# THE AUSTRALIAN NAVAL ARCHITECT

Volume 29 Number 3
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Panoramic view of Indo-Pacific 2025 Exhibition

(Image courtesy AMDA Foundation)


Asle Traffic in Indo-Paificc Exhibition Hall

(Image courtesy AMDA Foundation)

# THE AUSTRALIAN NAVAL ARCHITECT

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**(Australian Division)**
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*Cover Photo:*
HMAS *Canberra* replenishing at sea from HMAS *Stalwart*
(Defence Imaging)

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**RINA Australian Division**
on the
World Wide Web
**https://www.rina.org.uk/The-Australian-Naval-Architect-Issues**

# From The Division President

To all our Australian RINA members and everyone reading this freely distributed journal, welcome to the November edition of your favourite, informative and most relevant publication on naval architecture in Australia. And for this I must thank again most whole heartedly Rob, Trevor and Martin, with support from Jack, Jennifer and Noel for devotion and skill at stepping in for bringing this edition together. This publication would not come together without such devotion to the task, most evident in the final product, the pages that follow!

Since August we have seen another series of technical meetings but also the 14th running of the IndoPac Exposition and the hugely successful International Maritime Conference (IMC), with special thanks to Adrian Broadbent for his work in chairing the Organising and Program Committees and to Stuart Cannon and the Program Committee members. I did attend both the exposition and the IMC and saw so much of the amazing maritime industry we are all part of. Looking at the stats (39 Chiefs of Navy, over 900 exhibitors, over 150 delegates to IMC with 3 keynotes and 77 technical presentations) it is reflecting the "rubber hitting the road" from our naval shipbuilding plan. We did also get a visit from the RAN's newest vessel HMAS *Arafura*, docked for the duration at Darling Harbour.

Within the 77 presentations of the IMC, it was great to see 5 presentations from final year students at UNSW (well done Archer Gumley, Rian Klinger, Nathan Hazle, Kelvin Hepburn and Jiraphat Hirunutok). Hopefully we can continue this into the next running of the IMC from students around the country. It was especially warming to see how they were able to present and field questions in front of RADM Durbin, Head Navy Engineering.

The division is now in a position to announce that the Bob Campbell Prize for the best paper and presentation to the IMC has been won by Michael Candon of RMIT University for his presentation *Unsteady Hydrodynamic and Hydroelastic Reduced Order Models for Propellers*. Arrangements will be made for the Prize presentation.

For RINA, we had a great stand, ably staffed by volunteer members (thanks to coordinator John Butler and Robert Bryce, Trevor Ruting, Todd Maybury, Belinda Tayler, Andy Harris and Jack Mclaren), and a visit by current CEO Paul Jobson and Head of Events and Strategic Partnerships Rusne Ramonaite.

On the Tuesday night we were very fortunate to be able to hold a members night at Navantia Australia offices (thanks to hosts COO Jamie Gibbs and Lead – Innovation Nirman Jayarathne of corporate partner Navantia). This event may become a model for future face-to-face events which the Australian Division is very keen to assist where possible! At the members night we also awarded the Walter Atkinson Award for 2025, going to Michael O'Connor and Dean Bong for their article titled *Naval Crew Size and Habitability—Where is the Future?*.

Also at the members night we received the exciting announcement that Warship 2026 will be held in Perth themed *Scaling the Fleet: Delivering Added Mass with*

Jonathan Binns

*Affordable Minor Warships*, 30 September – 1 October 2026. Abstracts are open now and due on 2 February. Topics will include:

- Integration of minor warships
- Technology to improve availability
- Autonomous systems
- Blend of crewed/uncrewed – optionally crewed systems
- Lean crewing
- Technological advancement
- More sustainable build techniques

Leading into the IndoPac/IMC week we also saw the 45th anniversary of the maritime engineering programs at the Australian Maritime College with student presentations, alumni and mentor events and a technical forum. These two days brought together maritime industry from across Australia, with international experience across the many domains that bring the maritime industry to create the impact we've become accustomed to. The student presentations were of such a high calibre, it was difficult to believe they are starting on their careers. Such fine young engineers both our schools of naval architecture are creating!

Since August we have seen technical presentations on:

- The Steber 43 - Hybrid Diesel-Electric Workboat at Royal Prince Edward Yacht Club, by Alan Steber of Stebercraft on 3 September
- The Hydrodynamic Performance of a Novel Fish Pen by Eric Gubesch, AMC and the Blue Economy CRC at AMC Launceston and online on 16 September
- The Future of Education for Naval Architects in

Australia – panel session featuring Prof Anthony Zander of University of Adelaide, Dr Thomas Chaffre of Flinders University, Dr Robert Palmer of AMC Search, A/Prof Warren Smith, Mr Sean McCracken and Mr David Lyons of UNSW Canberra. Held at University of Adelaide and online on 17 September

- Nuclear Propulsion by David Smith and Giles Evans of KBR at UNSW Canberra on 23 September
- AUKUS Submarines Update by Adjunct Professor Martin Renilson at UNSW Canberra on 14 October
- Operational Perspectives on HDPE as a Boat Building Material by Jason Cummings from Sentinel Boats on 21 October
- Marine Rescue services and emerging technologies by Mike Hammond of Marine Rescue NSW at UNSW Canberra on 19 November
- Progress of Methanol Propulsion Manulal Inasu from Everllence Australia online on 20 November
- Design and Engineering Experiences Working in an Offshore Construction Yard by James Stephen at Gold Coast Marina, Coomera on 11th December.

These presentations offer an amazing way to find out what Naval Architects are doing around Australia and increase your CPD. They were all publicised through your local secretaries, you can attend in person if you're in the state at the time and meet up with other professionals just like you! If you did miss these (like me) you can also catch up on a few of them through the RINA YouTube channel at https://www.youtube.com/@RoyalInstNavArch

Once again I would like to point out, most importantly, the Institution cannot operate without those who volunteer to fill important roles, so we are always on the lookout for more volunteers to assist with how the Australian Division and sections run. The critical positions of the Division's Secretary and Treasurer will be needed to be filled over the coming months. We have position descriptions for these specific roles, but we should always stay open to ideas, so if you do think of ways to combine, divide or restructure these roles, do get in touch.

Finally, I do know about many Christmas get togethers coming up, the ACT Section end of year function on 27 November, Sydney SMIX Bash on 4 December and Queensland Section gathering on 11December. Please do get in touch with your local section, for events to catch up with colleagues and friends.

Signing off, please do join your local committee, please do contribute to and indeed propose new activities of the local Sections and indeed those of the Division and the wider Institution, our members are what have made and continue to make us. But most importantly taking this opportunity to wish for a safe, happy and relaxing holiday season!

*Jonathan Binns*
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## Editorial

You may be surprised to see this issue of our journal in a broadly familiar format following the move to a digital magazine flagged in the final para of the August editorial. So this opportunity is taken to update the editorial team's intention for the future digital magazine.

Our current intention is to replace *The Australian Naval Architect* you know and love with three tiers as follows:

1. The quarterly journal in a reasonably familiar format containing indexes through which you can access the main columns other than news and feedback. It will not be in a directly printable format but each column can be printed separately.

2. A separate publication of news and feedback. The various news sections of the present magazine other than Education and Membership will appear as indexes from which you will be able to access the source content of each individual article. Current intention is for the publication to be regularly updated, so the frequency of publication and archiving is still to be determined. In improving on the responsiveness of the existing occasional Letters to the Editor, we want to encourage comment and discussion on items in the journal and current news, so this second tier publication will contain content curated from the third tier.

3. The final tier is not a publication but essentially a blog that enables members to air their views on items in the journal and current news.

The September meeting of Division Council provided broad endorsement of this plan.

However, arrangements for the new digital journal need to be agreed with RINA HQ since we intend it to be an extension of the existing archive hosted on the rina.org.uk website and it will involve a much more complex series of linked documents than the current single PDF document for each issue. The relevant discussions have been commenced with the Chief Executive and are expected to be harmonised with possible changes to *The Naval Architect*. Hence this issue generally remains in the familiar format.

One difference you may notice in this issue, which is a foretaste of the content of future ANAs, is that news items provided by others are generally published verbatim rather than edited to remove content that may be regarded as hyperbole or "marketing". In this regard your attention is drawn to the disclaimer on page 1 of this and every issue.

I would like to express my appreciation to Trevor Ruting for taking on much of the editorial work-load of this issue.

**Indo-Pacific International Maritime Conference (IMC)**

This column is written following another very successful IMC held in Sydney. As you may be aware, Adrian Broadbent took over the chair of the IMC Organising Committee in addition to his chairmanship of the Program Committee when illness struck down John Jeremy. Compliments are due to Adrian and his team, especially Serena Davy of AMDA

Foundation, in organising such a successful conference in these circumstances.

The IMC was of course associated with the Indo-Pacific Expo at which the Institution had a stand. Thanks are due to John Butler for assisting with the organisation of that stand and to those members who assisted in staffing it for the duration of the Expo.

We were pleased to welcome the Institution's new Chief Executive, Paul Jobson, who visited for the occasion, together with Rusne Ramonaite as Head of Events. As mentioned by our Division President in his column, corporate partner Navantia hosted a networking function at their impressive Sydney offices to enable Paul to meet as many members as possible on the first evening of the IMC. Paul announced that the Institution would once again be bringing its WARSHIP conference to Australia next year, at Optus Stadium in Perth on 30 September and 1 October 2026. Our President presented the Walter Atkinson Award 2025 certificate for the best written paper to the Division in the year ending 30 June 2025 to Michael O'Connor and Dean Bong for "Naval Crew Size and Habitability—Where is the Future?" published in the November 2024 issue of this journal.

**Decarbonisation of the Shipping Industry**

Decarbonisation was one of the subjects covered by papers at the IMC, with particular reference to reducing emissions from naval ships. Its prominence in the industry is reflected in a number of articles in our Industry and General News column.

It is interesting that navies are taking so much interest in this matter particularly since MARPOL Annex XI, as the relevant instrument of international law, specifically excludes "ships of war". What we learned in the conference was that, with the exception of biodiesel, current and prospective alternative fuels are far from comparable with existing fuels in terms of volumetric energy efficiency. This means that the vulnerability of front-line warships will be increased and their war-fighting efficiency reduced by any move to alternative fuels other than biodiesel. So, whilst navies are attempting to do the right thing in terms of environment by considering alternative fuels, the likelihood of front-line warships being built for alternative fuels has not yet appeared over the horizon.

Readers may be aware of the postponement for one year of approval of the Net-Zero Framework developed by the Marine Environment Protection Committee of the International Maritime Organization. (IMO). The postponed Framework involves taxing carbon emissions as a means of mandatory enforcement. This delay was largely at the behest of the United States and has attracted criticism from environmental and industry groups, including the Clean Shipping Coalition and the International Chamber of Shipping. This reaction appears based upon the shipping industry's need for certainty for its future planning. However, the delay may facilitate development of sustainable solutions considering the problems experienced in decarbonising land-based energy systems compounded by the constraints on shipping in terms of thermal efficiency of alternative energy sources and their safe stowage and use in a shipboard environment.

Nonetheless, it is a concern that this delay might be the first sign of moving away from the tacit amendment process for the updating of IMO technical conventions. The tacit procedure has been in place since the 1980s and in that time has facilitated many safety and environmental improvements to the commercial shipping industry and any move away from it should be strongly resisted.

**Defence Delivery Agency**

Finally, as we go to press the Federal Government announced the establishment of a dedicated agency, "designed to strengthen and streamline acquisition and sustainment activities".

> *The new Defence Delivery Agency will integrate three existing Defence capability delivery groups: Capability Acquisition and Sustainment Group; Guided Weapons and Explosive Ordnance Group; and Naval Shipbuilding and Sustainment Group. The agency will report directly to Ministers and have control over its budget, enabling coordinated and holistic delivery of defence capability and growing our sovereign defence industrial base.*
>
> *A National Armaments Director (is) to lead the new agency, who will be responsible for providing advice to the Government on acquisition strategies and the delivery of acquisition and sustainment projects following Government approval.*
>
> *These reforms will support greater project and budget management, cost estimation and assurance right across the life of a project.*

It remains to be seen how the DDA will differ from the former DMO which was itself reorganised to become CASG. From the engineering perspective the new agency should be structured to reverse the trend of de-engineering ship acquisition and fully utilise the skills of civilian personnel involved. We also note with interest that the announcement makes is no reference to how the changes might impact submarine acquisition since the Australian Submarine Agency is not included in the new arrangements.

*Rob Gehling*

# Letter To The Editor

I wish to bring to the attention of your readers the passing of Professor Dr.-Ing. Gerhard Jensen.

My connection to Prof. Jensen came about through the ANZAC Ship Project. In the late-1980s to early-1990s, as ship design work was progressed at the offices of Blohm+Voss, Hamburg, it became known that Harald and Gerhard Jensen were prominent in their professional specialisations: Harald in ship theory; Gerhard in hydrodynamics.

Harald Jensen, was born in Hamburg in 1956. His younger brother, Gerhard Jensen, was born in 1957. Harald and Gerhard studied naval architecture at the Technical University Hamburg, Harburg (TUHH); both graduated as Dr.-Ing. Later, Gerhard Jensen was appointed to a position as Professor at TUHH. Before taking on the professorship at TUHH, Gerhard Jensen had been the Managing Director of the Hamburg Ship Model Basin, HSVA.

The starting point for this article on Prof. Dr.-Ing. Gerhard Jensen is the Title of his 1988 PhD Thesis: *'Calculation of stationary Potential flow around a Ship under Consideration of nonlinear Boundary conditions at the Water surface'*. (English version.)

A German-language copy of Gerhard's 1988 PhD thesis was provided by Prof. Dr.-Ing. Stefan Krueger, Naval Architect, Head of Institute at Technical University Hamburg (TUHH), Institute of Ship Design and Ship Safety. Gerhard's PhD Supervisor was Prof. Heinrich Söding. Prof. Kreuger recalled:

> *'I remember quite well his exciting dissertation in 1988, and I do very well remember Prof. Som Deo Sharma's (... member of Jensen's doctoral committee) remark on Gerd Jensen's work that he had for the first time computed the wave resistance and wave pattern for practical hull forms. The CFD-code he has developed (pi-shallo) is still in use at our institute (TUHH).* For more on pi-shallo:

https://www.tuhh.de/fds/research/projects/pi-shallo

Copies of eleven papers by Prof. Jensen, some in collaboration with others, including his PhD Thesis, and English-language *'Summary'*, are available via: https://www.researchgate.net/profile/Gerhard-Jensen

Another Conference paper from June 2004 by Gerhard Jensen, Matthias Klempt and Yan Xing-Kaeding, *'On the Way to the Numerical Basin for Seakeeping and Manoeuvring'*, indicates that the numerical methods have wider analytic applications.

(Note: Emeritus Prof. Lawrence Doctors has advised that Prof. Som Deo Sharma was his PhD Supervisor at the University of Michigan. Further details for Prof. Som Deo Sharma are available via the web.)

Gerhard Jensen moved on from academia to a role with the propulsion systems company, SCHOTTEL, where the office is located in Spay/Rhein, Germany.

SCHOTTEL has provided the following Obituary: https://rz-trauer.de/traueranzeige/gerhard-jensen

Prof. Gerhard Jensen
(image courtesy Jensen Family)

*It is with great sadness that we learned of the passing of Professor Dr.-Ing. Gerhard Jensen;*

*(Birth: 5 August 1957; Death: 27 September 2021.)*

*Professor Jensen was associated with the SCHOTTEL Group for decades, initially as Technical Director and since 2005 as Managing Director of SCHOTTEL GmbH. In 2013, he also became Managing Director of SCHOTTEL Industries GmbH. After retiring from day-to-day operations, he supported the SCHOTTEL Group with his expertise on the Supervisory Board and various advisory boards.*

*Due to his extensive experience in naval architecture, gained through work in ship construction and design, as well as his academic background, Professor Jensen's advice as an engineer was always highly valued. As Managing Director of SCHOTTEL GmbH, he led the company into its most successful period by expanding its product portfolio and building its international sales and service network. Furthermore, he initiated the construction of the new production facility in Dörth and spearheaded the diversification of the company group. A particular achievement was his unwavering focus on balancing the interests of all stakeholders—shareholders, employees, and management—and his commitment to sustainable corporate development.*

*With Professor Jensen's passing, we have lost not only a successful businessman and accomplished scientist whose vast expertise and guidance we will sorely miss, but also a remarkable individual whose genuine personality we will deeply cherish.*

*Professor Jensen will remain unforgettable to all who knew him. We will honor his memory.*

*John Lord*

# Coming Events

**NSW Section**

4 December ’25 SMIX Bash 2025 onboard *James Craig*

**Qld Section**

4 December ‘25 Tech Presentation and End of year Social in Brisbane and Cairns

**Tasmania**

12 December 6.30pm 3 course dinner at Rupert & Hound, 30 Seaport Blvd, Launceston (register by 8 Dec on https://events.humanitix.com/rina-2025-christmas)

**WA Section**

01 Dec Flying Angel Club Fremantle for two technical presentations plus End-of-Year function

- The Ships that Defined the Viking Age -Mal Waugh
- Fuel Cells for Marine Applications -Jogchum Bruinsma (Nedstack)

**RINA Warships 2026: “Scaling the Fleet- Delivering Added Mass with Affordable Minor Warships**

**30 Sep - 1 Oct 26 Perth WA**

Exciting news announced during I-PAC 25 was that, after the success of Warship 2024 conducted in Adelaide, RINA HQ has decided to conduct their internationally recognised Warships conference in Perth, WA on 30 September - 01 October 2026 at the Optus Stadium, Burswood.

Topics will include:

- Integration of Minor Warships
- Technology to improve availability
- Autonomous Systems
- Blend of crewed/uncrewed – Optionally Crewed Systems
- Lean crewing
- Tech advancement
- More sustainable build techniques

Abstracts for potential papers are due by 2 February 2026.

**Indian Ocean Defence and Security Conference and Exhibition 26-28 May 2026, Perth WA**

The AMDA Foundation (that runs the Indo-Pac Conference/Exhibition series for RINA) is also conducting this Indian Ocean-focussed conference at the Perth Convention and Exhibition Centre 26-28 May 2026. Among a wide range of topics, it will include the following activities:

- A panel of former Australian Defence Ministers for a candid discussion of defence and strategic issues.
- MHI and Mogami-class frigates update
- Strategic Shipbuilding Agreement with Austal Defence Shipbuilding Australia.

# Naval Architects On The Move

The moves that we aware of are as follows:

**Sasha Apelt** has graduated from UNSW (Cbr)

**Werner Bundschuh** who retired from Maritime Safety Qld some years ago, has moved to the Sydney area.

**Garry Duck** is on leave pending his retirement from the Directorate Navy Engineering, Navy Engineering Branch, Department of Defence next February. His naval engineering career has spanned 39 years working mostly within submarine engineering and materiel certification after commencing as a graduate naval architect in Canberra in 1986. His most recent role has been as Program Liaison Officer Acquisition Undersea Warfare within DNE.

**Tim Gates** has moved on from his role of “Head of Engineering, Defence” at Serco some time ago and is currently working part-time as a bus driver with Transport Canberra

**SBLTs Archie Gumley, Aaron Kearns** and **Rian Klinger** have all graduated from UNSW (Cbr) and posted to HMAS *Cerberus* for Marine Engineering Application Course then to sea postings mid-2026.

**SBLT Kelvin Hepburn** has also graduated from UNSW (Cbr) and posted to HMAS Watson for Seaman Officer training.

**Hamish Lyons** moved to Horizon Aluminium Boats earlier this year after 9 years at Oceanic Design & Survey.

**Mal Waugh** retired from Naval Construction Branch, NSSG in mid 2024 and disappeared to travel whilst having a house built. He recently resurfaced and volunteered to take on the role of RINA WA Section Secretary.

This column is intended to keep everyone (and, in particular, the friends you only see occasionally) updated on where you have moved to. It consequently relies on input from everyone. Please advise the editors when you up-anchor and move on to bigger, better or brighter things, or if you know of a move anyone else has made in the last three months. It would also help if you would advise Rob Gehling when your mailing address changes to reduce the number of copies of *The Australian Naval Architect* emulating boomerangs.

*Trev Ruting*

## ACT Section

**Nuclear Submarine Propulsion**

On 23 September 2025, David Smith and Giles Evans from KBR delivered a coordinated joint presentation on the design of nuclear powered submarines based on their respective experiences with Royal Navy submarine design and operation, to an audience of about 35 including 7 undergraduate Naval officers undertaking the BE(Nav Arch) course at UNSW Canberra (ADFA).

This presentation focused on technical design challenges from a Naval Architect's perspective, to meet the operational considerations from a Submarine Warfare officer, and provided a good overview of submarine design and safety issues before addressing the Nuclear Propulsion systems. The presentation developed from core submarine safety issues through the unique submarine trim polygon, critical weight/buoyancy balance and manoeuvring limits diagram and was complemented by a short video on the fundamental components of the nuclear propulsion system itself.

Giles summed up the presentation as follows:

**Whole-Boat Safety First** A robust submarine safety certification regime (stability, structural strength & watertight integrity, escape & evacuation, atmosphere control, propulsion/controls, fire safety, explosives) is fundamental to manage key hazards and ensure the safety of the crew.

**Design Truths for Naval architects** Weight control, trim polygons and neutral buoyancy isn't academic, they're the daily reality for safe navigation, crew comfort and combat readiness.

**Operations Meets Design** Emergency blow compressibility, hydrodynamics, and fly-by-wire controls mean propulsion and plane authority are inseparable in real-world evolutions.

**Nuclear Propulsion.** "Critical means self-sustained, controlled power; safety is engineered through managing the three C's (Control, Cooling, Containment), incorporating redundancy, diversity, segregation, and defence-in-depth.

**Radiation Protection by Design** Multiple barriers, intelligent layout and shielding, continuous monitoring, and ALARA thinking incorporated into the platform.

**Australia's Pathway** SRF-West readiness, NPS Construction Yard at Osborne, and workforce/infrastructure development are key steps to a sovereign, sustainable capability."

*The Presenter,* David Smith, is a naval architect by profession who has spent 28 years working in the Defence Maritime domain. Whilst working for the UK Ministry of Defence, his early career was focused on naval architecture, both submarines and surface ships. David then chose to diversify, and shift focus to nuclear propulsion, safety, and regulation. David has been based in Australia since 2020 and worked in support of the Hunter Class Frigate Program and most recently the Australian Nuclear-Powered Submarine Program. David is currently the KBR Infrastructure Solutions Industry Lead - Nuclear Safety and Assurance.

Giles Evans is a globally recognised expert in submarine operations and safety, with over 36 years of experience in nuclear-powered submarines. A former Royal Navy Senior Officer, he has authored Australian Defence Force doctrine and led training at both national and international levels. Giles brings deep operational insight and has a proven track record in managing high-stakes, safety-critical environments. Giles is currently the KBR Infrastructure Solutions Nuclear Training Lead.

Presenters Giles Evans and David Smith
(Image Cameron Whitten)

*Trev Ruting and Giles Evans*

## Update on AUKUS Pillar 1 SSNs

In a facilitated discussion context on 14 October at ADFA, Adjunct Professor Martin Renilson outlined some of the core benefits and risks associated with the submarine program. He provided powerful information on the significant operational benefits of nuclear propulsion, particularly associated with time on task for Australian based submarines deployed in our area of primary security interest. Martin encouraged the in-room audience of about 30 to read the book "The Silent Deep: The Royal Navy Submarine Service Since 1945" to better understand the environment and capabilities.

Martin Renilson presenting
(Photo Martin Grimm)

There is no doubt that nuclear powered submarines are ideal for the force projection role that Australia requires submarines to carry out. To that end the AUKUS agreement with the US and the UK to enable Australia to own and operate nuclear powered submarines could be a game changer for Australian

Defence. However, this program faces some considerable challenges, and is described by Government as being "high risk". Martin identified a list of some of the higher risks of the overall submarine capability program that will require careful management including overall costs, financial issues, US build programs, shore facilities and skilled personnel training and availability. Martin then facilitated a wide ranging discussion of these issues including aspects such as the design of the UK AUKUS SSNs to be built in Australia and XLUUV developments.

*The Presenter*

Martin Renilson moved to Tasmania in 1983 to work at the Australian Maritime College, where he established the Ship Hydrodynamics Centre in 1985, and the Department of Naval Architecture and Ocean Engineering in 1996, with the first naval architecture and then ocean engineering degrees at AMC.

In 2001 he moved to the UK to work at QinetiQ as Technical Manager, Maritime Platforms and Equipment. In this role he was responsible for all hydrodynamic research for the UK MoD, including all its submarine hydrodynamics. Martin subsequently returned to Australia in 2007 and has remained interested in submarine hydrodynamics. He is an Adjunct Professor at AMC/UTas.

The second edition of his book on submarine hydrodynamics was published by Springer in 2018.

*Trev Ruting*

## Marine Rescue Services and Emerging Technologies

In an enthusiastic presentation at ADFA on 19 November to about 19 members, Mike Hammond addressed some of the challenges facing Australian maritime rescue services related to new propulsion technologies in smaller commercial and recreational vessels. Several marine rescue services in Australia assist recreational and commercial vessel operators at sea. Current rescue techniques, training, equipment and vessels have been developed appropriate to current vessels powered by internal combustion engines.

Resulting from his travels to Europe and USA under a Churchill Scholarship, Mike identified new propulsion technologies already in use and being trialled or in development including biofuels, hybrid, electric and hydrogen (gas storage or fuel cells). The move towards vessels powered by these alternatives particularly lithium-ion batteries and hydrogen, requires adaptation of rescue and emergency arrangements due to the quite different risks and responses. For example, rescue vessels of the future may need the capability to respond to a large lithium-ion battery fire on a vessel at sea, or in a marina berth. Rather than encouraging crew and passengers remaining on the vessel, whilst dangerous gases are emitted from a failing lithium-based battery, they may need to evacuate to a liferaft sooner rather than later?

Mike clearly demonstrated his lively presentation with examples of modern electric hydrofoil vessels used in rivers, estuaries and inland waters, as well as the results of disasters onboard luxury power vessels resulting from runaway battery fires. Other emerging boating technologies may provide new challenges and new rescue solutions, and Mike identified some 7 key recommendations on how marine rescue services may prepare for these changes.

*The Presenter*

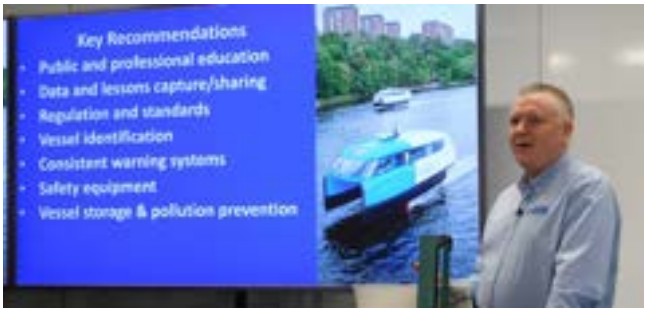
Mike Hammond a Superintendent with Marine Rescue NSW, is a former school teacher who has turned his love of boating into a 22-year career, working in commercial vessel operations, maritime regulation and policy, and emergency services. Mike leads a large and dedicated group of Marine Rescue NSW volunteer first responders on the South Coast of NSW, and is dedicated to ensuring they are trained and equipped for safe and effective operations.

Mike is particularly interested in the ways new boating trends such as battery-electric vessels will challenge marine rescue organisations in coming years and applied for a Churchill Fellowship to study rescue and regulatory responses to emerging vessel technologies. His research paper is at:

https://www.churchilltrust.com.au/fellow/mike-hammond-nsw-2024/

Mike holds a Master of Maritime Policy from the Australian National Centre for Ocean Resources & Security at the University of Wollongong and five Bachelor degrees in Geography, Education and the Arts. He also holds a Certificate of Competency as a Master of vessels up to 24 metres and Certificate IV in Government Investigations.

Mike travelled to Europe, the UK, USA and Japan in early 2025 to meet with marine industry representatives, marine rescue organisations and maritime regulators to study how other jurisdictions have begun to respond to the changes occurring in the marine industry, and to formulate advice for marine rescue organisations and maritime regulators in Australia.




Mike Hammond presenting his Recommendations at ADFA
(Image courtesy Martin Grimm)

*Trev Ruting*

## NSW Section News

### Salvage and Emergency Response

Drew Shannon, Managing Director/Salvage Master, United Salvage gave a presentation on Salvage and Emergency Response on Wednesday 6 August.

The presentation covered work undertaken by United Salvage Pty Ltd, following the collision between the cement carrier *Goliath* and the towage vessels *York Cove* and the *Campbell Cove* on the Mersey River. The presentation discussed the initial containment and removal of hydrocarbons from both

vessels, followed by an overview of the wreck removal operations and methods.

*The Presenter*

Drew Shannon is the Managing Director of United Salvage. He started his maritime career as a deck boy on the Manly Ferries. He then spent twelve years at sea in the Australian Merchant Navy, starting as an AB, sailing on various vessel types. With industry sponsorship, he progressed to deck officer and obtained a Master Class certificate. After a period of sailing as a tug master for Adsteam Marine, he assumed the role of Fleet Operations Manager for Adsteam in 2002, immediately becoming involved in salvage operations. In 2004, he assumed management of United Salvage, which later became Svitzer Salvage Australasia, overseeing all salvage operations in the region and managing Svitzer's responsibilities under the emergency towage services contract with AMSA. In 2020, a reactivated United Salvage saw Drew at its helm.

United Salvage dealt with many well-known marine casualties in the Australasian region, including the *Pasha Bulker,* the *Rena*, and the *Iron Chieftain*.

*Ehsan Khaled*

**Smart Composites for Marine Propulsion: Design, Manufacture, and Structural Monitoring**

On Wednesday 1 October, Gangadhara Prusty, Scientia Professor, UNSW Mechanical and Manufacturing Engineering presented on Smart Composites for Marine Propulsion.

Recent advancements in fibre-reinforced composites have accelerated their adoption in high-performance engineering domains such as aerospace and marine industries. One promising application is the development of composite marine propellers, which offer significant advantages including high strength-to-weight ratio, corrosion resistance, and passive pitch adaptability. This passive pitch change is facilitated by bend-twist coupling—an inherent behaviour of anisotropic composite laminates engineered through tailored fibre orientations.

In this study, a shape-adaptable composite hydrofoil was designed using a structural optimisation approach and manufactured through both Resin Transfer Moulding (RTM) and Automated Fibre Placement (AFP). The AFP process allows for fibre steering at the ply level, providing greater design flexibility and enabling refined control over the structural response. A realistic marine propeller blade geometry with a 36° skew and 25° pitch angle was analysed to assess the influence of fibre steering on parameters such as deflection, twist, and stress distribution under loading.

To evaluate and monitor structural performance, a Structural Health Monitoring (SHM) system based on Rayleigh scattering distributed optical fibre sensors was embedded within the laminate. These optical sensors offer numerous benefits over traditional electrical strain gauges, including light weight, high sensitivity, multiplexing capability, and compatibility with composite manufacturing processes. Experimental testing using cantilever load conditions validated the strain measurements obtained via Optical Backscatter Reflectometry (OBR), with strong agreement observed against numerical simulations.

