



AUSTRALASIAN INSTITUTE
OF MARINE SURVEYORS

Shipshape

Newsletter September 2022

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From the Bridge

Chairman's Message

“

Our oceans and our solar system share much in common as the last frontiers for human discovery and exploitation. How will all this play out for future marine surveyors?”

Welcome all members and students to the September 2022 AIMS Shipshape newsletter.

As I write this message, I am looking out to Gladstone harbour on a most perfect day; however, this is not the case for many people across the globe. Our thoughts and prayers go out to flood victims in India, and the many peoples affected by record breaking heatwaves, severe drought, and wildfires across much of the northern hemisphere.

Australia has also had its share of natural disasters over recent times, with further heavy rain events being predicted for the coming spring and summer seasons. I think everyone would agree that Australia has experienced an unusually cold winter, especially in areas that generally enjoy quite mild winters. Are we now facing what climate scientists have been predicting since the 1970s?

Despite slow government action on climate policy by many of the world's dominant countries, industry is responding by leading the way into an uncertain and largely unknown future, in efforts to address the results of the world's hunger for energy and resources. The continuance of industrial growth that many of us have known our whole lives is now transforming. New energy sources are being developed and technology growth is exponential. The role of future marine surveyors may require elements of current practices; however, an evolving resources sector, its associated logistics chains, and new technologies, will surely see changes to our various roles across all marine survey fields.

The challenges that this will bring are largely unclear at the present time. On one hand we wait for a ship to berth while asking ourselves why the ship's gangway has never evolved from something developed centuries ago, and on the other, we read how new versions of sails or wind power are providing potential fuel savings for ocean transport. We are close to having unfettered global internet access via thousands of small satellites launched to orbit by a burgeoning space launch industry. Offshore wind farms are increasingly prevalent, providing energy in our changing world.

Our oceans and our solar system share much in common as the last frontiers for human discovery and exploitation. How will all this play out for future marine surveyors?

From the massive fleets of bulk carriers, tankers and container ships that transport millions



All members should stand up for what is right, act ethically, deliver competently and demonstrate professionalism in every job we do!”

of tons of commodities every day, ships that carry other ships or built structures, ships that lay cables or survey the ocean floor, research vessels, naval vessels, cruise ships, ocean and harbour tugs, to myriad fishing, commercial and the millions of recreational vessels, marine surveyors across the globe will always have a place – what that place looks like in 20, 50 or 100 years is somewhat unknown at present. Nonetheless, as a professional representative body, the AIMS must engage with its members, government, and industry to peer into this future to help prepare our members for what is coming.

The AIMS conference, with the theme “Back to the Future”, to be held in Sydney this October, will start the ball rolling in regard to our future as marine surveyors. Being my first AIMS conference as Board Chair, I am enormously pleased that it can proceed after the restrictions of COVID 19 made such events untenable during the last few years. It will be a great opportunity to personally meet other members, the board, and our business management team. I believe there is no substitute for face-to-face interaction, so I look forward to catching up with those members who attend, to discuss, amongst other things, what lies ahead for our profession. Tickets can be purchased via the AIMS website, so get in quickly for the early-bird special rates.

Although we are sailing into uncharted waters, we must ensure that members are not distracted by technology advances that make their jobs easier and more efficient, by maintaining very high levels of professionalism. We may not know exactly how marine surveyors will operate in future, but I expect many of our current practices will remain, albeit differing only with the use of technology. There will still be a need to report on a multitude of subjects across a variety of surveys.

When it comes to report writing, I have read many survey reports during my 21 years as

a marine surveyor, and believe there is vast room for improvement. I am not talking about spreadsheet based draught survey reports or tanker loading/outturn reports, rather those reports where clear, concise, informative writing is a primary requirement. It is one thing to write a report from which the recipient gains basic understanding; however, it is a greater achievement to produce a professional report that delivers technical and descriptive excellence. I am not saying that report writing must conform to one format, moreover, whatever format is adopted, it should be professionally written and presented.

Given my passion for writing, I am currently looking at how the AIMS can provide opportunities for members in the area of writing and hope to have some ideas to present to the board in the near future. In the meantime, I am exploring how to deliver this to my own employees as part of the process of developing a resource for all members. Never underestimate the power of professional presentation – you never know who is looking at your reports once you have sent them to a client!

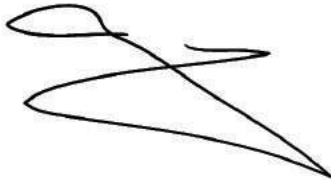
Writing is but the tip of the iceberg that is marine surveying standards. Some could argue that, like an iceberg in a warming sea, these standards have been melting away as the demands of industry continue to pressure our members to improve efficiencies, even at the expense of accuracy.

This is ethically challenging for those who adhere to maintaining high standards and codes of practice, especially given that such industry demands are often accompanied by a reduction in the reward. Increasing pressure from some within our own ranks and non-affiliated competitors who provide ‘lazy’ services damage the reputation of our profession and only serve to degrade our standing with industry and government alike.

All members should stand up for what is right, act ethically, deliver competently and demonstrate professionalism in every job we do!

The AIMS board have many challenges to address, standards being just one. The AIMS may call upon members from time to time to assist by becoming part of a committee to focus on specific issues.

I do hope that some of you can see fit to provide the wisdom of your experience and expertise, or just to be a voice of reason or constructive criticism by contributing a little of your time to help us build a strong, sustainable, and representative institute of which we can all be proud.



John Holden
Chairman



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AUSTRALASIAN INSTITUTE
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GM Insider

Stacey Taylor

I think most will agree that we are definitely in the midst of the busy season. It's been a great year so far and the second half is shaping up to be another highlight. As the weather turns to spring you can't help but appreciate the beautiful days and feel hope for the warm weather just around the corner.

A warm welcome to all members who have renewed their membership for another year. The more I meet with you all and learn more about the industry and the specialisations within, the depth of experience and knowledge our members hold truly blows me away.

Welcome also to all new members who have joined us in the past 3 months since our last newsletter release. We have had many new students join us as well as new surveyors from both Australia and New Zealand.

I encourage all members, new and existing, to get involved in any areas of AIMS that interest you. Look out for invites to join working groups or projects, contribute an article for publication in our newsletter or website news, come along to a networking event near you or the Sydney conference in October, or join in on an online member discussion.

If you have any feedback or suggestions, get in touch. We are always looking at new opportunities to support members and provide added value to your membership.

We have sadly had some long-standing members retire at the end of our membership year recently. To those who will no longer be active in their marine survey practice and membership, we thank you for your support and contribution over the years and wish you all the best with the next exciting phase of your journey.

NEW ZEALAND MARINE SURVEYORS SEMINAR

On the 28th and 29th of June 2022, I was lucky enough to attend Maritime New Zealand's Marine Surveyors Seminar in Wellington with AIMS board member, Greg Marsden. The seminar was attended by commercial marine surveyors recognised with MNZ along with Maritime New Zealand personnel.

While there, we provided a presentation on AIMS's history and vision, our strategic intent to expand our presence in New Zealand, training opportunities both present and future and membership and our Certification initiative.

It was a wonderful opportunity to not only share AIMS with our maritime neighbours but also learn more about the New Zealand market and the hardworking surveyors who keep the industry moving.

I would like to thank Maritime New Zealand and the local marine surveyors for their warm hospitality, certainly a welcome relief from the cold wet weather Wellington put on for us.

MARINE SURVEYING – ANZSCO SKILLED OCCUPATION LIST

Like so many industries, AIMS recognises Commercial Marine Surveying is experiencing a critical shortage of skilled surveyors to fill company positions.

As companies look to sponsor new surveyors to migrate to Australia, AIMS has submitted to the Minister for Immigration, Citizenship and Multicultural Affairs a proposal for Commercial Marine Surveying to be added to the ANZSCO skilled occupation list, with a descriptive skillset reflective of cargo operations undertaken by marine surveyors employed within a private surveying practice.

This proposal includes a wide scope of seafaring qualifications as entry pathways for eligibility as well as a Diploma of Commercial Marine Surveying coupled with a maritime background.

Outcomes from this submission will be disseminated to members once received.

RECREATIONAL STANDARDS PROJECT

The committee for the recreational standards project have been working very hard and we are excited to present progress of this project to members the upcoming AIMS conference in October and gain member feedback and contribution.

