as the deadline for reaching zero emissions. (Previously, the IMO had set 2050 as a target for a 50 per cent reduction in GHG emissions only.)

In the past, sails have been retrofitted to bulk carriers and tankers but Hapag Lloyd recently showed a concept for a new wind-assisted containership. But will this fly?

In principle, sail-assisted ships are a good idea and will assist in a small reduction of GHG emissions. However, there are several challenges that need to be addressed. Sail-assisted ships, or even sail-only ships, with an additional power plant, like

the custom-built Canopee, are proposed or already in service.

The Canopee carries rocket parts from Europe to French Guiana and has four 30-metre-high sails. Japanese shipping company K-Line has such faith in sail-assisted shipping that it has purchased the company, Airseas of France, which is developing the kite sail technology. K-Line has been working with Airseas since 2019 and had previously placed orders for demonstration units as part of a possible deal to install the kite-sized sails on the bow of its bulk carriers to provide wind-assisted propulsion.

One major problem with sail-assisted and sail-only ships is that they rely heavily on suitable weather patterns. For example, the sailing ships owned by Dutch company Fairtransport – <https://fairtransport.eu/> – sail mainly between Europe and North and Central America, and rely heavily on the prevailing trade winds. Furthermore, just-in-time supply chains might have to allow for more flexibility as ships' expected time of arrival could vary widely depending on weather conditions encountered at sea.

Another challenge is how to manage the sails when these types of ships are in port. The Hapag-Lloyd 4,500 TEU container ship concept shows the sails clear of the containers on deck, obviously to maximise the wind effect. However, when in port, ship to shore cranes, used to discharge and load the containers, might damage these structures even when folded away. To a lesser extent, but still prone to damage, are the large sails and the large wind-powered vertical rotors that we sometimes see installed on bulk carriers and tankers to assist with their conventional propulsion.

Having sails on a large ship could also cause confusion when applying the International Regulations for Preventing Collisions at Sea which state: a power-driven vessel shall keep out of the way of a sailing vessel when under sail (Rule 18). A sailing vessel using its motor is considered to be a power-driven vessel even though sails may be hoisted. In this situation, the vessel should exhibit a conical shape forward where it can be best seen, indicating that it is "motor sailing" (Rule 25). Normal rules

of engagement between power-driven vessels apply in this case.

The China State Shipbuilding Corporation recently developed the concept of a large 24,000 TEU containership powered by a nuclear power source known as Molten Salt Reactors, which generate steam for its turbines.

Currently, about 160 ships are powered by nuclear reactors, mostly naval ships and submarines. Nuclear ships can go years without refuelling, have zero emissions and need only little space for bunkers, which allows more space for cargo. However, nuclear-powered ships might present their own problems such as not being allowed to berth at certain ports. People might not worry about the occasional nuclear-powered warship being berthed in their port but having 20, 30 or more commercial ships, some flying dubious Flags of Convenience, simultaneously berthed in their port might be a bridge too far.

To reach zero emissions from shipping by 2050, my money would be on ships powered by zero emissions fuels such as methanol (Maersk has just launched its first 16,000 TEU methanol-powered container ship), ammonia and hydrogen, as well as battery-powered ships for shorter distances. Sail-assisted and sail-only ships will only contribute a very small amount to reducing GHG emissions, and might not be suitable for today's just-in-time supply chains.

So, I don't expect to see ships with their majestic white sails appearing on the horizon at Australian ports anytime soon, not like the windjammer days in the 19th and early 20th century.

Peter van Duyn
Master Mariner
Company Secretary of ICHCA
Australia Ltd
This article first appeared in the
Daily Cargo News.

AIMS-BIA joint media release

ON Tuesday, 9 April 2024, the Boating Industry Association Ltd (BIA) and the Australasian Institute of Marine Surveyors (AIMS) partnered in a joint media release to focus on vessel safety. It is a win for recreational vessel owners and, more importantly, it is a win for the safety of recreational vessel owners.

Below is the text of the media release.

BIA Joins Forces with Marine Surveyors

The BIA has teamed up with the AIMS to support and educate the industry and public for safer outcomes of new and used vessels.

BIA CEO Andrew Scott said the partnership would help improve awareness of, and access to, trusted marine surveyors to support the recreational boating and light commercial vessel sectors.

"BIA is committed to the promotion of safe, responsible and enjoyable boating," Scott said.

"A great day on the water includes public confidence in boats that are being bought and sold.

"There are more than 900,000 registered boats in Australia and while not everyone needs a marine surveyor when buying and selling used boats; there are times when it is a good idea. It is, for example, recommended for people considering buying the larger recreational vessels such as those kept in the water on berths or moorings to consider the services of a surveyor.

"A trusted surveyor, such as those who are a member of AIMS and abide by the AIMS Code of Conduct, can help give buyers



peace of mind that they have made the correct decision."

AIMS is the peak industry body for Marine Surveyors in Australasia and the largest marine surveyor association in the Southern Hemisphere. AIMS has members in all States and Territories of Australia as well as New Zealand, and the Asia Pacific regions.