This work demonstrates the potential of combining advanced composite manufacturing with distributed sensing technologies to enable smart, shape-adaptive marine propeller systems and scalable SHM solutions for future composite structures.

*The Presenter*

Scientia Professor Gangadhara Prusty is an internationally recognised expert in composite mechanics, with research spanning nano- to macro-scale materials and advanced manufacturing automation. He was the Founding Director of the ARC Training Centre for Automated Manufacture of Advanced Composites (AMAC) and the key architect of the $250M Australian Composites Manufacturing CRC (ACM CRC), where he served as the Inaugural Director of Research and Executive Director. He has secured over 100 research grants, published more than 300 papers, and supervised 40 PhD students. A Fellow of Royal Institution of Naval Architects (RINA) and Fellow of Engineers Australia (EA), he is also an award-winning educator known for pioneering innovations in engineering education and structural composites research.

Scientia Professor Gangadhara Prusty presented with thankyou gift by Phil Baldwin

(Photo Ehsan Khaled)

*Ehsan Khaled*

**Indo-Pacific International Maritime Conference and Exposition 4-6 Nov**

A major achievement of conduct of the International Maritime Conference (IMC) component by the faithful band of The Royal Institution of Naval Architects, The Institute of Marine Engineering, Science and Technology and Engineers Australia members has just completed at the Sydney International Convention Centre as part of the Indo-Pacific Maritime Exposition. The overall three day event conducted by AMDA Foundation and Navy this year achieved record attendances and exhibitor numbers with over 100 conference activities conducted.

As identified in the August ANA, the IMC had a most comprehensive range of presentations spread across 15 major streams and a special thanks is due to all of our members involved over the past year in the conduct of the IMC including the impressive array of presenters.

For RINA members, the I-PAC25/IMC also provided the opportunity to meet our new RINA CEO Paul Jobson

through a gathering of some 70 members at the Navantia office in Sussex St on Tuesday organised by the RINA Events Manager Ms Rusne Ramonaite. As mentioned in the President's column in this issue, the event included announcement of the Warship 2026 conference at Optus Stadium in Perth on 30 September and 1 October 2026. The Walter Atkinson Award for 2025 was also presented to Michael O'Connor representing his co-author Dean Bong for their paper published in the November 2024 issue of this journal.

A selection of photos from the IMC and related events is included in this issue.

## Queensland Section

### Progress of Methanol Propulsion

The RINA Queensland section jointly hosted with IMAREST on 20 November an online presentation by Manulal Inasu from Everllence Australia Pty Ltd on the "Progress of Methanol Propulsion".

The presentation covered why methanol is becoming a leading candidate among future marine fuels and how Everllence is developing high speed engine solutions for tugs and small vessels. It also covered technical choices behind the duel-fuel methanol-ready 175D engine and what this means for the tug and workboat industry in terms of performance, emissions and retrofit possibilities. It also touched on how these developments fit into the broader path towards decarbonisation and IMO 2050 goals.

*The Presenter*

Manualal Inasu is the Sales Manager Marine for Australia and Oceania at Everllence Australia, responsible for new engine sales across Australia, New Zealand and the Pacific. Manualal has spent over twenty years in the marine industry, covering technical sales, business development and after sales service management. Manulal holds a Master of Business Administration with a focus on Operations and Finance; as well as a Bachelor of Technology in Mechanical Engineering.

*Trev Ruting from Meeting notice*

## SA and NT Section

### The Future of Education for Naval Architects in Australia - Panel Discussion

In a change from their usual technical presentation program, the RINA South Australia and Northern Territory Section were pleased to host a panel discussion both in person at The University of Adelaide and on-line, on the evening of 17 September 2025.

The panel discussed the future of education for naval architects in Australia. Following the moderated panel discussion, the floor was opened for questions from the audience both at the University of Adelaide and on-line.

Panel representatives from Australian maritime engineering related education providers were on hand to discuss a prepared selection of key questions concerning the needs of Australian industry, the alignment with university education, and what developments in education we may see for the future. They were:

- Prof Anthony Zander, School of Electrical and Mechanical Engineering, University of Adelaide.
- Dr Thomas Chaffre, Maritime Engineering course coordination, Flinders University.
- Dr Robert Palmer, Sales and Business Development, AMC Search, Australian Maritime College (UTas).
- A/Prof Warren Smith, Sean McCracken and David Lyons, Naval Architecture Staff UNSW Canberra (via Teams)

The panel moderator was Andrew Harris from BMT.

**Q1: What is needed by Universities from Industry?**

Universities are under constant scrutiny and constantly battle for funding support. They primarily need students to enter their programs. They need a sustainable ecosystem around shipbuilding and ship sustainment, need retention of workforce, sustainability/support in various forms. Also, students need sustainable careers and reliable pathways for such careers.

The UNSW Canberra course is in effect a niche within a niche course with a focus on naval surface vessels and subsea systems. They currently have their 3rd cohort of students (completing 4th year) of which all but one are RAN Sub-Lieutenants who will typically become marine engineer officers on RAN ships at sea. Warren noted that there are also many civilians working on "grey ships" in the naval architecture field. UNSW Canberra already has good support from the industry by way of guest presenters and good cooperation with AMC by way of annual attendance to conduct tank testing work with AMC staff and facilities. But it does require a sustained "feedstock" of students in the pipeline to be taught naval architecture - including conversion of engineers from other disciplines to naval architects where it would be possible for the engineers to continue their education where they are also employed.

There is an inconsistency in that the industry is indicating a demand for more naval architects, yet viability of UNSW and AMC courses has been tenuous. An impromptu survey of the industry audience suggested about 50% considered they were short of naval architects. There is a need for an ecosystem as there would be few disciplines in Australia that were as small and niche as naval architecture yet so critical to national priorities. The key was for us all to band together as a group. There was also the need for political pressure to sustain the programs. Linkage grants were also mentioned as a means to support programs.

Industry cannot wait for naval architecture students to graduate before engaging with them. It must invest in attracting students to the sector, individually or as a community. The two universities delivering naval architects cannot do it on their own.

**Q2: As educators, what are the risks for running the Naval Architecture and other courses for supporting the naval industry?**

One risk is in finding staff, well-rounded educators who bring

solid experience to share with the students, including being able to draw on their industry networks. It is important to avoid a gulf between the academics and industry. However, it was noted that there is a general requirement now that university lecturers are expected to have a doctorate which places a constraint on the candidate options. That said, there are practitioner exemptions, particularly if a more education focused role is taken.

Critical mass is another risk (of staff and students) and a barrier may be that potential students perceive naval architecture to be a too niche field to study. If the pipeline of students runs dry, universities are then faced with an overcapitalisation of their staff. The cost of facilities is another factor, the facilities don't run themselves.

Another risk was political stability in reference to the way in which major shipbuilding programs have changed at relatively short notice which influences the demand for naval architects in that sector within Australia. Although, aside from the naval sector, there also remained a whole range of civil / commercial naval architecture activities across Australia that requires a supply of graduates.

**Q3: What can industry do to mitigate these risks, including also RINA?**

Actions include broadening recruitment strategy: industry to recognise that as part of their pipeline, some candidates will be trained as 'pure' naval architects while others will have other experiences with naval architecture as an 'add-on'. We also need industry to encourage/volunteer their staff to participate at expos or to act as ambassadors for the profession.

Noting the modest funding currently provided by government to "keep the doors open", our industry is encouraged to talk to politicians to encourage them to increase grant funding to support programs. As programs are always at risk, so continuously need to define and redefine the mission of programs and sustain high-level support. We need to come together as a community to understand each-others roles and needs. We are stronger together than working on our problems in isolation. We also need to grow the awareness within Australia of the need for naval architects. This is an action on both industry and academia. Unlike the pair of naval architecture programs (with additional feeder universities) there are eight aerospace engineering programs currently running across Australia, yet we build few if any aircraft locally and employment is mainly in sustainment. There are around 30 mechanical engineering programs throughout the country.

**Q4: What sort of students are each of the universities intending to produce?**

There is an opportunity to draw on a combination of a trade background and then a Master's program, including a role for mature age students.

Despite acquisition of overseas designs, there remained the need to understand these ships locally hence still required Australian naval architecture support.

While individuals who study naval architecture may not wear a "Principal Naval Architect" label, the tailored education for those in the industry is of paramount importance.

**General Q&A:**

It was indicated that in discussions, many engineering staff within Navy Engineering have a significant interest in further study to branch into naval architecture.

In 2024, REA, the Reengineering Australia Foundation employing 4-6 staff, was unable to secure ongoing funding from the Department of Defence or funding from other government or industry sources. This has led to REA closing and the "Subs in Schools" program ceasing. It has also led to "F1 in Schools", now STEM Racing program, being dramatically paired down as volunteers seek collectively to keep schools engaged. REA's efforts have been stellar and students that have been involved in their programs have been deeply changed. The difficulty in securing funding points to the need for policy decisions in government and industry to underpin with certainty the STEM pathways of national relevance and significance. This is of greatest importance to underpin the planned growth in the maritime sector.

For AMC, Rob Palmer spoke of the value of alumni in promoting the profession to the next generation of potential maritime professionals. The personal stories of recent graduates now working in industry can be inspirational to high school students, so trying to mobilise the alumni to attend university school career fairs could be a successful tactic. Yacht clubs, sea scouts, surf lifesaving clubs and other water-based activity clubs could be another area for outreach, to grab the attention of young members at the age where they start to consider higher education and careers options.

The evening wrapped up with a general consensus that it had been a useful and enjoyable event. Everyone had their part to play in promoting the universities and the institution. Thanks are due to David Whittaker for planning the evening, and to all the panelists for their contributions to the debate.

*Based on attendee notes and Meeting Notice*

## Tasmania Section

### Section Committee Meetings

The Section Committee met on 5 August, 9 September, 7 October and 11 November to discuss upcoming events, networking opportunities and planning the events for year 2026.

## Update on the Australian Institute of Marine Science Research Vessel

The August 2025 public lecture featured speaker Peter Thurling, who is currently the General Manager at Taylor Bros Marine Pty Ltd. His presentation highlighted work he conducted during his tenure at Gibbs & Cox Australia / Leidos Australia and the Australian Institute of Marine Science (AIMS).

In August 2023, Peter gave a presentation on the new AIMS Research Vessel (RV), that at the time was in specification and preliminary design stage. The vessel is novel in that it is the world's first trimaran RV and that presentation focused on the particular challenges of designing an RV for the AIMS area of operations in Northern Australia.

Following the Federal Budget, handed down in March this year, funding for the construction of the vessel was not approved. Unfortunately, this is the reality of many government projects. Peter's 2025 presentation outlined where the project got to, the steps taken to prepare it for construction and how it could potentially be restarted.

The design of the vessel has gone through internal customer review to detailed design. AIMS also contracted DNV to conduct a pre-appraisal on the design to review the design documentation against the requirements of Class for a Registered Australian Vessel (RAV) and the requirements of AMSA's NSCV rule set for a Domestic Commercial Vessel (DCV). This means that when, in future, the project gains approval for construction from the Federal Government, the tender for construction can be released to shipyards with assurance that the design meets the requirements of certification authorities.

The budget for construction of the RV was informed by an Expression of Interest (EOI) process that allowed shipyards to provide an estimate for construction of the vessel. Ten experienced shipyards covering Australia, South East Asia and Europe responded to the EOI providing the project with insight into the expected costs of the vessel construction that informed the business case to government. The EOI also provided AIMS with additional data on project risk, shipyard market appetite and construction schedule expected timeframe. The EOI is a precursor to a future Request for Tender (RFT) process.

Finally, the project was decommissioned in such a way that on a future approval by the Federal Government, the project may be recommissioned, efficiently and effectively, with clear steps to follow to move from project approval to shipyard contract. The steps include a review of the project requirements with stakeholders to ensure that the RV use cases are still valid, and a review of the design to ensure that it meets AIMS requirements. The RV designers will be reengaged and the draft shipyard contract reviewed to ensure it is ready for RFT.


Richard Boult (Right) presenting a bottle of wine to Peter Thurling as a token of appreciation at the end of presentation

(Image courtesy Nipuna Rajapaksha)

been achieved, the project has been left in the best possible position to recommission once project approval has been granted.

*Nipuna Rajapaksha*

**The Hydrodynamic Performance of Novel Offshore Fish Pens**

Dr Eric Gubesch presented in Launceston on 16 September on the results of hydrodynamic testing of a proposed new offshore fish pens. As coastal areas reach capacity and environmental pressures intensify, the transition to offshore aquaculture presents a necessary pathway for sustainable seafood production, though it demands engineering solutions capable of withstanding the dynamic conditions of the open ocean. To address this challenge, the Blue Economy CRC developed the novel SeaFisher fish pen, balancing offshore productivity with enhanced survivability.

The newly proposed structure is designed using high-density polyethylene as the structural material, and includes a 2 × 6 array of pens, each measuring 20 m × 20 m × 20 m. The structure is engineered to be submersible to a depth of 30 metres to protect its structural integrity and ensure the health and wellbeing of the finfish during severe storms.

The lecture presented experimental results from a comprehensive hydrodynamic study conducted in the Towing Tank at the Australian Maritime College, University of Tasmania. The research quantified rigid-body motions and mooring forces acting on the SeaFisher system in both surfaced and submerged configurations under extreme sea states representative of exposed offshore environments.

*The Presenter*

Dr Eric Gubesch is a lecturer at AMC and a maritime engineer specialising in the experimental and numerical hydrodynamics of offshore structures, with research focusing on nonlinear wave–structure interactions for renewable energy and aquaculture applications. As a Postdoctoral Research Fellow with the Blue Economy CRC, he developed artificial upwelling systems for macroalgae


Dr Eric Gubesch Presentating at AMC Auditorium

(Image courtesy Nipuna Rajapaksha)

production and quantified the hydrodynamic behaviour of the SeaFisher fish pen concept in extreme sea states. Previously, with the Australia–China Joint Research Centre for Offshore Wind and Wave Energy, he conducted large-scale experiments on co-located wind and wave energy systems, advancing knowledge of their hydrodynamic interactions and performance optimisation. Dr Gubesch brings expertise in model-scale testing, extreme sea state modelling, and numerical analysis using ANSYS AQWA and Siemens STAR-CCM+, continuing to bridge theoretical hydrodynamics with practical offshore solutions.

*Nipuna Rajapaksha*

**Operational Perspectives on HDPE as a Boat Building Material**

Dr Jason Cummings presented in Hobart on 21 October 25. As a result of a customer requirement for a durable, low-maintenance vessel capable of reliable performance in the harsh marine environments of Tasmania, Sentinel Boats experimented with high-density polyethylene (HDPE) as the primary boatbuilding material of a vessel they called an AquaTruck 28 years ago. That vessel came in for its first major repair only last year after a lifetime of service in the Aquaculture industry where we are assured, she was worked hard.

Sentinel Boats have found that HDPE provides a unique combination of operational benefits including impact absorption, abrasion resistance, and simplified repair processes. These properties influence both the handling of the vessel and the design strategies required to achieve structural stiffness and fatigue resilience.

The presentation described an operator's perspective of HDPE vessels with a particular focus on how the material's flexibility reduces operator fatigue, its acoustic damping enhances crew comfort, and its robustness lowers lifecycle costs. Attention is also given to the design constraints imposed on naval architects, who must adapt hull geometry and framing arrangements to balance HDPE's inherent flexibility with the stiffness demanded for vessel construction and operation. The lecture included a description of design, construction methods and repair practices and highlighted the material's advantages for small craft design, manufacture and operation.

*The Presenter*

Dr Jason Cummings is a maritime professional and educator with over 30 years' experience in seafaring, training, and organisational leadership. He leads on-water operations at Sentinel Boats, overseeing sea trials and safety systems for defence, government, and commercial vessels, building on his previous role as Head of Technical Operations where he guided ISO 9001 implementation and Industry 5.0 processes. As Director of Tasman Adventures Sailing School, he delivers RYA courses up to Yachtmaster Ocean, examines Yachtmaster candidates, audits RYA centres across Australia, and instructs in diesel engines, powerboat operations, and safety and sea survival. Holding an MCA Master of Yachts (Unlimited), RYA Yachtmaster Examiner certification, AMSA Coxswain NC, and Powerboat Level II, with more than 80,000 NM sailed, he combines practical seamanship with educational and governance expertise. He also holds a PhD in Inclusive Education and a Master's in Outdoor and Environmental Education, uniting academic rigour with the delivery of high-quality maritime training.

Richard Boult (Right) presenting a bottle of wine to Dr Jason Cummings as a token of appreciation at the end of presentation
(Image courtesy Nipuna Rajapaksha)

*Nipuna Rajapaksha*

## WA Section

**Section Committee Meetings**

The WA Section Committee met on 17 September and 13 November to secure a program of future technical presentations events for year 2026. The Section chair represented RINA WA at the WA Defence Summit and the Submarine Institute of Australia Conference. Representation at 2026 conferences including the Energy Exchange Australia (EXA) 26 conference to be held in Perth in March and the Indian Ocean Defence and Security (IODS) 26 conference 26-28 May.

Mal Waugh has taken over as WA Section Secretary with Matt McGellin assisting.

*Mal Waugh*

# Indo-Pacific 2025 International Maritime Conference (IMC)


IMC Organising Committee chair Adrian Broadbent chairs the Opening Ceremony
(Image RINA)


Romilly Madew, CEO of Engineers Australia,
presents the opening address
(Image AMDA Foundation)

Alex Walsh of ASC delivers keynote address
(Image AMDA Foundation)


RINA CEO Paul Jobson with Belinda Tayler at the
Expo stand
(Image RINA)


Andrew Harris of Ironbark Strategic presents on the
maritime strategic fleet
(Image Rob Gehling)

Andy Harris of BMT Australia outlines developments on alternative fuels
(Image Rob Gehling)

Levi Catton and Peter Blackwood of Gibbs & Cox Australia give a joint presentation on naval ship casualty risks
(Image Rob Gehling)


Zoe Chadwick of Leidos presents on uncrewed operations
(Image Rob Gehling)


Mal Wise,Principal of AMC delivers his keynote address]
(Image Rob Gehling)

Hamed Majidiyan of AMC presents on sea state estimation
(Image Rob Gehling)

Britany Clayton of RAND Corp presents on digital engineering of acquisition
(Image Rob Gehling)

William Jones of University of Sydney discusses robotisation of setting drydock keel blocks]
(Image Rob Gehling)


Division President Prof Binns at the RINA stand
(Image AMDA Foundation)

Jamie Gibbs of Navantia Australia hosts Members Night
(Image RINA)

CEO Paul Jobson addresses Members Night
(Image RINA)

The view from Navantia Australia offices on Members Night
(Image RINA)

Members Night gathering
(Image RINA)

UNSW Canberra presenting students with RADM Rachel Durbin flanked by academic staff (from left) Sean McCracken, David Lyons and Warren Smith
(Image AMDA Foundation)

Panel session on RAN energy transition Jeffrey Moloney (Everlience Australia), Thomas McLean (BMT), David Evans (DSTG), CMDR Kristian Brown & Ewan Farquarson (Navy Engineering,) chaired by Kelly Smith (IMarEST)
(Image RINA)

President Jonathan Binns presents Walter Atkinson Award 2025 to Michael O'Connor
(Image RINA)

Adrian Broadbent addresses networking function
(Image AMDA Foundation)


Denis Medlow of Saab Australia presents on R&D collaborative model
(Image Rob Gehling)

IMC's key personnel, Serena Davy and Adrian Broadbent enjoy networking function
(Image AMDA Foundation)

RINA CEO Paul Jobson announces WARSHIP 2026 conference in Perth at networking function
(Image AMDA Foundation)

IMC Convenor and AMDA Foundation Director RADM du Toit speaks at networking function
(Image AMDA Foundation)


Networking function harbourside at the Australian Maritime Museum
(Image RINA)

Rob Gehling (RINA), Karen Barletta (EA), Paul Jobson (RINA), Ricky Pena (EA), Bruce Howard (EA) and Rusne Ramonaite (RINA) meet at Australian Maritime Museum
(Image AMDA Foundation)


RINA CEO Paul Jobson closes the IMC
(Image AMDA Foundation)

## New SOLAS Lifting Appliance Rules apply from 1 January 2026

The International Maritime Organization (IMO) has adopted new mandatory safety requirements for onboard lifting appliances and their associated loose gear through SOLAS Regulation II-1/3-13. This regulation, effective from 1 January 2026, aims to prevent accidents, enhance safety, and establish uniform standards for the design, construction, installation, and maintenance of this equipment. These requirements are applicable to a wide range of lifting appliances, including cargo cranes, engine-room cranes, stores cranes, and hose handling cranes.

Application for Lifting Appliances

The new regulation applies to lifting appliances on board ships certified under the SOLAS Convention, with some exceptions, such as those on Mobile Offshore Drilling Units (MODUs).

Equipment Covered: The regulation covers various types of lifting appliances, including those used for cargo handling, stores, engine rooms, and personnel.

SWL below 1,000 kg: Flag Administrations shall determine to what extent the new requirements do not apply to lifting appliances which have a safe working load below 1,000 kg. In the absence of such specification, it is our understanding that SOLAS Chapter II-1, Regulations 3-13. 2.1 and 3-13.2.4 apply to all Lifting Appliances, irrespective of their safe working load.

SOLAS Regulation II-1/3-13 distinguishes the following categories of lifting appliances.

**New Lifting Appliances**:

1. Any installation date of Lifting Appliances onboard ships for which the keel is laid or which are at a similar stage of construction on or after 1 January 2026 (see SOLAS Chapter II-1/2.33.1); or
2. The contractual delivery date, or if no contractual delivery date has been specified, the actual delivery date of the Lifting Appliances on or after 1 January 2026 (SOLAS Chapter II-1/2.33.2);

**Existing Lifting Appliances**:

Lifting Appliances installed onboard all ships before 1 January 2026

Compliance for Lifting Appliances

**New Lifting Appliances**:
All new lifting appliances must be designed, constructed, and installed in accordance with the requirements of a recognized classification society. Prior to first use, they must undergo a load test and a thorough examination. Additionally, they must be permanently marked with their SWL and other essential information.

**Existing Lifting Appliances:**

Lifting appliances installed before 1 January 2026 should fulfil the following requirements no later than the date of the first renewal* survey on or after 1 January 2026 to comply with SOLAS Chapter II-1/3-13.2.4:

1. be tested and thoroughly examined in accordance with MSC.1/Circ.1663;
2. be permanently marked with the Safe Working Load (SWL); and
3. be provided with documentary evidence of the SWL.

Supporting IMO Guidelines (MSC.1/Circ.1663)

To ensure compliance, the IMO has approved supporting guidelines, MSC.1/Circ.1663, for the maintenance, operation, inspection, and testing of all lifting appliances and their associated loose gear. These guidelines outline a comprehensive regime of inspections, maintenance, and testing, which should be incorporated into the ship's planned maintenance system unless otherwise instructed by the flag.

A pdf version of the guidelines may be downloaded.

*Bureau Veritas Newsroom*

## DNV launches first-of-its-kind tender portal to accelerate e-methanol adoption for industry and shipping

DNV is launching the industry's first public tender portal for e-methanol procurement within the European Union and the United Kingdom. The initiative connects a leading e-methanol producer with industrial offtakers across EU and UK markets, creating a new pathway to secure long-term, reliable supplies of this key low-carbon fuel.

As the global energy transition accelerates, demand is growing for clean energy carriers that can decarbonize hard-to-abate sectors like maritime transport, heavy industry, and aviation. Among e-fuels, e-methanol stands out as a technically mature, scalable and commercially viable solution. Produced from renewable hydrogen and captured biogenic carbon, it supports compliance with key European regulatory frameworks, including RED III, Fit for 55, EU ETS, ReFuelEU Aviation, and FuelEU Maritime, and contributes to achieving the International Maritime Organization's decarbonisation targets.

Across Europe, renewable fuels of non-biological origin (RFNBOs) are becoming central to national decarbonization strategies. Several member states (including Germany, Spain, France and Belgium) are adopting or proposing blending mandates that exceed EU-level targets, in some cases doubling or quadrupling the minimum thresholds. Meanwhile, constraints on biofuel feedstock and tightening regulations are putting upward pressure on prices and supply, highlighting the need for alternative renewable fuels to meet national and regional targets. However, sourcing reliable and verifiable supply remains a market barrier.

To bridge this gap, and acting on behalf of a European e-methanol producer, DNV has structured a transparent, competitive tender to secure long-term offtake agreements for upcoming RFNBO-certified volumes across the EU and UK. The tender enables companies to lock in reliable, price-stable, and regulation-compliant supply, ensuring predictability and alignment with future fuel mandates while

reducing exposure to compliance risks. It is open to industrial users, maritime operators, traders, and other organizations committed to net-zero targets and sustainable sourcing.

The tender process consists of two stages:

1. A non-binding qualification phase to identify a shortlist of serious potential offtakers.
2. A second phase of direct negotiations between the shortlisted parties and the producer.

This structured approach enhances confidence for all participants and supports the establishment of e-methanol as a bankable commodity. The product offered will be fully compliant with RED III and the Delegated Acts governing RFNBO certification, with certification in place from project start. Production will take place in, with flexible delivery options to offtakers across the EU and UK with an expected start of delivery date in H2 2028.

DNV.com *13 October 2025*

## DNV awards HD Hyundai Mipo Approval in Principle for Amonia Duel Fuel Medium Gas Carrier

DNV has awarded an Approval in Principle (AiP) to HD Hyundai Mipo Dockyard (HD HMD) for an ammonia dual-fuel medium gas carrier (MGC) design featuring a forward accommodation layout. The AiP was presented to Mr. D.J. Lee, Executive Vice President / Head of Initial Design Division & Detailed Design Division at HD HMD, Vidar Dolonen, Regional Manager for Korea & Japan at DNV, during a ceremony at Gastech 2025.

The vessel concept relocates the crew accommodation block to the fore section, providing new flexibility and additional useable space on board - enabling the application of environmentally friendly technologies, such as carbon capture and storage units, alternative fuels, or other energy efficiency or emission reduction solutions. This design also realizes sufficient space for installing an ammonia dual-fuel propulsion system and carbon capture equipment, while providing flexibility for integrating future technology solutions to comply with shipping's rapidly evolving environmental regulations.

An Approval in Principle (AiP) is an independent evaluation of a concept based on a predefined framework of requirements. It confirms the feasibility of the design and ensures there are no significant technical obstacles hindering its implementation.

DNV.com *12 September 2025*

## LR facilitates International Workshop on the integration of a modular micro reactor (MMR) into a stern landing craft vessel.

Lloyd's Register (LR) has successfully conducted a Hazard Identification (HAZID) workshop to evaluate the potential risks and operational factors for modular micro reactor (MMR) nuclear technology in maritime settings.

This innovative approach could pave the way for propulsion and sustainable energy solutions in remote or off-grid locations using sea-based platforms.

The international workshop, in collaboration with Queensland's ship design group Seatransport and Houston-based Deployable Energy, brought together multidisciplinary experts at Seatransport's headquarters on the Gold Coast in Australia.

The session focused on risk management strategies, safety systems, regulatory frameworks, and vessel design implications, aiming to clarify certification pathways and compliance benchmarks. With safety and regulatory integrity at the forefront, the workshop offered key insights into the feasibility and requirements for operational readiness, once the vessel meets nuclear licensing requirements.

The workshop is part of a collaboration between Seatransport, Deployable Energy and LR, a global professional maritime services group, to develop nuclear power generation for different applications, including propulsion and strategic emergency response in remote areas.

Using micro modular reactor (MMR) technology, two MMRs will provide the 73-metre stern loading vessel power enabling the vessel to operate for 8-10 years without refuelling and supply power to shore grids during port docking or in affected zones.

*LR Press release* *4 July 2025*

## LR Issues Nuclear-Powered Ships Guidelines

The LR Nuclear Guidance document, compiled in partnership with North Standard and Global Nuclear Security Partners (GNSP), outlines the growing need for reliable and compliant energy sources in maritime industries, particularly for commercial shipping and offshore operations. It introduces nuclear power as a viable solution and highlights the complex challenges involved in its integration, including regulatory, legal, and economic considerations.

The guidance aims to support engineering and product development efforts by offering a structured approach to deploying nuclear technologies in maritime environments.

The document covers the regulatory and technical frameworks necessary for successful implementation, plus also discussing the roles of key bodies such as the International Maritime Organization (IMO) and the International Atomic Energy Agency (IAEA), stressing the importance of harmonising maritime and nuclear standards. Topics covered include safety classification, environmental impact assessments, structural integrity, and the development of a robust nuclear safety case. Security measures are also addressed, with emphasis on physical and cyber protection systems, as well as insider threat mitigation.

Operational and financial aspects are also thoroughly explored, including personnel qualifications, emergency response planning, and quality assurance throughout the project lifecycle. The document examines insurance and reinsurance challenges, advocating for a predictable liability framework to support commercial viability. Also providing a roadmap for adoption, guiding stakeholders through public engagement, design activities, and regulatory processes.

The conclusion reinforces the potential of nuclear energy in maritime sectors and calls for early, collaborative

stakeholder involvement to refine and implement the guidance effectively.

A link to the detailed paper is provided in the LR media release.

*LR Research report* *16 October 2025*

## Revised Marine Orders 16 (Load Lines) and 19 (Tonnage Measurement) Now In Force

The updated Marine Order 16 (Load lines) 2025 (MO16) and Marine Order 19 (Tonnage measurements) 2025 (MO19) came into effect on 1 September 2025.

The updates ensure Australia's regulations are aligned with international standards to support safer and more effective maritime operations.

These changes will apply to:

- owners and operators of RAVs
- owners and operators of DCVs
- foreign vessels operating in Australian waters.

MO16 gives effect to the International Convention on Load Lines. It sets out requirements for:

- vessel certification as proof of survey and compliance with the convention
- vessel load line markings
- determining when a vessel is considered overloaded.

MO19 implements the International Convention on Tonnage Measurement of Ships. It deals with vessel certification as proof of compliance.

Key updates

- Commercial yachts: clarifies that an Australian recreational vessel when operating as a commercial yacht and becomes RAV, it is subject to the International Convention on Load Lines and MO16 applies to it.
- International Tonnage Certificates: gives AMSA or a recognised organisation (RO) the power to issue International Tonnage Certificates to eligible Australian-flagged recreational vessels.
- Domestic commercial vessels: allows domestic commercial vessel (DCV) owners to apply for an International Tonnage Certificate.
- Improved clarity: updates to both marine orders for consistency with other contemporary marine orders. The updates include simpler, clearer language and corrections for ease of understanding.

Public consultation on the proposed amendments was undertaken from Feb-March 2025. The feedback report and revised Marine Orders are available from amsa.gov.au.

*Australian Maritime Safety Authority* *1 September 2025*

## Lloyds Register Guidance Notes for the Manufacture, Testing and Certification of Additive Manufactured Polymer Parts

As part of its continual commitment to adopt new technologies and industry practices, Lloyd's Register (LR) has enhanced its Rules and Regulations by releasing the following update: Guidance Notes for the Manufacture, Testing and Certification of Additive Manufactured Polymer Parts.

This Guidance Note update focuses on Polymer Additive Manufacturing to marine and offshore rather than the more generic all-industries approach of the previous version. It provides our clients with the framework to produce such polymer parts for certification and classification, enhancing their quality and fulfilling their application requirements through LR's robust assurance processes.