The project has been split into two distinct parts, with the first being an insurance template encompassing the minimum requirements of insurers into one standardised report which we will be seeking endorsement from insurers on to become an industry standard template for insurance surveys.

The second part of the project to be progressed late 2022 will consist of a set of

minimum industry standard for pre-purchase surveys and may be supported by standard templates which surveyors may elect to utilise. The written standards will form the minimum standards for recreational vessels and will cover all aspects of pre-purchase surveys for the broad scope of recreational vessels.

I encourage all who are interested in finding out more on this project and being involved in discussion and feedback in person to consider attending the conference. We have a 1-hour breakout session dedicated to this discussion and we welcome all members to get involved.

A very special thank you to our dedicated committee members who have been volunteering their time to be involved.

A project such as this could not come together without your expertise and I am very grateful to each of you.

AGM/BOARD MEMBER NOMINATIONS

The AIMS AGM has been scheduled for the 17th of November with more information to be released in the coming months.

From early October members will have the opportunity to nominate their interest in a position on the AIMS board of directors for the coming year. The board is responsible for the overall governance and strategic direction of the AIMS and works closely with the General Manager in the achievement of its objectives.

Board member terms are generally three years with a Chairperson, Vice Chair and Secretary elected from within the board each year.

If you have an interest in becoming involved or want to know more contact Stacey Taylor at: gm@aimsurveyors.com.au or the current Chair John Holden at: chairman@aimsurveyors.com.au.

MEMBERS NETWORKING EVENTS –



CONFERENCE

I am excited for the return of our conference at the Ovolo Hotel, Woolloomooloo in Sydney on the 21st of October, the first conference for me since joining AIMS. The event will provide an opportunity to come together and enjoy a day of dynamic presentations representing the full spectrum of the surveying industry as we look 'Back to the Future'.

Presentations from both industry and government will explore topics such as:

- Legal and practical challenges of a future of unmanned ships
- Prospective developments in technologies and practices affecting marine surveying
- The importance of professional surveying and continuous improvement
- The growth of and challenges posed by Autonomous Maritime Systems in the near coastal environment

There will also be opportunities for engagement in interactive discussions on the development of Australian survey standards in both the recreational and commercial industry and training marine surveyors for the future.

After a full day there will be no better way to end, than an evening of drinks and canapes overlooking the historic Woolloomooloo wharf.

To purchase tickets visit <https://www.aimsurveyors.com.au/AIMS-2022-Conference>

VIEW THE FULL CONFERENCE PROGRAM HERE <https://www.aimsurveyors.com.au/resources/Documents/AIMS%202022%20Conference%20Program.pdf>

A huge thank you to our generous sponsors.

Do not hesitate to get in touch with me any time via email gm@aimsurveyors.com.au or phone 02 6232 6555; my virtual door is always open.

Stacey Taylor
General Manager

MELBOURNE AND PERTH

It was wonderful to see some of our members at our recent members events in Melbourne and Fremantle. Both events were held in glorious locations, at the Port of Melbourne and East Fremantle Yacht Club, and provided fantastic opportunities to chat about what is happening within AIMS and connect with old friends and new alike. We were also fortunate that Laurence Gottlieb and Greg Hansen from Austbrokers Countrywide were in WA at the time and able to attend with us in Fremantle.

Thank you to all who were able to attend and a special mention to Razzak Syed and Mario D'Souza for organising the Melbourne Event.

A HUGE THANK YOU TO OUR GENEROUS CONFERENCE SPONSORS:



AMSA continues to progress reviews and policy initiatives as outlined in their annual regulatory program. Following is an update of some of these reviews.

Instrument	Summary of changes	Est Stakeholder consultation
Marine Orders		
Marine Order 501 (Administration) – National Law	AMSA is undertaking a full sunseting review (sunseting 1 October 2023) to update the order and remake under the National Law. MO501 commenced in 2013 and has not been reviewed since	Quarter 4 2022/23
Marine Order 503 (Certificates of survey – National Law)	AMSA is undertaking a limited scope review of Marine Order 503 (certificates of survey) to address technical/workability issues with the survey changes made in 2018, as well as the transitional vessel triggers and required surveys. These changes will also simplify application processes. Changes also include permitting vessels up to 45m to be surveyed by an accredited marine surveyor and amendments to Part 2 of the Marine Surveyor Guidance manual.	Quarter 1 2022/23
Marine Order 504 (Certificates of operation – National Law)	Safety Management Systems AMSA is undertaking a review of Safety Management Systems (SMS) in Marine Order 504 to address minor technical issues identified since commencement of the new MO504 on 1 July 2018.	Quarter 1 2023/24
National Standards		
Part C7A – Safety Equipment	AMSA is conducting a full review of NSCV Part C7A to address operational issues identified by industry including with the carriage of safety equipment for fishing vessels less than 12m in length operating close to land. AMSA is also reviewing life raft carriage requirements as part of this review	Quarter 2 2022/23

MARINE ORDER 505 COMMENCEMENT DATE

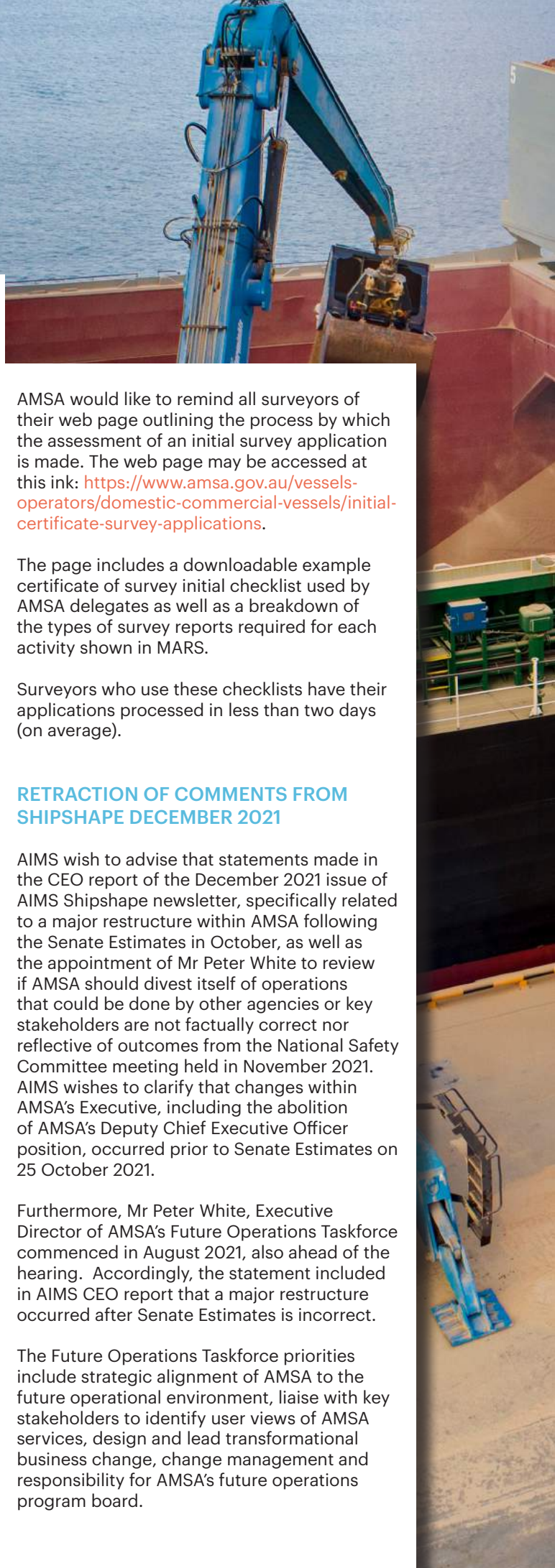
New Marine Order 505 commencing on 1 January 2023 has been published on the AMSA website.

OTHER POLICY AND REGULATORY INITIATIVES

Following the Government’s response to the Senate’s report on the Performance of AMSA, in May 2021, and the Government’s response to the Productivity Commission’s report on National Transport Reform, in October 2021, AMSA is in the early stages of planning a review into grandfathering arrangements.

The review of any grandfathered arrangements will be implemented on a phased, risk-based approach focusing on the highest safety risks as informed by data and stakeholder views, including views of Regional and National Safety Committee members. It will also need to consider the outcomes of the Independent Review of Domestic Commercial Vessel Safety Legislation and Costs and Charging Arrangements.