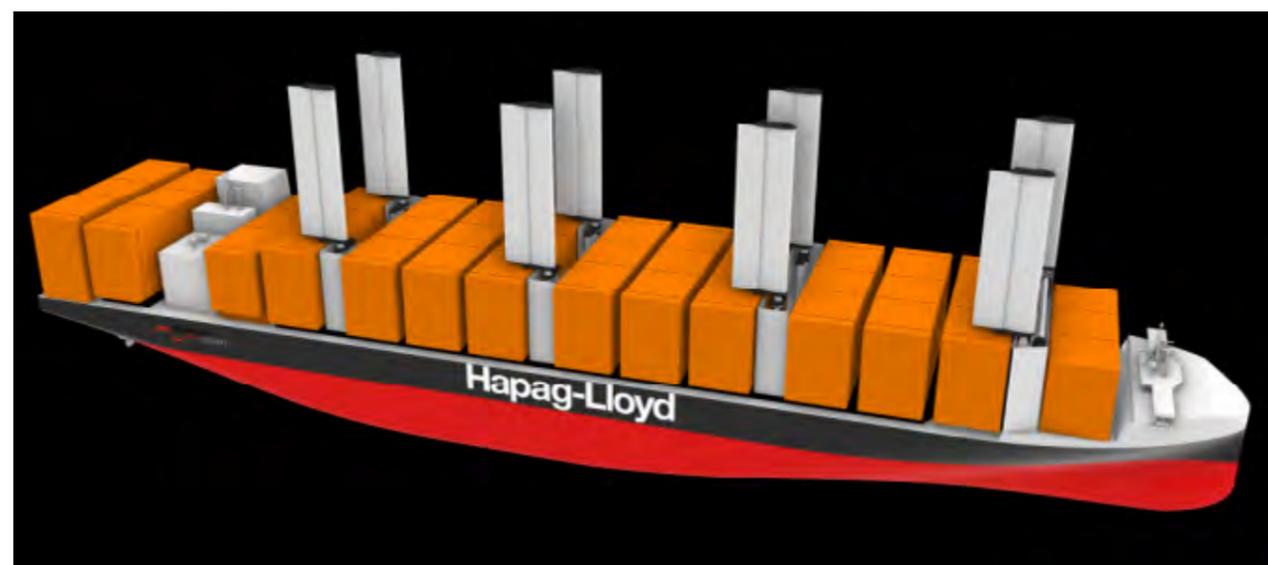
The partnership between BIA and AIMS is a win for recreational vessel owners across Australia. At the heart of the work that marine surveyors undertake is vessel safety.

AIMS CEO Eric Perez said: "Marine surveyors perform surveys of recreational vessels on behalf of owners, insurers or potential purchasers with the purpose of assessing the condition or value of vessels.

"AIMS supports the need for safe and responsible boating ensuring vessel safety by engaging an AIMS marine surveyor."

Scott said the partnership was timely as it would assist BIA in its work with maritime regulators across Australia and New Zealand in development of a national Responsible Boat Owner campaign for the coming season. This campaign will have a strong focus on safe vessels.

Dr Eric Perez
Chief Executive Officer
Andrew Scott
CEO
Boating Industry Association
Ltd



A concept of the proposed container ship by Hapag Lloyd

Master Mariner laid to rest: Edmund Carr, 1933 - 2024

BORN Edmund Clinton Carr on 25 June 1933 in London, UK, Eddie trained at the School of Navigation, Warsash (now part of the University of Southampton), gaining an apprenticeship with P&O Steam Navigation between 1951-54, after which he was appointed Deck Officer with the New Zealand Shipping Company and rising to the rank of Chief Officer on refrigerated cargo and passenger vessels by 1962.

He had by this time acquired the Master Class One Certificate of Competency issued in 1960. He met and married Helen, which played a part in his decision to settle in Australia.

He was appointed Stevedore Supervisor with the Adelaide Stevedore Co, Port Adelaide, SA, supervising the loading and unloading of general and refrigerated cargo vessels and passenger liners and the loading of bulk grains at South Australian ports.

His professional qualifications included Associate of Australasian Institute of Chartered Loss Adjusters, Associate of Australian Insurance Institute, and the Institute of International Cargo Lessors, Marine Cargo Container Inspector's Certificate -IICL.

As State Manager of Cargo Superintendents Co between 1968-77, he was responsible for inspection and the quality verification of various commodities and the undertaking of general marine surveys for various Insurance companies, including P&I Clubs, Ship Owners and Marine Claims Settling agents.

Between 1977-80, he joined JM Taylor & Associates, marine surveyors in Port Adelaide,



carrying out surveys for various shipping bodies, ship owners and international ship classification societies.

In 1980, he became proprietor of the company, changing the company name to EJC Carr & Associates and running the company until his retirement from fulltime employment in July 1999, though he continued as a casual part-time surveyor.