This update complements LR's existing suite of Guidance Notes for Additive Manufacturing:

- Guidance Notes for the Manufacture, Testing and Certification of Additive Manufactured Metallic Parts
- Guidance Notes for the Certification of Consumables for Wire-Arc Additive Manufacturing
- Guidance Notes for Certification of Metallic Powders for Additive Manufacturing.

To access our LR Rules or Guidance Notes, find Regs4ships, at lr.org.

*Lloyd's Register* *22 July 25*

## Bureau Veritas Launches Fleet Energy and Compliance Planning Program

Bureau Veritas Marine & Offshore (BV) has launches OptiCARBON, a predictive decision-making application designed to help operators in the ferry, RoRo and cruise sectors manage energy use and regulatory compliance.

The SaaS platform uses BV's digital vessel models to simulate operational, regulatory and financial scenarios and test different decarbonisation pathways, assessing emissions reductions alongside regulatory cost exposure, including EU ETS and FuelEU Maritime.

The modular system is intended to support fleets of different sizes and vessel types, with options to expand as new regulations and technologies emerge. Brittany Ferries is among the first users, applying the technology for compliance mapping and emissions forecasting to support its EU ETS requirements.

*Rob O'Dwyer* smartmaritimenetwork.com *16 September 2025*

## July 2025 Edition of DNV Class Rules Enter Into Force 01 January 2026

The July 2025 edition of DNV's rules and standards for the classification of ships and offshore units will enter into force on 1 January 2026. Following a constructive hearing process, 119 documents have been published. This news highlights key changes introduced in the new edition.

DNV ship rules and standards affected:

- Revised assessment methods for propellers and clarified requirements for thrusters (Pt.4/Ch.4, Pt.6/Ch.6)
- Complete revision of rules for water jets (Pt.4/Ch.5/Sec.2)
- New qualifier Offshore service vessel, T-LOG

facilitating enhanced reporting from anchor-handling operations (Pt.5/Ch.9)

- Update of requirements to alternative fuels, new qualifier Hydrogen for Fuel ready notation and WAPS ready for vessels built to accommodate a future installation of WAPS (Pt.6/Ch.2)
- New notation $CO_2$ RECOND for vessels preparing $CO_2$ for offloading (Pt.6/Ch.4/Sec.17)
- Updated Walk2work notation and introduction of the in-operation Walk2work notation (Pt.6/Ch.5/ Sec.16, Pt.8/ Ch.4/Sec.8)
- Introduction of in-operation class notation Clean containing. requirements for ship owners/managers (Pt.8/Ch.4/Sec.3)
- Class notation Connect changes name to DDV (data-driven verification) (Pt.8/Ch.3)

DNV offshore rules (DNV-RU-OU)

- Revised and updated Abate class notation, including new qualifiers PE for power from external sources and CCW for carbon capture from well stream (for production units) (RUOU-0101, RU-OU-0102, RU-OU-0103, RU-OU-0104)
- New Sustainability class notation for showing compliance with the UN Sustainable Development Goals (RU-OU-0101, RU-OU-0102, RU-OU-0103, RU-OU-0104)
- New qualifier $CO_2$ for DRILL class notation, for requirements for drilling $CO_2$ injection wells (RU-OU-0101, RU-OU-0104)
- Class notation Connect changes name to DDV (data-driven verification) (RU-OU-0300)
- New MIM class notation for mooring integrity manage-ment (RU-OU-0300)

DNV offshore standards and statutory interpretations (DNV-OS and DNV-SI)

- Revised and updated material requirements, and fabrication and testing of offshore structures to align with rules for ships (OS-B101, OS-C401)
- Restructured and updated structural standards for column-stabilized units, tension-leg platforms and deepdraught floating units to align with other offshore structural standards (OS-C103, OS-C105, OS-C106)
- Revised and updated requirements for electrical systems to align with ship rules, IACS and other international standards (OS-D201)
- Revised and updated requirements for (N) notation for Norwegian continental shelf to align with updated acknowledgement of compliance (AOC) handbook and change of name of regulator from PSA to Havtil (SI-0166)

The rules may be applied to projects contracted before the entry into force date, provided all parties agree. DNV publishes one main rule edition annually, with the next edition scheduled for release in July 2026. Occasionally, additional amendments may be introduced between the main editions. These amendments are announced in the Rules & Standards Explorer

DNV.com *1 July 2025*

## ClassNK issues Approval in Principle (AiP) for "SROC" developed by Samsung Heavy Industries

ClassNK has issued an Approval in Principle (AiP) for "Samsung Remote Operation Center (SROC)", a shore-based remote monitoring system developed by Samsung Heavy Industries Co., Ltd., and a certificate handover ceremony was held in KORMARINE 2025.

ClassNK is involved in various demonstration projects and continuously works to develop necessary safety standards, in order to support the development and implementation of automated/autonomous operation technologies from a safety perspective. Based on these experiences, ClassNK released its "Guidelines for Automated/Autonomous Operation of ships" which comprehensively summarizes the requirements for each stage of conceptual design, design development, installation, and maintenance during the operation of automated/autonomous operation technologies. These guidelines also set out the requirement of the specific safety requirements for remote operation systems and their specific safety evaluation methods.

For the concept design of "SROC", ClassNK conducted its safety review based on the requirements of "Guidelines for Automated/Autonomous Operation on ships" and examined the risk assessment through HAZID involving relevant stakeholders. Having confirmed its compliance with the requirements, ClassNK issued the AiP.

ClassNK will continue to improve the environment for the use of automated/autonomous operation technologies by providing standards for advanced initiatives and technological verification.

*ClassNK.com* *22 October 2025*

## DNV: Fleet readiness surges ahead of fuel supply - green transition at a tipping point

By 2030, the alternative-fuelled fleet will be able to burn up to 50 million tonnes of oil equivalent (Mtoe) of low-greenhouse gas (GHG) fuels annually, double the estimated volume needed to meet the International Maritime Organization's (IMO) 2030 emissions target. Yet today, actual consumption of low-GHG fuels remains at just 1 Mtoe. This widening gap between capacity and use highlights both the scale of industry commitment and the urgent need for fuel producers and infrastructure developers to accelerate supply to match the fleet's readiness.

> "The stage is set for the next phase of the maritime energy transition," said Knut Ørbeck-Nilssen, CEO of DNV Maritime. "The IMO's Net-Zero Framework has imperfections and greater clarity is urgently needed around how the collected money will be spent. It is already influencing investment decisions, operational choices and fuel strategies across the industry. Shipowners will adjust their strategic

priorities pending the October IMO meeting, which will lay the foundation for decades ahead."

The ninth edition of DNV's Maritime Forecast to 2050 provides a comprehensive analysis of the fuels, technologies, and regulations shaping the future of shipping, assisting decision-makers in navigating the next phase of the energy transition.

The report outlines several solutions that could help bridge the gap between fleet readiness and fuel availability including:

- Leveraging existing fuel infrastructure for low-GHG fuels, like biodiesel and bio-LNG,
- Energy-efficiency measures on newbuilds are increasingly deployed,
- Onboard carbon capture (OCC) is gaining traction, particularly for large vessels with available onboard space.
- 2025 could be a breakthrough year for maritime wind energy.

This year's Maritime Forecast to 2050 report urges stakeholders to prepare early and evaluate all cost-effective pathways, recognizing that compliance strategies will vary by vessel type, operational profile, and regulatory exposure.

The full report may be downloaded from dnv.com

*Margrethe Andersen DNV.com* *11 September 2025*

## Ammonia's Path to Low-GHG Fuel for Shipping

Moving from concept to early-stage implementation in just five years, ammonia has a path to becoming a low-GHG fuel alternative for deep-sea shipping, according to a new paper from DNV.

DNV's new report, *Ammonia in Shipping: Tracing the Emergence of a New Fuel,* addresses the key barriers to the uptake of ammonia and outlines a two-phase pathway for its widespread adoption in shipping. The first phase would see the building, fuelling, and operation of a pioneering ammonia-powered fleet consisting of a few dozen vessels, crewed by a few hundred competent personnel, and bunkering a few million tonnes of ammonia from a dozen ports. The second phase would include scale up with global infrastructure, production and IMO regulations.

According to the report, ammonia as ship fuel has made measurable progress since 2020 across regulation, technology, and infrastructure. Safety frameworks have evolved from risk-based approvals to interim guidelines by the International Maritime Organization (IMO) and annually updated class rules. Technical readiness is advancing with 39 ammonia-fuelled vessels on order, commercial engines available, and the first use of the fuel demonstrated. Production of blue and green ammonia is currently low, but confirmed plans in place will see it rise to 14 million tonnes per annum (MTPA) by 2030. Bunkering infrastructure is also emerging, with trials completed in key ports including Singapore and Rotterdam.

The full report may be downloaded from dnv.com

*Margrethe Andersen dnv.com* *3 September 2025*

## OMC International Keel Clearance (UKC) System Receives ClassNK Approval

Tokyo - ClassNK has granted its Innovation Endorsement for Products & Solutions to a Keel Clearance (UKC) predictive port management system "Dynamic UKC System (DUKC®)" developed by OMC International.

In order to promote the spread and development of innovative technologies, ClassNK has offered Innovation Endorsement for Products & Solutions. ClassNK supports the deployment of products and services through third-party certification for equipment and software technology with innovative functions. The detailed information is available on the ClassNK website.

Product name: Dynamic UKC System (DUKC®)

Scope of Certification:

1. Calculates the maximum safe sailing draft for a vessel based on its dynamic under keel clearance requirements specific to its transit
2. Calculates the earliest and latest times for which a vessel's transit can safely commence (sailing window) based on its dynamic under keel clearance requirements
3. Increases cargo volume at ports
4. Calculates the depth required at every location along a channel to ensure safe navigation
5. Calculates the required under keel clearance that a vessel requires for a specific transit based on the prevailing environmental conditions

Detailed information on this product and solution is available from the OMC International webpage.

*OMC International Website* https://omcinternational.com/

## ABS issues Full Class Certification for 20m Saildrone Unscrewed Surface Vessel (USV)

Saildrone announced on 27 August '25 that the Saildrone Surveyor, the largest of our three unmanned surface vehicle (USV) platforms, has received full classification from the American Bureau of Shipping (ABS). This milestone follows a similar classification for the Voyager, Saildrone's coastal and near-shore USV, which received ABS class in 2023.

While other platforms have received certificates or interim approvals under evolving unmanned vessel frameworks, no other USV or UUV has yet received full classification status from any classification society. ABS is the first to grant full class to an unmanned platform, marking a key milestone for the industry and for Saildrone..

This landmark achievement sets a new global benchmark for unmanned systems and highlights Saildrone's leadership in developing fully classed, open-ocean-capable USVs. For unmanned platforms like the Saildrone Surveyor and Saildrone Voyager, the review goes beyond "the steel". ABS examined the Surveyor's autonomous control systems, cybersecure communications, structural integrity, and fail-safe redundancies, ensuring the vehicle can safely operate without crew, even in complex, unpredictable ocean conditions.

The classification notation assigned is ✠A1, DV Naval Craft, AUTONOMOUS (NAV, MNV, PRP, AUX, RO3), which follows ABS's "Rules for Building and Classing Light Warships, Patrol, and High-Speed Naval Vessels (2023)."

The 20metre Surveyor is capable of long-endurance missions in the open ocean, collecting deep-ocean bathymetry and performing a wide range of maritime domain awareness tasks—from anti-submarine warfare (ASW) to trans-ocean cable route surveys.

*Saildrone* www.saildrone.com *27 August 2025*

## ABS and Korean Agency for Technology and Standards (KATS) sign MOU on Standardisation of 'Smart Ship' Technology

ABS and the Korean Agency for Technology and Standards (KATS) signed a memorandum of understanding (MOU) to explore the international standardization of smart ship and shipyard technologies related to shipbuilding and ship maintenance, repair and overhaul.

Through a series of joint workshops and seminars, the organizations will exchange information to strengthen international standardization capabilities and streamline certification procedures for Korean equipment manufacturers. The MOU also allows ABS and KATS to develop a conformity assessment framework to verify equipment compliance with various international regulations.

*ABS* *5 November 2025*

## Lloyds to provide Classification Services to BAE Systems Aust for Hunter Class Construction

Lloyd's Register (LR) has been awarded a contract from BAE Systems Maritime Australia (BAESMA) for Naval Classification New Construction Services for the first three Royal Australian Navy Hunter class frigates. The Hunter class frigates are based on the design of the UK Type 26 frigate and are being built at Osborne Naval Shipyard in South Australia.

Under the contract, LR will ensure that the design and construction of the anti-submarine warfare frigates are compliant with LR Rules and Regulations for the Classification of Naval Ships. The contract will continue through to entry into service of the third ship and ensure all three frigates meet the requirements of international ship standards for quality, safety, and reliability to help protect Royal Australian Navy sailors.

Working onsite at the Osborne Naval Shipyard, LR has been involved with the Hunter Class Frigate Program since 2020, bringing trusted and embedded knowledge of the project's processes and procedures. BAESMA and LR are committed to delivering Hunter class frigates to the Commonwealth, with LR's Naval Classification ensuring that the Royal Australian Navy has the capability it needs at sea.

*APDR* *9 November 2025*

# From The Crows Nest

## WSR Spirit of Australia 2

Dave Warby and the Warby Motorsport team are attempting to break the Unlimited World Water Speed Record with Spirit of Australia 2. That record was set by David's father, Ken Warby, with Spirit of Australia on Blowering Dam in NSW on 8 October 1978, now over 47 years ago. That record, measured as a two-way average speed, stands at 317.6 mph (511.1 km/h).

With Blowering Dam back to about 60% of capacity, the team had planned to conduct further trials on both days of the weekend of 30-31 August 2025. However strong wind forecasts the previous day resulted in deferring trials until Sunday. While the winds on Saturday weren't finally as severe as had been forecast, the boat remained under cover at Talbingo. Conditions improved enough by Sunday that David was able to complete three runs with adjustments in between.

Since the previous trials, the planing ski under the rear of the boat had been modified. In the first run David achieved about 240 km/h but as he explained: "it was porpoising as the modified ski also changed how the boat sits on the water, requiring adjustments to the horizontal stabilizer to suit the new setup". Following additional adjustment of the tailplane incidence ashore, he performed a second run and achieved about 338 km/h. However the craft continued to porpoise, though less so. On the third run, following a further incidence adjustment, David started the run closer to the dam wall as water conditions at the northern end of the reservoir were better and he pushed the boat to peak of 434 km/h at that end of the course, although the ride remained a bit rough.

Spirit of Australia 2 shortly after engine startup with the assistance of crew and a battery bank on board one of the support boat at Blowering Dam on 31 August
(Photo courtesy Martin Grimm)

While David has exceeded this speed previously, improving the behaviour of the craft was considered necessary before attempting greater speeds.

As always, a mix of regular supporters and new spectators turned up to witness the trials. David said "We had people there from Perth and Adelaide… so many people say it is such a good community thing; it has a solid group following who come down".

As is typical practice, David made a few passes close to the shore at The Pines so the spectators could see the boat up close as the as the 8 km record course is 1 km out from the shoreline where the craft is launched.


David and the team adjusting tailplane incidence angle of Spirit of Australia 2 at The Pines, Blowering Dam on 31 August
(Photo courtesy Martin Grimm)

As with any form of unlimited speed record-breaking in this day and age, David notes the biggest hurdle is securing permissions and approvals from authorities to run a jet boat on a body of water. They get roughly three opportunities per year (about one and a half days each) to conduct trials. Gone are the days from the 1930s to the 1970s when teams could set up camp next to a lake for weeks to develop a boat for a world record, testing multiple times a year virtually whenever you liked.

This is a challenge for any speed record challenger, on land or water, in 2025. The original Spirit of Australia throughout its running life in the 1970s averaged around 10 runs per year over four years, with access to waterways throughout Australia—very different times and legislation.

David feels they would ideally need a week or two on the water, given the boat's current state, to fine-tune it. Running when the weather is reasonable would help mitigate risks but the team has to book and get approvals for tests ten weeks in advance. So they have to accept the weather conditions they are handed on the day, or otherwise cancel attempts. He also notes it is easy to get good water conditions over shorter stretches but over the full 8 km course, you can experience four different kinds of wind & water in one run,

The team returned to Blowering dam on 8-9 November however conditions were generally choppy for the first day and a half. Fortunately, the wind abated by Sunday afternoon allowing David to achieve his highest peak speed to date at 450km/h in relatively calm water.

Since there isn't a wealth of design guidance for developing unlimited water speed record craft, the team adopt a trial-and-error approach gaining experience from trials. Support would always be welcome in the way of further computational or experimental analysis to gain greater insights into the behaviour of the boat at higher speeds. The combination of hydrodynamic and aerodynamic forces and moments acting on the craft are complex and non-linear.

A mobile crane is required to lower Spirit of Australia 2 into the water at Blowering dam. The crane travels to and from Tumut to support every trial. This is just one example of the logistics involved in organising each weekend of trials

(Photo courtesy Martin Grimm)

*Martin Grimm & 'Spirit of Australia 2' Facebook page*

### WSR Bluebird K7

For anyone who may have planned to visit the Bluebird K7 at The Ruskin Museum at Coniston in the UK Lake District, the museum reports that the craft only remain on display until 5th November 2025. Thereafter she will be back at St Athan for preparations prior to her running on Coniston Water in 2026. The date for her return to Coniston is not confirmed as yet but aimed to be in March 2026.

Bluebird K7 on display at The Ruskin Museum
(Ruskin Museum website)

Dates for running Bluebird are also yet to be set. This requires approval of a speed exemption to run on the lake which in turn requires plans to be submitted to authorities which includes traffic management, crowd control and water safety. This is all currently underway.

*Ruskin Museum websites*

## WSR Longbow update

In July, the Longbow team provided a link to an interview between David Aldred and the editor of Powerboat & Rib Magazine, Hugo Montgomery-Swan (https://powerboatandrib.com/features/longbow-jet-hydroplane-a-personal-journey-to-break-the-world-water-speed-record/).

It is too extensive to summarise for The ANA but provides a good perspective of David's early introduction to world water speed record attempts and his long association with water speed record and unlimited hydroplane craft.

Also for the July update of progress in building the jet hydroplane Longbow, David discusses in some detail the design considerations for cockpit windshields for high-speed hydroplanes. Unlike portholes or windows on typical ships and boats, which are designed primarily to withstand green sea loads, depending on their location, these windshields need to be able to withstand high-speed birdstrikes or potential water impacts should the craft have a loss of control.

Plastic materials for aircraft or boat windshields can broadly be divided into two groups:

1. Poly (methyl methacrylate) (PPMA), a thermoplastic commonly referred to as acrylic and manufactured under several different trade names for example Perspex.

2. Polycarbonate a group of thermoplastic polymers containing carbonates and an example of a trade name for this materials is Lexan.

Whilst both acrylic and polycarbonate are available as clear plastic material, their relative ability to withstand impact is starkly different. Acrylic is relatively cheap to buy and comparatively easy to shape, and offers about seventeen times the impact resistance of standard glass of the same thickness. However on failure acrylic typically shatters into fairly large, sharp and consequentially dangerous shards of plastic. In comparison, Polycarbonate is around two hundred and fifty times more resistant to impact than standard glass. It is therefore unsurprising that the international governing body for powerboating, the Union Internationale Motonautique (UIM) stipulate that windshields for enclosed cockpits have to be made from polycarbonate shatterproof material. This stipulation is mirrored across other types of boat racing organisations such as the American drag boats that run under their own rules.

At the time of the fabrication of the canopy of Donald Campbell's Bluebird in 1956 this was still acrylic and only around 6mm thickness. Commercial production of polycarbonate only commenced in about 1958.

Polycarbonate provides by far the best windshield safety to protect the driver of the craft from serious injury or worse from a windshield failing as a result of sudden impact with water and other objects such as collision with other boats or striking a bird.

While the probability of a birdstrike for water record seeking projects may seem low, evidence indicates otherwise. In 1966 Donald had two bird strikes with Bluebird on Coniston, hitting a seagull on one occasion and a duck on another. Ken Warby also had bird strikes while operating Spirit of Australia. Dave Warby has also had a bird strike with Spirit of Australia 2. For Longbow, birds that could be encountered during trials or record attempts would include Mallard Ducks (from 0.7 – 1.6 kg), Canada Geese (from 2.7 – 10.9 kg) and Mute Swans (from 9 – 11.5 kg). The impact load from bird strikes on windshields will depend on many factors including the relative impact speed, bird weight and density, its rigidity, angle of impact. The shape and rigidity of windshield and its other material properties will also influence the response. Analysis of windscreen strength clearly becomes complicated. However as a means of comparison, David considers the kinetic energy available on impact. A medium sized sledge hammer of 4.5 kg swinging at around 10m/s has ~230 J of kinetic energy. Contrast this with a duck with a mass of 1.4 kg impacting at 150 mph which corresponds to 3,060 J of energy or 13 times more than the sledge hammer hit. Now considering a goose or swan of say 9.1 kg mass and the kinetic energy at 150 mph increases to ~20,400 J. Seen another way, this equates to dropping a 50kg mass (around two cement bags) from a height of around 39 metres (the 13th floor of a high-rise building). Yet even a speed of 150mph remains well below a record speeds.

The challenge can be seen if Longbow encounters a 1.4 kg duck strike at 400 mph (~20,800 J) let alone a 9.1 kg swan (~145,000 J). David describes the latter like dropping a small elephant off the 13 floor balcony and it landing on top of you!

The UIM powerboat rules for enclosed cockpits require a minimum of 100 mm clearance between the top and sides of driver's helmet and the surrounding cockpit structure as shown in the sketch.

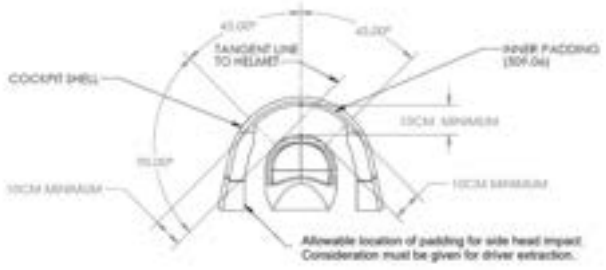
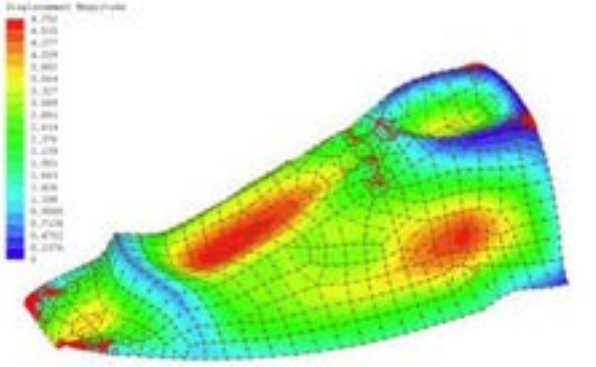



Illustration showing UIM cockpit clearance requirements around the drivers helmet (Image courtesy Longbow website)

This clearance has been set as a result of consultation with research centres and universities undertaking post-accident analysis of incidents with boats and other areas of motorsport including some that resulted in fatalities. While seat belt harnesses provide restraint to the crew when subject to sudden impact, the body still deflects under the encountered G loads so it is critical to provide such clearance between the driver helmet and cockpit structure.



An example of Longbow upper cockpit and windscreen displacement analysis by Paul Martin (Image courtesy Longbow website)

For Longbow an F16 fighter aircraft canopy is likely to be used, as is also the case for many drag boats in the USA and other high speed powerboats. Its ability to withstand bird strikes is reported to be well beyond the current Outright World Water Speed Record of 317mph. The intention would be to use this canopy only for the narrow profile required to provide sufficient driver visibility. To also withstand impact with the lake surface in the case of a worst case scenario of catastrophic crash at record speeds, the top of Longbow's cockpit will also incorporate support by way of both carbon / Kevlar composite sandwich and a high tensile T45 tubular steel cage. Design engineer Paul Martin is undertaking the analysis of the cockpit subject to the various load cases for review by UIM.

Note: Water speed record teams often refer to speeds in terms of miles per hour, so we have left the earlier examples in the units selected by David Aldred.

For further details, see https://www.jet-hydroplane.uk/.

*Longbow News, July & August 2025*

## SP80 Exceeds 100km/h in progress towards World Sailing Speed Record

The world sailing speed record is currently held by Australian Paul Larsen in Vestas Sailrocket 2 at an average speed of 65.45 knots (121.1 km/h) over a 500 metre distance. SP80 from the Swiss engineering school École Polytechnique Fédérale de Lausanne (EPFL) is aiming to exceed that record targeting 80 knot (148 km/h), hence the SP80 project title.

After two years of fine-tuning in Leucate on the southern coast of France, and having reached a top speed of 58.261 knots (108 km/h), the SP80 team is now preparing to challenge the world sailing speed record in Walvis Bay, Namibia, starting in September 2026.

When the team arrived in Leucate in the northern hemisphere autumn of 2023, the boat had yet to sail. "Leucate has been the perfect training ground." explains Mayeul van den Broek, CEO and pilot. "We were able to sail extensively and in a wide variety of conditions, which was invaluable. We had to learn everything, from launching and landing our giant kites to piloting safely at extreme speeds". By spring 2025, the boat had proven both its reliability and speed, coming close to world records in its catgory. However, insufficient wind prevented SP80 from setting a new outright record. "We end this campaign without the record we hoped for, but with one certainty: our boat is far from having reached its limits." adds Mayeul. The priority is no longer sailing as often as possible to learn, but rather finding the perfect record-breaking conditions, and being ready the day they arrive.

Over the past months, the team has had many discussions with Paul Larsen, the current world record holder, who followed a very similar path with his team back in 2012. Those conversations always lead to the same conclusion: "if you want the perfect weather conditions, Walvis Bay in Namibia is without a doubt the best place on earth." Renowned for its exceptional wind and water conditions, the location has an ideal weather window between September and December. "Namibia has been a mecca for speed sailing ever since the first kite records were set there in 2008, so the idea was always in the back of our minds", explains Benoît Gaudiot, SP80 cofounder and kite pilot. "But going straight there at boat launch would have been far too premature. We first needed to learn how to master the boat and set up all the logistics surrounding each run. Today, we are ready, even if we know that the logistical and financial challenges are immense. Above all, this pursuit of the record is a lesson in resilience!"

Between now and summer 2026, the streamlined core SP80 team will focus exclusively on preparing every detail of the Namibian campaign, with the goal of being fully operational in Walvis Bay by September 2026.

*Summary from SP80 Press Release September 2025*

## Order of Australia Honours

In the previous two issues of The ANA we listed RINA members as well as notable Australian shipbuilders, past and present, who have been awarded Order of Australia honours. We continue to identify people that had been omitted:

Marjory Winifred Davenport, AM. In the Queen's Birthday honours list of 1990 Marjory was made a Member of the Order of Australia (AM) for service to marine and civil engineering.

Laurence James Prandolini, AM. In the Queen's Birthday honours list of 2008 Laurie was made a Member of the Order of Australia (AM) for service to marine engineering, particularly through executive roles in professional organisations.

In addition to the shipbuilders noted in the previous issue, we also acknowledge Donald George Fry, AO. In the Australia Day honours list of 1998, Don was made an Officer of the Order of Australia (AO) for service to engineering, in particular marine engineering in the areas of design and construction, and to the community.

Once again, readers are invited to advise the editors of any further naval architects or shipbuilders we have still overlooked. Searches can be made at: https://honours.pmc.gov.au/honours/, however the trick is to know in advance which search terms to include!

*Martin Grimm, Rob Gehling*

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## NAVAL SHIPBUILDING / SUSTAINMENT

### ANDURIL Ghost Shark $1.7 B Investment

Deputy Prime Minister and Defence Industry Minister inspect Ghost Shark
(Image courtesy Defence Imaging)

The Australian government is investing $1.7 billion to acquire a new fleet of Australian-designed and built extra-large autonomous undersea vehicles – known as the Ghost Shark – for the Royal Australian Navy. Defence has signed a contract with Anduril Australia for the delivery, maintenance and continued development of the Ghost Shark over the next five years.

The cutting edge platform is designed to conduct intelligence, surveillance, reconnaissance and strike operations, stealthily and at long range. It will deliver a significant boost to Australia's undersea warfare capabilities – complementing Navy's future surface combatant fleet and conventionally-armed, nuclear-powered submarines.

This announcement builds on the approximately $140 million the Australian Government has already invested in the development of the Ghost Shark platform, payloads and production facilities since entering into a collaborative contract with Anduril in 2022.

Working alongside Defence personnel, Australia's defence industry and workforce is crucial to delivering this capability. This five-year contract will support around 120 existing jobs and create more than 150 new highly-skilled, long-term jobs at Anduril Australia.

There are now more than 40 Australian companies working as part of the Ghost Shark supply chain, which are expected to add a further 600 jobs as a result of this investment.

Delivery of uncrewed undersea and surface vessels will provide Australia's Defence Force an asymmetric capability advantage – a key priority outlined in the *2024 National Defence Strategy*. Continued investment in this capability presents a unique opportunity for Australia to design, engineer, and manufacture sovereign uncrewed maritime warfare capabilities, with strong prospects for export opportunities.

*Asia Pacific Defence Reporter (APDR) 10 September 2025*

It was subsequently announced on 31 October that the new 7,400m² facility that is purpose-built to produce Ghost Shark, was officially opened. The factory will also construct the commercial baseline Dive-XL at-scale and, subject to Government approval, for export to allies and partners around the world.

The factory has combined robotic manufacturing, AI-driven logistics and a custom test tank for in-water verification of buoyancy, electrical systems and safety before sea trials.

The Ghost Shark manufacture program has commenced with Low-Rate Initial Production, moving to full scale production in 2026.

*Australian Defence Magazine 31 October 2025*

### Leidos to build Sea Archer in Australia

Leidos has started the Australian build of Sea Archer, a next-generation small uncrewed surface vessel (USV). Sea Archer has Leidos' advanced autonomy platform, Leidos Autonomous Vessel Architecture (LAVA), which enables high-speed, long-range, and smart mission execution across diverse maritime environments.

LAVA is also integrated with Leidos' broader battle management technologies including ADEPT and AlphaMosaic, which use AI to support distributed, autonomous fleet operations.

"We're aiming to deliver a rapid production capability, and because of its easy-to-build aluminium hull, Sea Archer can be built at multiple shipyards across Australia. This approach will allow us to quickly deliver flexible, adaptable and affordable maritime solutions, using our fleet or customer vessels, to support mission needs," Chase stated.

According to Leidos, Sea Archer can reach sprint speeds up to 40 knots and has a range of 1,500 nautical miles. With a flexible payload bay capacity of more than 900kg, Sea Archer can support a wide range of mission options, including strike, logistics resupply, ISR (intelligence, surveillance, and reconnaissance), and electromagnetic deception operations.

The Australian production of Sea Archer will use local capability across the supply chain from build to payload integration, autonomy software design and ship maintenance.

NSW Central Coast-based Oceans Rivers Lakes has been appointed to build the first aluminium vessel and construction is already underway. *(Ed. The build company is managed by Nigel Matthews who presented to RINA NSW Section in May '25 on catamaran stability trials)*.