AMSA recognises that not all grandfathering arrangements pose a safety risk and that, given the diversity of the fleet, grandfathering in some form will continue for some time under the National System. Any changes would be subject to transitional periods and arrangements.



The outcome of this project will be an agreed policy approach to moving existing vessels up to more contemporary survey, crewing and vessel standards, having evaluated safety benefits, costs and other barriers. Amendments to MO503, MO504, EX02 to implement the final policy positions will be progressed in the regulatory program in forward years post 2022/23.

AMSA ACCREDITED SURVEYOR WORKSHOP: POST-EVENT COMMUNIQUE

The 2022 Accredited Marine Surveyor Workshop on the 26th and 31st of May 2022 provided a platform for attendees to share their knowledge and insights regarding Australia's Domestic Commercial Vessel (DCV) industry.

The workshop reinforced the vital role that Accredited Marine Surveyors play in Australia's maritime industry to keep DCV's safer.

A workshop report has now been distributed which highlights the key themes that were captured throughout the workshop and AMSA have now updated their work planning incorporating attendees ideas and insights to guide where and how they move to improve domestic surveying.

Following are some of the key action items for AMSA that have resulted from this workshop:

- The assessment of applications for Alternate Survey Process and Certificates of Survey will be undertaken by the same AMSA delegate, as far as practicable
- Guidance on Ultrasonic Thickness Measurements (10 Yearly Surveys)
- Guidance on Shaft Surveys
- Guidance on 10 Yearly Foam Buoyancy Inspections
- Additional guidance for New Surveyors

Another common theme that emerged was in relation to transparent and consistent assessment processes.



AMSA would like to remind all surveyors of their web page outlining the process by which the assessment of an initial survey application is made. The web page may be accessed at this link: <https://www.amsa.gov.au/vessels-operators/domestic-commercial-vessels/initial-certificate-survey-applications>.

The page includes a downloadable example certificate of survey initial checklist used by AMSA delegates as well as a breakdown of the types of survey reports required for each activity shown in MARS.

Surveyors who use these checklists have their applications processed in less than two days (on average).

RETRACTION OF COMMENTS FROM SHIPSHAPE DECEMBER 2021

AIMS wish to advise that statements made in the CEO report of the December 2021 issue of AIMS Shipshape newsletter, specifically related to a major restructure within AMSA following the Senate Estimates in October, as well as the appointment of Mr Peter White to review if AMSA should divest itself of operations that could be done by other agencies or key stakeholders are not factually correct nor reflective of outcomes from the National Safety Committee meeting held in November 2021. AIMS wishes to clarify that changes within AMSA's Executive, including the abolition of AMSA's Deputy Chief Executive Officer position, occurred prior to Senate Estimates on 25 October 2021.

Furthermore, Mr Peter White, Executive Director of AMSA's Future Operations Taskforce commenced in August 2021, also ahead of the hearing. Accordingly, the statement included in AIMS CEO report that a major restructure occurred after Senate Estimates is incorrect.

The Future Operations Taskforce priorities include strategic alignment of AMSA to the future operational environment, liaise with key stakeholders to identify user views of AMSA services, design and lead transformational business change, change management and responsibility for AMSA's future operations program board.

Review of the efficiency of roles of Authorised Officers and Marine Surveyors within grain surveys

Grain Trade Australia (GTA) have developed an Options Paper: Bulk Vessel Inspections - Combined Roles to initiate a review of the roles of Authorised Officers (AO) and Marine Surveyors (MS) within grain survey processes and identify if the removal of the perceived duplication in each role could create further efficiency within the supply chain.

GTA have suggested that the perceived duplication of the task of the bulk vessel survey by both a MS and AO should be examined through a joint industry/Government review. AIMS will be represented within this review, and I invite members to read through the below recommendations and provide your feedback on what has been proposed to gm@aimsurveyors.com.au or phone 0492 881 737.

Members feedback on the below opportunities and considerations is an important part of our representation in this review.

Direct extracts from the Options Paper as published by GTA:

ISSUES & OPPORTUNITIES

Efficiency within the supply chain should be a key focus for both industry and government. GTA suggests the perceived duplication of the task of the bulk vessel survey by both a MS and an AO should be examined through a joint industry/Government review as there is the potential to create efficiency and importantly may extend the AO inspection to vessels at anchorage instead of the inefficiency and the discord between supply chain participants the current AO inspection at the berth can create.

This process will need to consider all aspects of the arrangements for MS and AOs. Table 3 discusses some of the issues that have been raised with the current arrangements.

Table 3. Some Issues with the Current System

Issue	Discussion	Mitigation
Where the inspection occurs - Inspection at anchorage	MS will survey vessels that are at an Anchorage. Whereas AOs are only permitted to board vessels at anchorage at specific WA and SA ports. At all other ports the AO inspection occurs at the load berth or a lay berth. Inspection at anchorage is preferred as any cleaning that is required may be performed whilst the vessel is at anchor. In some circumstances if a vessel fails survey it can clean, either at anchor or at a lay berth and re-present and pass prior to berth occupation. Surveys at anchor also provide an alert of issues early and provide time for logistics planners to put in counter measures.	On occasions when a vessel is surveyed and subsequently fails at the loading berth the time to clean will lead to extensive cost, including cleaning cost, movement of the vessel to a lay berth (where available), downtime in port and transport labour and assets and potential contractual loss. These can on occasions create cost of well over US\$200k per incidence as well as the knock-on effect and cost to other vessels in the queue. If surveyed at anchor the time to clean may occur whilst waiting for access to the load berth. To increase the ports where the survey and inspection is performed at as anchorage the review should consider all options for the MS to perform the AO inspection.
Loading delays	As the AO inspection may occur at the load berth this can lead to supply chain delays and cost. For a 4-hour inspection this can be equated to an estimated vessel (time) cost of US\$6k. Any subsequent cleaning time if performed at the load berth extends the delay and can lead to a shutdown of the entire supply chain and extensive cost for all concerned.	If a system of the MS using body cameras can be established this will reduce/remove the time taken for the survey at the load berth. It may be possible to reduce the inspection time by 50%.

Issue	Discussion	Mitigation
Transfer of Costs	The time between the MS and the DAFF AO survey can be lengthy if there is berth congestion. If a vessel having tendered its NoR after the MS subsequently fails an AO inspection then the original NoR becomes void leading to a loss payment to the vessel.	If the system of the MS using body cameras can be established an AO may be able to fail a vessel based on the video evidence (if originally passed by an MS) prior to the vessel berthing. This should provide valuable cleaning time and reduce the tension associated with the transfer of cost when a NOR is withdrawn.
Independence	There have been concerns raised that AOs and MS can be close associates or employees of the same company and there is MS who are also trained as AOs.	Current arrangements should be reviewed to ensure they are applicable for any proposed changes.
Failure of AO and/or MS to perform	There have been incidences in recent times where the MS has not adequately performed their role and AOs have encountered dirty vessels unfit for grain loading. Similarly, there have been reports of AOs completing inspections in less than the required time.	These issues are in the process of being addressed through the introduction of AIMS Standards for empty bulk vessel inspections by MS and through the introduction of body cameras for AOs. This area may be further enhanced through the review.

Inspection at safe anchorage: A great opportunity exists in the grain export supply chain to create efficiency through the combination of the roles of AO and MS where possible. A key benefit of the combination of roles may include the reduction in time of AO inspections at the berth rather than at anchorage. Berth inspections can lead to lost productivity for the vessel and the supply chain and may even create port blockages where the entire port-based supply chain must shut down for lengthy periods.

It is understood the government deeming arrangements that apply in any outsourced contractual arrangements may be an issue to consider as part of any review process. It has been suggested that under the current arrangements if a MS was to inspect a vessel for DAFF (in some

outsourced arrangement) the Government inspection at safe anchor regulations would then apply to the MS preventing them from performing the AO role even though they will be on board the vessel as part of the MS role. It is understood the new AIMS Standards are encountering associated concerns.

RECOMMENDATION

Whilst acknowledging safety must be the first priority there are opportunities that should be examined to seek efficiency from the current tasks performed.