He held various appointments in his working life, including Principal Representative for International Cargo Gear Bureau of New York, USA, Nautical Inspector to Bahamas Marine Authority and Barbados Ships Registry, and served as a Non-exclusive Class Surveyor to:

Nippon Kaiji Kyokai, Japan; Germanischer Lloyd, Hamburg; Registro Italiano Navale, Italy; Bureau Veritas, France; and Korean Register of Shipping.

He was credited by the Australian Quarantine and Inspection Service (AQIS) – now part of the Department of Agriculture, Fisheries and Forestry – as Marine Surveyor to undertake pre-loading inspection of the vessel cargo holds for the carriage of bulk grain.

He was also a member of various organisations, namely the Australian Institute of Navigation, Maritime Law Association of Australia and New Zealand, Member of the Company of Master Mariners Australia, including serving as Branch Master SA, and a Fellow of the Australasian Institute of Marine Surveyors.

Eddie devoted a lot of his time to the Port Adelaide Rotary Club, including a term as President, and was recognised by being made a Paul Harris Fellow. As an active member, he contributed to the efforts of the State's Meals on Wheels.

His interest in art energised him to help with running the Art Show in Port Adelaide for many years, which not only promoted many up and coming artists but raised valuable funds for the work of Rotary.

He also gave a lot of his time to his parish and was very involved with its St Vincent de Paul efforts to assist the less fortunate.

His health began to deteriorate and, after a few years in care, he passed away in April 2024. Eddie is survived by his four children and seven grandchildren.

Managing your risks as an independent consultant

THE transition from an employee to an independent consultant can be an exciting one: new opportunities, independence and control over your working future. But it can also be a daunting one: new risks, signing contracts, personal accountability and personal liability.

A range of new questions arise:

- Can I be sued?
- Do I fully understand what I am signing?
- What happens if I get sick?
- Is my house safe?
- How can I protect myself?
- What about when I retire?

Insurance is one of the key pillars of risk management, allowing a consultant to transfer their risk away from a personal liability to their insurer. With this in mind, the primary value to the consultant is protection. Insurance is the one component of your business you always want to have but never want to use.

This becomes even more important in consulting practices, especially for sole traders or small businesses, where it is not just the business that needs protection but also the personal assets of the individual consultants.

In addition to your own protection, more and more frequently insurances are also becoming a commercial reality. In an increasingly litigious society, many businesses are quite staunch in their insurance requirements for all third parties they engage, and will not even allow you on their site without proof of insurance.

So, irrespective of your personal view of your risk profile, to be in business and to win contracts, there is an underlying

commercial reality that insurance is going to be a requisite item.

As a profession, however, it is prudent for all businesses to carry insurance.

To operate without insurance cover is to expose your clients to unnecessary risk which may deter them from using your services. As a consultant, your utilisation of appropriate insurance offers risk management and protection to your client as well. In the event of a claim arising, both you and your client would much prefer an insurer involved and able to settle a claim, than civil litigation that involves whether or not you have to sell your house to pay for the loss you allegedly incurred.

For a profession as a whole to carry insurance adds a level of accountability and credibility, to ensure the protection of the client or consumer, and this is why a range of consulting professionals (including some marine surveyors) actually have insurance as a compulsory part of their licensing regime.

What insurance?

Especially when starting a new business, keeping costs down is always important, so understanding the priority insurances to consider will assist in best allocating your expenditure.

Insurance for consultants come under two key areas:

- Third Party covers that are designed to indemnify someone else if you cause them to suffer a loss (eg design errors).
- First Party covers that are designed to indemnify you if you suffer a loss (eg, someone steals your laptop).

Third Party covers are often



Greg Hansen.

mandatory in consulting contracts and the products that are key to a consultant's business include:

- professional Indemnity – the key product; your advice is your core business and therefore your core risk; and
 - public liability – required to get on site, for accidental bodily injury or property damage.
- First Party covers usually are not large or complex, as consulting businesses are generally portable and asset-light, but some key areas for a consultant to be aware of as the most frequently required insurance products are:
- portable property – can include laptops and cameras, as well as surveying equipment;
 - corporate travel – both interstate and overseas, includes medical as well as luggage;
 - workers compensation – statutory product for injury to employees;
 - office insurance – if you do have a static location that you work from; and
 - income protection – consultants do not get sick leave so this becomes more important!

Signing contracts

Will your professional indemnity insurance offer cover when it counts? This can all boil down to what you sign. Insurance does not offer cover for any assumed or contractual liabilities where you may sign up to additional risks above and beyond common law provisions – and, to be fair to the insurance industry, that is not an unreasonable stance to take.

There are some key areas of risk to keep a look out for where businesses attempt to create one-sided contracts that pass off a disproportionate level of risk on to the consultant:

- ❑ any contract that assume “all” risk and “all” losses;
- ❑ waiving subrogation rights;
- ❑ waiving proportionate liability rights;
- ❑ hold harmless clauses;
- ❑ a failure to limit liability to the actions of the consultant;
- ❑ clauses requiring work to be completed to a “high” or the “best” standard; and
- ❑ warranty and guarantee clauses.