Sea Archer
(Image courtesy Australian Defence Magazine)

Along with Sea Archer, Leidos' Sea Systems portfolio consists of operationally proven medium USVs—Sea Hunter, Sea Hawk, Ranger and Mariner—as well as a range of undersea systems including Sea Castle, Sea Spector and Sea Dart, a high-performance, low-cost, flexible and adaptable uncrewed undersea vessel.

Sea Archer is currently undergoing sea trials in the US and is expected to be mission-ready by 2026.

*AustralianDefence.com* *9 September 2025*

**Austal Delivers 9th ECCPB and Launches 10th**

WEST Australian shipbuilder Austal has delivered its ninth Evolved Cape Class Patrol Boat (ECCPB) in five years to the Royal Australian Navy. ADV *Cape Spencer* (225) is the ninth of 10 ECCPBs under the contract with the Navy to be built at Austal's Henderson shipyard.

An Austal media release announcing the delivery said the SEA 1445 Phase 1 Evolved Cape Class Patrol Boat project, originally awarded for six 58-metre aluminium monohull patrol boats in May 2020, was extended by two additional vessels in April 2022 and a further two in February 2024, bringing the total to 10 vessels.

"With the delivery of *Cape Spencer*, one ECCPB (the future *Cape Hawke* that was launched this September) remains under construction for the Royal Australian Navy, while two more ECCPB's are also under construction for the Australian Border Force at Austal's Henderson shipyard in Western Australia," the release said.

The Evolved Capes feature larger amenities to accommodate up to 32 people, enhanced quality of life systems and advanced sustainment intelligence systems that further improve the Royal Australian Navy's operational capability. The patrol boats support a wide variety of constabulary and naval missions and continue to play a critical role in Australia's national security as a reliable and effective maritime asset.

Austal Australia provides in-service support for the Cape, Evolved Cape and Guardian Class Patrol Boat fleets operated by the Australian Border Force, Royal Australian Navy and Pacific Island nations, through dedicated service centres in Henderson (WA), Cairns (QLD) and Darwin (NT).


ADV *Cape Spencer*
(Image courtesy Austal)

In addition to the Evolved Capes for the Royal Australian Navy and Australian Border Force, Austal Australia continues to deliver Guardian Class Patrol Boats under the Pacific Patrol Boat Replacement Project (SEA 3036 Phase 1) for the Department of Defence, with 22 of 24 vessels contracted delivered since 2018.

*Daily Cargo News* *14 September 2025*

**$US100m Loan Facility with Export Finance Australia for Austal US Facilities Construction**

Austal Limited has reported the execution of a $US100m loan facility with Export Finance Australia (EFA) as part of the $US 488m refinance package for the Austal Final Assembly 2 facility to enhance construction of vessels for US Navy and Coastguard at the company's Mobile, Alabama shipyard, as reported in the August '25 edition of *The Australian Naval Architect* (page 42).

The loan facility is for 10 years, commensurate with the current orders for up to eleven Coastguard Offshore Patrol Cutters and up to 7 USN Ocean Surveillance Ships. Austal currently has two shipbuilding expansion projects underway in the USA; this Final Assembly FA2 and the submarine Module Manufacturing Facility MMF3.

This arrangement also builds on the recent strategic shipbuilding agreement Austal signed with the Australian Government.

*From Austal Limited Company Announcement 7 Oct 2025*

**Jim McDowell to join ASC Board**

Senator The Hon Katy Gallagher (Minister for Finance, Minister for Government Services) announced on Tuesday, 16 September 2025, the appointment of Mr Jim McDowell to the ASC Pty Ltd (ASC) Board for a three-year term.

Mr McDowell will commence on the Board as the Deputy Chair and will succeed Mr Bruce Carter AO as the Chair of the ASC Board when Mr Carter's term ends on 31 December 2025.

The Government sincerely thanks Mr Carter for his 15 years of dedicated service as its longest-serving Government Business Enterprise director.

Mr McDowell joins the ASC Board at a pivotal time of significant growth and transformation. His unique experience and leadership will guide ASC from a single platform submarine sustainer focused on Collins class submarines, to a multi-platform, nuclear-capable submarine enterprise.

Mr McDowell brings extensive skills and experience within the defence industry and has deep understanding of complex program management at a national and international level. He was previously the CEO of BAE Systems Australia, CEO of BAE Systems Saudi Arabia and Group CEO of Nova Group. He has also served as Deputy Secretary, Naval Shipbuilding and Sustainment Group in Defence, as Chief Executive of the South Australian Department of Premier and Cabinet and as Chair of the Australian Nuclear Science and Technology Organisation.

*Minister for Finance* *16 September 2025*

**Adelaide to Host Global Undersea Defence Convention**

A major international defence and trade event will be hosted outside Europe for the first time in its 37-year history with the SA Government securing hosting rights in Adelaide for three years.

Adelaide has been confirmed as the host city for Undersea Defence Technology (UDT), a globally recognised defence trade expo. The event's 2026 arrival marks the first time UDT will be staged in the Southern Hemisphere, reinforcing South Australia's reputation as a world-class destination for defence and strategic innovation. Held at the Adelaide Showgrounds in December 2026, UDT will bring together leading experts in undersea defence technology, government officials and military personnel from around the world and is expected to attract 2,000 delegates, with more than half from overseas.

Event organisers Clarion Events, which also run the world-renowned Defence and Security Equipment International (DSEI) events, has selected Adelaide as an ideal location for the event. This is due to the city's expertise in undersea defence innovation and as a key partner in the AUKUS alliance as the build location for the most significant industrial undertaking in the nation's history in the SSN-AUKUS conventionally armed nuclear powered submarines.

The event provides unparalleled networking opportunities, innovative conference content and incorporates the latest technologies in artificial intelligence, autonomous systems, and advanced technologies in the underwater domain. The event is set to deliver significant economic benefits of more than $30 million to South Australia, while providing local defence primes and SMEs direct access to international markets and key decision makers.

Adelaide secured UDT Australia as an annual three-day event for the next three years until 2028 through a joint bid led by Business Events Adelaide, with support from the South Australian Government through Defence SA, the Adelaide Economic Development Agency and the City of Adelaide. The 2025-26 State Budget provided more than $10 million across the forward estimates for Business Events Adelaide to increase visitation and tourism to SA by securing major events, conferences and exhibitions.

*Asia-Pacific Defence Reporter* 17 September 2025

**Construction of first Hunter frigate proceeds apace**

BAE Systems Australia is pleased with progress on the first Hunter-class frigate for the Royal Australian Navy (RAN). Each frigate comprises 78 units that contribute to 22 blocks per ship. "We've actually cut steel on 39 of the 78 units – half of the ship is actually in fabrication now," said a company official.

A bird's-eye view of the Hunter-class frigate, with the mast-mounted CEAFAR radar a major distinguishing feature.

(Courtesy BAE Systems Australia)

Additionally, the first consolidated block, block 11, has gone into blast and paint at Osborne Naval Shipyard. Construction commenced on 21 June 2024, with first steel being cut. A production contract for the initial three frigates had been signed the previous day, six years after BAE Systems Australia was selected for Project Sea 5000. Kudos to BAE Systems Australia, as it promptly updated Asia-Pacific Defence Reporter on this project's progress.

*Gordon Arthur // Christchurch*

*Asia-Pacific Defence Reporter* *October 2025*

## Japan's Frigate Win: Australia gets a strategic partner; Japan gets a bucket of Australian risks

"Japan's Mogami class frigate bid has beaten the German alternative to win the Australian Navy's general purpose frigate project, which has a budget over the ten years covered in Defence's investment plan of some $10 billion (with more required beyond that to deliver all 11 ships). Under the Japanese proposal, our navy is almost certain to get its first Mogami frigate in 2029, because Japan has offered to give us one of the ships being built for its own navy. That's a unique thing that doesn't just guarantee early delivery to our Navy: it highlights the fact that for Japan, this isn't just about winning a warship contract, it's about building a working strategic defence industrial partnership with Australia."

The price tag and the crew number is a result of the basic concept for the vessels, with Japan's Maritime Self Defense Force emphasising that the Mogami-class is the first JMSDF vessel 'aimed at saving manpower and reducing ship construction costs.'

The first three ships will be built in Mitsubishi Heavy Industries' yards which are pumping out two of these ships a year so should be delivered on time and on budget.

Mogami class frigate as seen from HMAS Brisbane
(Image courtesy Defence Imaging)

"This partnership is one with the Japanese Government as much as Mitsubishi Heavy Industries, with the potential for Japan to become a key alternative supplier for Australia of everything from missiles, ships, sensors and almost everything else across a modern military's inventories. That's a critical thing to pursue, given the US defence sector's struggles to meet the American military's own needs, let along supply partners reliably in conflict."

"Now for the bad news – the risks Australia brings to itself and Japan. The big risks are all Australian – particularly transferring construction of later ships to Henderson WA. Henderson is meant to have an AUKUS submarine maintenance facility built there along with other new facilities, but the plans aren't moving anywhere near as fast as this frigate project. A rebuilt Henderson Maritime Precinct has been promised by Defence for a long time now. It was outlined in the 2017 Naval Shipbuilding Plan, with nothing much happening as a result, and announced again in the 2024 Naval Shipbuilding and Sustainment Plan, with Richard Marles committing to a 'consolidated Commonwealth-owned precinct' there."

"On top of these overlapping and not always aligned interests about who gets to do what, when, at Henderson, the AUKUS plan for the precinct now includes building a contingency docking capability and supporting infrastructure and facilities for nuclear-powered submarines, along with facilities for depot-level maintenance of nuclear-powered submarines. Building anything to the standards required for nuclear safety is something new to anyone in Australia except for folk involved in the Lucas Heights research reactor, so the timeframes and costs will be a journey of discovery."

The other risk that the paper identifies relates to the commercial arrangements for the actual build noting that Austal, not Civmec (who has extensive facilities), has just been appointed as the Commonwealth Government's strategic shipbuilding partner. "All this means that the commercial interests, equities and negotiations to make an Australian build of the general purpose frigates a reality are another puzzle yet to be worked through – and time is getting short."

"So, the speed of decision making with this particular frigate program, and the ability of MHI to then deliver ships to our Navy is refreshing but also necessary. …Let's celebrate this win for Australian security and our strategic partnership with Japan – and hope that Canberra can move as fast as the Japanese shipbuilders will".

*Original paper by Michael Shoebridge Strategic Analysis Australia, 7 August 25, is at https://strategicanalysis.org*

**Design, Decide, Forget: Why The US Navy Needs a Lessons-Learned Center For Shipbuilding**

In March 2025 testimony before the US House Armed Services Committee's Seapower and Projection Forces Subcommittee, Ronald O'Rourke, naval analyst for the Congressional Research Service since 1984, sharpened an excellent recommendation he has raised over more than a decade: the U.S. Navy should establish a dedicated institutional mechanism for systematically capturing, analyzing, and transmitting lessons learned from its shipbuilding programs.

Although the U.S. Navy has accumulated an extraordinary body of experience in ship design and construction over more than two centuries, it continues to make avoidable mistakes in major acquisition programs such as proceeding into construction with incomplete designs, integrating immature technologies, projecting unrealistic cost and schedule estimates, and eroding accountability structures once a program becomes politically or industrially "too big to fail." These errors are not unique to the Navy, but they are particularly consequential in the context of shipbuilding, where program timelines are long, platforms are few and expensive, and consequences are measured in strategic as well as fiscal terms.

O'Rourke's solution is a "lessons-learned center" for naval shipbuilding: a dedicated, continuous, and institutionalized effort to capture knowledge from past programs, distill it into accessible form, and ensure it informs future design, acquisition, and oversight decisions. The value of such an entity, he argues, would lie in its ability to prevent repeated mistakes, reduce waste, improve program outcomes, and help sustain the Navy's long-term force design and industrial base goals. It addresses key features of the Navy's acquisition environment: the discontinuous and generational nature of major shipbuilding programs; the structural fragmentation of knowledge across commands, contractors, and government agencies; and the absence of an educational or doctrinal home for critical institutional memory. He also importantly identifies that the Naval Shipbuilding Lessons Learnt Centre must teach those involved in future programs -its lessons must be taught as part of a living curriculum and the centre must work directly with educational institutions to embed lessons. O'Rourke also believed that the centre should perform a diagnostic function to assist review current and future programs.

*Marcus Jones, Center for International Maritime Security*
*8 September 2025*

**WA's Veem Secures $US33m Contract for Supply of Castings for US Submarines**

Western Australian engineering company VEEM Ltd has reached a major milestone in the United States' defence industry, securing a nine-year manufacturing licence agreement with U.S. defence prime Northrop Grumman.

Valued at $US33 million, the agreement will see VEEM supply precision castings for the US Navy's Virginia-class nuclear-powered submarines – the same class Australia is set to acquire under the AUKUS partnership from 2032.

This achievement highlights the WA Government's strategic focus on building sovereign industrial capability and positioning Western Australia as a key contributor to AUKUS outcomes.

It also reinforces WA's growing presence in the US submarine supply chain, demonstrating the ability of local industry to meet the rigorous standards required for US defence approvals.

The WA Government has supported VEEM's entry into the US submarine industrial base through a $300,000 partnership with US prime contractor Huntington Ingalls Industries. VEEM is one of five WA small and medium enterprises selected for this initiative.

Under the Diversify WA economic framework, defence industries are a priority sector, with targeted support for local SMEs to access international defence markets and contribute to AUKUS-related opportunities.

Support includes funding, formalised agreements to assist with contractor access, and workforce development to meet defence-specific requirements.

*indopacificexpo.com.au/news-media/latest-news 4 Nov 2025*

**NUSHIP *Pilbara* Launched in WA**


NUSHIP Pilbara

(Photo courtesy Civmec)

Civmec Defence Industries (CDI) announced the successful launch of NUSHIP *Pilbara*, the third Arafura Class Offshore Patrol Vessel, in Henderson, Western Australia on 31 October 2025. *Pilbara* is the largest naval ship ever built in Western Australia and the first Arafura Class Offshore Patrol Vessel built in Western Australia. It marks a milestone in the development of CDI and Western Australia's shipbuilding capabilities.

*Pilbara* was launched by the ship's sponsor Jessica Shaw, the Chief Commissioner of Port Hedland. The *Pilbara* is the first Royal Australian Naval ship named after the Pilbara region of Western Australia. The ongoing appointment of the Mayor of Port Hedland as the ship's long-term ship sponsor is a fitting tribute to the historic connection of the Pilbara region to the Australian Defence Force.

The launch represents continued momentum for the SEA 1180 Arafura Offshore Patrol Vessel project. The first two ships built in South Australia have been delivered to Defence, with HMAS *Arafura* (OPV 1) commissioned in June and NUSHIP *Eyre* (OPV 2) accepted in August. The remaining four ships are being built in CDI's naval shipyard in Henderson, Western Australia. *Pilbara* (OPV 3) will continue to be fitted out and then undergo sea trials ahead of delivery next year. Construction is well underway on NUSHIP *Gippsland* (OPV 4), NUSHIP I*llawarra* (OPV 5) and NUSHIP *Carpentaria* (OPV 6), which had her the keel laying ceremony last August.

The Arafura Class Offshore Patrol Vessels will bring new capabilities to the Royal Australian Navy. The modern 1,625 tonne and 80m long ships will contribute to maritime security, regional engagement and support humanitarian and disaster relief. Civmec Limited acquired Luerssen Australia in July 2025 as part of a strategic consolidation of its naval shipbuilding operations. The acquired entity has since been renamed Civmec Defence Industries (CDI).

*Civmec/Asia Pacific Defence Reporter 3 November 2025*

**Design Authority for Landing Craft Medium transitions to Austal Defence Australia**

Austal has announced that the Commonwealth has awarded the first project specific Tasking Statement under the Strategic Shipbuilding Agreement to Austal Defence Australia. The Landing Craft Medium (LCM) Design Authority Tasking Statement (DATS) with a value of about $15m appoints Austal Defence Australia to undertake initial design and engineering activities as the Design Authority.

The DATS provides the ability to control, mature and finalise the design that commenced in 2024 under interim arrangements. Subject to finalisation of detailed contractual terms, Austal anticipates a further LCM Design and Build Tasking Statement to mature the design and construct and deliver the LCM.

*Austal Limited Company Statement 3 November 2025*

## AUKUS-RELATED

**AUKUS activity spurs changes for Defence West agency**

A standalone agency to support Western Australia's local defence sector will be introduced to parliament as part of the state government's vision to supercharge local business. First established in 2017, the laws will make Defence West an independent statutory body that can enter into business arrangements and make relevant approvals for targeted industry support.

Commenting on the reforms on Tuesday, WA Premier Roger Cook said an independent Defence West signalled

to military leaders and global allies that his state prioritised the sector. The state government has flagged the move, citing anticipated growth in work for the AUKUS trilateral security partnership between Australia, the UK, and the US.

The agency will have defence industry specialists appointed to its team, advocating directly with top officials on behalf of the defence industry and advising the state government and will also be tasked with being a single voice to champion WA's defence industries and a primary contact for the ADF and Commonwealth partners.

Defence Industries Minister Paul Papalia said WA needed to seize the once-in-a-generation opportunity offered by the huge uplift in defence spending. This includes the AUKUS pact and the $12 billion Henderson precinct, which will build and sustain more complex surface fleet vessels in Australia. Upon completion, the Henderson Precinct is expected to be the biggest naval maintenance hub in the southern hemisphere and a strategic AUKUS asset in the Indo-Pacific region.

*Melissa Coade, TheMandarin.com.au 8 October 2025*

**South Australia, Rolls-Royce sign AUKUS MOU**

Image of AUKUS SSN

(Image courtesy BAE Systems)

In a major boost to Australia's AUKUS program, the South Australian government has reached a landmark agreement with British defence giant Rolls-Royce to boost Australia's skills and technology capability.

Premier Peter Malinauskas today signed a memorandum of understanding (MOU) with Rolls-Royce that outlines a commitment to collaborate on workforce development, skills training, and critical technologies to support South Australia's growing defence sector. The agreement was signed in London at the Defence and Security Equipment International. The MOU marks a significant step forward in South Australia's preparations for the AUKUS submarine program, which will provide Australia with their first conventionally armed nuclear navy. It also highlights the unique nuclear expertise Rolls-Royce brings to the AUKUS agreement.

Under the agreement, the South Australian Government and Rolls-Royce will co-design and implement initiatives to build a diverse and highly skilled workforce, with a particular focus on strengthening the STEM pipeline and addressing critical skills gaps for current and future defence projects. The MOU complements existing Australian and South Australian Government funded defence industry workforce development initiatives. South Australia is already investing heavily in workforce development, including:

- $208 million to establish five new technical colleges focused on advanced manufacturing and defence industry capabilities.
- The opening of Findon Technical College in 2024, with 230 students enrolled and strong links to defence and innovation hubs.
- A $450,000 commitment over three years to fast-track a software engineering degree apprenticeship pilot in partnership with the University of South Australia, defence industry, and the Australian Industry Group.

Construction is underway for the South Australian-based Skills and Training Academy, where students will soon specialise in high-tech skills relevant to the state's program of continuous naval shipbuilding. The Osborne Naval Shipyard campus will simulate a real submarine construction yard and, once open, welcome up to 1,000 students each year.

In a major transformation of the higher education landscape, South Australia is establishing the new Adelaide University through the merger of the University of Adelaide and the University of South Australia. Opening in 2026, this industry-aligned institution will play a pivotal role in the state's workforce uplift efforts. By 2034, Adelaide University is expected to contribute an estimated additional $500 million per year to the South Australian economy, educate more than 70,000 students and create an additional 1,200 jobs.

South Australia is also positioning itself as a hub for international nuclear expertise ahead of AUKUS submarine construction. Flinders University has forged partnerships with leading nuclear science and technology institutions in the United Kingdom and United States, further strengthening the state's global connections and capabilities.

Rolls-Royce has powered the Royal Navy's nuclear submarines for over 65 years and is expanding its Derby site to support both UK and Australian defence programs. In March 2023 it was confirmed that Rolls-Royce Submarines would provide all the nuclear reactor plants that will power new attack submarines as part of the trilateral AUKUS agreement.

The MoU builds on previous engagement, including Rolls-Royce's visit to Adelaide in 2024 and the company's announcement to double the size of its Derby site to support the AUKUS program.

The Premier visited the Rolls-Royce Nuclear Skills Academy in Derby, which takes on up to 200 apprentices each year, enabling a pipeline of talent at the start of their careers in support of the Royal Navy Submarines programme.

*Asia-Pacific Defence Reporter 11 Sept 2025*

**Rolls Royce signs MoU with Victoria to develop AUKUS skills**

Rolls-Royce has signed a memorandum of understanding (MOU) with the State of Victoria, Australia that outlines a commitment to collaborate on developing Victoria's defence industry skills, supply chain, and innovation eco-system, to

support the AUKUS submarine program. Developing nuclear skills will be a particular focus, with plans to establish Rolls-Royce-affiliated skills and training academies being explored. This would build on the success of the award-winning Rolls-Royce Nuclear Skills Academy which opened in Derby, UK, in 2022. It has seen up to 200 apprentices enrolled on apprenticeships each year, creating a pipeline of nuclear talent at the start of their careers to support the UK Royal Navy.

The agreement will also look to support launching specific research and development initiatives, including the establishment of Rolls-Royce University Technology Centres and affiliated research clusters, in collaboration with Victorian universities.

Following similar agreements signed with Western and South Australian Governments in September 2025, this marks a significant step forward in Australia's preparations for operating its first conventionally armed nuclear-powered submarines. It also highlights the unique nuclear expertise Rolls-Royce brings to the AUKUS agreement.

In December 2024, Victoria released its Economic Growth Statement, which backs its defence-oriented supply chain to win work, grow and support AUKUS. This includes increases in investment and trade facilitation, uplifts in small and medium-sized enterprises, workforce development initiatives, and bolstering innovation adoption.

To this aim, the collaboration agreement will also look to facilitate opportunities with Victorian small and medium enterprises, to strengthen the State's defence supply chain and broader industrial capabilities."

*Asia Pacific Defence Reporter* *5 November 2025*

**U.S President Donald Trump has announced that the U.S government has given the go ahead for South Korea to build Nuclear Submarines on U.S soil.**

KSS-III Submarine

(Courtesy Naval News)

Naval News has reported that: "The announcement came following a meeting with various Asian heads of state including South Korean President Lee Jae-Myung in Gyeongju, South Korea. Additional posts by Trump on Truth Social have detailed that the Submarines will be built on U.S soil at the Philadelphia shipyards, which were acquired by the Korean defense firm Hanwha late in 2024.

Subsequently, the construction of Nuclear submarines marks a departure from past efforts, as previous South Korean submarine construction has focused primarily on conventionally powered submarines. In tandem with this, South Korean Nuclear Submarine construction projects have remained in limbo for sometime as the U.S had not given tacit approval until President Trump's statement.

However, as the Philadelphia Shipyards where construction will take place is not currently equipped to handle the construction of Nuclear Submarines (only commercial vessels have been produced), Hanwha has reportedly invested an additional $5 billion dollars into modernization and preparation. Despite this, there has been a lack of a concrete agreement regarding the development of the shipyards and a plan for the construction of the submarines with no official signature from the South Korean side.

These agreements are the conclusion of a long standing desire for nuclear powered submarines expressed by the South Korean government and military. Naval News has previously reported that subsequent efforts for a Nuclear Submarines have been born of increasingly intense operational needs for endurance and a deterrent towards neighbouring nations such as North Korea, China, and Russia.

At the National Assembly's Defense Committee audit on the 30th, Chief of Naval Operations Kang Dong-gil stated, "The start date for the nuclear-powered submarine program has not yet been decided, but once it begins, it will take more than 10 years," adding, "Its displacement is expected to exceed 5,000 tons."

Currently, South Korea operates 3 classes of conventionally powered submarines, the Jang Bogo-Class (KSS-I), Sohn Wonyil-Class (KSS-II), and Dosan Ahn Changho-class (KSS-III). KSS-I and KSS-II submarines are Korean manufactured derivatives of the German Type 209 and Type 214 designs, numbering 9 boats per class in ROKN service.

KSS-III is the latest submarine design to enter service, with the class being the first fully indigenous design to be produced. There are currently 3 batch 1 KSS-III submarines in service, with the first of the batch 2 boats launched a week ago.

Accordingly, KSS-III offers a significant capability jump over past South Korean submarines, sporting an improved power plant, better sonar, new torpedoes, and the addition of K-VLS cells for more strike options with batch 1 and 2 carrying 6 and 10 K-VLS cells respectively. These improvements are allowed through a greater tonnage, rising to 3,750 tones submerged for batch 1 boats with batch 2 boats expected to be even heavier.

Given it's modernity and Korean architecture, KSS-III has previously been eyed for a potential upgrade from it's conventional Diesel Electric/Air Independent Propulsion power plant to a nuclear reactor. Naval News has previously reported on the concept, with the sub offering vastly increased endurance, power generation capabilities, and speed over it's conventionally powered brethren.

*Ethan Gossrow & Eunhyuk Cha, NavalNews.com*

*31 October 2025*

*[Ed. What impact this decision may have on the availability of skilled personnel and equipment for the USN SSN construction plans, and thus on Australia's acquisition of Virginia class submarine is unknown. Recent media articles have questioned building the submarines in the Philly yard, suggesting that Korea wants to build the SSNs in the same Korean yard where the KS-III are constructed.]*

**Australian Naval Nuclear Power Safety Regulator Appointed**

On 1 November the Commonwealth Government announced it has delivered a key milestone in Australia's conventionally-armed, nuclear-powered submarine program with the establishment of the Australian Naval Nuclear Power Safety Regulator (ANNPSR).

USS Hawaii (SSN-776) undergoing maintenance at Royal Australian Navy base HMAS Stirling on Aug. 30, 2024.

(USNI News Photo)

The new statutory Agency is responsible for the effective regulatory oversight of Australia's naval nuclear propulsion capabilities, providing independent assurance that the highest standards of nuclear safety and radiological protection are upheld.

Mr Michael Drake is the inaugural Director-General of ANNPSR. He brings to the role technical expertise and a decade of maritime regulation experience, including most recently as the Executive Director of Operations with the Australian Maritime Safety Authority, and before that 15 years in the RAN where he served primarily in Australia's Collins class submarines.

Commencing with over 70 trained staff, the new Agency has been working closely with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), the Commonwealth authority on radiation protection and nuclear safety, to ensure a smooth transition of regulatory oversight.

ANNPSR is headquartered in Canberra and has a presence across the country as well as overseas. With personnel embedded in the US and UK, the Agency's workforce harnesses a broad range of skillsets to make independent and informed regulatory decisions. Over the coming years, it will continue to expand its footprint in Western Australia and South Australia.

The Australian Naval Nuclear Power Safety Regulations 2025, relating to licensing facilities and materials for activities related to naval nuclear propulsion, have been made following extensive consultation, including formal public consultation in July 2025.

Subsequent regulations will focus on future phases of the optimal pathway including Australia's acquisition and operation of Virginia class submarines and the construction and operation of Australia's SSN-AUKUS submarines.

This new regulatory framework is underpinned by the highest international nuclear safety standards, drawing on more than 70 years of safe nuclear propulsion practices in the US and UK, tailored to Australia's operating environment.

Relevant licences issued by ARPANSA, including in relation to the Controlled Industrial Facility at HMAS *Stirling*, will now transition to the new Regulator.

ARPANSA will continue to provide scientific and technical support to the new Regulator, and the two Regulators will work together to support consistent nuclear and radiological safety across Australia's military and civilian activities.

ANNPSR is a non-corporate Commonwealth entity within the Defence portfolio, and is established under the *Australian Naval Nuclear Power Safety Act 2024*.

*Minister for Defence* *1 November 2025*

## SHIP/BOAT-BUILDING & REPAIR

**Sentinel Boats wins Australian Manufacturing Award**

Tasmanian ship builder Sentinel Boats has been recognised at the inaugural Australian Manufacturing Awards, securing the Defence Award at a gala event in Sydney last week. Sentinel Boats was one of four finalists and won the Defence category on the night. Key to its success was a focus on boosting Australia's sovereign defence capability, innovative use of High-Density Polyethylene (HDPE) as a premium boatbuilding material, and its impact on the growth of regional manufacturing.

Sentinel was judged on standout achievements including:

- A new major contract strengthening regional defence cooperation with the Royal New Zealand Navy, replacing its sea boat fleet with 17 new vessels,
- Long-term lease arrangements and tenders with the Australian Defence Force (ADF),
- End-to-end Australian production with the vessels designed by One2three Naval Architects and constructed by the team in Tasmania, representing a complete sovereign capability in maritime defence manufacturing,
- Supporting veteran employment and integrating military expertise into civilian manufacturing,
- Innovation in HDPE vessel construction which offers superior durability for lower maintenance and longer operational life, and impact resistance for crew safety,
- Partnership with TAFE to create an HDPE welding course addressing skills gaps in plastic fabrication,

and significant investment in apprenticeships and workforce development, and

- Operating on 100 percent renewable energy, and HDPE is fully recyclable.

CEO George McGuire said Sentinel Boats was proud to be building on Tasmania's long maritime heritage and innovating for the future.

> We're using our generations of knowledge forged in the harshest Southern Ocean environments and combining this with our expertise in advanced High-Density Polyethylene manufacturing, making Sentinel Boats the world-leader in HDPE high performance boat building, that means cutting-edge tactical watercraft, currently in service with domestic and international defence, law enforcement and rescue operators. We're strong believers in the federal government's Future Made in Australia agenda and will be pushing hard to see that realised – in our case, through helping to secure Australia's sovereign capabilities by building world-leading naval sea boats and other tactical watercraft. We're strengthening our nation's defence, and at the same time building our skilled manufacturing and export capabilities. While this award recognises our manufacturing of boats for Defence clients, we're also proud to have vessels in service with police, rescue services, commercial operators and state emergency services across Australia.

*Asia-Pacific Defence Reporter* *30 October 2025*

**Delayed Australian ship lift project predicted to cost eight times its original estimate**

Darwin ship lift project construction
(Image courtesy Clough BMD)

A ship lift project in Darwin in Australia's Northern Territory is now expected to cost approximately AU$820 million (US$530 million), more than eight times its initial estimate of AU$100 million (US$65 million). Local media outlet NT News said the Darwin ship lift project is now being investigated by an NT Government committee due to delays and significant cost overruns. The project originally had a scheduled completion of late 2024. The NT Government had earlier assured that the project will continue even as its costs have already grown considerably, though alternative options are now reportedly being explored regarding the work that needs to be undertaken.

The Clough BMD joint venture, which is responsible for the construction of the ship lift, announced in June that works are continuing, with dredging having already reached the 50 per cent mark with the first caisson template successfully lowered into place, thus allowing for the commencement of sheet pile driving operations to construct the facility's seawalls.

According to Clough BMD, the Darwin ship lift facility is designed to accommodate maintenance and servicing for a range of commercial and private vessels from the fishing, oil and gas, and other marine industries once it becomes operational including servicing vessels operated by the Australian Defence Force and the Australian Border Force.

*Gareth Havelock, Bairdmaritime.com* *11 August 2025*

**DNV Approval in Principle for Austal Autonomous and Remotely Operated Ships Platform Controller (AROS)**

Austal Australia has received Approval in Principle (AiP) from classification society DNV, for their Autonomous and Remotely Operated Ships (AROS) Platform Controller - a significant achievement in the journey towards enabling minimally, optionally and uncrewed vessel operations across Austal's Defence and Commercial product range.