These may include:

Table 4. Recommendations

	Concept for Consideration/Discussion
1. Safe Anchorage Ports	Combining the role of MS and AO at the existing safe anchorage locations and performing only one survey/inspection.
2. Non-Safe Anchorage Ports	When there is no DAFF approved safe anchorage, the MS will use body cameras and will video the MS inspection. This offers opportunities for review and consideration including: a. Post Survey: The AO will perform a post survey review of the video footage. This will support an agreed 'confirming spot audit' performed when at the berth to ensure there is no change or no subterfuge. b. Live Survey: The AO will be live linked (video and sound) to the MS Survey and will perform a virtual inspection. The voice contact will allow the AO to direct the camera to any areas of interest.
3.	Any other potential efficiency

CONCLUSION/RECOMMENDATION

Duplication of a process, even when performed for different principals should always be examined to determine if redundant activity within a supply chain be removed without impacting on current safe work practices.

GTA recommends industry and DAFF jointly review the bulk vessel inspection process and consider opportunities to create efficiency.

Upcoming Events



20th October – Melbourne Boat Show

21st October – 2022 AIMS Conference – Woolloomooloo

17th November – AIMS Online AGM

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Boat Batteries explained

Donald Nicholson



12V Lead acid, unsealed battery



12V Sealed lead acid battery



12V Gel cell battery

This article was first published on www.boatbuy.com.au. Thank you to BoatBuy and the author Donald Nicholson for allowing us to reproduce this article.

In this article, we are going to look at the differences between types of boat batteries. We'll also cover the jargon used, and some of the most common questions we get asked during surveys. Throughout, we will cover:

- Most common battery types
- Flooded vs sealed lead acid batteries
- AGM and gel cell batteries
- Starting vs house batteries
- Amp hour explained
- 12V and 24V battery systems
- Considering solar and wind power
- Tips for maintaining battery life

MOST COMMON BATTERY TYPES

One of the most common questions we get asked is about the most common types of boat batteries, which are:


1. 12V lead acid, unsealed – these require monitoring of water levels
2. 12V sealed lead acid – these don't require monitoring of water levels
3. 12V AGM and gel cell – these don't require monitoring of water levels
4. 12V lithium – these are a topic for a separate article, as they are a lot more in depth and still relatively new to the marine industry

FLOODED VS SEALED LEAD ACID BATTERIES

Want to know the easiest way to remember these two types of batteries? Batteries that need the water to be topped up (flooded lead acid batteries) and batteries that do not (sealed lead acid batteries).

Flooded lead acid batteries have caps fitted to each cell. These caps can be removed to allow you to check the water levels. They should only be topped up with distilled water, and not tap water. If you allow the water levels to drop significantly, you risk the plates failing, and in some cases, the battery exploding.

Sealed lead acid batteries have a sealed enclosure with no provisions to top up distilled water. They have a one way valve as protection, allowing electrolyte gases to escape in the event that temperatures overheat.



Lead acid batteries consist of plates, separators and electrolytes. The battery uses an electrochemical reaction to convert chemical energy into electrical energy. When the battery is being used and producing current, it is in the “discharging state”. This state depletes the electrolyte over time and is the reason why we have to charge batteries. When charging batteries, this process is reversed.

Unfortunately, one down side of lead acid batteries is they self-discharge. It’s important that you also remember that your bilge pumps and sometimes stereo systems are linked directly to your batteries. This means your electrical system is never 100% off and can cause your batteries to go flat when they’re left unattended for a period of time.

You may often hear the term that certain batteries are “maintenance free”. Although they won’t require distilled water, they shouldn’t be referred to as being maintenance-free as terminal corrosion is the bane of boaties. You should regularly checked the terminals for corrosion and external condition of the batteries for any damage or swelling.

AGM AND GEL CELL

AGM and gel cell batteries do not require water levels to be monitored. Instead, gel batteries have silica added to the electrolyte (basically sulphuric acid) which forms a paste that doesn’t flow when the battery is turned over. This means the battery doesn’t have to be kept upright. The AGM battery shares the ability to be overturned, but retains the electrolyte in a tightly-woven glass fibre mesh. This is why they are often chosen to be onboard boats as the movement of the boats does not affect the battery and they require little maintenance. The downside is that they’re very expensive!

You may also notice gel cell batteries mounted in sections of the boat that move around or experience a lot of vibration. An example of this is at the bow next to the bow thruster. These types of batteries can better withstand the constant pounding at the bow better than their flooded or sealed lead acid alternatives.

WHAT IS THE DIFFERENCE BETWEEN “STARTING” AND “HOUSE” BATTERIES?

The difference between starting and house batteries is the internal design, being the thickness and surface area of the plates and connections. House batteries are usually “deep cycle” and better at continuous small loads, as opposed to short burst of large amperage which are typically starting batteries.

Starting batteries work on the basis that they don’t operate often (compared to house batteries) but their current demand is very high

when utilised. The main factor is battery plate wear over the long term and current density (amps per square metre of battery plate). If a battery has a large plate area, the current density will be relatively low, so the current-induced plate erosion will be correspondingly low. In order to pack in a large plate area without making the battery too big, the plates are made thinner.

In a continuously operating battery (house battery environment) thin plates would have a relatively shorter life, so house batteries go for thicker plates to give satisfactory life. You often see the same batteries used for all applications, which we would recommend against.

A good design is to have the starting bank as stand-alone bank with nothing else attached to them. This will give you the best chance of being able to leave the boat unattended for a period of time and at a minimum being able to start the engine to get you home.

WHAT DOES AMP HOUR MEAN?

Amp hour is the rating at which the battery can last with a constant load of a specific amperage. The larger the “amp hour” the bigger capacity the battery has before it will go flat.

1 amp hour means the batteries charge will last for 1 hour (or thereabouts). There are exceptions to the rule, such as heat affecting the ability to constantly draw current.

As a general rule of thumb, the more “amp hours” you have onboard, the bigger your battery system capacity is. You can figure out the total amp hours by adding up the ratings of each battery fitted. For example, 3 x 70 AH batteries = 210 amp hours in total.

SHOULD ALL MY BATTERIES BE THE SAME VOLTAGE AND AMP HOUR?

Yes, it is very important that all your batteries are rated the same voltage and amp hour if they are in the same bank. If your batteries are being connected in series or parallel, then they need to have the same amp hour rating. You can not connect a 100AH with a 110AH as the smaller battery will discharge at a higher rate.

As a result the smaller battery will become depleted and unusable faster. With that being said, it is fine to have separate banks that are not directly connected. For example: 2 x 200AH house bank and 2 x 70 AH start bank or a 12V house bank and 24V start bank.

WHY DO SOME BOATS HAVE 12V AND 24V SYSTEMS ONBOARD?

This has to do with the amount of power required to be delivered by the batteries with the least resistance losses.

Typically you will see 24V connected to larger diesel engines, anchor winches and other items that require larger current draw. You will then have the 12V systems connected to the small load items, such as lights and stereos.

Imagine you have a horse pulling 100kg – the horse is the 12V and the load is the amps required. Add a second horse (24V) and it will be much easier to pull that load and deliver the 100kg faster. On most larger engines and boats, you will typically come across 24V systems.

Also, using the Ohm's law equation, you can figure out the current required with a 24V system. As a result you can carry the load in smaller cables saving space and money. The large cruise ships you see around the harbour run 6.6kVa system for the same reasons.

SHOULD I CONSIDER SOLAR OR WIND POWER?

Yes, this is a great option for moored boats. We typically see solar panels fitted to boat hardtops and canopies, but it's not often we see wind generation as it can be hard to control when not onboard and is easily damaged by excessive winds. Solar is a great option especially for boats kept on moorings as they will give a trickle charge to your batteries, even in even low sun conditions. For example, I have a 20w panel fitted to my single N100 battery, and even after four years its health state is still above 80%.

This being said, make sure you have the correct solar set up onboard your vessel as it is not as simple as connecting a panel to a battery. We advise contacting a marine electrician and come up with the best system for your boat. The wrong set up can do more harm than good, so having a professional onboard is always recommended. All solar systems will need a regulator to avoid overcharging the battery system.