Not only are these contracts not fair and equitable between a consultant and their client, but they also create a significant commercial risk to the consultant. If a breach of contract is alleged above and beyond what your insurance may cover, the additional liability goes back to the consultant directly and will be coming out of their own pocket.

Things like hold harmless agreements, or waiving subrogation or proportionate liability rights, all prejudice your insurer, as they cannot pursue any contributory negligence, which will impact the extent to which your insurance policy is able to adequately protect you.

Consultants are often providing a part of a much larger contract, with many parties involved, so



the difference between you only being required to pay for your percentage of the loss versus being required to pay for the entire loss can easily be tenfold.

When reviewing a contract for potential conflicts with insurances, it is always also advisable that the consultant seeks independent legal advice as to the actual interpretation and application of the contract terms.

Sub-contracting and insurance

If you are being engaged on a sub-contract basis to work with your client jointly on a larger project, never assume you are being covered by their insurance. Their insurance will likely protect them for the work you are doing on their behalf but it may not extend to cover you personally.

The risk is not that you will be sued by the end client (as they will likely engage the principal contractor) but that the principal contractor’s insurer will bring you into a claim via a subrogation action where they believe you have contributed to the loss.

It is possible for insurances to extend to cover sub-contractors but, if your client offers this, always seek confirmation in writing. A common misconception is that if your client does not require you to have insurances this is because you are being protected by their

insurance – this is rarely the case, so beware!

Turning this scenario around, if you need to engage a sub-contractor to assist you on a large contract or contribute additional services outside of your area of expertise, always be aware of the risks associated.

Your contract with your client may require you to guarantee any sub-contractors you use have the same level of insurance as you, and to mitigate any risk to your business it is advisable that you seek evidence of your sub-contractor’s insurance policies just as you are required to evidence your own.

When a large loss arises, courts can often look to whoever has insurance in place to pay for a loss, so ensuring that your sub-contractors carry their own insurance is a critical component of your own risk management strategy, as you do not want to be left having to pay for the loss caused by someone else.

Retirement risks?

A common question is “Once I stop working, can all my insurances be cancelled?” The correct answer is that most policies can, but professional indemnity cannot.

Professional indemnity works on a “claims made” basis, which means you require active insurance at the time the claim

is made as opposed to when you gave the advice.

This differs from most other insurances which work on an “occurrence” basis and your insurance just needs to be active when an event occurs. As a result, in the situation that you cease consulting, whether through returning to employment, retiring or selling the business, consideration has to be given to the potential longevity of the risk attached to your advice.

Businesses are aware of this too though; they also know professional indemnity works on a claims-made basis and consulting agreements will not only say that professional indemnity is required but it will also stipulate a duration after the completion of the contract that cover must be maintained for. This duration is often between three and seven years (using statute of limitations as a

benchmark); however, durations as long as 10 years have been seen in client contracts.

This is a really important planning piece, especially if you are only intending on doing one or two short-term contracts as you might be signing up to a requirement to purchase a minimum of four years’ cover. If you are planning on costing insurance into your fees for the job, or if you are planning on ceasing consulting soon, be especially wary of these clauses and factor in added costs accordingly.

Thankfully, however, the insurance industry does handle these risks well. When no active advice is being given and cover is only required for past work, insurers will offer discounted coverage to reflect the decreasing risk and will also allow clients to purchase a single policy that runs for multiple years – an especially

helpful offering if you are selling your business, as you will have access to a cash flow to fund the multiple-year coverage.

Managing your risk

As a consultant, clients will engage you to offer them a specialist service they cannot do themselves. Insurance is no different. There are too many areas that can cause issues to consider arranging your own insurance as being effective risk management.

Austbrokers Countrywide is able to arrange your appropriate insurance policies that cover your business activities and explain why the insurance is appropriate. If you would like to obtain any advice on your individual needs, do not hesitate to contact us at info@abcountrywide.com.au.

Greg Hansen
Manager, Professional Risks
Austbrokers Countrywide



“The War on Wrecks” – MSQ’s strategy for dealing with derelict vessels in Queensland waters

SOME readers may be aware of the War on Wrecks initiative, which is an extraordinarily successful program managed by Maritime Safety Queensland (MSQ). The removal of derelict vessels is managed by a strict set of guidelines and internal policy, which allows delegated Marine Officers to identify and develop Compliance Action Plans (CAP) to facilitate removal.

Vessels may be removed by MSQ taking ownership or simply by identifying abandoned property and allowing a set period of time for a claim of ownership from the general public.

In the case of abandoned property, a Shipping Inspectors Seizure Notice pursuant to the Transport Operations (Marine Safety) Act 1994 (TOMSA), where s.175A is issued, and the public is given 28 days to claim the property. In the event of no claim, the CAP is initiated, and subsequent removal and disposal activities commence, based on pre-approved tender submissions from local marine salvors.