The AROS Controller, designed and developed by Austal at Henderson, Western Australia, is a safety control system that provides a standardised and managed interface between the vessel's complex engineering systems and the navigational autonomy system. Managing the transfer of information in both directions, constantly checking system health, verifying that requests are valid and safe, and confirming that the vessel is continuing to operate within the operational design domain and operational envelope. It is designed to ensure safer and more compliant operation in Remotely Operated and Autonomous modes.

Approval in Principle, to DNV's market-leading autonomy guidelines, is a critical step in this journey and highlights the maturity and market readiness of Austal's product development. With the knowledge gained from this extensive process, Austal will now complete the development, verification and validation processes, and seek full approval for this critical interface. This achievement expands on the successful completion of the Patrol Boat Autonomy Trial (PBAT) in 2024, also conducted alongside DNV as the classification society, with autonomy partners Greenroom Robotics, this development brings safe, assured and trusted Autonomy one step closer for our customers.

*Austal Media release* *3 November 2025*

**Queensland Government unlocks $2.5 billion Cairncross Dockyard to supercharge defence industry investment**

The Queensland Government is delivering a plan for Queensland's future by paving the way for the revitalisation of Australia's second-largest shipyard and thousands of new jobs, declaring the $2.5 billion Cairncross Dockyard Brisbane Project a 'prescribed project' today.

The project will transform the site into a world-class ship sustainment hub, providing critical infrastructure and significant economic, industrial, and workforce benefits

to the State. It is expected to deliver more than 1,000 direct jobs directly through the shipyard, and thousands more indirectly through various industries.

Located on the Brisbane River at Morningside, the Cairncross Dockyard has been an essential part of Queensland's maritime industry since its establishment in 1942 to support naval operations during World War II.

"The Cairncross Dockyard project is a critical investment in Queensland's future and part of the Crisafulli Government's plan to accelerate development in Queensland's defence industry and restore momentum after a decade of decline under Labor," Deputy Premier Bleijie said.

"This state-of-the-art project will strengthen Queensland's role in advanced manufacturing and maritime sustainment, supporting industries that are vital to our economic and strategic future.

"The project positions Queensland to better meet the needs of the Australian Defence Force, allied partners, and commercial operators."We're also partnering with TAFE Queensland and leading universities to build a highly skilled workforce, ensuring Queenslanders are trained for the high-tech, high-demand defence and industrial jobs of the future."

Led by Cairncross Dockyard Brisbane Pty Ltd, a wholly owned subsidiary of Texas Tea Queensland, the project will include the construction of a large-scale graving dock, a 6,000-tonne hydraulic chain jack vertical ship lift, a 1,200-tonne crawler crane, new and expanded wharves, and critical power and water infrastructure.

Once complete, the facility will be equipped to perform on-water and out-of-water vessel maintenance, ensuring vessels are ready to meet operational challenges.

*Queensland Deputy Premier 20 November 2025*

## DECARBONISATION

**Net-zero shipping faces mounting challenges**

On World Maritime Day, attention turned to shipping's decarbonisation challenge, as the International Maritime Organization (IMO) prepared to adopt a legally binding net-zero framework next month - amid US objections and threats of retaliatory tariffs if countries support the measures.

The IMO framework, the first in the world to combine mandatory emissions limits and greenhouse gas pricing across an entire industry, aims to bring global shipping to net-zero emissions by around 2050. It will apply from 2027 to large ocean-going ships over 5,000 gross tonnage, responsible for 85% of $CO_2$ emissions from international shipping.

After withdrawing from the IMO climate talks in London earlier this year, the United States urged other countries to reject the proposed framework and has since threatened "reciprocal measures" on any country that charges fees on US ships.

In Australia, the government recently announced targets to cut emissions by 62–70% on 2005 levels by 2035.

The Transport and Infrastructure Net Zero Roadmap and Action Plan, released last week, outlines five priority actions for all transport modes, all relevant to maritime:

- Invest in enabling low- and zero-emissions transport infrastructure
- Electrify and increase transport's energy performance
- Switch to low-carbon alternatives where electrification is not feasible
- Innovate to expand cost-competitive transport technology options
- Scale up efforts to reduce embodied emissions in transport infrastructure

On 18 September, the Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts outlined further actions relevant to maritime, including developing a Maritime Emissions Reduction National Action Plan (MERNAP), supporting zero-emissions travel through the Active Transport Fund, embedding sustainability in the Infrastructure Policy Statement, working with states and territories to reduce transport and infrastructure emissions, and engaging with international partners on shipping and aviation. The department also confirmed its $1.1 billion Cleaner Fuels Program, aimed at boosting domestic production of low-carbon liquid fuels, strengthening fuel security, and supporting new jobs in the net-zero economy.

The Maritime Industry Association Limited (MIAL) recognises the "immense challenge of decarbonising the shipping and maritime sectors." At its 5th Maritime Decarbonisation Summit in Melbourne earlier this year, CEO Angela Gillham highlighted Australia's potential to manufacture the zero- and near-zero fuels urgently needed worldwide and called on the government to develop policy drivers in close consultation with industry to stimulate supply and demand.

Amid US objections, Joe Kramek, president and CEO of the World Shipping Council, described the IMO framework as "a serious, effective plan that gives countries and industry a clear path to decarbonise shipping." Writing in TradeWinds, he emphasised that the agreement, forged over years of discussions among more than 100 governments, "delivers real targets, a fair playing field and a plan that keeps the focus on driving shipping's decarbonisation."

*Ken Hickson, Daily Cargo News 24 September, 2025*

**IMO Greenhouse Strategy**

AUSTRALIA has always depended on global shipping to keep our economy moving—mostly without thinking too much about the emissions involved. But that's changing. The International Maritime Organization's new Net-zero Framework marks a major shift and, like it or not, it is coming our way.

After a tortuous five-day meeting in London back in April, the IMO reached a major milestone in its efforts to decarbonise global shipping. The Marine Environment Protection Committee (MEPC) approved draft amendments to MARPOL Annex VI that could reshape the shipping industry during the decades to come. The centrepiece of this progress is the IMO's Net-zero Framework, a legally

binding plan to drastically cut greenhouse gas emissions from ships, aiming for net-zero emissions by or around 2050.

The draft framework, which was expected to be formally adopted in October 2025 before entering into force in 2027, introduces a mix of mandatory emissions limits and a pricing mechanism for greenhouse gases. If implemented as expected, this would mark the first time an entire global industry is brought under a legally binding emissions cap-and-price system. The measures will apply to all large ocean-going ships over 5,000 gross tonnes, a group that emits about 85% of total carbon dioxide emissions from international shipping.

The IMO's plan includes a new global fuel standard that will require ships to gradually reduce the greenhouse gas intensity of the fuels they use. This is measured using a well-to-wake approach, which accounts for emissions from production through to consumption. Moreover, the draft introduces an economic measure to encourage and enforce compliance. Ships that exceed their greenhouse gas limits will need to acquire remedial units to offset their emissions, while ships that outperform the targets by using zero or near-zero emission fuels and technologies will be eligible to generate and trade surplus units.

At the heart of the framework lies the IMO Net-zero Fund, which will collect contributions from higher-emitting ships. The fund will redistribute these revenues to support cleaner ships, research and innovation, infrastructure upgrades in developing countries and training programs that facilitate a fair and inclusive transition. This is also designed to protect vulnerable states such as Small Island Developing States and Least Developed Countries, many of which are disproportionately affected by climate change and are highly reliant upon shipping.

The adoption of this framework sends a strong signal: global shipping, long seen as a difficult-to-decarbonise sector, is now on a defined pathway towards net-zero. It's a monumental shift for an industry that has traditionally operated outside of many international climate regimes. IMO Secretary-General Arsenio Dominguez described the approval of the draft amendments as a significant step towards modernising the sector, reducing its environmental impact and demonstrating the IMO's ability to deliver on its climate commitments. He acknowledged the importance of continued dialogue and cooperation among member states to ensure successful adoption and implementation.

Although these regulations are global in nature, they will have specific consequences for countries like Australia. As an island nation heavily dependent upon seaborne trade, any shift in the rules governing shipping will flow through the domestic economy in meaningful ways. Australian exporters and importers are likely to see changes in freight rates as ship operators factor in the cost of compliance, whether through the use of more expensive low-emission fuels or through the purchase of emissions credits to offset excess output. These additional costs may be passed down through the supply chain, affecting the price of both exports and imports. Shipping lines operating in and out of Australian ports will also face increasing pressure to modernise their fleets. Those lines that rely on older, less efficient vessels may find themselves at a commercial disadvantage as emissions regulations tighten.

In turn, there will be mounting demand for Australia's ports to invest in new infrastructure to support the use of alternative fuels such as green methanol, ammonia or hydrogen-based solutions. Without these upgrades, the country risks falling behind in its ability to attract next-generation ships and to remain competitive in a decarbonising global trade environment.

The amendments to MARPOL Annex VI still have a way to go before they are fully locked in. Following the MEPC's approval in April, the draft measures now will be circulated to IMO member states for review. An extraordinary session of the MEPC in October 2025 will be held to adopt the final rules, with implementation expected in 2027. While some political tensions remain, including a withdrawal from negotiations by the United States earlier this year, the overall momentum towards climate action in shipping is now undeniable.

For Australia, the implications of this shift are both challenging and full of opportunity. The country has a chance to play a leading role in supporting clean shipping innovation and to build the infrastructure necessary for a low-emission maritime future. But it must also prepare for disruptions in freight costs, shipping line availability and global competition. The IMO's decision in April marks more than just a bureaucratic update, it's the beginning of a profound transformation in how the world moves goods and Australia must be ready to respond.

*By the Freight & Trade Alliance and the Australian Peak Shippers Association. Reprinted from August | September 2025 edition of DCN Magazine.*

**ABS CEO: 'IMO needs to take a timeout' on Net-Zero Framework**

ABS chairman and chief executive, Christopher Wiernicki says LNG and biofuels "should not be overlooked" by shipping as IMO vote on Net-Zero Framework creeps closer without any green fuels or infrastructure in sight

With delegates set to meet in mid-October to consider adopting the IMO Net-Zero Framework, shipping's CO2 emissions and 'green' fuels and infrastructure scarce, ABS chairman and chief executive, Christopher Wiernicki provided some blunt advice for the industry. "IMO needs to take a timeout", said Mr Wiernicki.

Speaking during the annual ABS Sustainability Summit and the start of London International Shipping Week on 15 September, Mr Wiernicki said, "Shipping and IMO are on different trajectories. There is no clear pathway for green fuel availability and scaleability and infrastructure support. LNG and biofuels are mission-critical to any success and should not be overlooked, over penalised or discarded in the net-zero regulation. Quite frankly, achieving net zero for shipping by 2050 looks like a wildcard", he said.

Mr Wiernicki's remarks were timed with the release of class society's report, 2025 ABS Sustainability Outlook, Beyond the Horizon: Vision Meets Reality, which shows that, despite progress on carbon intensity, shipping's absolute emissions continue to climb.

*The industry needs a framework, but we need one that marries ambition with reality, the mechanics need to be thought through. Right now, we are not where we need to be. Emissions remain 121% above the 2008 baseline, compliance costs are compounding, and the signals shaping investment – regulation, fuel pricing, penalties, availability, scaleability – are moving at different speeds.*

He noted maritime decarbonisation is composed of three parts: 70% fuel selection, 15% energy efficiency and 15% performance optimisation. "That 30% beyond fuel is where software plays a pivotal role and, given the current scarcity of green and blue fuel variants globally, is where the most immediate and scaleable gains can be achieved," Mr Wiernicki said.

LNG with methane slip controls, bio and e-LNG, onboard carbon capture and energy efficiency technologies can cut shipping's well-to-wake emissions, preparing for "nuclear and zero-carbon fuels when they are safe, insurable and investible at scale," he observed.

One of the takeaways of the report is how the ballooning costs of compliance could potentially triple commercial shipping costs. A typical vessel trading within the EU could see daily operating costs increase from approximately US$15,000 in 2028 to around US$45,000 by 2035.

Meanwhile, LNG is over-penalised in the early 2030s although it underpins blue fuels, keeps hard-to-abate segments compliant, and buys time for zero-carbon fuels, provided methane slip is addressed and pathways to bio/e-LNG are opened.

The Marine Environment Protection Committee (MEPC) is set to consider and adopt draft amendments to Marpol Annex VI, including the IMO Net-Zero Framework, when it meets in London on 14-17 October 2025. Those amendments, approved at MEPC 83 earlier this year, would set in place a new set of regulations to support IMO's 2023 GHG Strategy. Notably among these are a global fuel standard and a global greenhouse gas emissions pricing mechanism.

*John Snyder Riviera.com* *16 September 2025*

**IMO Net-Zero Discussions Delayed**

The International Maritime Organization (IMO) has agreed to adjourn the extraordinary session of the Marine Environment Protection Committee (MEPC), which was convened this week (14 to 17 October 2025) to consider the adoption of draft amendments to MARPOL Annex VI, including the IMO Net-Zero Framework.

The extraordinary session will be reconvened in 12 months' time. In the interim, Member States will continue to work towards consensus on the IMO Net Zero Framework.

The Intersessional Working Group on the Reduction on Greenhouse Gas Emissions from Ships, scheduled to meet 20 to 24 October 2025, will go ahead to continue work on the guidelines for implementing the Net Zero Framework.

The IMO Net-Zero Framework was approved at the MEPC 83 session in April 2025, as a new Chapter 5 of the Draft Revised Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL). It comprises a set of international regulations aimed at reducing greenhouse gas (GHG) emissions from ships, in line with IMO's 2023 Strategy for Reduction of GHG Emissions from Ships. It includes two key elements: a global fuel standard and global GHG emissions pricing mechanism.

*IMO.org*

**The world's first complete commercial ammonia fuelled engine has been accomplished**

Japan Engine Corporation (J-ENG) accomplished the first fully-functional full-scale commercial engine 7UEC50LSJA-HPSCR (50 cm bore, 7 cylinders, with High Press. SCR) on August 30, 2025. which has been developed as a part of "Next-Generation Ship Development" of Green Innovation Fund Project administered by New Energy and Industrial Technology Development Organization (NEDO).

From August 27 to 30, 2025 at J-ENG's factory, the engine official test runs were conducted under the supervision of Nippon Yusen Kaisya (NYK Line), Nihon Shipyard Co,, Ltd. (NSY), Japan Marine United Corporation(JMU) and Nippon Kaiji Kyokai (ClassNK). A series of performance verification tests in both ammonia fuel operation mode and heavy fuel oil operation mode as a dual-fuel engine, as well as post-operation inspections of major components, were successfully completed, and the engine's outstanding environmental performance and safety were certified by ClassNK.

This engine will be installed in an AFMGC (Ammonia-Fuelled Medium Gas Carrier) being constructed by JMU Ariake Shipyard and is scheduled to enter service in 2026.

J-ENG previously conducted approximately 1,000 hours of test runs on a single-cylinder ammonia-fuel test engine at the Mitsubishi Heavy Industries Research & Development Center at Nagasaki between May 2023 and September 2024. Using the results and insights gained from the test, J-ENG manufactured the first full-scale commercial engine 7UEC50LSJA-HPSCR and began test runs on ammonia fuel in April 2025.

Subsequently, over five months, the engine underwent meticulous testing in total 700 hours. This period focused on optimizing various performance aspects while concurrently confirming high reliability and safety features, including leak prevention and monitoring systems for toxic ammonia. The engine was thus completed, equipped with sufficient functionality to ensure the safe operation of actual vessels and the safety of crew members.

J-ENG is extremely pleased and proud to be able to deliver to customers ahead of the rest of the world this safe and reliable engine, the result of a meticulously planned, long-term development program that accumulated extensive operational data over an extended period.

Trial run data for this engine shows that at 100% load and a 95% ammonia co-firing rate, nitrous oxide ($N_2O$) emissions

are approximately 3ppm, achieving a reduction of over 90% in greenhouse gas (GHG) emissions. Nitrogen oxide (NOx) emissions were confirmed to be approximately half those of heavy oil engines, with unburned ammonia emissions virtually zero (post-NOx SCR). It has also been confirmed that the thermal efficiency in ammonia fuel operation mode is equivalent to or higher than that in heavy oil operation mode.

Following from the first engine mentioned above (bore 50cm), J-ENG is also concurrently developing an ammonia-fueled engine with 60cm bore to address the wide variety of ammonia-fueled ships expected to emerge in the future market, and is actually working on several promising follow-on projects.

Furthermore, after achieving the development and social implementation of these engines, JENG is proceeding with the construction of a new factory with support from a subsidized project jointly run by the Ministry of the Environment and the Ministry of Land, Infrastructure, Transport and Tourism using GX Economic Transition Bonds in order to expand the production volume of ammonia fuel engines in a product mix with heavy oil engines and further promote the spread of zero-emission ships. The new factory is scheduled to commence operations in fiscal year 2028.

As a first mover in next-generation fuel engines, J-ENG will contribute to the development of Japan's shipping and shipbuilding industries by promoting the early market introduction and widespread adoption of those engines, while also contributing to the reduction of GHG(greenhouse gas) emissions in the shipping industry and the realization of carbon neutrality by 2050."

*Japan Engine Corporation* *01 September 25*

**ADV Reliant Hits Clean Energy Milestone with Renewable Diesel Refuel in Townsville**

In October '25, Australia's Pacific Support Vessel, ADV *Reliant*, refuelled in Townsville with 130,000 litres of a 30% renewable diesel blend, marking a major step in Defence's push for energy resilience and lower-emission operations. The milestone demonstrates that Defence platforms can operate on cleaner fuels without compromising capability. Brigadier Mark Baldock said the initiative supports Australia's sovereign fuel supply and Defence's sustainability goals.

Viva Energy tankers line up to fuel ADV Reliant with renewable diesel. (Image courtesy Australian Department of Defence)

ADV *Reliant* is an offshore support vessel with significant range, endurance and specialist equipment to deliver Australian Government directed activities. Over the next two months, she will visit Pacific Island nations, delivering supplies and raising awareness of sustainable fuels. Commodore Heath Robertson highlighted the vessel's role in supporting emissions reduction and climate resilience across the region.

Renewable diesel is a drop-in alternative to fossil-based marine fuel, requiring no modifications to ships or systems, making it a practical solution for both military and civilian use.

*Defence Media News Release* *23 October 2025*

**GCMD's Project LOTUS confirms long-term operational feasibility of B24 biofuel blend in vessels**

On 18 September, the Global Centre for Maritime Decarbonisation (GCMD) released its Project LOTUS (Long-term impact of continuous use of biofuels on vessel operations) report.

Launched in partnership with NYK Line on 9 May 2024, the six-month trial onboard a pure car and truck carrier (PCTC) assessed the impact of continuous use of a B24 blend, comprising 24% fatty acid methyl ester (FAME; also known as biodiesel) with very low sulphur fuel oil (VLSFO), on engine performance and operations of the fuel oil delivery systems.

Until now, the impacts of long-term use of biodiesel on main and generator engines, fuel storage and supply systems, and other shipboard components have not been comprehensively evaluated. Additionally, operational protocols for fuel conditioning, onboard storage, and comprehensive inspection checklists remain limited.

Project LOTUS addresses this gap directly by implementing a structured monitoring approach to track fuel and lubricant quality at key sampling points across these systems, and inspect engine and fuel system components throughout the trial.

This work is especially pertinent following the International Maritime Organization (IMO)'s approval of its net-zero framework, positioning biofuels as an increasingly valuable near-term decarbonisation measure. Shipowners can increase the biofuel content of their blends to reduce penalties under escalating Greenhouse Gas (GHG) Fuel Intensity (GFI) targets, meet compliance requirements, or generate "surplus units" for trading or future use.

Project LOTUS involved extensive laboratory testing of 94 fuel and 91 lubricating oil samples, alongside detailed engine inspections and measurements during the vessel's scheduled post-trial dry dock. The main and generator engines, which ran on B24 for 2,888 and 1,813 hours, respectively, performed comparably to when they operated on VLSFO.

Key observations confirmed no excessive sludge in fuel injection valves, no scratches in fuel injection pump plungers,

and no liner or piston wear beyond original equipment manufacturer (OEM) specifications. Scavenge drain and engine oil analyses also showed no excessive wear elements. While the acid value of B24 blends increased 2.5-fold after six months of storage, the fuel quality remained within ISO 8217 specifications. No microbial growth was observed in fuel samples.

With these findings, OEMs confirmed engine and hardware compatibility with long-term B24 use, with no significant impact on operational costs, provided appropriate maintenance and handling practices are followed.

To complement the pilot, GCMD surveyed other vessel operators using biodiesel to compare their onboard practices with guidelines issued by marine classification societies and OEMs.

The interviews indicate that while OEMs and classification societies take an abundance-of-caution stance, the surveyed vessel operators have adopted a more pragmatic, risk-based strategy to adopting biodiesel blends by adapting existing standard operating procedures (SOPs) for VLSFO with recommended technical guidance where practicable. This suggests that when operators carry out appropriate operations in line with such guidance, biodiesel use does not present major issues.

As biofuels adoption becomes increasingly pervasive, ship operators, OEMs, and classification societies will need to align on how and to what extent technical guidance should be applied to balance robust safety standards with operational realities.

A framework to support shipboard biodiesel monitoring

A key outcome of Project LOTUS is the development of a structured monitoring framework designed around operational considerations for biodiesel use to systematically track equipment performance and identify anomalies arising from biodiesel operations. A data log template was created based on an existing engine log and tailored to address the project's specific needs. Now that this template has been successfully piloted, it is publicly available and can be further customised to accommodate different vessel setups.

*Global Centre for Maritime Decarbonisation 18 Sept 2025*

## TECHNICAL

### Proceedings of 30th International Towing Tank Conference (ITTC) held in Hobart 2024

The committee reports from the 30th ITTC conference held in Hobart in September 2024 are now available to download from the ITTC website https://ittc2024.org/committee-report/. The November 2024 edition of *The ANA* reported on the conference itself.

### AMC launches maritime engineering hub with ASSISTance

AUSTRALIAN Maritime College has announced a new hub for maritime engineering and innovation based at AMC's Launceston campus, part of the University of Tasmania.

Established in partnership with the Federal Government's ASSIST (Australian Standardised Shipyard Infrastructure Strategy) Maritime program, Maritime Sustainment Infrastructure Engineering R&D Hub will bring together researchers, industry and government to improve ship maintenance, technology development and workforce training, strengthening Australia's maritime infrastructure.

The facility will tackle real-world challenges in shipyard modernisation, digitisation and operational efficiency. Operating as a national centre for applied research, training and technology development, it aims to accelerate improvements across Australia's maritime infrastructure.

"The partnership marks a major step in aligning maritime research with industry delivery," AMC principal Mal Wise said. "Together, AMC and ASSIST Maritime are creating a space where innovation turns research into real-world capability – strengthening Australia's maritime sustainment and industrial resilience."

The ASSIST Maritime initiative proposes a sovereign-led, industry-backed approach to align maritime sustainment infrastructure with government priorities. As part of the national standardisation and innovation effort across Australia's shipyard network, the new facility will focus on testing and validating advanced systems, materials and digital solutions.

ASSIST Maritime chairman Simon Butler said the new hub underscores the critical connection between research excellence and sovereign industrial capability.

"Across the industry, sustainment infrastructure has lagged advances in modern vessel design, contributing to higher costs, safety concerns, and reduced fleet availability. Working with AMC, we aim to close that gap – testing new systems and materials, advancing digital tools, and establishing standardised approaches that transform how Australia maintains maritime capability."

ASSIST Maritime will establish a dedicated team in Launceston, creating high-value engineering, research and technical roles, while opening new opportunities for Tasmanian suppliers and SMEs to engage in the national sustainment shipyard effort.

The Maritime Sustainment Infrastructure and Engineering R&D Hub is scheduled to open in early 2026, with collaborative research programs launching soon afterwards.

*AMC News/Max Berry, Daily Cargo News*

*7 November 2025*

### Dissolution of US Ship Structures Committee

It appears that the US Ship Structures Committee (SSC), that had operated for some 79 years producing a large number of technical investigations and papers, was dissolved on 15 July 2025 without replacement. The SSC had 10 principal members including the USCG, Navsea, MSC, ABS, MarAd, Transport Canada, SNAME, ONR, etc.

Its 2025 Strategic Goals previously included:

- To identify gaps in structural knowledge, and to develop a research and development plan to bridge the gaps.
- To address today's ship structural performance and safety assessment issues.

- To be recognized as a credible resource for ship safety experts.
- To advocate and search out cost share opportunities and partnerships, where possible and practicable, to complete the projects recommended by the Committee.

No advice has been received on the reasons for the dissolution or any replacement arrangements. Access to the SSC technical papers is now being provided by SNAME and the onepetro.org/SSCReports website or https://onepetro.org/search-results?page=1&q=Ship Structures Committee papers that lists some 8255 papers.

*Trev Ruting and Rob Melchers (Uni of Newcastle)*

## OFFSHORE

### EnerMech secures subsea contract for Australian offshore development

EnerMech has been awarded a contract to deliver pre-commissioning and specialist services for a major offshore gas development located in the East Browse Basin, off the northwest coast of Australia.

The full scope of work, which will be carried out between October 2025 – April 2026, includes the provision of riser and umbilical services for the second phase of the project's installation campaign. This involves complex operations such as flooding, top-up, and leak testing of flexible risers, as well as post-loadout and post-installation testing of dynamic umbilicals. The services will be executed across multiple locations including Malaysia and Australia, with offshore activities centred around a floating LNG (FLNG) facility.

The project will be delivered by EnerMech's highly experienced local team, leveraging deep technical expertise and a strong operational footprint across Western Australia. The team is supported by a robust fleet of owned equipment and a proven track record in delivering similar scopes for major energy clients.

Winning this award reinforces the organisation's reputation as a trusted partner in the pre-commissioning space, highlighting the value of early engagement, transparency and collaboration in delivering successful outcomes and confirms its proven ability to collaborate closely with clients in fast-moving environments.

EnerMech Chief Executive, Charles 'Chuck' Davison Jr., said: "Securing this contract is recognition of our standing as a company that delivers timely, high-quality work to support key energy projects off Australia. This is a significant gas development and our involvement in this crucial phase strengthens recognition of our expertise in the country's LNG sector.

> "Lower-carbon fuels are increasingly contributing to the overall energy mix and our specialist team in Australia is committed to supporting this evolution by deploying our market-leading procedures, methodologies and equipment to ensure successful delivery of this campaign."

Jason Jeow, Vice President, Asia Pacific at EnerMech, added: "Contracts like this are awarded based on past and current performance and proven capability in this sector. EnerMech has a track record of bringing agile project management to meet dynamic mobilisation schedules, well established skills, expertise and methodologies and high-quality, well-maintained equipment, all of which underpin our commitment to getting things right first time to deliver projects on time, within budget, and most importantly doing it safely and without harm to the environment."

Jessica Casey*, LNG Industry* *03 October 2025*

### Woodside Scarborough USV


Reach Remote 2 USV
(Image: Reach Subsea)

Woodside Energy is to pioneer the use of an Uncrewed Surface Vessel (USV) for reservoir monitoring utilising Reach Subsea's proprietary gWatch technology at the Scarborough gas field off Australia's north coast. The Reach Remote 2 is being delivered to Australia from Norwegian engineering firm Reach Subsea who said this operation demonstrates the USV's ability to reduce offshore personnel operational risks, cut costs, and reduce environmental impact compared to traditional crewed vessels.

"gWatch is a reservoir monitoring technology widely used across Norwegian gas fields. It measures time-lapse gravity and seafloor deformation to detect small changes in reservoir mass and pressure," the release said.

"These high-precision measurements significantly reduce uncertainty in gas reserves (GIIP) and aquifer influx, enhancing history-matching workflows and supporting more accurate production forecasts and infill well planning."

The release said this deployment also marks the start of Reach Subsea's Inspection, Maintenance, and Repair (IMR) operations in Australia, supporting clients across the energy sector. "The deployment to Australia highlights Reach Subsea's expanding global presence and its dedication to safer, smarter, and more sustainable offshore operations. The Reach Remote platform represents a major technological step forward in the industry's transition toward autonomy.

*Allen Newton, Daily Cargo News* *3 September 2025*

**Decommissioning FPSO *Northern Endeavour***

The Northern Endeavour is a 274 m long floating production, storage and offloading (FPSO) facility. It's permanently moored between the Laminaria and Corallina oil fields, about 550 km northwest of Darwin in the Timor Sea. There are 9 oil wells on the sea floor associated with these oil fields.

Following liquidation of the former private owner, the Commonwealth now owns the Northern Endeavour FPSO. As a result, the Australian Government plans to decommission, disconnect and dispose of the FPSO and remediate the Laminaria-Corallina oilfields.

Decommissioning is a normal and planned activity carried out in the offshore petroleum industry. It involves safely removing and recycling oil and gas production infrastructure. It also includes rehabilitating and removing risks to the surrounding marine environment.

The Department of Industry Science and Resources (DISR) is managing the program across 3 phases. During Phase 1 the FPSO is being prepared for disconnection from the subsea infrastructure including maintaining and operating the facility in non-production (lighthouse) mode and maintaining the class of the vessel. DISR has successfully disconnected the FPSO from the Corallina and Laminaria oilfields, cutting 8 risers and lowering them to the seabed after flushing of nearly 30km of pipeline..

DISR has engaged Modern American Recycling Services Europe (MARS) to recycle the Northern Endeavour FPSO at their ship recycling facility in Frederikshavn, Denmark with COSCO Shipping Heavy Transport (COSCO) contracted to dry tow the Northern Endeavour FPSO vessel to the recycling location using semi-submersible heavy transport vessel, the Hua Rui Long. Subsequent activities include completing the hull cleaning campaign to remove marine growth from the hull of the FPSO prior to towing the FPSO to Singapore for further works before its recycling in Denmark. DISR will then obtain environmental and regulatory approval, remove the subsea infrastructure and transport it to shore for reuse or recycling. This includes flowlines, chains and mooring infrastructure. It will also plug and abandon 9 oil wells and remove well infrastructure in the Corallina and Laminaria oil fields to protect the environment.

*Summarised from https://www.industry.gov.au*

## INTERNATIONAL

**IMO Guidelines for Reduction of Ship Noise**

Noting the role that commercial shipping has in the generation of a significant proportion of underwater radiated noise (URN) damage, the IMO has issued new revised *Guidelines for the reduction of underwater radiated noise from shipping* to address adverse impacts on marine life. The URN Action Plan was approved by IMO's Marine Environment Protection Committee (MEPC 82) and its goal is to address barriers to the uptake of the Guidelines.

Following instruction from the MEPC, the IMO Sub-Committee on Ship Design and Construction (SDC) has agreed a work plan which envisages, among other things, identifying ways to implement the Revised Guidelines and to increase awareness and uptake; organizing an expert workshop on potential co-benefits and trade-offs that may exist between the reduction of underwater radiated noise from ships and energy efficiency; and developing a plan of action for further work.

The Guidelines include updated technical knowledge, including reference to international measurement standards, recommendations and classification society rules. They also provide sample templates to assist shipowners with the development of an underwater radiated noise management plan.