SIMPLE AND MOST USEFUL THINGS YOU AS AN OWNER CAN DO TO MAINTAIN BATTERY LIFE

You're probably wondering... how does this all tie together and what can I do to improve my battery longevity? Here's my top tips:

- Coat the battery terminals with a corrosion inhibitor and regularly (every month or so) check for corrosion and terminal tension.
- Keep a record of battery voltage. Check it at the same time – either when you first step onboard or when you leave. Alternatively you can invest in a battery monitor gauge.
- Look at the external condition for any leaks or excessive bulging.
- Date the battery or keep a record of when they were installed so you know when they are approaching the end of their life (approximately 3-5 years is what we typically see).
- Understand the types of batteries you have onboard, and if you need to monitor their water levels.
- Check the amperage your battery charger is outputting as this can be an indicator of if a battery is damaged. If your boat is permanently connected to shore power and outputting a large amount at rest, you likely have worn batteries.
- If you have flooded lead acid batteries and can smell "rotten eggs", it's likely out of water and should be investigated.

About The Author – Donald Nicholson
Growing up on the Isle of Barra on the West Coast of Scotland (population of around 1100), Don's family owns and operates a fleet of fishing vessels that mainly fish for prawns and lobsters. At age 17, Don completed a degree in Marine and Mechanical Engineering, and has spent the last decade working in numerous engineering roles across the globe, before settling in Australia in 2017. Don specialised in diesel engines working on a diverse number of vessel and engines across Pittwater. Don has also completed his Diploma in Marine Surveying, and is a valued BoatBuy team member. Liked this article? Feel free to get in contact direct at don@boatbuy.com.au. Alternatively, you can contact the BoatBuy team for all general enquiries here.



12V Switch panel found on a boat

A selection of solar panels fitting to a boat canopy

12V Switch panel found on a boat

Avoid that sinking feeling.



Pick the right marine surveyor.

The wrong surveyor could cost you more than a new boat.

Getting out on the water is a favourite Aussie past-time and we want to help you make sure that the boat you purchase is suitable for you and what you want it to do.

Purchasing a boat is a big investment and things can and do go wrong so you want the best advice possible.

Engaging a Certified Commercial Marine Surveyor™ to help you buy a boat makes a lot of sense. A quality condition survey is the best investment that you will make as part of the buying process.

Getting it right the first time may just save your life.

So how do you choose a surveyor that is right for you?

There are no Government controls that regulate the minimum qualifications or experience required by a marine surveyor in the recreational boating industry.

The Australasian Institute of Marine Surveyors encourages boat owners to only engage a Certified Commercial Marine Surveyor™.

We care passionately about getting you out on the water because we love it too – but more than that we care about your safety and that means we care about your boat.

Check your marine surveyor's qualifications yourself or talk to us before you purchase a boat or engage a marine surveyor.

It's our profession, not our part time job.

To become a Certified member of the AIMS, surveyors must provide evidence of their qualifications and experience that support the areas of specialisation they advertise.

AIMS Surveyors also commit and adhere to the AIMS Code of Professional Practice giving you, the boat owner, greater peace of mind.

Avoid that sinking feeling, pick the right marine surveyor.



Find a surveyor at www.aimsurveyors.com.au
Email us on info@aimsurveyors.com.au
or call us on 02 6232 6555



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Structural Fire Protection

The below article was first printed in AMSA's Survey Matters newsletter in September 2021 in response to recommendations received from surveyors where non-compliant structural fire protection had been fitted to vessels.

These non-conformances have significant impacts for builders, surveyors and vessel owners.

We wrote about passive fire protection measures in the April 2020 edition of Survey Matters. The information is reproduced below to reiterate the importance of compliant structural fire protection.

Structural fire protection is installed on the vessel structure to contain or slow the spread of fire. It includes the installation of fire-resistant bulkheads, deck heads, decks and doors.

The primary aims of structural fire protection are:

- Prevent or delay the spread of fire, smoke and heat within high-risk spaces.
- Protect essential systems and spaces to enable evacuation from the immediate area. This also ensures persons on board can reach muster stations and then abandon ship, should the fire become unmanageable.
- Provide redundancy and work alongside active fire protection systems. This avoids vulnerability arising from over-reliance on a single measure.

Passive structural fire protection works in four main ways:

1. PROTECTS STRUCTURAL ELEMENTS

Structural fire protection guards essential components and compartments against fire and thermal heat, to maintain structural integrity.

2. COMPARTMENTATION

Compartmentation includes fire-rated divisions or compartments, bulkheads, deck heads, and smoke barriers. It seeks to contain the spread of fire, thermal mass and smoke. Fire can be contained within the machinery space, for example, if the bulkheads and decks are sufficiently protected.

3. OPENING PROTECTION

Fire doors and fire-resistant penetrations installed in openings aim to maintain fire-resistance. They work together to form an effective smoke and fire barrier.

4. FIRE STOPPING MATERIALS

These materials generally withstand temperatures exceeding 1200°C for extended time periods. This limits fire spread.

Note: It's common to see a fire-rated division penetrated during modifications. Workers may leave hidden holes in the division as they perform maintenance and upgrades. Surveyors need to pay attention to fire-rated divisions and ensure they are maintained to the original approved specification. This includes paying close attention to cable and pipe penetrations.

The type and thickness of insulation depends on the material it is protecting. For example; steel begins to lose its design margin of safety at temperatures of around 550°C. For aluminium the temperature is much lower at around 150°C. At 275°C aluminium will lose around 50% of its yield strength. Composites soften as temperatures rise, resulting in reduced structural properties for a laminate. The glass transition temperature of the resin affects the amount of insulation required for a composite. Performance of cores & fibres across a range of temperatures also impacts the amount required.



The April 2020 edition of Survey Matters contains the basic principles and examples of data sheets and certificates of compliance for Aluminium - A30, Steel - A30, and Composite - A60 structural fire protection.

KEY ITEMS A SURVEYOR SHOULD VERIFY

Installing protection under approved design and OEM guidelines is the only way to achieve the aims mentioned above. This includes:

- Ensuring only appropriately tested solutions are used.
 - The requirements of the performance standards (Fire Test Procedures Code or the High Speed Craft Code) are specific. Products not designed and tested to meet these standards are not acceptable (see below).
 - Insulation requirements vary based on type and thickness of the material it is protecting. Requirements also vary depending on the area on the vessel and the time rating of the division.
- Having concise and accurate approved drawings, of the proposed arrangements.
- Verifying that materials and fittings are correctly installed by competent personnel, i.e. as stated in the approval documentation and/or the manufacturer's instructions. For example, pins are fixed to the substrate correctly. Pins are sufficient in nature as per approval documentation and achieve required returns.
- Verifying that the means of protection are inspected and tested at regular intervals. This includes prompt repair and renewal whenever necessary.
- Checking the certification of the SFP, do not confuse non-combustible products, with those properly tested and certified as part of time rated fire-resisting divisions (structural fire protection).

EXAMPLES OF UNACCEPTABLE PRODUCTS

Pink batts are not acceptable. They are combustible above 350°C and are designed for comfort insulation and acoustic use only.

Intumescent paints and similar solutions do not meet the performance requirements for use. They are not approved for use as structural fire protection solutions. A solution approved for use on steel, is not necessarily suitable for use on aluminium or fibreglass. Even if it is certified for a higher time rating than required.

A solution approved for use in a land-based building is not approved for use on a vessel. The performance criteria are significantly different between vessels and buildings. The environment, firefighter response time and distance to safety or rescue if a fire breaks out differ.

“

Surveyors need to pay attention to fire-rated divisions and ensure they are maintained to the original approved specification. This includes paying close attention to cable and pipe penetrations.”

Members Update

Brett McCulloch

Hit the Ground Running

What a busy six months it has been for me here at AIMS. I am really enjoying the challenge and I think I am finally getting my head around what we do here as an Industry Body. We really do speak collectively as one, I am proud to be associated with the Institute as a member, and also as an Administrator.

Renewals, New, and Retired Members

On behalf of AIMS I would like to welcome back all of our renewing members for another year of membership, also we welcome our new members. For those members that have reached retirement, our best wishes go with you. We are truly indebted for your input, and to have had you as a member of our community, thank you.

While I am still yet to meet many of our members, I feel that through the renewal membership process, and having become more familiar with your names, your companies, and your professional specialities, that I already know you all. However, that's not the case and I look forward to meeting you all in person as we move forward.

This membership year is shaping up to be an exciting one, in particular the Conference in Sydney in Oct, always lots happening behind the scenes with the AIMS team.

Use of AIMS stamp and logos

As most of our members would have now received their new membership certificates and/or stamps for the year, I thought I would remind everybody as to the use of AIMS stamp and logos.