In 2018, the Queensland Government committed \$20 million over four years towards removing derelict and illegally dumped vessels from Queensland waters.

A further \$15 million has been allocated to continue work of the War on Wrecks for an additional three years up to 30 June 2025.

To date, the most common vessels removed under the War on Wrecks program:

- stored on water (at anchor or on moorings);
- generally non-aluminium (steel, fibre composite, ferro and timber); and

- greater than 7.5 metres and 25+ years old.

As at February 2024:

- 1,349 fewer derelict vessels in Queensland waterways as a result of the War on Wrecks program;
- 795 derelict vessels have been removed by Maritime Safety Queensland and partners since the War on Wrecks began; and
- 554 vessels are still of interest.

Time for change?

In January 2024, Maritime Safety Queensland (MSQ) released internally a draft copy of a Consultation Impact Analysis Statement: “Recreational Vessel Fleet Improvement: Is it Time for change? Analysis of proposed changes to our recreational vessel sector”.

I can confirm that MSQ is taking a serious look at the current process of registration and monitoring of vessels for the purpose of improving the overall condition and operation of the recreational fleet in Queensland.

A number of key strategies have been put forward to Marine Officers for comment and feedback, including changes to registration requirements and compliance. Issues have been raised with regards to, but not limited to, reliable vessel identification and the process of assigning HIN numbers, adopting a similar strategy to that currently in use in NSW.

Queensland has an extremely strong recreational boating culture, and owners and operators have diverse waterway environments to enjoy, including extended coastlines and bays, inland waterways, dams and the Great Barrier Reef Marine Park.

With advances in vessel design

and performance rapidly evolving over the last two decades, and an increased choice of boats, recreational boating has grown exponentially in Queensland.

What this means, of course, is the fleet is evolving, with newer vessels slowly but surely replacing the ageing fleet. MSQ are also regularly inspecting older vessels applying for recreational registration and relinquishing commercial status.

As a result, there has been a significant increase in the number of larger new recreational vessels being registered and many older vessels are nearing their end of serviceable life, and, in many cases, are no longer financially viable.

A large number of these vessels are over 15 metres and of steel construction. Many present in extremely poor condition. It would be safe to say that this is occurring as a natural progression in all States.

In reference to the aforementioned MSQ Consultation Impact Analysis Statement, the War on Wrecks Taskforce have provided a number of recommendations as options for improvement and change.

The proposed changes would affect marine recreational operators the most; however, boat builders and dealers may also be affected if certain legislative changes are implemented.

Recommendation 1: Taskforce tenure

Extend the existing Taskforce tenure for ongoing oversight of potential legislative and policy reforms identified to support the recommendations in the interim report.



Hundreds of derelict vessels have been removed from Queensland waterways by the State Government’s “War on Wrecks”.

Recommendation 2: Culture change

The Queensland Government consider changing the way new and used boat dealers are regulated by adopting a regulatory model similar to the car sales industry, rather than as second-hand dealers.

Risk Based Strategy – Inspection scheme

Applying a risk-based, ongoing safety inspection scheme to Queensland Regulated Ships to improve the quality and safety of the Queensland vessel fleet. Initially this scheme may target point of sale, older vessels or vessels of a particular size and construction or be triggered by the milestones such as vessel age or of periodic milestones.

Vessel Modifications – Approved Modification Plate

Application of a scheme to ensure that vessel modifications are appropriately conducted to the Australian Standard. All modifications which directly affect safety would require approval by an appropriately qualified or accredited person

and subsequently fitted with an approved modification plate. Existing greater-than-15m requirements would apply.

Home Built Vessels – Australian Builders Plate

Vessels which are home-built, custom-built or modified would require a full survey in order to ensure they meet the requirements of the Australian Standard. Once again, approval by an appropriately qualified person and subsequent fitment of an Australian Builders Plate, prior to an application for registration. Existing >15m requirements would apply.

Summary and considerations

MSQ’s War on Wrecks program has been a successful initiative and hopefully this scheme will continue to receive funding and be driven by the availability of financial support and ongoing collaboration between MSQ, other regulatory departments and the broader community.

Queensland waterways are a safer and cleaner environment due to the commitment of

this pro-active task force and Shipping Inspectors in the field and on the front line.

The proposed changes would be a step forward in improving the quality of our recreational vessel fleet. The changes would impact on a range of stakeholders and would be subject to scrutiny by the general public, owners, operators, and industry organizations. It would be fair to say that change is required and our industry will benefit as a result.

Disclaimer – This article has been prepared with all due diligence and care, based on the best information available at the time of writing. Any decisions made by other parties based on this information are solely the responsibility of those parties.

Guy Howard – MAIMS
Shipping Inspector and
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Cert. Vessel Master
Delegated Officer (WoW)
AIMS member

Embracing Industry 4.0 in the maritime industries and the future of marine survey

DURING the last two centuries, three industrial revolutions have fundamentally changed industries, including maritime and shipping. Each revolution brought new technologies to advance and improve work, the workplace and the conditions of workers. In the last decade, the fourth industrial revolution started to evolve our industry in an unprecedented way (Emad, et al. 2021).