*Summarised from https://www.imo.org/en/mediacentre/hottopics/pages/noise.aspx*

**Dr Rosalie Balkin recognised by IMO**

Dr. Rosalie Balkin, Secretary-General of the Comité Maritime International (CMI) and former Director of Legal Affairs and External Relations Division at the International Maritime Organization (IMO), has been named the recipient of the International Maritime Prize for 2024. The decision was announced today by the IMO Council during its 134th session (7-11 July).

Nominated by the Government of Australia, Dr Balkin was recognized for her outstanding contributions to international maritime law over a career spanning more than 50 years. Currently, she serves as Secretary-General of the CMI - the world's oldest organization focused on unifying international maritime law, founded in 1897. Appointed in 2017, she is the first woman to hold this position in the CMI's 128-year history.

A pioneering figure in the field, she was also the first woman appointed Director of Legal Affairs and External Relations Division at IMO (1998-2013) and later the first female Assistant Secretary-General (2011-2013).

During her tenure at IMO, Dr. Balkin oversaw several landmark diplomatic conferences that led to the adoption of new international conventions on maritime maritime safety, pollution liability, wreck removal, and passenger protection including:

- 2001 International Convention on Civil Liability for Bunker Oil Pollution Damage;
- 2002 Athens Convention on the Carriage of Passengers and their Luggage at Sea;
- 2003 Supplementary Fund Protocol which established the International Oil Pollution Compensation Supplementary Fund;
- 2005 Protocol to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation;
- 2005 Protocol to the Protocol of 1988 for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf;
- 2007 Nairobi International Convention on the Removal of Wrecks; and
- 2010 International Convention on Liability and

Dr Rosaline Balkin

(Image provided by IMO)

Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea.

In addition, Dr. Balkin has made extensive contributions to legal and academic institutions worldwide as a widely published author and lecturer. She served twice on the Board of Governors of the World Maritime University (WMU) and currently serves as Ethics Officer to the WMU President. As Legal Advisor to the International Oil Pollution Compensation (IOPC) Funds since 2014, she was instrumental in preparing the resolutions for dissolving the 1971 IOPC Fund, which was replaced by the 1992 Fund, strengthening the global compensation regime.

She is a founding member of the Advisory Group of Seafarers' Rights International, which advocates for fair treatment and legal protection of seafarers.

In Australia, Dr. Balkin has served in senior roles across the public service, including as Primary Legal Advisor to the Commonwealth Ombudsman and later as Assistant Secretary in the Attorney-General's Department's Office of International Law. During this time, she led the Australian delegation to the IMO Legal Committee meetings and was elected its Vice Chair in 1993.

From 2018 to 2021, she served on the Board of the Australian Maritime Safety Authority (AMSA), emphasizing her long-standing commitment to the maritime sector. In 2018, she was appointed an Officer of the Order of Australia, for her distinguished service to maritime law, global shipping standards, and legal education.

Established in 1980, the International Maritime Prize has been awarded annually by IMO to an individual or organization that has made a significant contribution to its work and objectives. The winner is selected by a panel chaired by the IMO Secretary-General, comprised of representatives from the IMO Council, as well as intergovernmental and non-governmental organizations.

Dr. Balkin will receive the award at an official ceremony in November 2025.

*IMO Press Briefing* *10 July 2025*

**IMO Welcomes New Director of Marine Environment Division**

The International Maritime Organization (IMO) is pleased to welcome David Osborn as the new Director of the Marine Environment Division.

Hailing from Australia, David brings a wealth of experience in environmental governance, having previously worked in the Australian Government's Department for Environment and Water, and its Department for Industry, Science and Resources. His international credentials include leadership roles at both the United Nations Environment Programme (UNEP) and the International Atomic Energy Agency (IAEA).

*LinkedIn* *9 September 2025*

**Australia Celebrates World Maritime Day**

Australia proudly joins the international community in celebrating the International Maritime Organization's (IMO) World Maritime Day. The 2025 theme, *Our Ocean, Our Obligation, Our Opportunity,* highlights the global mission to reach a balance between our reliance on the world's oceans and the critical need to safeguard them from human impacts.

Australian Maritime Safety Authority CEO Kaylene Dale says shipping has a central role in achieving the right balance.

"With 99% of Australia's international trade transported by sea, shipping is our connection to the world. We also have some of the most biodiverse marine ecosystems on the planet. We are committed to innovation that supports the sustainability of shipping, both environmentally and operationally.

Australia is also deeply invested in global initiatives and innovations, including enhancing navigational safety with real-time data and reducing air emissions through optimised route planning. It is also accelerating maritime decarbonisation through a green and digital shipping corridor with Singapore and looking into the feasibility of a similar corridor with the Republic of Korea — a major step towards the future of sustainable maritime transport in the region.

"At home, we are working across government and industry to accelerate the uptake of cleaner fuels

and green technologies, improve ship's waste recycling, and safely integrate offshore windfarms into our maritime environment.

"True sustainability also means caring for people. Seafarers are at the helm of this industry, and their wellbeing and safety must always come first. That's why AMSA is unwavering in our commitment to uphold the Maritime Labour Convention and the Port State Control regime," Ms Dale said.

The IMO sets global standards for safe, secure and environmentally responsible shipping. Australia is seeking re-election to Category (b) of the IMO Council for the 2026–27 biennium. Learn more about Australia's role at the IMO at amsa.gov.au/AUSatIMO

*Australian Maritime Safety Authority* *25 Sept 2025*

**Ship Fire Prevention Program by World Shipping Council**

The World Shipping Council (WSC) today announced the launch of its Cargo Safety Program, an industry-led initiative to detect misdeclared and undeclared dangerous goods in order to prevent ship fires, protect crews, vessels, customers' cargo, and the marine environment.

The program combines AI-powered cargo screening and common inspection standards to identify misdeclared and undeclared high-risk shipments before they are loaded.

Ship fires are at their highest level in over a decade, according to Allianz's Safety and Shipping Review 2025. Misdeclared dangerous goods are a leading cause of ship fires, reported as responsible for more than a quarter of all cargo-related incidents.

"We have seen too many tragic incidents where mis-declared cargo has led to catastrophic fires, including the loss of life," said Joe Kramek, President and CEO of the World Shipping Council. "The WSC Cargo Safety Program strengthens the industry's safety net by combining shared screening technology, common inspection standards, and real-world feedback to reduce risk."

At the heart of the program is a digital cargo screening tool powered by the National Cargo Bureau's (NCB) technology. It scans millions of bookings in real time using keyword searches, trade pattern recognition and AI-driven algorithms to identify potential risks. Alerts are reviewed by carriers and, when needed, verified through targeted physical inspections.

The program also establishes common inspection standards for verifying shipments and an incident feedback loop to ensure lessons from real-world cases strengthen prevention. At launch, carriers representing more than 70 percent of global TEU capacity have joined the program.

"By working together and using the best available tools, we can identify risks early, act quickly, and prevent accidents before they happen," Kramek said. "The Cargo Safety Program is a powerful new layer of protection, but it does not replace the fundamental obligation shippers have to declare dangerous goods accurately. That is the starting point for safety, and it is required under international law."

The launch builds on WSC's longstanding work to improve maritime safety, from developing cargo handling rules to supporting environmental protection measures. The program will continue to evolve, with regular updates to its technology and standards to address new and emerging risks.

"Ocean carriers transport the goods vital to the flow of global trade, and we have a responsibility to move them safely," Kramek added. "By raising the bar on cargo screening, we are protecting lives, safeguarding the environment and improving the integrity of the global supply chain."

*World Shipping Council* *15 September 2025*

**Australia re-elected to IMO Council**

Australia has been successfully re-elected to the International Maritime Organization (IMO) Council, reinforcing the Albanese Government's commitment to advancing international maritime standards.

Elected under Category B for the 2026-27 biennium, this will allow work to continue on improving global maritime safety, environmental protection and innovation.

Australia is a founding member of the IMO Council and currently the only representative from the South Pacific region.

In recent years, Australia has demonstrated leadership through regional cooperation to improve ship safety, maritime incident response, and communications and information services to support our Pacific and Indian Ocean neighbours.

Australia also actively supported the establishment of the IMO's Pacific Regional Presence Office in Fiji, strengthening capacity-building across the region.

Australia's representation at the IMO means continued involvement in helping shape modern, future focused maritime standards that will benefit all member states.

*Minister for Infrastructure* *1 December 2025*

*(Ed. The Council is the primary management body of IMO. Its decisions are generally subject to endorsement by the Assembly of member states which generally meets every two years.)*

## SHIP OPERATIONS

**Back on deck: Ferry Narrabeen returns to Sydney Harbour 20 October 2025**

One of the icons of Sydney Harbour, the Freshwater-class ferry *Narrabeen* returned to service on 20 October following a life-enhancing refurbishment in Sydney. The work included a full engine rebuild, a new modern control system, hull repairs, passenger area refurbishment and CCTV upgrades.

The *Narrabeen* re-enters service on the F1 Circular Quay –

Refurbished Ferry Narrabeen
(Photo courtesy Martinvl -- CC BY-SA 4.0)

Manly route ahead of what is expected to be a record summer on the Harbour for ferry patronage. The restoration and refurbishment has given the classic Manly ferry a new lease of life that will see it operate for another five years before its next major docking.

The *Narrabeen* can carry up to 900 passengers per trip and its return will allow the *Freshwater* to enter dry dock at Garden Island for repairs to continue the renewal of the Freshwater-class vessels at a total cost of $71m for the fleet.

*Transport For NSW* *20 October 2025*

**_Nuyina_ Touches Bottom in Heard Island Expedition**

INSPECTIONS are underway after the Australian Antarctic Division's Serco-operated research/icebreaker *Nuyina* scraped the sea floor near Heard Island during its current 55-day voyage from Hobart.

*MV Nuyina*
(Image: Pete Harmsen / ADD)

The incident occurred on 13 October as the ship was, ironically, conducting seabed survey work off Heard Island, after earlier making a re-supply visit to one of two of Australia's Antarctic bases, Casey Station.

Media in Tasmania has reported that crew and expeditioners onboard *Nuyina* felt a small vibration when the hull made contact, but there were no injuries or pollution reported. The ship was moved to deeper water while assessments were made. Serco said initial checks suggest only surface-level damage to the $528 million vessel. The company stressed the ship didn't run aground or lose manoeuvrability.

*Nuyina* departed Hobart 27 September with 99 expeditioners on board, almost 40 crew, three inflatable boats and two helicopters on what was characterised as the first major AAD campaign to Heard Island and McDonald Islands (HIMI) in over 20 years.

The AAD said it was working with the Australian Maritime Safety Authority (AMSA) as part of the assessment and response.

*Dale West, Daily Cargo News* *15 October 2025*

*Le Commandant Charcot*
*(Image: U.S. Coast Guard Cmdr. Krystyn Pecora / Wikimedia)*

**Antarctic Cruise Ship Record**

*Le Commandant Charcot* has set a new world record on Feb. 27 when it reached the latitude of 78°44.3' South, the closest geographic latitude to the South Pole located in the Bay of Whales in the Ross Sea.

> Captain Patrick Marchesseau, who was at the helm of Ponant's 270-passenger ship, described the moment when the vessel reached this point. He said: "The Bay of Whales was the point of departure for the Amundsen expedition which was the first to reach the South Pole on Dec. 14, 1911. The temperature was around -15°C. It was in this beautiful landscape, as striking as the cold which reigns here, that *Le Commandant Charcot* reached 78°44.3' South, which is the closest geographical latitude to the South Pole by sea on the entire Antarctic continent."

The latest addition to the Ponant fleet, *Le Commandant Charcot* is the first hybrid electric high polar exploration ship powered by liquified natural gas (LNG). According to the cruise line, the ship signals the company's "commitment to sustainable tourism and to minimizing the environmental impact."

Ponant said that *Le Commandant Charcot* is also the only cruise ship to host researchers onboard and provide them with a dedicated scientific laboratory. With *Le Commandant Charcot*, Ponant is collaborating with the scientific world to collect data and gain new insights into these extreme polar regions, the cruise line noted.

*Cruiseindustrynews.com*

*(Ed. The 150 x 28-metre, 2001-built Le Commandant Charcot is a Polar Class 2 icebreaking vessel capable of breaking through multi-year ice up to 2.5m thick. It has an autonomy of up to one and a half months.)*

**ATSB Interim report into ship's loss of propulsion in Port Hedland channel**

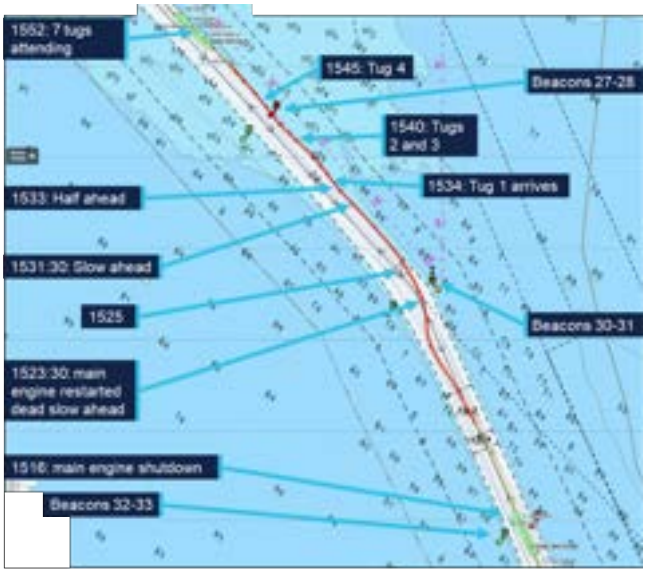
The ongoing investigation's interim report notes that the 327m Singapore-flagged bulk carrier *FMG Nicola* departed its berth at Port Hedland early in the afternoon of 7 February 2025, fully laden with iron ore. The ship was conducted out of the harbour by two harbour pilots, and four tugs were secured to assist.

About an hour into the ship's transit of Port Hedland's single shipping channel, travelling at about 8.3 knots with two tugs still secured and a third nearby, the ship's main engine suddenly shut down. The pilot informed the tug masters of the propulsion loss and directed them to help keep the ship in the channel. The pilot then notified vessel traffic service of the emergency and requested additional tugs.

> "Over the next half hour, the ship neared the western, and then the eastern side of the channel, before travelling along the channel's eastern edge as it slowed gradually," ATSB Chief Commissioner Angus Mitchell said. "During this sequence, four more tugs joined the three already attending, and the pilots and tug masters collectively worked to keep the ship inside the channel."

Meanwhile, the ship's engineers identified the engine had shut down due to a faulty switch monitoring the main engine's lubricating oil pressure. After confirming all engine systems were operating normally, the trip lockout system was reset, and the engine was restarted at dead slow ahead.

About 35 minutes after the shutdown, the ship had been moved away from the channel side, and its main engine speed had progressively been increased to full ahead. The tugs continued escorting the ship out of the channel towards open water, and the ship then continued its passage to Dongjiakou, China




Ship Course Plot FMG *Nicola*

(Image by ATSB)

During the passage to China, the crew inspected all ballast tanks on the ship's starboard side and found no physical damage. Later inspections, including an underwater survey by divers, found no evidence of damage and that the hull paint was intact.

Mr Mitchell noted that the investigation is ongoing, but that the ATSB had released the interim report to provide timely information to industry on its progress to date. The investigation will also look further into the reporting of the incident to authorities.

On the morning after the incident, the interim report details, the ship's local agent submitted the appropriate incident reports, including to the Australian Maritime Safety Authority's local office in Port Hedland.

A final report, to be released at the conclusion of the investigation, will detail the ATSB's analysis and findings.

> "The features of the Port Hedland channel make the risks associated with channel blockage high," Mr Mitchell concluded. "A disabled ship can strand on a receding tide as well as blocking the passage of other ships. Depending on departure times, separation between ships and the location of an incident, up to 3 additional ships could be committed to, or within, the channel and exposed to this hazard at a given time."

*Summarised from Australian Transport Safety Bureau (atsb.gov.au)*

**Woodside LNG Trans-shipment at Sea Trial**

South Korea's Hanwha Ocean has completed what it says is the world's first ship-to-ship (STS) transfer of liquefied natural gas (LNG) between vessels undergoing sea trials.

Based on Hanwha's social media post, the vessels in question are *Maran Gas Syros* and *Woodside Jirrubakura*. The latter is an LNG carrier that was named last month and is expected to work at Woodside's Scarborough energy project.

The South Korean player claims that this not only reduces environmental impact, but also resolves the risk of schedule delays caused by terminal congestion.

As explained, LNG carriers conducting gas trials normally first load LNG from a terminal and later return the remaining LNG once trials are complete. The latest achievement enables LNG to be directly transferred to another vessel under trial at sea, which is said to improve efficiency and flexibility.

This follows another record for Hanwha recently achieved the world's first ship-to-ship LNG bunkering operation within a shipyard. In addition to this, the company plans to construct the first LNG carrier built in the U.S. in almost 50 years at its Philly shipyard.

*World Ports Organization* *6 October 2025*

**Tasmanian Freight Equalisation Scheme Review**

The Federal Government has announced a review into the Tasmanian Freight Equalisation Scheme (TFES) is now underway. TFES financially supports Tasmanian freight, including the state's world-class produce, and passengers to cross the Bass Strait.

The review will consider if TFES could better support local businesses, including farmers and producers, to compete in domestic and other markets. It will also consider how the Bass Strait Passenger Vehicle Equalisation Scheme is reducing the cost of moving passenger vehicles across the Bass Strait.

The review will be carried out by newly appointed independent reviewers Dr David Parmeter and Dr Jenny Gordon. Dr Parmeter is the former Chair of the Maritime Industry Australia Limited and the current Chair of the Australian Mariners' Welfare Society. Dr Gordon served previously as the Chief Economist at DFAT and currently serves on the Asian Development Bank Institute's Advisory Council.

Since July 2025, Tasmanian businesses have already been benefitting from a 25 per cent increase in assistance rates under the scheme – putting more money in their back pockets at a time it's needed most. A final review report and recommendations to the government are expected in the first half of 2026.

Further information on the schemes and the review, including the review terms of reference, is available at: *www.infrastructure.gov.au/infrastructure-transport-vehicles/maritime/tasmanian-transport-schemes.*

*Federal Minister for Infrastructure* *7 October 2025*

### *Spirit Of Tasmania V* leaves Finland for Scotland

The second vessel in TT Line's troubled Bass Strait ferry fleet renewal, *Spirit of Tasmania V*, sailed from Rauma Shipyard, Finland in yesterday (1030 hrs 30 October local time) bound for Leith, Scotland, where it will lay-up until departing next May for Tasmania and final fit-out.

In the latest development in a saga of mismanagement, it was revealed this week in a Tasmanian Parliamentary Public Accounts Committee hearing that TT Line had sent the wrong specifications for fenders to TasPorts for its construction of East Devonport Berth 3 in 2023. The error has forced TT Line to allocate $9 million for berth modifications and strengthening of the hulls of both Spirit IV and V.

Spirit of Tasmania V
(Image Rauma Marine Constructions)

Meanwhile, on the other side of the world, the spirit around the Spirits is a bit more upbeat if "wistful" at the shipbuilder, Rauma Marine Construction, on Finland's west coast. "The mood is a bit wistful now that the ship is leaving Rauma," RMC CEO Mika Nieminen observed. "There will be a big gap in the quay."

The build contract was deepened through a partnership between the Australian Maritime College, based at the University of Tasmania, and Satakunta University of Applied Sciences (SAMK) based at Rauma. Under its memorandum of understanding, two SAMK students – one deck-based and one engine room - sailed from Rauma to Leith on Spirit V's maiden voyage. The partnership is likely to see student exchanges between AMC and SAMK in the near future.

The deal between RMC and TT Line for the construction of Spirit IV and V is the biggest single export trade to date from Finland to Australia, worth about EUR 600 million ($1.06 million). Construction generated about 3500 person-years of employment, RMC estimates.

*Max Berry, Daily Cargo News* *31 October 2025*

## New Vessels And Designs

### Incat Plans to Build a Boat a Month

The Hobart *Mercury* recently featured an article identifying Incat's vision to grow Tasmania's shipbuilding future, with the potential to one day deliver twelve ferries per year to the global market. With five large vessels currently in production, expansion of the company's Goodwood facilities and the new shipyard at Boyer would eventually allow this enhanced delivery rate.

> "We're already leading the way with the world's most advanced aluminium electric shipbuilding program – but we're only scratching the surface of what's possible with an expanded workforce and production capability" said Incat Chairman, Bob Clifford. He estimated the need to replace up to 1000 large diesel-powered ferries with electric alternatives in coming years. "This program highlights our world-leading innovation and shipbuilding capability".

As reported in the August '25 edition of *The Australian Naval Architect* (pages 40-42), Hull 096 *China Zorilla* will be the world's largest battery-electric ship, equipped with over 250 tonnes of batteries and 40 MWh of capacity.

*Duncan Abbey @ news.com.au via Hobart Mercury*

### Twelfth High Speed Ferry designed by Incat Crowther for Tanzania's Azam Marine Hits the Water

*Kilimanjaro IX*, a state-of-the-art 53-metre fast ferry designed by global digital shipbuilder Incat Crowther for Azam Marine has been successfully launched by AFAI Southern Shipyard in Guangzhou, China and is now set for sea trials.

The vessel is the twelfth (12th) high-speed ferry designed by Incat Crowther for the Tanzanian operator and will service Azam Marine's popular routes to and from Dar-es-Salaam on the Tanzanian mainland and the islands of Zanzibar, Pemba, and Tanga.

Azam Marine tasked Incat Crowther with both design and quality assurance services throughout the design, build and sea trials of *Kilimanjaro IX*. Incat Crowther's in-depth quality assurance process has seen the digital shipbuilder implement a rigorous risk assessment and quality review process throughout every stage of the project to reduce and mitigate potential risks. Incat Crowther's service included a dedicated resource to Azam Marine throughout the project to coordinate a formal review programme with AFAI Southern Shipyard to ensure *Kilimanjaro IX* was successfully delivered on time, and on budget.

The design of *Kilimanjaro IX* is based on the successful Incat Crowther-designed ferry platform that has formed the basis of Azam Marine's growing fleet, while featuring a number of design enhancements that improve operational efficiency and the customer experience. Incat Crowther visited the existing fleet in Tanzania to collaborate with the operations and maintenance teams on a comprehensive change register, capturing key opportunities for improvement. These enhancements were incorporated into the vessel specification and design. The implementation was closely monitored by our quality assurance team on site at the shipyard. This rigorous process gave the owner confidence that every upgrade was executed to the highest standard and in full alignment with their operational requirements.

Capable of transporting 679 passengers at speeds of up to 37 knots, *Kilimanjaro IX* offers spacious and comfortable indoor seating for 334 passengers on the main deck with 40 additional seats on the fore deck and space for 11 standing passengers on the vessel's aft deck. The vessel's air-conditioned main deck also features large luggage storage areas, a kiosk and five bathrooms, including one that is wheelchair accessible.

The vessel's upper deck features covered outdoor seating for 200 passengers as well as a large, air-conditioned VIP cabin for 72 passengers in two distinct categories – a 56-seat VIP class, and a 16-seat Royal class. The upper deck also features a large kiosk, four bathrooms and the vessel's wheelhouse.

*Kilimanjaro IX*

(Image courtesy Incât Crowther)

Abubakar Aziz Salim, Chief Executive of Azam Marine and Kilimanjaro Fast Ferries said: "Incat Crowther has been a trusted partner for our business as we have expanded our fleet. The eleven previous vessels designed by Incat Crowther have been robust, reliable, easy to maintain and fuel-efficient. The launch of *Kilimanjaro IX* is an important milestone as we grow to meet customer demand. Incat Crowther's in-depth quality assurance process has ensured this project travelled smoothly from commissioning through to design, construction and trials. We're looking forward to seeing *Kilimanjaro IX* in sea trials inmate 2025 and welcoming the vessel into service next year."

Brett Crowther, CEO of Incat Crowther said: "In addition to providing bespoke design support, this project has seen Incat Crowther's team work closely with our shipbuilding partners at AFAI Southern Shipyard by providing project and quality management services. This partnership sees an Incat Crowther expert regularly on the ground throughout the build phase of the project to streamline communication and has ensured *Kilimanjaro IX* was delivered to plan."

| | |
|---|---|
| Ship Description | 53m Catamaran Passenger Ferry |
| Status | Under Construction |
| Construction Material | Marine Grade Aluminium |
| Platform | Catamaran |
| Length Overall | 53m |
| Length Waterline | 51m |
| Beam | 12.5m |
| Draft Hull | 1.5m |
| Depth | 3.65m |
| Passengers | 679 |
| Crew | 8 |
| Fuel | 18600L |
| Fuel (Day Tanks) | 4000L |
| Fresh Water | 2000L |
| Sullage | 3000L |
| Service Speed | 34.0 knots |
| Maximum Speed | 37.0 knots |
| Main Engines | 2 x Cummins QSK95-M |
| Installed Power | 2 x 2983kW @ 1800rpm |
| Gearboxes | 2 x ZF 24060 NR2 |
| Propulsion | 2 x Kongsberg S80-4 waterjets |
| Generators | 2 x Cummins 6-CP 136DM/5 |
| Generators (Emergency) | Onan 17.5 MDKR |
| Flag | Tanzania |
| Class | DNV/NSCV 1C |

*Incat Crowther* *20 October 2025*

**Launching of *Mercedes Pinto* by Incat Crowther**


*Mercedes Pinto*

(Image courtesy Încât Crowther)

*Mercedes Pinto*, the third new 123-metre dual-fuel Ro-Pax fast ferry Incat Crowther has designed for Spanish operator Baleària, has been successfully launched by shipbuilder Astilleros Armon Gijon S.A in Spain. Work on the vessel's internal fit-out will now continue before sea trials in early 2026.

The new vessel comes after the success of its twin vessels *Eleanor Roosevelt* and *Margarita Salas*, also built by Astilleros Armon Gijon S.A. Margarita *Salas* has been in operation since 2024, successfully servicing Baleària's busy route between Barcelona and the Balearic Islands of Mallorca and Menorca, while *Eleanor Roosevelt* has been in service since 2021, operating between Denia on the Spanish mainland and the islands of Ibiza and Mallorca.

Capable of transporting 1,200 passengers and 425 vehicles, *Mercedes Pinto* features an iterative design based on the successful, proven and customised platforms of *Eleanor Roosevelt* and *Margarita Salas*. Like *Margarita Salas*, the second vessel in the fleet, *Mercedes Pinto* features a range of design improvements on the original platform, including an additional passenger deck with a spacious lounge area in the bow and an expanded aft terrace with an outdoor bar service.

In addition, *Mercedes Pinto* features several design customisations to enhance the customer experience, including a redesigned atrium between the main and upper passenger decks, a larger aft terrace, improved seating in the VIP lounge and an elongated crew area behind the vessel's wheelhouse. The vessel also features two decks of lounge seating, various cafeterias both inside and on the terrace, an exclusive children's area, and digital enhancements including free internet services, an onboard digital entertainment platform and a pet surveillance system.

Like other vessels in the Ro-Pax ferry fleet, *Mercedes Pinto* has been designed with operational sustainability and efficiency in mind and is powered by dual-fuel natural gas engines. *Mercedes Pinto* is future-proofed for a low and zero-emissions future with the capability to operate on 100% biomethane or green hydrogen blends of up to 25%. The vessel also features energy efficiency systems, smart sensors and integrated emissions monitoring equipment, and enhanced real-time navigation systems, reinforcing Baleària's commitment to sustainability and fleet digitalisation.

The new vessel is named after Spanish writer, journalist, and human rights activist Mercedes Pinto, and is expected to join its twin vessels, in service in 2026.

Baleària President Adolfo Utor said: "The addition of *Mercedes Pinto* to our fleet of state-of-the-art Ro-Pax fast ferries highlights Baleària's commitment to pioneering innovation, advancing sustainability and setting new standards in customer experience. Following the success of *Eleanor Roosevelt* and *Margarita Salas* we are thrilled to be partnering with Incat Crowther and Astilleros Armon on the design and delivery of Mercedes Pinto. Incat Crowther's deep knowledge of our operational requirements meant we could partner with their team of naval architects from the outset to make bespoke refinements to the design of Mercedes Pinto.

The successful launch of *Mercedes Pinto* is a major milestone for Baleària, and we're proud to welcome yet another Spanish-built Ro-Pax fast ferry to our fleet ."

Incat Crowther's Technical Manager Dan Mace said:

> *Mercedes Pinto is the fifth large Ro-Pax fast ferry Incat Crowther has designed for Baleària in the last six years and represents a continuation of our team's strong commitment to support Baleària and Astilleros Armon. With Eleanor Roosevelt and Margarita Salas already in operation, and two new 87-metre 100% electric, zero-emission Ro-Pax fast ferries also set to be built in Spain, the launch of Mercedes Pinto demonstrates our ability to deliver at scale. Working with Armon, we are providing the capability to design and construct multiple large fast ferries simultaneously in Europe. We're now looking forward to seeing Mercedes Pinto perform during sea trials and begin operation.*

*Incat Crowther* *23 September 2025*

**High-speed RO-PAX Ferries by Incat Crowther Now In Operation For The Integrated Transport Centre (ITC)**

Two new aluminium high-speed Ro-Pax ferries designed by global digital shipbuilder Incat Crowther for the Integrated Transport Centre (ITC), an affiliate of the Department of Municipalities and Transport in Abu Dhabi, have successfully completed sea trials and are now operating on the ~42-kilometre route between Dalma Island and Jebel Dhannah on the UAE mainland.

The new 56-metre vessels, *Jazirat Dalma* and *Al Dhannah,* built by Singapore based, publicly listed, designer, builder, owner and operator, Penguin International Limited in Batam, Indonesia, can transport up to 192 passengers and 25 vehicles at speeds of up to 39 knots, equivalent to roughly 70 km per hour. Each vessel boasts a spacious, air-conditioned passenger deck which provides comfortable seating for 185 passengers, space for an additional seven wheelchair passengers and two large viewing areas at the bow and stern.

With sleek catamaran hulls and aluminium construction, *Jazirat Dalma* and *Al Dhannah* offer speed, stability and efficiency, and have been designed with comfort and accessibility in mind. Each vessel features a VIP room for

*Jazirat Dalma*
(Image courtesy Încât Crowther)

eight passengers, two cafés, five bathrooms, and a playroom for children. Ample luggage and cargo spaces have also been included throughout both the passenger and vehicle decks, which are connected via an onboard elevator.

Each vessel is powered by four MTU engines and propelled by Kamewa waterjets with *Jazirat Dalma* and *Al Dhannah* designed specifically for extreme temperatures and sandy conditions in the Arabian Gulf.

The vessels' vehicle deck has been designed for operational efficiency and allows for quick roll-on and roll-off operations. The elevated wheelhouse provides each vessel's captain with excellent lines of sight while the bridge deck also features a crew mess and bathrooms for the vessel's ten crew.