AIMS issues electronic stamps each membership year to Full and Certified Members which can be used on reports and other correspondence. The stamps are issued on the following conditions:

1. The electronic stamp remains the property of the Institute and must only be used by the member whose name appears on the stamp. The stamp cannot be used to endorse reports prepared by another person even within the same company, as the stamp is issued to the individual member rather than the organisation.
2. The Institute reserves the right to cancel the authority to use the stamp, in the event of the member becoming non-financial, misusing the stamp, or for whatever other reasons the institute may consider warranting such action.

Members also have access to use the AIMS logo upon request. The logo can be used on correspondence, reports, and marketing materials. The use of the logo is given at the discretion of the Institute on the following conditions:

1. The AIMS logo remains the property of the Institute and must only be used by current financial members in accordance with the guidelines set out below. The AIMS logo cannot be used to endorse reports prepared by other persons who are not members of AIMS.
2. If the AIMS logo or wording indicating AIMS Membership is used on a website or in marketing materials, all Marine Surveyors

within the organisation must be members of AIMS. For example, if company ABC has 3 Marine Surveyors as employees and only one is a member of the AIMS the logo or wording referencing membership cannot be used on company marketing materials including websites.

3. If any of the above conditions change, the AIMS logo and any reference to membership must immediately be removed from all materials and websites related to the organisation and its employees.

4. The Institute reserves the right to cancel the authority to use the AIMS logo, in the event of the member becoming non-financial, misusing the logo, or for whatever other reasons the Institute may consider warranting such action.

We encourage all members to report misrepresentation of the use of AIMS Stamp or Logos.

CCMS Membership

The Australasian Institute of Marine Surveyors is recognised as the leading professional body for Marine Surveyors in our region.

We take our responsibility to consumers of marine survey services seriously and we encourage all members to undertake pathways that will lead to Professional Certification.

Certification signifies an individual's (or an organisations) expertise to peers and clients and also helps the marine survey industry as a whole define and maintain standards.

The AIMS has developed standards of marine survey practice for every sector of the marine survey industry and the Certified Commercial Marine Surveyor™ (CCMS) initiative was established in 2018 by the AIMS to ensure consumers of marine surveyor services are able to select a surveyor with confidence. Certification in specialised fields (categories) of marine survey is verified proof of the professionalism and ability of either an individual surveyor or a marine surveyor company or organisation.

To apply to become a Certified Commercial Marine Surveyor™ you must be an AIMS Full Member and have a combination of qualifications and relevant work experience. For most candidates, this means at least

a Diploma and/or Advanced Diploma of Marine Surveying plus a minimum of five (5) years current full-time experience as a marine surveyor. In addition to appropriate and relevant training in each category of marine survey, the applicant or the accredited company must provide evidence of:

- Appropriate insurance coverage for the categories of marine survey that they specialise in
- Corporate governance and management systems equivalent to ISO 9001:2015.
- A commitment to professionalism and the AIMS Code of Conduct.
- Annual professional development in the marine survey field.

BENEFITS OF BECOMING A CERTIFIED COMMERCIAL MARINE SURVEYOR™

Certified surveyors have demonstrated their commitment to superior professionalism and upholding industry standards as well as delivering superior customer service. In recognition of this professional commitment, certified surveyors have access to additional member benefits.

- Certification provides additional credibility and assurance to clients.
- Separate listing on the AIMS website for potential clients to search and locate based on location and areas of expertise.
- Discounts to attend our Biannual Conference to witness key speakers and valuable insight into industry advancements and future trends.
- Use of exclusive CCMS logo for use in email banners, letterheads, and marketing materials.
- Access to marketing materials to promote your industry association affiliation including membership card, AIMS iron on patches and glass or window stickers.
- Free help and advice in setting up ISO9001 Quality Management System Accreditation.
- Discounted rates offered for guidance and assistance with preparing tenders.

To apply for Certification email: info@aimsurveyors.com.au for an application pack.



Facts abouts boats. Did you know?

The difference between a boat and a ship lies in its weight. If a vessel is over 500 tonnes, then it is called a ship. A ship can also carry a boat.

Boats have a life expectancy. After that, they are not deemed safe or stable anymore.

Usually, cargo ships that sail in the oceans can have a lifespan of 20 to 30 years. Sailboats are meant to be used for 30-40 years even if they are made of softer materials such as plywood or fiberglass.

June Trivia Answer



Q: What was Australia's worst peacetime maritime disaster that indirectly provided us with world-recognising meat and dairy products?

A: The worst peacetime maritime disaster was that of the barque *Cataraqui*, wrecked on the Westcoast of King Island (off the coast of Tasmania) in 1845 with the loss of 400 lives. Theory has it that the seed from straw filled mattresses washed ashore creating unique pastures. Hence the incredible meat and dairy products unique to King Island.

Maritime New Zealand News

As printed in Seachange Issue 92, August 2022

UNDERSTANDING EPIRBs: NEW GUIDANCE

A float-free EPIRB, like the one pictured, is designed to be released when a vessel has sunk to a certain depth, usually up to four metres

Maritime NZ is issuing new guidance to clarify the difference between 'floating' and 'float-free' EPIRBs (emergency position-indicating radio beacons) for commercial vessels, and encourage the use of appropriate equipment to help keep passengers and crew safe.

The guidance was developed after surveyors told Maritime NZ that users didn't fully understand the difference between the two pieces of equipment or the importance of installing them correctly.

The new guidance refers to the bracket the float-free EPIRB sits in. That bracket has a hydrostatic release unit which automatically releases when it has sunk to a certain depth.

Once released the EPIRB floats to the surface and automatically switches itself on. Users are encouraged to install the device in an open space where it wouldn't be blocked, if the vessel ran into trouble.

Read more on the new guidance: <https://www.maritimenz.govt.nz/content/commercial/safety/safety-equipment/float-free-epirbs.asp>

UPDATE ON PART 199 RULES: AIR POLLUTION FROM SHIPS

The Part 199 Marine Protection Rules put in place many of the requirements for MARPOL Annex VI – the international treaty to prevent air pollution from ships.

Most of the Part 199 rules came into force on 26 August 2022. Compliance with the rules will be checked at the next renewal or intermediate ship survey after 1 January 2023, or at the initial survey of ships new to New Zealand from 26 August 2022.

The following rules remain suspended and will come into force later this year:

- requirements in relation to the Carbon Intensity Index and the Energy Efficiency (Existing Ships) Index will come into force on 1 November, when the relevant amendments are made to MARPOL Annex VI. These apply to many large ships.
- requirements for nitrogen oxides (NOx) emissions from ships voyaging domestically. These rules apply to some engines over 130 kilowatts (174 HP), and changes are proposed to ensure the rules work properly.

Guidance on what all this means is on the Maritime NZ website - <https://www.maritimenz.govt.nz/content/rules/part-199/documents-incorporated-by-reference.asp>

Maritime NZ are currently consulting on the proposed amendments to the NOx requirements and some other minor changes to Part 199. To have your say, please read the consultation document on their website and make your submission before 26 September 2022 - <https://www.maritimenz.govt.nz/content/public/consultation/>

The AIMS 2022 Conference will be held on Friday the 21st of October at the Ovolo Hotel, Woolloomooloo in Sydney.

Attendees can expect a line up across the day of dynamic industry and government presentations and discussions on topical issues affecting surveyors across the industry followed by an evening of networking drinks and canapes overlooking the historic Woolloomooloo wharf.

2022 AIMS Conference

Friday 21st October 2022

Doors and registration open from 9:15am
Conference commencement at 10:00am

The Ovolo Hotel, Woolloomooloo, Sydney



Early bird tickets on sale now. Book early to avoid disappointment.

Ticket Pricing	Prior 23/9/22	After 23/9/22
Conference and networking evening	\$395	\$445
Networking evening event only	\$125	\$125



The networking evening will finish at approximately 8:00pm. All are welcome to attend but numbers are strictly limited.