Remote sensing and autonomy – backed by digitalisation and technologies such as Internet of Things (IoT), Artificial Intelligence (AI) and Simulation (Digital twin) – are changing the work and the way work is performed. In the maritime industry, these technologies have the potential to reduce the cost of maritime operations, promote sustainability, support education and increase efficiency (Rajapakse, & Emad 2019). However, the major challenge the industry is facing is the human element.

As Industry 4.0 is introducing intelligent technologies, the roles and responsibilities of the workforce are profoundly changing (Emad, & Shahbakhsh 2022; Emad, et al. 2022). This results in making many of the current skills obsolete while creating the need for new sets of competencies, such as data analysis, cyber security, and knowledge about remote sensing, AI and autonomous systems.

In the maritime industry, Industry 4.0 utilises advanced simulation technology and digital twin to transfer the maritime operation from onboard to onshore. In this environment, the maritime personnel work in a virtual and simulated workspace interacting with the real world. The emergence of autonomous



This image is created by AI, depicting a marine surveyor working with the Digital Twin in future.

and remotely operated ships requires redefining the job and the skills needed to perform the job.

This means, in the near future, seafarers, remote operators, pilots and surveyors should be upskilled and / or reskilled to remain relevant and be able to perform novel roles and responsibilities in the newly developed workplaces.

Realising these benefits demands significant investments in workforce training, digital infrastructure and regulatory frameworks. By proactively addressing these challenges through collaboration and innovation, the maritime industry can chart a course towards a smarter, more resilient future.

Establishing robust human agent teams through new training paradigms in maritime operations is crucial if we are to leverage better communication, coordination and decision-making, with the goal of bolstering safety and productivity.

One of the most effective tools for training maritime skills is proving to be simulators. Although the simulation technology is not new, Industry 4.0 is revolutionising this technology and elevating its capability under Virtualisation and Digital Twin technologies. Utilising other Industry 4.0 technologies, such as mixed reality (MR) and augmented and virtual reality (AR/VR), increased the ability of simulators to accurately represent real-world scenarios for training purposes (Emad, et al. 2023).



Dr G. Reza Emad.

Simulation technology and digital twin

A simulator is a mathematical model of a system, machine or workplace. The technology can be used at the design stage for representing a system and analysing the behaviour of that system.

The digital twin is the advanced simulation of a system, a digital replica of a real workplace that feeds on real-time data. It allows humans to digitally operate the physical workplace connecting cyber with physical systems (CPS).

In the maritime industry, digital twin involves creating a digital representation of a ship during its design phase and implementing IoT sensors while building the structure. When the ship becomes operational, the marine operator and surveyors will be utilising the digital twin throughout the operational life cycle of the vessel. The Human-Machine interaction in the novel environment is entirely different from the conventional maritime workplaces.

The future cyber-physical workplace will redefine the human-technology relation and coexistence in the maritime industries. This will directly affect the marine workforce's competencies and skills needed to perform their jobs. A human-centric approach at the design



Mehrangiz Shahbakhsh.

stage will ensure the ease of utilisation of the system for training the future workforce (Shahbakhsh, et al 2022). In there the simulation and digital twin of the actual workplace would be the most valuable tool at the maritime training institutions for training or reskilling marine personnel.

Future of marine survey

In the near future, the remote operation and autonomous shipping will be based on the IoT, AI, Cloud Computing and Cyber Physical Systems (CPS). To make remote operation and autonomy possible, these technologies will collect and live-stream data from all critical elements of the ship and its surrounding environment. The utilisation of drones and underwater vehicles will provide a type of data that is not even available today.

Future marine surveyors' role expands from onshore and intermittent surveys to virtual and continuous monitoring of maritime assets. Surveyors will assess the long-term effects of operational conditions on the ship's structure and functionality. When planning inspections, surveyors can focus on specific areas based on the AI powered digital twin's insights.

Digital twin of ships and marine structures not only provide surveyors with current and historical data but also



Gordon Meadow.

allows them to simulate different scenarios into the future and accurately predict the unfolding operation.

The historical data collected by IoT in a CPS can be processed by AI using Cloud Computing technology. This can reveal any systemic malfunction of machinery and human operator's mishandling of operation. The future marine surveyor uses AI to analyse real-time data from a ship while virtually exploring the ship's digital twin to ensure safe and efficient shipping.

Conclusion

In summary, although the transformation is imminent, it is gradual and happening in different stages from current to remotely controlled and finally autonomous shipping. The key to the future-ready marine workforce is the ability of the training system to utilise the same technology as it is used in the workplace for creating an authentic learning space. This will allow a smooth transition to safe future shipping.

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Restoration of pearling lugger *Penguin*



THE Queensland Maritime Museum (QMM) is undertaking a major restoration of our 117-year-old pearling lugger, *Penguin*, taking her back to her original 1930s “Hard Hat” diving configuration, with a view to preserving her for another hundred years.