> Ed Dudson, Incat Crowther's Managing Director, Europe said, "The successful entry into service of *Jazirat Dalma* and *Al Dhannah* is testament to the strong collaboration that defined this project. Our team of naval architects has worked closely with shipbuilder Penguin International throughout and we're proud to see these vessels in operation."

| | |
|---|---|
| Ship Description | 56m Catamaran Ro-Pax Ferry |
| Status | In Service |
| Construction Material | Marine Grade Aluminium |
| Platform | Catamaran |
| Length Overall | 56.0m |
| Length Waterline | 54.2m |
| Beam | 14.5m |
| Draft Hull | 1.9m |
| Depth | 2.75m |
| Passengers | 194 |
| Crew | 10 |
| Fuel (Day Tanks) | 7 000 litres |
| Fuel (Delivery Tanks) | 26 000 litres |
| Fresh Water | 5 000 litres |
| Black Water | 3 000 litres |
| Service Speed | 35.0 knots |
| Maximum Speed | 39.0 knots |
| Main Engines | 4 x MTU 16V4000 M65L |
| Installed Power | 4 x 2 560 kW |
| Propulsion | 4 x Kamewa S71-4 waterjets |
| Flag | United Arab Emirates |
| Class | Bureau Veritas & Tasneef |
| *Incat Crowther* | *20 October 2025* |

**Bespoke Research Vessel under construction for Cape Fear Community College in USA**

A new, bespoke 26-metre research vessel designed by global digital shipbuilder Incat Crowther for the Cape Fear Community College (CFCC) in Wilmington, North Carolina, USA is now under construction at Midship Marine's Louisiana shipyard.

The new vessel boasts a robust aluminium structure allowing it to be used by CFCC's Marine Technology program for extended multi-day and week-long on-water research and education activities throughout the Cape Fear River system and up to 100 nautical miles offshore.

Operational flexibility of the new vessel is enhanced via the inclusion of a heavy-duty retrieval system comprising an A-Frame capable of lifting a wide range of research equipment up to 8,000lbs (3,629 kg). A telescopic davit and heavy-duty winches are also included for further operational efficiency across the upper and main decks. The vessel also boasts a stern platform for providing quick access to the water for divers or for researchers taking water samples.

The multifunctional vessel has the ability to accommodate up to 24 personnel on multi-day missions or 40 personnel on single-day missions across two spacious and cleverly designed decks. The vessel's main deck features one four-person berth, two six-person berths, three bathrooms, a large galley and mess area as well as large dry and wet labs for scientific and educational activities. Ample storage lockers are also available on the vessel's foredeck.

The vessel's upper deck features two four-person berths, a large bathroom and the vessel's ergonomically designed bridge. The vessel's bridge optimises daily operations and provides the vessel's captain with excellent vision, including wing stations for maximum visual manoeuvrability.

*26m Research Catamaran*
(Image courtesy Încât Crowther)

| | |
|---|---|
| Ship Description | 26m Catamaran Research Vessel |
| Status | Under Construction |

| | |
|---|---|
| Construction Material | Marine Grade Aluminium |
| Platform | Catamaran |
| Length Overall | 26.40 m |
| Length Waterline | 26.20 m |
| Beam | 8.50 m |
| Draft Hull | 1.345 m |
| Depth | 3.40 m |
| Passengers | 40 |
| Special Personnel | 40 (Day), 24 (Night) |
| Crew | 3 |
| Fuel | 3 070 gallons / 5 820 litres |
| Fresh Water | 730 gallons / 2 760 litres |
| Grey Water | 730 gallons / 2 760 litres |
| Black Water | MSD |
| Service Speed | 23.0 knots |
| Maximum Speed | 25.0 knots |
| Range | 600 nm |
| Main Engines | 2 x Caterpillar C18 Acert |
| Installed Power | 2 x 578 kW @2100rpm |
| Gearboxes | 2 x ZF 665 |
| Propulsion | 2 x Fixed Pitch Propellers |
| Generators | 2 x Kohler 32EKOZD |
| Flag | United States of America |
| Class | USCG Sub Chapter T |

*Incat Crowther* *15 October 2025*

**Svitzer welcomes two new TRA tugs to Port of Newcastle**

Towage operator Svitzer Australia recently welcomed two new harbour tugs into service at the Port of Newcastle in New South Wales.

*Svitzer Barrington* and *Svitzer Nobbys* were designed by Canadian naval architecture firm Robert Allan Ltd and have been tailored to satisfy Svitzer's requirement for vessels promising improved safety and greater efficiency.

The tugs each have an LOA of 32 metres (100 feet), a beam of 13.7 metres (44.9 feet), and an operational draught of approximately 6.1 metres (20 feet). The propulsion setup can deliver a speed of 14.4 knots, a sideways speed of 7.5 knots, a bollard pull of 81 tonnes, and a maximum escort steering force of 124 tonnes at 10 knots.

The two azimuth drives are mounted centrally on the forward and aft end of each tug, rather than side by side. Combined with a hull form optimised for omnidirectional thrust, this arrangement allows each tug to generate lateral force in any direction with reduced response time, making it far more agile compared to traditional setups, according to Svitzer.

The selection of two thrusters also simplifies the mechanical layout for the power train and control of the tug for the master. Control is highly intuitive as the master operates one thruster with each hand, including both the power and direction of the thrust. Also, if the master needs to turn around and sail in the opposite direction, the drive placement relative to the hand in control stays the same.

Svitzer said that ease of operation has been considered in the design process as it generally increases safety margins and improves the familiarisation process and training time for new crew members. Also, the training of masters has confirmed that the design is intuitive to operate, improving safety by allowing more attention to situational awareness.

The hull is designed to sail equally well in both directions, and considerable efforts have been made to optimise the placement of the thrusters to avoid thruster-to-thruster interaction when the tug carries out full bollard pull at zero knots. Tow tank testing of the thruster placement allowed Svitzer to confirm that the tow point was correctly positioned for this configuration.

With one designated working end, this resulted in the tugs having slender profiles, allowing them to work close to pronounced flares on assisted vessels and use a high "bow" to ensure comfortable mobilisation in rough weather with minimum water on the foredeck.

Svitzer Chief Operation Officer Kasper Karlsen said that, in dynamic modes, the tugs can have an operating envelope greater by around 50 per cent compared to similar or larger ASD tugs.

The tugs can therefore perform a wider range of jobs, faster, more efficiently and to a generally higher level of safety, and it has also been shown to provide a fuel efficiency gain of 15 per cent. This makes them suitable alternatives to larger tugs that deliver the same levels of performance, particularly in congested ports that are frequently visited by large ships.

*Svitzer Nobbys underway*
(Image courtesy Svitzer Australia)

The tugs' design, while still achieving the static bollard pull requirements, also greatly improves dynamic bollard pull capabilities (direct towing capabilities). According to Karlsen, this metric is more relevant for real-world performance as it reflects the force exerted during movement, aligning more closely with operational conditions.

*Svitzer Barrington* and *Svitzer Nobbys* have been deployed to the Port of Newcastle as it is one of the busiest ports in Australia and services a range of large vessel types in complex tidal and weather conditions. Svitzer said that the Newcastle operations will serve as a proving ground for the tug technology, validating its performance for broader global deployment across various towage applications.

*Baird Maritime* *13 Oct 2025*

**Incat Crowther Designs Offshore Support Vessel for Carpentaria Marine**

Carpentaria Marine Services (Carpentaria Marine), a marine services provider in northern Australia, is expanding its fleet after commissioning Incat Crowther to design a new multi-purpose offshore support vessel. Construction on the cutting-edge new vessel, which will be deployed across northern and eastern Australia, including Cape York and the Gulf of Carpentaria, is now underway at Richardson Devine Marine's shipyard in Hobart, Australia.

The new vessel will be utilised by Carpentaria Marine for a range of services including marine construction, dive operations, underwater surveying and remotely operated vehicle operations. The new vessel is anticipated to begin operation in 2026.

Incat Crowther Offshore Support Vessel
(Image courtesy Încât Crowther}

The 37-metre vessel will add to Carpentaria Marine's growing fleet of specialist marine services vessels and follows the operational success of Strait Shooter 1, a 28-metre workboat designed and delivered by Incat Crowther and Richardson Devine Marine in 2010.

Powered by two Cummins QSK50 engines, the new vessel has been designed to support long-term, remote operations with a robust hull form suitable for offshore missions and capacity for 68,000 litres of fuel and 24,500 litres of water.

Capable of reaching speeds of up to 24 knots, the innovative design features a large aft deck, with operational capability enhanced by the inclusion twin bow thrusters for station-keeping. The vessel's myriad roles are bolstered by the capacity to carry up to four 20-foot containers, 15-tonne A-Frame winch, knuckle boom crane capable of lifting 15 tonnes, workshop locker room, as well as a moonpool for survey operations on the hull deck.

The accommodation is located over three decks and contains sleeping and service facilities for a crew of 28 in ten cabins. The upper deck includes two officers' quarters with bathrooms, study and lounge areas, alongside the bridge. The main deck features a wet room, a galley, pantry and mess, a large lounge area, as well as the owner's cabin and three crew cabins, all with bathrooms. The hull deck features four crew cabins, each sleeping four, and a further four bathrooms.

| | |
|---|---|
| Length Overall | 123' 0" / 37.5m |
| Length Waterline | 118' 1" / 36.0m |
| Length Measured | 114' 10" / 34.99m |
| Beam Overall | 37 9" / 11.5m |
| Draft (hull) | 4' 7" / 1.4m |
| Depth | 13' 9" / 4.2m |
| Construction | Marine grade aluminium |
| Fuel Oil | 17 964 gallons / 68 000 litres |
| Fresh Water | 6 472 gallons / 24 500 litres |
| Sullage | 1 585 gallons / 6 000 litres |
| Crew | 28 |
| Speed (Service) | 20 knots |
| Speed (Max) | 24 knots |
| Main Engines | 2 x CUMMINS QSK50 |
| Power | 2 x 1 268kW @ 1800rpm |
| Gearboxes | 2 x ZF-5055 |
| Propulsion | 2 x Fixed-pitch propellers |
| Generators | 2 x Cummins QSM11-CP 250ekW |
| | 1 x Cummins 6B-HX 80ekW |
| Flag | Australia |
| Class / Survey | NSCV 2B EXTENDED |

*Incat Crowther* *31 October 2025*

**Birdon Contracted for new Daintree River Ferry**

Artists impression of new Daintree River ferry
(Image courtesy Birdon)

Australian maritime engineering company Birdon has signed a 20-year contract with Douglas Shire Council to design, construct, operate and maintain a new four-lane ferry for the Daintree River crossing.

The project will deliver a safer, faster, and more efficient ferry service for residents, visitors, and tourism operators, improving connectivity in Far North Queensland and supporting the local economy.

Birdon CEO Jamie Bruce said the company was proud to have been selected to deliver this vital public service project and iconic transport link for the Douglas Shire and Daintree region.

> "As a family-owned Australian company, we've been building and operating ships and ferries for nearly 50 years. We're committed to delivering a modern vessel that will reduce wait times and enhance service reliability," Mr Bruce said.

Douglas Shire Mayor Lisa Scomazzon said the contract signing marked a major milestone in the upgrade of the Daintree River crossing.

"This is a huge step forward for our community. We're excited to see Birdon's expertise brought to the Daintree River," Mayor Scomazzon said.

Birdon will take over operations of the current ferry service from 1 July 2026, with the new ferry expected to enter service at the end of 2027.

The four-lane ferry will replace the ageing three-lane vessel, which is nearing the end of its service life. The new 49-metre-long, 16-metre-wide design will carry 36 vehicles, nine more than the current vessel.

Council's traffic modelling predicts the larger vessel, along with dedicated loading and unloading lanes and a priority lane system for locals, will result in a reduction in queue lengths and waiting times in the peak season.

Birdon's vessel design and delivery timeframe will integrate with Council's major infrastructure upgrades to the roads and ferry ramps on both sides of the Daintree River.

Birdon is Australia's leading cable-drawn ferry operator and has designed, built, operated, and maintained cable ferries for over two decades.

The Daintree Ferry will be the seventh cable-drawn ferry to be built by Birdon at its Port Macquarie shipyard in regional NSW.

The company operates eight cable-drawn ferries on behalf of Transport for NSW and conducts planned and corrective maintenance on cable drawn ferries for multiple local councils.

Mr Bruce said Birdon is an incredibly diverse business, but its experience and capabilities with cable-drawn ferries was a key factor in securing this tender.

"Our whole-of-life asset management capability means we're focused on providing long-term performance, reliability and service quality for the Douglas Shire community."

*Birdon* *29 October 2025*

***Warbaby Fox and JL Cecil Smith* – 39.5m high-capacity passenger cats for Bermuda from One2three Naval Architects**

A pair of One2three designed, 550 passenger capacity passenger ferries have been successfully delivered to the Government of Bermuda. The vessels were built in Singapore by Strategic Marine and will operate on commuter routes across the island nation as well as servicing the many thousands of cruise ship passengers who visit the country each year.

Featuring a resiliently mounted wheelhouse for reduced noise and vibration, combined with large area windows to maximise the passenger experience, the vessels each measure 40.13m in length with an overall beam of 9.70m.Wide double doors in the bow - flowing immediately into a similarly dimensioned stairway up to the upper deck – allow for rapid boarding and disembarkation of all passengers on the route's dedicated bow first berthing facilities

Propulsion is provided by a pair of Caterpillar 3512C main engines. Driving through ZF gearboxes to 5-bladed fixed pitch propellers, they propel the fully-loaded vessels to speeds in excess of 28 knots.

| | |
|---|---|
| Builder: | Strategic Marine, Singapore |
| Flag: | Bermuda |
| Class: | LR SSC |
| Length: | 40.13m |
| Beam: | 9.70m |
| Passengers: | 550 |
| Main engine: | 2 x Caterpillar 3512C, each 1765 bkW at 1800rpm |
| Gearboxes: | 2 x ZF8000 |
| Propulsion: | 2 x VEEMSTAR-C, 5-blade FPP |
| Speed cruise: | 28 knots full load |

*JL Cecil Smith*
(courtesy Strategic Marine)

*One2Three* *25 November 2025*

***ASC58* – The World's Largest Sailing Catamaran from One2three Naval Architects**

One2three is providing the structural design for *ASC58*, the world's largest sailing catamaran, currently under construction by superyacht builder Echo Yachts in Western Australia. With a length of 58.63 m and an 18.74 m beam, the vessel sets a new benchmark in large-multihull naval architecture.

A signature feature of *ASC58* is its pair of DynaRig masts from Southern Spars. Able to propel the yacht to 18 knots under sail alone, these un-stayed spars are being fitted to a catamaran for the first time. Their installation poses a significant engineering challenge: transferring the considerable rig loads into the yacht's comparatively slender crossbeam structure.

To support this pioneering configuration, One2three has carried out detailed finite-element analysis of the alloy structure, ensuring the vessel can safely withstand both global hull loads and the complex, dynamic forces generated by the rig.

The overall yacht design—including exterior styling, general arrangement, sail plan, and daggerboards—was developed by Dykstra Naval Architects of the Netherlands, with engineering, electrical, and fitout design by Echo Yachts.

Sustainability has been integral to the project from the outset. Under sail, *ASC58* achieves true zero-emissions cruising via shaft-driven power generation, complemented by a substantial battery bank that provides peak-shaving

capability and periods of silent operation at anchor or alongside.

Conceived as both an expedition-ready sailing platform and a highly capable shadow vessel, *ASC58* supports an extensive complement of tenders and adventure craft for the owner's primary superyacht. These include a 12m diving and game-fishing catamaran launched from a transom lifting platform, multiple RIBs and tenders, a submarine, jet skis, and a full suite of water sports equipment. A touch-and-go helipad and a dedicated dive hyperbaric chamber further expand the yacht's operational versatility.

| | |
|---|---|
| Builder: | Echo Yachts, Western Australia |
| Flag: | Cook Islands |
| Class: | LR SSC |
| Length: | 58.6m |
| Beam: | 18.7m |
| Complement: | 21 crew, 19 guests |
| Main engine: | 2 x Caterpillar C18, each 599 bkW at 2100rpm |
| Gearboxes: | 2 x Hundested CPG50 |
| Propulsion: | 2 x Hundested, 4-blade CPP |
| Speed: | 18 knots |

*ASC58*

(courtesy Dykstra Naval Architects)

*One2Three* *25 November 2025*

**Sentinels – Tactical Assault Craft from One2three Naval Architects**

Sentinel Boats (Hobart) and One2three have extended their partnership with two new high density polyethylene 830R RHIBs delivered to the Ukrainian defence force, offering extreme durability, low maintenance, 50+ knot performance from twin 250 hp outboards, and capacity for 8 specialised personnel on shock absorbing seating.

One2three's HDPE design has also been selected for the Royal New Zealand Navy's 7.8-metre Naval Sea Boats fleet replacement program, with Sentinel Boats contracted for 17 vessels featuring single-point lifting, capacity for 10 crew on shock absorbing seating, inboard diesel and Hamilton waterjet, with deliveries commencing early 2026.

Sentinel_830BD

(courtesy Sentinel Boats)

*One2Three* *25 November 2025*

***Silver Raven* – UK's First Zero-Emissions Cruise Vessel from One2three Naval Architects**

One2three are proud to have delivered the latest Woods Silver Fleet vessel. At 39m long, *Silver Raven* ushes in a new era for sightseeing on the River Thames. Gliding silently along at 10 knots, her sleek styling and expansive panoramic glass sides and roof ensure the best possible views of London's historic waterfront sites.

Seating 300 guests, the tour experience continues inside, with interiors featuring a hammered English pewter bar, Scottish eco-leather seating, and custom-designed Axminster carpet incorporating a House of Hackney print, subtly weaving the story of the river and the Tower of London into the very fabric of the vessel.

Built by renowned superyacht specialists Pendennis Shipyard of Cornwall, *Silver Raven* is powered by a Vulcan Integrated propeller drivetrain powered by EST Floattech Octopus High Energy batteries. Classed with LR, the vessel has back-up generators onboard to support the long delivery trip from Falmouth to London and provide emergency support in event of shore-based charging power interruptions.

| | |
|---|---|
| Builder: | Pendennis Shipyard UK |
| Flag: | UK MCA |
| Class: | LR ✠ 100A1 SSC Passenger G1 MCH Hybrid Power / DNV HSLC Passenger R4 E0 |
| Length: | 38.9m |
| Beam: | 9.3m |
| Passengers: | 300 |
| Propulsion: | 2 x Vulcan integrated Danfoss e-motors |
| Gearboxes: | 2 x DMT110A |
| Propulsors: | 2 x Teighbridge propellers |
| Speed: | Cruise 10 knots, max 15 knots fully loaded |

*One2Three* *25 November 2025*

***KARL* and *Zalophus* – USA's cleanest high-speed diesel vessels from One2three Naval Architects**

Named by local school students, *Karl* (local name for the fog that rolls across San Francisco Bay) and *Zalophus* (scientific

*Silver Raven*

(courtesy Tom Woods, Silver Fleet)

name for the local sea lion species) One2three developed these 41-metre passenger ferries for the San Francisco Bay Water Emergency Transportation Authority (WETA). Built by Washington-state shipyard Mavrik Marine, the vessel accommodates 320 passengers at a service speed of 39 knots and provides space for 37 bicycles.

The ferries are powered by four MAN EPA Tier 4 diesel engines equipped with SCR scrubbers and DP filters, making them not only compliant with the strict CARB (Californian Air Resources Board) emission standards but also the cleanest diesel vessels in the USA . A rafted superstructure minimises vibration to enhance passenger comfort, and the efficient low-wash hull form delivers notable fuel savings compared with WETA's existing fleet. The vessels are the third and fourth in the *Dorado* class programme.

| | |
|---|---|
| Builder: | Mavrik Marine, USA |
| Flag: | USCG |
| Class: | DNV 1A HSLC Passenger R3 |
| Length: | 41.8 m |
| Beam: | 10.5m |
| Passengers: | 320 |
| Main engines: | 4 x MAN D2862LE489, each 1,066kW at 2,100rpm |
| Gearboxes: | 4 x Reintjes WVS440DR DL |
| Waterjets: | 4 x Hamilton HTX52 |
| Speed – cruise: | 39 knots |

*KARL*

(courtesy Mavrik Marine)

*One2Three* *25 November 2025*

**Royal Caribbean Cruises – 240 pax transfer vessels Bahamas from One2three Naval Architects**

Built by OCEA France and delivered by Wight Shipyard UK, the One2three designed fleet of water-taxis have arrived in the Bahamas, with their colourful livery making these vessels instantly recognisable. Designed for a 10 min frequency service, the vessels transfer Royal Caribbean guests from the Bahamas Cruise terminal to the Royal Beach Club Paradise Island resort, opened in 2025.

Running a continuous hop-on hop-off loop, the ferries *Sassy Starfish*, *Lazy Lizard*, *Flirty Flamingo*, *Twisted Turtle* and *Coral Calypso* in their bright rainbow covers have become an iconic addition to the Bahamas waterfront. Despite their high capacity, the vessels consume just 16 litres of diesel per hour.

| | |
|---|---|
| Builder: | OCEA France |
| Flag: | Bahamas SCV |
| Class: | DNV HSLC Passenger R4 |
| Length: | 22.1m |
| Beam: | 7.8m |
| Passengers: | 240 |
| Main engines: | 2 x Cummins QSL9 410bhp at 2100 rpm |
| Gearboxes: | 2 x ZF 665 |
| Propulsors: | 2 x Veemstar propellers |

*RCG vessels*

(courtesy Wight Shipyard)

*One2Three* *25 November 2025*

**31m Whale-Watching vessel for FRS Clipper USA from One2three Naval Architects**

One2three designed this 31-metre excursion vessel for FRS Clipper Inc. Under construction by Washington-based shipbuilder Mavrik Marine, the vessel carries 150 passengers at a service speed of 32 knots and holds sufficient fuel for two 170-nautical-mile journeys.

Powered by four Scania diesel engines coupled to the latest Hamilton waterjets, the ferry has been engineered with particular focus on reducing noise levels to maximise passenger comfort. Its efficient, low-wash hull form provides significant fuel savings and minimises environmental impact.

On the main deck, an expansive interior space provides passenger comfort with nearly 360° views through full height windows, while the upper viewing deck provides covered, wind-protected seating as well as a full walkaround outdoor space.

| | |
|---|---|
| Builder: | Mavrik Marine, USA |
| Flag: | USCG |
| Class: | DNV HSLC Passenger R3 |

| | |
|---|---|
| Length: | 31.5 m |
| Beam: | 9.5m |
| Passengers: | 150 |
| Main engines: | 4 x Scania DI16 082M588bkW (800hp), at 2,100rpm |
| Gearboxes: | 4 x ZF 665 |
| Waterjets: | 4 x Hamilton HTX42 |
| Speed – cruise: | 32 knots |

Impression of FRS Clipper design
(courtesy Morgan Mooney, FRS Clipper)

*One2Three* *25 November 2025*

**Uber Boat by Thames Clipper – 40m Hybrid Passenger Ferry from One2three Naval Architects**

Wight Shipyard UK have a fourth Hybrid Clipper vessel under construction, with delivery due Q1 2026. Featuring a hybrid drive Esco / MAN installation, the vessels cruise at 30 knots downstream on the River Thames, and then operate emission free on battery in central London's Ultra Low Emission Zone.

Following the introduction of the first three vessels, *Earth Clipper*, *Celestial Clipper* and *Mars Clipper*, the latest vessel will be the 10th Clipper vessel designed by One2three.

Sporting her exclusive Uber Boat livery, the Hybrid Clipper series are fully integrated into the Uber app, allowing seamless transportation across the city and delivering passengers quayside for river transport within the one Uber trip. Expansive side and roof windows ensure the views of London are equally accessible.

*Earth Clipper*
(courtesy Thames Clippers)

| | |
|---|---|
| Builder: | Wight Shipyard UK |
| Flag: | UK MCA |
| Class: | LR ✠ 100A1 SSC Passenger G1 LMC CCS Hybrid Power (+)<br>DNV HSLC Passenger R4 E0 |
| Length: | 40.18m |
| Beam: | 8.3m |
| Passengers: | 230 |
| Propulsion: | 2 x MAN IMO Tier III Scrubbers 1066 bkW |
| Gearboxes: | 2 x ZF 3050 |
| Hybrid: | 2 x Esco PHT900A / Esco EM OMI540 / Floattech Batteries |
| Propulsors: | 2 x Kamewa S45-3/CA |

*One2Three* *25 November 2025*

**Bintan Resorts – 43m Tourist Ferries from One2three Naval Architects**

Operating from Singapore to Bintan Island Indonesia, Bintan Resort Ferries have contracted One2three and Strategic Marine to develop and deliver 3 x 44m high speed ferries. With construction underway, the first vessel will be delivered in 2026.

The main deck cabin is divided into 125 economy seats forward with an emerald class featuring 57 premium seats aft. An upper deck cabin for a further 111 guests sits behind a HSC compliant raised wheelhouse. Dedicated luggage rooms service the 293 guests whilst a large centralised bar and kiosk complete the passenger experience. Vessel interiors are designed by Australian firm SpeerGreen with propulsion provided by twin MTU series 2000 engines driving Kamewa waterjets.

| | |
|---|---|
| Builder: | Strategic Marine Singapore |
| Flag: | Singapore |
| Class: | BV 1 * HULL * MACH HSC CAT A, SEA AREA 2 |
| Length: | 43.6m |
| Beam: | 10.7m |
| Passengers: | 293 |
| Propulsion: | 2 x MTU 16V2000 1440 bkW at 2250 rpm |
| Gearboxes: | 2 x Reintjes VLJ730 |
| Propulsors: | 2 x Kamewa S56-3 |
| Speed: | Cruise 28 knots at 90% MCR fully loaded |

*One2Three* *25 November 2025*

## AMC Major Events & Activities

**Final-Year Student Research Presentations — Thursday, 30 October 2025**

The AMC hosted its annual Final-Year Student Research Presentations, showcasing the applied and industry-focused work of its graduating cohort in Naval Architecture, Ocean Engineering, and Marine & Offshore Engineering.

The event brought together students, academic staff, industry assessors, and alumni examiners. Multiple parallel sessions were held, each chaired by academic or industry experts. Research topics addressed contemporary maritime challenges including:

- Motion-response modelling and centre bow performance
- Marine electrification and hybridisation
- Hydrodynamic resistance estimation
- Offshore renewable energy systems
- Design of carbon-efficient vessels
- Control and optimisation of unmanned surface platforms

Industry participation was extremely strong with over 50 representatives, providing students with critical professional feedback. This engagement continues to underpin AMC's capability to prepare employment-ready graduates.

The growing engagement of companies in student assessment activities reflects the relevance of AMC training to sovereign industry needs.

The six students who were adjudged to have made the best presentations were each rewarded with one of the following sponsored prizes, which were presented at the Reunion Dinner that evening.

| | | |
|---|---|---|
| Austal Ships Prize | Jake Rehrmann | Motion characteristics of a novel entrapment hull in head seas at low to moderate speeds |
| DNV Prize | James Curr | Rigid body motion synchronisation of 3D points to survey motion capture camera positions |
| AMOG Consulting Prize | Sebastian Gomez | Investigating the hydrodynamic response and the mooring induced stresses in a floating artificial reef |
| OMC International Prize | Terence Gawthorn | Numerical investigation into the collapse of ring stiffened cylindrical pressure vessels with corrosion induced thickness variations |
| RINA Tasmania Section Prize | Haydon Brand | A hydrodynamic simulation study on slamming reduction and vertical acceleration of a catamaran vessel |
| AMC/AMC Search Prize | Rhett Pike | Resistance in calm water and waves of a novel entrapment hull uninhabited surface vessel |

AMC Principal Mal Wise addressing attendees at the opening of the annual final year student Research Project presentation


The 2025 cohort of AMC BEng maritime engineering graduates

2025 AMC Maritime Engineering Reunion Dinner


Winners of the Best Presentation prizes (left to right) Rhett Pike, Haydon Brand, Terence Gawthorn, Sebastian Gomez, James Curr, Jake Rehrmann

**MEH Reunion Dinner — Thursday, 30 October 2025**

The Reunion Dinner brought together 150 AMC alumni, former staff, and industry guests to celebrate the College's legacy of maritime education and contribution to Australia's naval and commercial sectors.

A keynote dinner address was presented by Dr Stanley Gottschalk, reflecting on the evolution of maritime technology and education at AMC. Informal networking provided an opportunity for industry and alumni to reconnect with our current academic and student community.

In classic engineering style, BEng alumni from 1991 to 2024 formed a spectacular, real-life bar graph to represent the generations of graduates.

**AMC Maritime Engineering Technical Forum — Friday, 31 October 2025**

The two-day program culminated in the **Maritime Engineering Technical Forum**, featuring keynote presentations, technical panels, and research showcases.

The keynote address was delivered by Ms Teresa Lloyd, who provided insightful commentary on workforce development, industry pathways, and future maritime capability needs for Australia.

The day included sessions led by technical experts from Defence, classification societies, and design consultancies. Panel sessions highlighted:

- Domestic shipbuilding and sustainment
- Offshore energy systems
- Advances in maritime hydrodynamics
- Digital engineering and vessel optimisation
- Graduate development pathways in defence maritime programs

Four PhD students presented three-minute thesis summaries, demonstrating strong growth in AMC's postgraduate research portfolio.

Partnerships with defence industry remain active, involving participation from Navantia Australia, ASC, Babcock, Austal Ships, AMOG Consulting, Incat Tasmania, DST Group, DNV, Defence, Incat Crowther, Core Marine, WGA, Oceon Energy, Worley, Blue Economy CRC and others across assessment, panels, and collaboration discussions.

AMC continues to invest in and modernise its world-class research and teaching facilities, including the towing tank, model test basin, cavitation tunnel, underwater collision facility, autonomous maritime systems lab, real-time power systems lab and simulation laboratories.

The event reinforced AMC's position as a national hub for maritime engineering capability, bringing researchers, students, alumni and industry into close dialogue.A special tribute was delivered by Adjunct Professor Martin Renilson for Professor Paul Brandner's contribution to AMC and the field of fluid dynamics, particularly cavitation, over his 34-year career as Research Lead of the AMC Cavitation Research Laboratory.

We gratefully acknowledge the support of our sponsors of all three events:

Platinum: Austal Ships, The Royal Institution of Naval Architects – Australian Division

Gold: Navantia Australia, AMC Search

Silver: WGA, DNV

The support from RINA was particularly helpful for uniting AMC undergraduate and higher degree students with the many alumni and guests from industry during the many formal activities and networking opportunities.

These events also highlighted the important 'Engineering Our Future' campaign, with many alumni signing up on the spot to volunteer to visit schools and tell young people about the education opportunities at AMC to help recruit the next generation of maritime engineers.


One of the panel discussions during the Technical Forum. Panel members include Rob Palmer (AMC Search), Nirman Jayarathne (Navantia Australia), Jonathan Binns (DST Group), Alex Robbins (Defence contractor), Adam Williams (DNV) and Chair of the AMC Board, Teresa Lloyd

Professor Paul Brandner addressing the Technical Forum audience following the acknowledgement of his 34-year career at AMC

**Pioneering Ammonia Safety Training at AMC: Australia's First Live Release Demonstrations Delivered Through ASLET Initiative**

The Australian Maritime College (AMC) has taken a nationally significant step toward preparing Australia's maritime and port sectors for the transition to low-emissions fuels, hosting a two-day Ammonia Safety Training Workshop on 17–18 November 2025. Led by A/Prof Hossein (Behrooz) Enshaei, Director of the Centre for Maritime Engineering & Hydrodynamics (CMEH), together with Mr Anthony Beckett, Senior Instructor of AMC's Fire Fighting & Safety Training Centre. This initiative forms part of a major ASLET-funded project to develop Australia's first dedicated short course in ammonia safety for maritime and port operations.