A HUGE THANK YOU TO OUR GENEROUS CONFERENCE SPONSORS:



Back to the Future

Conference Program

9:15am	Registrations Open – Morning Tea on arrival	
10:00am	Conference Open Acknowledgement of Country	
10:20am Presenter 1	Professional and Public Liability Insurance for Surveyors Presenters: Austbrokers Countrywide - Greg Hansen and Imesha Perera	
10:40am Presenter 2	Unmanned & Unaware: What does the future hold? Presenter: Kerryn Woonings	
5-minute break		
11:20am Presenter 3	Biofouling regulations and requirements Presenter: Department of Agriculture, Fisheries and Forestry - Tim Carew	11:20am - Breakout Session 1 AIMS Recreational Survey Industry Standards Project
11:55am Presenter 4	Developing Technologies & Practices within Commercial Marine Surveying Presenter: Mike Wall	Join a group discussion and provide feedback on AIMS's Recreational Survey Industry Standards project
12:30pm	Lunch	
1:15pm Presenter 5	40 Series Reform Programme (Review of NZ Maritime Rules) Presenter: Maritime New Zealand	1:15pm - Breakout Session 2 Cargo Hold Cleanliness Standards for loading grain and other sensitive cargo
1:50pm Presenter 6	Standing Rigging: What to look for! Presenter: Brendan Garner	Join a group discussion and provide feedback on AIMS's Draft Hold Cleanliness Standards for loading grain and other sensitive cargo.
5-minute break		
2:25pm Presenter 7	The importance of professional surveying and continuous improvement Presenter: Australian Maritime Safety Authority - Chris Barber	
3:00pm Presenter 8	Autonomous Surface Vessels and Underwater Vehicles Presenters: AMC Search - Damien Guihen and Sam Hunnibell	
3:30pm	Afternoon Tea	
3:50pm Presenter 9	Training Marine Surveyors into the future Panel Discussion	
4:50pm	Conference Closing	



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WOOLLOOMOOLOO

Independent Review of Domestic Commercial Vessel Safety Legislation and Costs and Charging

The Australian Government has commissioned an independent review of the National System and the National Law to consider whether Australia's legal framework regulating the safety of domestic commercial vessels (DCVs) is fit for purpose. The review is also to consider whether this regulatory framework is being delivered efficiently and effectively, and to consider options for future cost recovery arrangements.

AIMS had a one-one-one meeting with the independent review panel and provided a submission to the first phase of this review in March 2022, the findings from which are now provided with the Draft Interim Safety Report – Phase 1. This report sets out the Independent Review Panel's findings on the extent to which the National Law framework is currently fit for purpose, and the challenges in existing arrangements under the National Law. It also provides 12 draft recommendations identifying opportunities for reform and alternative approaches.

AIMS is now in the process of reviewing the recommendations within this report and preparing a submission for comment. I invite any members who would like to contribute to this submission to contact Stacey Taylor at gm@aimsurveyors.com.au.

The below recommendations are extracted from the Draft Interim Safety Report – Phase 1. You can review the full report including the findings from the first stage of the review and expansion on these recommendations at - <https://www.infrastructure.gov.au/have-your-say/review-domestic-commercial-vessel-safety-legislation>

Draft recommendations

RECOMMENDATION 1

The law should be amended to better reflect a risk-based regulatory model that is flexible and able to adapt to innovation and emerging technologies by:

- retaining general safety duties on all parties that have a duty under the current law;

- removing the universal requirement for all DCV's to have Certificates of Survey and Operations;
- providing that vessels of a type or class specified in the regulations (or Marine Orders) be required to comply with NSCV Standards and/or hold a Certificate of Survey or Certificate of Operations; and
- requiring higher risk vessels to comply with the Navigation Act and associated international standards, including the International Dangerous Goods Code and the Standard of Training, Certification and Watchkeeping.

RECOMMENDATION 2

The grandfathering arrangements that are a risk to safety should be wound back in accordance with a phased risk-based program.

- All existing DCVs subject to grandfathered design and construction standards should meet acceptable baseline set of design and construction standards based on the current 'transitional standards' within seven years of implementation of this change.
- DCVs that would be required to be certified under the risk-based regulatory regime proposed under Recommendation 1, and that are subject to grandfathered survey requirements or otherwise subject to grandfathered design and construction standards, should undergo survey inspection to assess gaps and requirements to the baseline design and construction standards.
 - These inspections should occur over a two to five year period, with higher risk vessels/operations given greater priority for early inspection
 - Owners should be required to rectify inspection findings within two years of inspection.
- Grandfathered crewing and crew competency arrangements should be phased out within five years of implementation of this change.
- The Australian Government should establish and fund an Industry Assistance Package with a suite of incentives to assist attaining these standards.

RECOMMENDATION 3

AMSA should:

- review its Memorandums of Understanding with State and Territory WHS Authorities to include principles to apply to decisions around which regulator is to lead on safety duties held by persons in the maritime industry; and
- reflect these in communications and guidance to industry explaining the rationale for the dual operation of the National Law and WHS Law, and how AMSA and WHS Authorities work practically to reduce any duplication of effort and regulatory burden, including reporting requirements.

RECOMMENDATION 4

The offences and penalties in the National Law should be aligned to those in the WHS law to the extent practical.

RECOMMENDATION 5

The National Law should be amended to:

- explicitly refer to an officer's due diligence obligation to ensure that the owner of a DCV complies with their safety duties under the National Law;
- allow scaling of infringement notice penalties;
- fill a gap in the law relating to negligent navigation;
- align the present limitation period on commencement of prosecution action with WHS law; and
- introduce a power for the courts to suspend or revoke certificates.

RECOMMENDATION 6

The ATSB should be funded by the Australian Government to undertake a no-blame investigation program sufficient to support the identification of systemic safety issues. The Minister should issue a statement of expectations regarding the ATSB's DCV function.

RECOMMENDATION 7

Where a State has its own safety investigator the ATSB may engage it to undertake investigations on its behalf.

RECOMMENDATION 8

Safety incidents should be reported to one Commonwealth maritime safety authority only (AMSA or the ATSB) who will take responsibility for sharing it with each other as required.

RECOMMENDATION 9

AMSA should establish and support an Australian Government funded long-term safety engagement program with all sectors of the DCV industry to:

- promote the benefits of reporting;
- identify best data collection methods;
- investigate the creation of a 'white card' scheme; and
- develop simple and accessible guidelines for ease of compliance.

RECOMMENDATION 10

The marine surveyor accreditation scheme should be reviewed to make it fit for purpose. As part of that review, consideration should be given to introducing (among other matters):

- a tiered accreditation scheme according to size and complexity of the vessel;
- a formal continuing professional development program;
- regular random audits of surveyor approvals and subsequent standards applied;
- increasing the approval powers for accredited marine surveyors;
- greater flexibility in who can be accredited as a marine surveyor, and expanding categories of accreditation to adequately cater for new and emerging technologies; and
- a formal rulings program to provide certainty for surveyors and operators.

The review should consider a reasonable timetable for implementation of the proposed reforms.

RECOMMENDATION 11

The current requirement that changes to certain regulations be unanimously agreed by the States and the Northern Territory be removed.

RECOMMENDATION 12

AMSA should set up a taskforce to consider how to optimise and future proof the National Law framework to regulate new and emerging technologies.

- The taskforce should consider whether definitions in the National Law remain fit for purpose in the context of development, deployment and operation of new and emerging technologies.

The resourcing implications of the recommendations made in the Interim Safety Report - Phase 1 will be considered in Phase 2 of the Review.



Opinion: Eliminating the Risk of Container-Stack Collapses – Solutions and Unseaworthiness

by Captain Glenn Mathias, Australian Maritime Consultancy

Initially published by Ian Ackerman on Daily Cargo News

THE WORLD Shipping Council (WSC) claim that its member companies operate about three quarters of the world's global containership capacity. In their Containers Lost at Sea 2020 – Update, they reported that the 3-year, 2017-2019, average annual loss of containers overboard was 779 units – a number adjusted upwards to include non-member companies. (The WSC have maintained such statistics since 2011). However, while the statistics end in 2019, the container vessel One Apus lost 1816 containers overboard in November 2020 and the Maersk Essen lost about 750 containers in January 2021.

When containers fall off a vessel, those that do not sink immediately, pose a risk to small craft such as fishing vessels, whose hulls would not withstand the force of contact with a container's side rails or worse, its corner castings. And of course, contact with a recreational or charter boat could be tragic. The risks associated with containers washing ashore and damaging coastal works including jetties; their contents, including dangerous goods, strewn along coastlines and tourist beaches; their effects on the food chain, marine fauna and flora – are a discussion for another day. Comfort can be drawn from the fact that no crew injuries from flying projectiles and dangerous liquids ejected from collapsed and/or damaged containers, have been reported – yet.