This historically significant pearling lugger has been an important display at the Museum for over 40 years but, in spite of continual maintenance, now needs extensive re-building to preserve her for future generations.

We are currently seeking volunteers to help the existing team carry out the restoration.

Listed on the Australian Register of Historical Vessels, *Penguin* was originally built as *Mercia* in 1907 for Hodels Ltd, a Thursday Island pearling company. The renamed *Penguin* is a Thursday Island style of wooden pearling lugger built there by Tsugitaro Furuta, one of the more prolific Japanese

pearling lugger builders of the period.

Penguin is recognised as a perfect example of the typical “lugger” design that remained constant, basically until natural pearling ceased and was replaced by cultured pearl in the 1970s. *Penguin* is one of a small number of existing luggers that retain much original construction and layout.

This lugger has had a colourful ownership history.

Launched in 1907, she was first owned and operated by Hodels Ltd., one of the numerous small operators in the Thursday Island pearling community. In 1911, the Hodels business, including *Mercia* / *Penguin*, was sold to the Wyben Pearling Company Pty Ltd (part of Burns Philp & Co).

Wyben Pearling Company operated *Mercia* as a pearling lugger until it was requisitioned by the Government for war service in the 1940s. *Mercia* appears as No 4 in a list of 60

luggers impressed by the military, noting its value as 1,250 pounds, less 219 pounds for repairs.

All the luggers put into military service underwent a conversion, at an average cost of 23 pounds and 10 shillings each. *Mercia* arrived at Thursday Island in August 1942 and departed for Daru in December 1942, after receiving the full general conversion. However, the work also included more extensive repairs, caulking and considerable renewal of rigging.

The general conversion included removing excess machinery and items associated with diving, stripping of internal fittings, bunks, water tanks, etcetera, removing ballast, lowering the cabin sole and increasing cargo space from 5 - 7 tons to 12 - 15 tons, making hatches and covers, surveying the hull and general work on the rigging and windlass. A 1942 report notes *Mercia* was despatched uncoppered as an experiment to test a bitumen

coated hull for protection against Teredo worm attack.

Mercia was officially acquired by the Commonwealth on 11 February 1943 and used by the RAAF in Port Moresby. She was given the registration number 015-45.

After the war (1945), the vessel was sold to a Mr WR Albert for 100 pounds. The shortage of boats at the time, and the high price of shell, meant that there was a concerted effort to locate the remaining boats during the period 1945-50 and get them back into work. Many were scattered about in New Guinea, having been sold "as is, where is" by the military.

In 1946 and 1948, Mercia is mentioned in Thursday Island records again. In 1948, the boat licence was issued in the name of Bowden Pearling Co. While working for Bowden, the pearling registration number was A31.

In 1957, Mercia had a new engine installed and was re-registered and re-measured. It continued working with Bowden up to 1960 but they went bankrupt in 1961 and the pearling licence was not issued again until the 1966-67 season.

Mercia was then renamed Penguin, given the new registration number A61, and licensed to the Aucher Pearling Shelling Company Pty Limited.

In the 1970s, Penguin was acquired by the Commonwealth Government and returned to a standard pearling vessel rig. She was placed with the Dauan Island Council for use as the island service vessel.

In 1981, Penguin was replaced with a more modern vessel. QMMA was approached by the Department of Aboriginal Affairs, advising that the Dauan Island Council would make Penguin available to us, provided it was maintained permanently



The Queensland Maritime Museum is seeking volunteers to help restore the 117-year-old pearling lugger "Penguin".

with its Dauan Island colours and number.

QMMA arranged for Penguin to be shipped from Thursday Island as deck cargo on HMAS Tobruk, arriving in Brisbane on 1 May 1982. Penguin has been an important display at QMM as the centrepiece of our extensive pearling industry displays and exhibitions ever since.

Follow the Penguin restoration progress and learn more about her history on:

Facebook: THE PEARLING LUGGER PENGUIN RESTORATION PROJECT, and

www.maritimemuseum.com.au/penguin

Volunteers are always welcome. We are on-site Tuesdays, Thursdays and Fridays. Experience with woodworking tools is valuable but not essential. Volunteers are guided by our lead shipwright Rusty and marine surveyor Russ B., and will gain the knowledge to become a valuable member of the team.

For further information, contact Russell at info@maritimemuseum.com.au.

Andrew Massey and Russell Cobine
Penguin Restoration
Queensland Maritime Museum

Volunteer Recruitment Drive



The Maritime Museum Maintenance Team seeks **Volunteers** with the following skills:

Carpentry

Plumbing

Welding

Painting

Gardening/Ground Maintenance

Mechanical Engineering

Electrical Work

General Handy-Person

Maintenance Team works Tuesdays and Thursdays

Grounds Team works Wednesdays and Fridays

Pearling Lugger Restoration (Penguin) Team works Tuesdays, Thursdays & Fridays

Times are from 8am to 3pm with morning tea and lunch breaks

Days and Times are flexible.