Supported by the Australia–Singapore Low Emissions Technologies (ASLET) program, the workshop brought together more than fifty representatives from maritime regulators, port authorities, energy developers, classification societies, and vessel operators across Australia and Singapore. AMC is delivering this program in collaboration with CSIRO, TasRex, and the internationally recognised Ammonia Safety & Training Institute (ASTI).

**Day 1: Building Knowledge, Alignment, and Shared Understanding**

The opening day at AMC's Newnham campus introduced participants to the fundamentals of ammonia as a marine fuel, its physical properties, hazards, risk controls, bunkering systems, port readiness, and emergency response frameworks. Presentations by AMC academics, CSIRO researchers, and

ASTI technical specialists provided a structured overview of the operational landscape, complemented by facilitated discussions on the differing safety needs between maritime and port environments. The day ended with a well-attended networking dinner, strengthening ties across industry and government.

**Day 2: Australia's First Ammonia Live Release Demonstrations**

On the second morning, participants travelled to the AMC Fire Fighting and Emergency Response Training Centre in Bell Bay, where Mr Beckett and the ASTI team delivered four fully managed live ammonia-release demonstrations, the first of their kind in Australia for maritime and port industry audiences.

AMC Ammonia Training
Courtesy Hossein (Behrooz) Enshaei

Exercises included saturated liquid releases, aerosol dispersion, fan-deflection control, tarp-and-cover sheltering, and a sub-cooled ammonia–water reaction, each designed to illuminate real-world behaviours, emergency decision-making, and protective strategies. The experience gave participants rare, first-hand insight into ammonia's behaviour under controlled but realistic conditions, supported by full PPE, HAZMAT oversight, and emergency decontamination units.

**Capturing Industry Expertise for Course Development**

Following the demonstrations, attendees participated in structured questionnaires and focus groups, providing essential feedback on training needs, risk perceptions, live-exercise realism, leadership and crew-coordination demands, and future technology requirements. This data directly informs the design of AMC's forthcoming Ammonia Safety Training Program for Maritime and Port Operations, ensuring it reflects real operational challenges and the expectations of regulators and industry stakeholders.

**Positioning AMC as a National Leader in Future Fuel Safety**

This initiative highlights AMC's leadership in decarbonisation-focused capability building, bridging research, industry needs, and workforce development. Through the ASLET project, AMC is establishing a foundational training framework that will support safe ammonia adoption across ports, vessels, and energy corridors in Australia and the region.

A/Prof Enshaei remarked that the collaboration demonstrated "the strength of Australia–Singapore partnerships and the collective commitment to preparing our industries for future fuel transitions." The workshop represents a milestone achievement for AMC and reinforces its role as a national hub for maritime innovation, technical training, and safety leadership.

*Hossein (Behrooz) Enshaei*

*Director, Centre for Marine Engineering & Hydrodynamics*

**UNSW Canberra**

The 2025 academic year has drawn to a close and there is much to be proud of in relation to the students' achievements. While we have witnessed the daily efforts of the 3rd and 4th year cohorts, five of our graduating students and one postgraduate took the opportunity in the first week of November to showcase their work at the Indo Pacific International Maritime Conference 2025 (IMC 2025). I had the privilege of chairing the session where the undergrads presented their final year thesis projects. It was a very well attended session with HNE, our sponsor, RADM Rachel Durbin, seated in the front row. Presenting were:

- SBLT Archer Gumley (Nav Arch): "Investigating Low Reynolds Number Wake Effects Ducted Propulsor Design for Unmanned Underwater Vehicles" (refereed paper jointly supervised by DSTG);
- SBLT Rian Klinger (Nav Arch): "Sensitivity Analysis of Parameters Affecting Common Hull Form Families for Minor Warships" based on a project titled, Seakeeping and Hydrodynamic Performance of a Common Hull Form Family for Minor Warships (refereed paper jointly supervised by DSTG);
- SBLT Nathan Hazle (Elec Eng): "A Modular Electronic System for the Control and Performance Measurement of Scaled 3D-Printed Ship Hull Prototypes" (refereed paper);
- SBLT Kelvin Hepburn (Nav Arch): "Evaluating a Representative High-Performance Very Slender Vessel Against a Planing V-Bottom Hull Form Control", and
- LT Jiraphat Hirunutok (Mech Eng): "Developing Capability of the UNSW Canberra Flume for Ship Model Testing" (refereed paper).

The photo on page 17 captures the sense of achievement post the successful execution of the presentations.

The other five students from our undergraduate "maritime final-year thesis project panel" successfully completed the following projects:

- MS Sasha Apelt (Nav Arch): Developing A Methodology for Assessing Slamming on High-Speed Boat Hulls Using Free-Running 3D Printed Models;
- SBLT Aaron Kearns (Nav Arch): Feasibility of Suction Based Underwater Hull Cleaning Operations While Underway;
- SBLT Cadyn Fayle (Mech Eng): The Design, Fabrication, and Testing of a 3D-Printed Axial-Flow Water Jet Propulsion System;
- SBLT Henry Dickinson (Mech Eng): The Design, Fabrication and Testing of a Modular 3D-Printed Ducted Propulsor for Model-Scale Hull Testing, and
- SBLT Danica Mullin (Mech Eng): Comparison of Ammonia and Biodiesel as Fuels for the RAN.

The collective effort of the students has advanced our laboratory activities and capabilities in open water and flume testing, model building and systems development. The students have created a substantial foundation for future work and are thanked for their contributions.

Also presenting at IMC 2025 was Keyvan (Kevin) Sartipi who is working on his PhD. In his paper titled "Subsea lifting – thoughts to shape its future" Kevin reviews the conditions that define the requirements and challenges, framing the conceptual and novel design work he is undertaking in this domain.

Keyvan (Kevin) Sartipi presenting
(Photos courtesy Warren Smith)

Semester 2 has again been well supported with presentations from guest lectures across our courses. The students respond very well to these. Thanks are extended to all:

- Matt Solon (DNE – on Survivability and Vulnerability),
- Ryan Nicoll (Proteus 3D – on Shipmo3D),
- Paul O'Connor (BV – on Ship Design and Ship Structures),
- Molly McManus (DNE – on Ship Structures),
- Richard Milne (DNE – on Hydrodynamics),
- Richard Duffield (NSSG – on NSSG and Ship Construction), and
- Martin Renilson (on Submarine Hydrodynamics and Submarine Design).

Design Presentations for the final year students were held on 10 November with attendance in the audience from a range of invitees coming from Defence, industry and interested retirees. This marked for the students the last milestone in their undergraduate careers other than the graduating ceremony itself. Well done! The presentations made were by:

- Sasha Apelt: Design of a Catamaran Ferry, HSC Iris;
- Archer Gumley: Design of a Tier-One Destroyer, DDGX;
- Kelvin Hepburn: Design of a Fast Attack Craft, MAKO Class;
- Aaron Kearns: Design of a Corvette, Beach Class, and
- Rian Klinger: Design of Tank Landing Ship, Dugong Class LST.

The achievements of the 4th years have played out well in front of the 3rd year cohort, and the 3rd years are motivated and excited to take their turn in 2026. They will build on their own very positive learning outcomes and growth through Semester 2 which was loaded with ship hydrodynamics, ship structures and ship design content. Design in 3rd year is something of a "dry run" for what will be their 4th year design projects. Emphasising this connection has been an action in response to student feedback from previous cohorts. It facilitates students considering their preferred vessel type and getting earlier feedback and guidance on the design process and key issues for consideration. A feature of our program is that our students are given the responsibility individually to complete an entire vessel design as a one-person design office, pushing as deep and wide as possible. In general, the 3rd year group has impressed the staff with their commitment, acceptance of challenges and their mutual peer-to peer support. They say they haven't worked harder anywhere else, but they have enjoyed the journey and have learnt far more from it than from their other university courses. We of course also look forward to the new 2026 3rd year group of students and welcoming them more directly into the naval architecture profession. As a function of the 2+2 nature of our degree, they move from studying the foundations of engineering and engineering science in common courses with their mechanical and aeronautical engineering colleagues to explicitly being focused on ships, boats, and submarines.

While mention has already been made of IMC 2025, attending the conference in parallel with Sea Power and the Indo Pacific Maritime Exhibition represented the last field trip for the year for the 3rd and 4th year students. All gained from the experience, through knowledge building, networking and connection to their chosen profession. We also enjoyed the IMC reception at the Maritime Museum together (see Figure 3).

Best wishes for 2026 to all who have read our news. We again invite all stakeholders to engage with us as we attempt to make a difference in meeting national objectives in things maritime. There is much to be done.

*Associate Professor Warren Smith*
*Naval Architecture Program Coordinator*
*School of Engineering and Technology*
*UNSW Canberra*

NA Staff and students enjoying the IMC Reception(L-R, Warren Smith, Aaron Kearns, Parth Khana, Archer Gumley, Ethan James, Kelvin Hepburn, Luke Reidy, Rian Klinger, Toby Costigan, David Lyons, Sean McCracken

*Missing from photo - Sasha Apelt and Russ Donovan)*

# Vale - David Neville Anthony Drohan

It is with sadness that The ANA records the passing of David Drohan on 25 July 2025.

David had a long and impactful career within various areas of Naval Engineering within the Department of Defence starting as a drafting officer at the Garden Island Dockyard in 1982. David was born on 13 May 1958. Prior to his career with Defence, he had been a drafting officer with Commonwealth Engineering (Comeng). Around 1985, David moved to Canberra joining the Naval Engineering Division. He remained with the Department of Defence until his retirement in 2017. During this time David contributed to a range of technical areas, including the then named Directorate of Naval Ship Design and Directorate of Forward Design (Special Projects). However a significant portion of his Defence career was within the ship stability group conducting and later auditing inclining experiments on RAN ships and boats and conducting stability analysis and preparation of trim and stability books for these vessels. When Navy Engineering set up a dedicated cell to manage matters related to lifesaving and rescue systems, David took on this role with a passion. It tied in well with his private interests and volunteer activities.

In that role, David championed enhanced safety associated with the life jacket and suit systems used by the ADF. This drive to improve safety led him to research and develop criteria that significantly improved performance of abandonment lifejacket and suit systems taking into consideration the nature of operations in which the various lifejackets and suits are worn, which differ significantly from those for commercial passengers. Through a methodical and detailed body of investigation David undertook a Masters by Research in Mechanical Engineering at UNSW Canberra completed in 2015. The title of his research project was "Inflatable Lifejacket Requirements for Encumbered Military Personnel," That study led to the development of a new improved standard for lifejackets and suits. This standard was then used to develop and purchase a modern enhanced product for the Navy. During his research David would often design and make specialised tools to facilitate his physical experiments using the ADFA swimming pool and a cast of volunteers. To this day David is one of the only people in Navy, and maybe defence, that could claim the use of the ADFA swimming pool as core business. When investigation extended to dynamic behaviour in waves, further full-scale testing was undertaken at AMC's towing tank. His efforts and legacy stand strong today with all RAN ships benefiting from carriage of superior lifejacket and abandonment suits.

For the many that worked with David during his career, he was always approachable, inquisitive and supportive of colleagues. Whether interacting with senior leadership or graduates at the start of their careers, David's character and integrity in his work was a strong example that helped shape the careers of those around him. His strength and ability to challenge the status quo ensured the best possible outcome could be achieved.


*David Drohan during lifejacket research*
*(Image courtesy Warren Smith)*

After retirement, David maintained his passion for outdoor activities and for Trix Twin model trains (he built a magnificent train layout which was a technical marvel). It was during a cross-country ski trip in a remote area of the Snowy Mountains on 21 July 2025 that he suffered a heart attack and despite being airlifted to hospital in Canberra and placed on life support within the Intensive Care Unit, he was ultimately unable to recover and passed away four days later.

A memorial service was held for David at Norwood Park Chapel in Canberra on 5 August 2025 with a large contingent of his friends and colleagues joining his family in a celebration of his life.

David is survived by his partner Jenny Kearns, and children Tali and Scott and extended family.

*Compiled by Martin Grimm, Paolo Orefice and David's Naval Engineering Division colleagues*

## STOP PRESS

**Vale - Allan Ronald Asquith FRINA, FIEAust, FAIM**
**15/01/1927 - 21/11/2025.**

We have just been advised the sad news of the passing of one our longer term naval architects on 21 November. From working as a naval architect in Scottish and Tasmanian shipyards, Allan joined the Directorate of Naval Ship Design in Canberra, rising to Director of Forward Design (Ship Projects). After retirement from Defence, Allan worked as a tutor in the School of Mechanical Engineering at the then University College, ADFA from 1987 to 2005. His Thanksgiving Service was held in Canberra on 3rd December 2025.

**AMSA Survey Matters**

*Survey Matters* is AMSA's e-Newsletter relating to domestic commercial vessel (DCV) survey, particularly directed at Accredited Marine Surveyors, and is published approximately six times per year. You can request placement on the mailing list by emailing DCV Survey <dcvsurvey@amsa.gov.au>. The e-Newsletters are now also available online at https://www.amsa.gov.au/news-community/newsletters.

The contents of the *Survey Matters* newsletters issued since the April 2025 ANA are:

June 2025:

- Voluntary Suspension: A practical option when you're not surveying
- Survey process for Exemption 2 (Ex02) Division 5 vessels applying for a certificate of survey
- Survey code update in MARS: Survey flexibility rollout
- Bringing Mooring lines into focus: A shared responsibility across the DCV sector
- New report examines domestic commercial vessel (DCV) trends
- Invitation to comment - ISO 12215 for vessels up to 24m GES
- Verifying electrical cable compliance with NSCV C5B
- Reporting Novel Items

September 2025:

- Correct use of the AMSA 586 form (deficiencies and non-conformances identified during a survey (periodic or renewal)) following a survey
- Draft standards on marina and boat electrical installations – open for comment
- ISO 12215 GES is now approved
- Time to check your branding
- Use of Starlink satellite system as a communications system on domestic commercial vessels
- Portable fire extinguishers for DCVs
- When to Use Lightship Declarations: Guidance from AMSA
- Audit matters

**New build trends in Australia's domestic fleet (2023 - 24)**

This report, issued in July 2025, can be accessed from the Survey Matters page linked above.

**AMSA Accredited Marine Surveyor Workshops**

AMSA also conducts regular workshops for Accredited Marine Surveyors. Usually held twice per year, these are online events for which registration is required. An upcoming Workshop on 4 December 2025 will focus on the following topics:

- NSCV C4 Update
- Making Recommendations and other applications - Practical discussion on recommendations and application requirements, supported by examples and internal process insights to help surveyors act proactively.
- Questions on Notice - Response to selected questions on notice followed by open floor Q&A

Pre-registration provides access to the workshop materials even when one is not able to participate in the online event. For queries email Accreditation Team dcvsurvey@amsa.gov.au

*Rob Gehling & Jennifer Knox* *27 November 2025*


## ACKNOWLEDGEMENT

The Australian Division of the Royal Institution of Naval Architects gratefully acknowledges the generous support of the AMDA Foundation Limited for the conduct of the International Maritime Conferences organised by RINA, the Institute of Marine Engineering, Science and Technology and Engineers Australia in conjunction with AMDA's Indo Pacific Maritime Expositions.

Without such support the International Maritime Conferences and the publication of *The Australian Naval Architect* would not be possible.

## Australian Division Council

The Council of the Australian Division of RINA met on the afternoon of Wednesday 16th September 2025 by zoom-conference under the chairmanship of our President, Prof Jonathan Binns in Melbourne with links to Gold Coast, Los Angeles, Canberra, Melbourne, Hobart, Launceston, Adelaide and Perth.

Among the items discussed were:

***The Australian Naval Architect***

Council further considered the future of our magazine following the devastating loss of its editorial team at the start of the year. The current ANA editorial group had met in a workshop during August and reached the conclusion that the *ANA* was not sustainable and that it would need to be turned into a digital publication if it is to continue. It needed to be made more responsive to the needs and opinions of members. Council agreed in-principle with the proposal of a three-tier structure which would provide for not only the timely dissemination of news but also improve provisions for feedback and comment. The transition to and implementation of such an arrangement would be subject to negotiation with RINA HQ as host for the digital magazine.

**AMSA Domestic Commercial Vessel Issues**

Council expressed the view that the letter on lightship verification received from AMSA earlier in the year was unsatisfactory and should be further pursued.

The Division was waiting for promised contact from AMSA (now established since the Council meeting) in relation to its review of accredited marine surveyor procedures.

**AMC Student and Graduate Function**

Council agreed to provide limited financial support to this function as a means of encouraging continued RINA membership and activity following graduation.

**Visit by Chief Executive**

Council was advised that Paul Jobson, the Institution's new Chief Executive, would visit Sydney in early November to attend Indo-Pacific 2025 and the IMC. It was unclear whether his itinerary could be extended to include any other centres.

**WARSHIP 2026 Conference**

Council was informed of discussions for WARSHIP to return to Australia in 2026, with the likely venue to be either Perth (since confirmed for Optus Stadium on 30 September-1 October) or Adelaide. The conference would be additional to the WARSHIP 2026 conference to be held in the UK.

**Succession Planning**

Council noted that little progress had been made in recruitment into the critical positions of Division Secretary and Treasurer but that the urgency of this matter was increasing.

**Preparations for Indo-Pacific IMC in November**

Council noted that all appropriate preparations were in place.

**Mutual Recognition of Accredited Australian Degrees**

Council noted that representations had been made to RINA HQ in support of recognition by the Engineering Council of Engineers Australia accredited AMC degree courses.

The draft minutes of the meeting have been circulated to Council members and are available to other members by request. Next meeting was tentatively scheduled for Tuesday 16th December 2025.

As mentioned by the President, the Division welcomes any volunteers to continue its work.

*Rob Gehling AO*

*Secretary*

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HMAS *Arafura* moored at Australian National Maritime Museum during Indo-Pacific

(courtesy Trev Ruting)

# Naval Architecture: Art, Science or Salesmanship [Aft Lines]

John Kecsmar

Any aspiring naval architect at university would no doubt be presented with a library list of reading matter to supplement their studies: from structures, to hydrodynamics to fluids, to materials, etc, etc.

It is also highly likely that one of the best books on all things naval architecture, that any diligent student would have read, is *Basic Ship Theory* by Rawson and Tupper.

The following question is posed in the introduction: is naval architecture art or science? In the opening chapter the very point is made that, "art had proved to be inadequate to halt the disasters at sea or guarantee a client of their money's worth and that science produces the correct basis for comparison of ships but the exact value of the criteria [that] determine their performances must…continue to be dictated by previous successful practice".

The most interesting point made in the same paragraph is this: "Where the scientific tool is less precise than one could wish, it must be heavily overlaid with craft; where a precise tool is developed, the craft must be discarded."

Allow me to quote an axiom that any naval architect is familiar with: "Well, it depends!"

So, a tool can be anything that enables the naval architect to design a vessel. This could be anything from a simple pencil and paper, or a set of ship curves, or a software program that can now do this in the digital environment, such as Maxsurf, or Rhino.

And this is a very good example of a precise tool being developed and previous methods being phased out, or simply discarded. Walk into any design office and all that is visible are desks with PCs and keyboards – not a drawing board in sight.

However, this precise tool still requires the "craft" or the knowledge and experience of those before in creating a fair and developable surface for plate development. The software may have additional tools within its arsenal to provide guidance, but it won't explain the "whys."

Thus, just like any tool around the house, knowledge of what it can and can't do is needed. One wouldn't use a handsaw to drive a nail into the wall. Whilst this example seems obvious, today's tools for naval architecture, owing to their increasing access of complex disciplines via a simple user interface, become a recipe for blurring the lines between not just science or art, but into a subject of salesmanship.

Take computational fluid dynamics (CFD) as an example. This is now a tool used by many design houses, owing to its accessibility and affordability.

With each passing year, desktop computers are becoming more and more powerful and they can now utilise these highly complex, memory-hungry programs that once seemed near impossible only one or two decades ago. With hull forms that are now created totally within the digital environment, transferring the hull into these programs is child's play, right?

So, looking back some 14 years ago to the International Towing Tank Conference (ITTC) symposium on CFD, interesting conclusions were made and highlighted:

> *For unconventional ships such as multihulls, planing boats and new-concept hulls, it is a little harder to assess the state of matters due to the difficulty of finding systematic and well-documented studies in the open literature…the prediction error for unconventional ships…with all design details would be somewhat larger than with conventional ships.*

This then sounded a warning that the accuracy of using CFD is still suspect and requires further verification, validation, and correlation.

Looking at last year's (2024) ITTC CFD committee report, has things changed?

Yes, of course. CFD has matured significantly in the last decade, and many ITTC towing tank institutions use them regularly. These institutions have access to such verification and validation from existing models and their tank test data to tweak and modify their CFD models to become more reliable.

Several questions were asked where more than 40 institutions worldwide replied. The most striking consensus was, "We need more measurements to continue to understand how to use CFD reliably in our profession."

This is illustrated very well in a detailed and comprehensive paper published in this year's March edition of *Ocean Engineering*, titled, "Resistance prediction using CFD at model- and full-scale and comparison with measurements."

They used a powerful yet commercially available software program to investigate a ship called *Lucy Ashton*, which is a paddle steamer. Their reason was that the vessel had a unique experiment conducted in the 1950s where jet engines were fitted on the hull as a means of propulsion, as this negated the need for propellers to be modelled and their interaction effects. Thus, a full-scale ship of hull only is an ideal means of analysis.

However, upon reading their conclusions, the words of the 2024 ITTC committee are evident in all their findings. These include the following:

1. The smearing of the free-surface on the surface of the hull was found to be problematic in all the simulations carried out.
2. The simulations at full-scale and the comparison with the measurements show the resistance coefficient to be under predicated for all Froude numbers when surface roughness is not included.
3. The comparison performed at model-scale also showed the resistance coefficient obtained in the simulations to be significantly lower than that from the measurements.

4. Using Prohaska's method to obtain the form factor was shown to lead to large variations with the scaling ratio.

This is using one of the more high-end commercial available CFD programs, probably beyond the reach of many SMEs. Harking back to the very prophetic words by Rawson and Tupper, one could not consider this to be a 'precise tool', given the uncertainties and lack of verification and validation against a very simple monohull's sea trial performance data.

And so, back to the axiom. Is CFD worth using? Is it reliable? Well, it depends!

If it is CFD used by ITTC towing tank intuitions, which use their own in-house forms of V&V from a large database of testing, then it is more likely to be correct than incorrect, or at least within the margins of statistical errors. The average SME does not have access to such a database to verify the results.

This is where the industry, or rather users of this software, must take a step back and ponder. Where the scientific tool is less precise than one could wish, it must be heavily overlaid with craft. In this instance the craft is the database of previous tank testing and/or hand calculations that were be done in the absence of this new tool. Don't throw the baby out with the bath water!

So, this comes to the final point: salesmanship.

Given all that is known or rather not known about CFD's limitations to the wider public, by those who are not naval architects, or perhaps even technically astute to interrogate claims, why are magazines and social media full of claims of unique hull forms or savings in resistance or improved seakeeping, yet only cite the output of the CFD as their means of validation?

Is salesmanship (in the discipline of naval architecture) the art of subverting opinion as fact, or is it more deep-rooted than that? Has the need for posts and "likes" on social media pushed naval architects from a fact-based discourse to one of pure opine?

It would appear naval architecture has come full circle, again in the wise words of Rawson and Tupper, as the art has now proven to be inadequate in the face of endless claims and postings.

*Reprinted from Baird Maritime* *9 December 2025*

*(Ed: John is principal of Ad Hoc Marine Design, with a particular interest in high-speed craft, working in both UK and Japan. His email address is john@ahmd.co.uk.)*

78m catamaran hull no.100 takes shape at Incat Tasmania
(courtesy Incat Tasmania)

# From The Archives

## Musings about Coal Fired and Steam Powered Ships

**John Simmons**

*With construction well advanced on Incat's revolutionary fully electric fast ferry China Zorilla, it is interesting to reflect on the advances in ship propulsion over the last century. Prompted by a recent email exchange concerning the origin of the term 'Stoker' for some Marine Engineering personnel within the navy, we share John Simmons brief reflections on his time on board coal fired and steam powered ships.*

After the Second World War there was a world-wide demand for steel. The enormous iron ore deposits in the north-west of Australia were urgently needed and BHP decided to build four larger and faster ships to transport the ore to the steelworks and foundries on Australia's East Coast. Between 1945 and 1953 the BHP Whyalla shipyard designed and built a new class of four 12,500 ton dwt ship called the *Yampi* Class. The first one, *Iron Yampi*, launched in 1947 was also the first steam turbine ship in the BHP fleet and was originally coal fired. The engines were imported from Parsons in Wallsend-on-Tyne. The other three ships of the class, *Iron Kimberley*, *Iron Derby* and *Iron Wyndham*, had their engines built at the machine shop at the BHP Newcastle Steelworks.

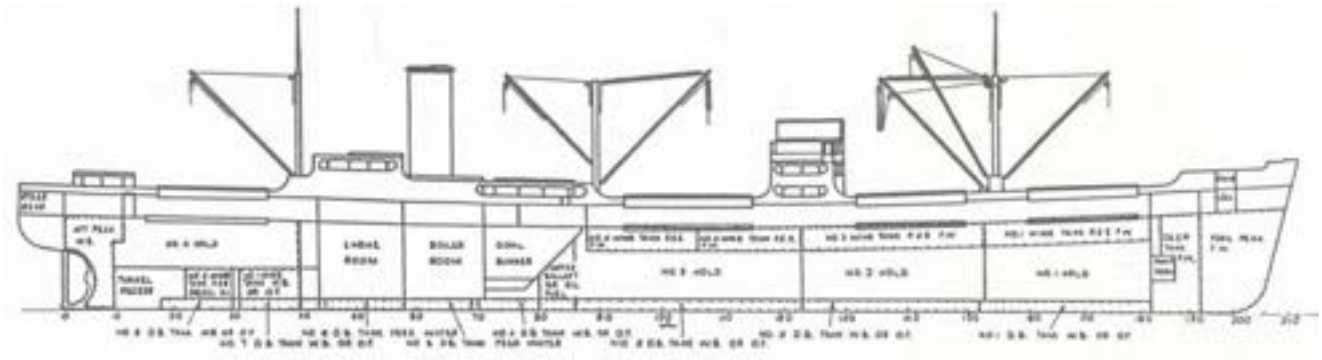
The *Iron Yampi*, the lead ship of the *Yampi* class built at Whyalla
(Photo courtesy BHP Shipping's Facebook page)

The *Yampi* class could well have been oil fired but Essington Lewis, the managing director of BHP, directed that they be coal fired because he, like the great American industrialists of the era was committed to 'vertical integration' and saw no point in paying for imported oil when BHP had their own coal mines. They were eventually converted to oil fired in the 1960s because by then most ports had stopped providing coal bunkering facilities. The *Iron Wyndham* was the last of the class to remain in service but finally went to the breakers in Kaohsiung in Taiwan in 1979.

I was second in charge of the 8-12 watches on two sister ships of this class that had three by four deck coal fired water-tube boilers, the stokers were mechanical but we still carried two men per watch to shovel the ash out into a lift skip that took it up to the tween deck from which it was tipped into the ash shoot and dumped over the side at sea. Their other job was to get into the coal bunker and trim the coal when it got lopsided or hung up in the structure as the level dropped.

In oil fired steam ships, the one man per watch would monitor the steam pressure and adjust the fuel flow to keep the pressure a needle's width below the redline, replace and clean the burner nozzles when they became fouled. Although I've seen and learnt about gas turbines, I've never served in a ship with them so I don't know what jobs crew designated as stokers would do in a gas turbine propelled ship.

In the early 1960's on board *Iron Derby*, if there were no port delays it was typically a seven-week circumnavigation of Australia clockwise from Newcastle or Port Kembla, to Fremantle or Kwinana with steel products; Kwinana to Koolan Island with construction equipment and materials for the new iron ore mine, and consumables including Euclid trucks and explosives (always secured on the foredeck hatch) for the existing mine on Cockatoo Island. Then with a full load of ironstone over the top of Australia back to Newcastle or Port Kembla. About five days to discharge and reload then repeat. If a weekend extended that to seven days, I would usually get a couple of days off (not necessarily the weekend) to go home to my wife and baby daughter. After some voyages on a *Chieftain* Class I was posted the *Yampi* Class ship *Iron Kimberley* as 5th engineer 2nd in charge of the 4-8 watches. In addition to our watches, we also spent three hours per day at sea, supervising routine maintenance and repairs, except Sundays. In port Monday to Friday and sometimes Saturday we would spend a minimum 8 hours undertaking and/or supervising maintenance and repairs that were best done when not moving.



General Arrangement drawing of the *Yampi* class ships
(Drawing courtesy BHP)

The *Iron Derby,* the third ship of the *Yampi* class built at Whyalla
(Photo courtesy M.R. Dippy via BHP)

The only warship I worked on while it had a full head of steam was HMAS *Vampire* when the boilers and ancillary steam systems were being tested. The machinery spaces were of course clean (except for asbestos dust!). In all the steam and diesel ships I served in the engine rooms were painted white down into the bilges but the boiler rooms that had started out silver were dull grey and the coal fired ones were dirty grey. The *Vampire*'s boiler rooms were very hot, the engine rooms not so hot but in both spaces much hotter than any of the three classes of steamships in which I crewed. There was an accumulation of reasons for that differential.

That's enough memories for now.

The *Iron Kimberley*, the second ship of the *Yampi* class built at Whyalla (Photo courtesy BHP Shipping' Facebook page)

Further information on the *Yampi* class can be found on pages 56 to 59 of "The Iron Ships - A Maritime History of BHP 1885 – 1992" which is the official history of BHP Shipping (available from www.bhp.com website).

'A' Engine Room Control Panel of HMAS *Vampire*
(Photo courtesy by ex-CPO Cook David Reid)

Aft end of 'B' Engine Room *of* HMAS *Vampire* showing the crowded nature of these machinery spaces
(Photo courtesy by ex-CPO Cook David Reid)

*Editors' notes:*

1. *RADM (Ret) Trevor Ruting also participated (as a then Midshipman) in post-refit machinery trials onboard HMAS Vampire in Jan-Feb 1970 after her modernisation at the then Williamstown Naval Dockyard. Due to the design of the boiler air supply system, the boiler rooms were pressurised by steam turbine and motor driven fans and the combustion air for the boiler furnaces was drawn directly from the boiler room. This contributed to the higher temperatures in the boiler rooms that John Simmons commented on. It was pleasing to note that Vampire could still achieve about 33 knots at full power after this modernisation.*

2. *HMAS Vampire, is open for public tours at the Australian National Maritime Museum in Darling Harbour, Sydney, although unfortunately visitors can't enter the machinery spaces to see that aspect of a bygone era.*

3. *The propulsion systems fitted to ships constructed at Whyalla shipyard ranged from compound expansion steam, steam turbines, diesel engines through to gas turbines and gas turbine-electric. Perhaps a subject for a future column!*

4. *Prior to the decision to close Whyalla shipyard, work was well advanced on a replacement design for the Yampi class which can be seen from John Simmons to have filled many roles for BHP Shipping.*

5. *Coal-fired steam turbine ships operated on the Weipa-Gladstone bauxite and related runs until July 2012 when the last of these, River Boyne, was retired.*


Chilean sail training ship *TS Esmeralda* arrives at Fleet Base East
(Image courtesy Defence Imaging)