Volunteers with Trade Certificates, Forklift & Scissor Lift Licenses are needed but not essential. We accommodate a wide range of skill levels.

For an introductory visit please contact:

John Imrie – john.imrie@maritimemuseum.com.au

Graham Tappenden – graham.tappenden@maritimemuseum.com.au

Russell Cobine – russell.cobine@maritimemuseum.com.au (Penguin)

We look forward to welcoming you onboard.

Employee vs contractor: high income threshold changes

CONTRACTORS or employees? Opt in or opt out? Gig economy with employee-like workers?

The contractor landscape has not escaped the new industrial relations (IR) law changes from *Fair Work Legislation Amendment (Closing Loopholes No.2) Act 2024*.

Effective from August 26, 2024, these amendments redefine the legal parameters within which businesses must operate, emphasising a more holistic view of employment relationships under the *Fair Work Act 2009*.

Key changes and implications

There are a number of key changes and implications for contractors.

1. Shift in Legal Framework

The amendment revises the definition of “employee” and “employer” to focus on the “real substance, practical reality, and true nature” of the relationship, moving away from the strictly contractual interpretations that were previously endorsed by the High Court in cases like [Personnel Contracting](#) and ZG Operations. This shift requires businesses to consider not just the terms of the [contractor agreement](#) but also the practical execution of said terms.

2. Mechanism for Opting Out

The new provisions under sections 15AB(2) and 15AB(3) allow certain high income threshold contractors to opt out of these new definitions, providing flexibility for businesses and contractors to maintain their current work-

ing arrangements under specific conditions.

The high income threshold has not been defined yet, however the current high income threshold for other matters such as General Protections is \$167,500 in from 1 July 2023, so it give us an indicative range.

3. Introduction of “Employee-Like” Worker Status

The amendments introduce new categories such as “employee-like workers”, particularly targeting those in the gig economy. This change aims to extend certain protections to workers who, while not employees, share many characteristics with them, especially those engaged through digital platforms.

The [Fair Work Commission](#) will be granted the ability to set minimum standards for gig economy workers and the ability to challenge unfair terminations. We suspect organisations like Menulog and Uber will be carefully considering their approach to this.

4. Reviewing Unfair Contract Terms

A new pathway has been established for contractors to seek review of unfair contract terms directly through the Fair Work Commission, bypassing the more cumbersome court processes previously in place. This provision makes it easier for contractors to challenge exploitative practices and challenge [sham contracting](#).

5. Changes to Sham Contracting Defences

The amendment removes the previous defence that allowed

businesses to claim ignorance or lack of recklessness regarding the misclassification of employees as contractors. Businesses now need to demonstrate a reasonable belief in the contractor status, placing a higher burden of proof on them to justify their classifications.

The opt-out provisions introduced in the Fair Work Legislation Amendment (Closing Loopholes No.2) Act 2024 offer contractors the ability to choose whether or not to be classified under the new definitions of “employee” and “employer” as revised by the amendments.

These provisions are particularly relevant for contractors who meet a certain high income threshold, referred to as the “contractor high income threshold” – which is yet to be determined.

Opt-out provisions for contractors

There are opt-out provisions for contractors

1. Eligibility

The option to opt out is available only to contractors whose remuneration exceeds the contractor high income threshold. Those below this threshold cannot opt out and are automatically subject to the new definitions under section 15AA of the Fair Work Act.

2. Process

Contractors eligible to opt out can do so by issuing an “opt out” notice either before or after the new definitions take effect on August 26, 2024. This notice must be formally given to their principal.



Contractor or employee? Employers should check what impact new IR laws have on how these categories are defined.

3. Revocation

Contractors retain the right to revoke their opt out notice at any time. Revocation of the opt out notice will result in the contractor being classified under the new definitions from the date of revocation forward, if the revocation occurs after August 26, 2024.

4. Implications of opting out

Issuing an opt-out notice carries implications. For instance, notifying a contractor of their option to opt out might imply that the business considers the possibility of the contractor being an employee under the new definitions.

Additionally, any subsequent actions taken against a contractor for revoking their opt out notice could potentially contravene the general pro-

tections provisions of the Fair Work Act.

5. Limitations and risks

Reliance on opt-out notices is not advised as a permanent solution due to the potential for revocation and the associated legal risks. Instead, it's recommended that businesses ensure their contractor relationships are clearly delineated to avoid falling under the employee definitions unless opting out is part of a strategic transition plan.

Conclusion

Overall, the opt-out provisions provide flexibility for higher-income contractors to maintain their current contractual status, but businesses should approach these options carefully, considering both legal implications and the potential

for changes in the contractor's decision.

The [NB Employment Law team](#) are here to help as the [lawyers for employers](#).

Check out our upcoming [webinar events](#) and register your interest.

Reach out via info@nbemploymentlaw.com or [+61 \(07\) 3876 5111](tel:+610738765111) to book an appointment.

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