The principal factors contributing to container stack collapses are two known defects: first, containers loaded contrary to the Container Securing Manual (CSM), such as heavy containers over lighter ones; and container stacks exceeding permissible weight limits; secondly, container stacks not secured as

block units. While investigative reports include the defect associated with the CSM, the writer has not seen, (but acknowledges there could be), reports that refer to container stacks not being secured as block units. (Other contributory factors such as loose and/or degraded container securings and the commercial pressures on masters to navigate through the storm rather than around it to maintain schedules, could be overcome by shipowners exercising due diligence). But, while ever the two known defects exist, the risk of container stack collapses remain.

This article proposes solutions to eliminate the risk of container stack collapses first, by ensuring that container loading plans comply with the CSM, through computerised loading programs with fail-safe mechanisms; secondly, by making the Designated Person Ashore (DPA) responsible for overseeing container loading plans; and thirdly, by ensuring that container stacks are secured as block units. The article also proposes research for a safer container securing system; considers the seaworthiness of vessels at the commencement of their voyages with the two known defects; and the issue of cost to rectify the defects.

CONTAINERS LOADED IN COMPLIANCE WITH THE CSM

It is accepted practice that container loading plans are prepared by shore planners using the computerised loading programs and CSMs, provided by shipowners. This arrangement has been adopted by shipowners because, apparently, neither the master nor the chief officer, has the time or the capability to prepare such plans. Shipowners know that loading plans often



do not comply with the CSM resulting in containers being loaded onto vessels in breach of the CSM. Shipowners also know that stevedores disregard loading plans, such as when a container next in the loading sequence, cannot be located. To avoid a possible delay to the sailing schedule, stevedores will load the next available container, regardless of consequences. The GARD Guidance on Freight Containers 2016/Jeroen de Haas explains how shore planners and stevedores, without knowledge of vessel stability, breach the CSM:

As previously indicated, the CSM is valid only for certain GM values, which is problematic if the ship operates at a higher GM value. The following are typical examples which describe the problems and explain the need for lashing software.

The same CSM shows that in a certain bay on deck the containers can be stacked six tiers high, and that the tier weight from the base to the top is: 30 t, 20 t, 20 t, 15 t, 10 t, 7 t. The maximum stack weight is then 102 tonnes. However, containers are never loaded exactly as prescribed by the CSM. If, for example, the container in the bottom tier weighs 21 tonnes instead of 30 tonnes, the first instinctive reaction may be that the forces will be less than the example given in the CSM, and the stowage would therefore be safe. However, the opposite is the case as less weight in the bottom tier will create higher forces as the centre of gravity of the stack moves upwards.

CSM breaches are not restricted to 'shore' planners: Annabella MAIB Report No 21/2007:

[1.4.1] The stowage plan for the cargo to be loaded onto Annabella was planned by the charterer, Unifeeder, at its offices in Aarhus, Denmark. The company had 41 vessels on charter at the time of the accident and employed 4 full-time and 1 part-time planners in its operations department who prepared the cargo stowage

plans for all of these vessels. The planners were aware of Annabella's stowage capabilities and also held some details of her stability. However, they ultimately relied on the vessel's staff to alert them to any errors in the stowage plan, and expected the chief officer to critically check every aspect of the stowage plan before the vessel began loading. (emphasis added)

[1.4.2] After the accident, a simulation of the collapsed stack load was carried out and it was found that the planning software had not been programmed to recognise 30 foot containers. It transpired that when this size was entered into the programme, it was automatically changed to 40 foot without any alert being given to the operator.

Shipowners know that Ch VI of the SOLAS Convention places ultimate responsibility on masters, for the safe loading and securing of cargo/containers; and that loading plans are provided to masters perhaps a day, but sometimes hours, before loading commences. This prevents masters, already overwhelmed by officialese, from checking loading plans' compliance with CSMs; and only a brave master would demand more than a few amendments to a non-complying plan due to commercial pressure, self-preservation and delays to schedules. Commercial pressure is described in the Ever Smart MAIB Report No 14/2020, para 2.6:

Regardless of the logistical and commercial challenges faced by the container shipping industry, the guidance provided in a ship's CSM and the warnings given by its loading computer should not be ignored. Ships' masters and COs might be able to identify and rectify isolated cargo stowage plan issues, but it is impractical to expect them to address large scale problems such as those identified in this report due to the potential commercial impact such interventions would have. The onus should be on the shore planners to deliver compliant and

safe stowage plans.

The extract's last sentence about the onus for compliant and safe stowage plans to be placed on the shore planners, is contrary to masters' obligations under SOLAS.

To ensure that shore planners and stevedores comply with the CSM, the computerised loading programs, as earlier noted, should be designed with fail-safe mechanisms that, inter alia, reject a container allocated to a slot contrary to the CSM. A fail-safe mechanism is a basic feature of computer programs, achievable without sophisticated computer skills. Such a mechanism would ensure that every loading plan, and every container loaded onto a vessel, complied with the CSM, thereby ensuring masters' and shipowners' compliance with their obligations under SOLAS and the Hague/Hague-Visby rules, respectively.

The computerised loading programs of container cranes should have similar fail-safe mechanisms to ensure every container lifted for loading onto a vessel, complied with the loading plan. The fail-safe mechanism would work as follows: the crane would lift a container identified by the computerised loading program as being 10 tonnes, but the crane's weight display would show its accurate weight as, let us say, 12 tonnes. This would cause the crane to cease lifting and emit an audio-visual alarm (relayed to the shipowner's DPA for follow-up action); the crane operator would lower the container to the ground.

CONTAINER WEIGHTS AS DECLARED

The declared weight of a container is a sub-set of the computerised loading program because the CSM requires accurate container weights.

Receiving ports and/or stevedores could ascertain the actual weight



of a container first, when it is lifted off the truck or rail wagon in the port; secondly, during the container's transfer to the stacking area; and finally, during the container's transfer to the crane access area. Each time the container is handled, the equipment, consistent with its design and the work, health and safety (WHS) regime, should display the container's actual weight, enabling detection of a container with mis-declared weight. The fact that containers with mis-declared weights are being loaded onto vessels is proof that either, ports and/or stevedores are practising wilful blindness to mis-declared weights or the handling equipment's weight function is disabled.

Shipowners could enforce detection of containers with mis-declared weights by insisting on handling equipment operating as designed; by requiring ports and/or stevedores to provide DPAs with certification from equipment safety auditors confirming operability of the weight function; and requiring ports to enforce WHS penalties against shippers of offending containers. A measure that would concentrate the minds of shippers of offending containers, would be their international black-listing after one strike, because safety should not require three!

DPAs TO BE RESPONSIBLE FOR OVERSIGHTING LOADING PLANS

The DPA was recommended by the UKs MS Notice No 1188, (July 1986):

"Every company operating ships should designate a person ashore with responsibility for monitoring the technical and safety aspects of the operation of its ships and for providing appropriate shore-based back-up."

The Hon Mr Justice Sheen, referred to this person in his Investigative Report (para 14.2) into the Herald of Free Enterprise disaster in 1987:

This is very sound advice. It is advice which ought to have been unnecessary. A well-run ship-owning company should have been organised in that manner before receiving the Notice.

The IMO requires the DPA to have, inter alia, the experience to:

Gather and analyse data from hazardous occurrences, hazardous situations, near misses, incidents and accidents and apply the lessons learnt to improve the safety management system within the Company and its ships.

The required experience indicates that a DPAs responsibility is active rather than passive, because they are required to analyse accidents and apply the lessons or recommendations to their company's ships. DPAs should be made responsible for checking container loading plans' compliance with the CSM, as per of shore-based support to the master. A computerised loading program with fail-safe mechanisms, would facilitate such compliance. The DPA would, as earlier noted, also respond to alerts from container cranes lifting containers with mis-declared weights.

CONTAINER STACKS TO BE SECURED AS A BLOCK UNIT

Securing a container stack as a block unit requires lashing bars with turnbuckles, fitted manually between the bases of each tier of containers and lashing eyes or plates on the deck below. With the existing container securing system, only containers stacked three or four high can be secured as a block unit with lashing bars, because the weight of the lashing bars can be handled safely by stevedores. Containers stacked above the 4th tier cannot be secured as block units because the length and weight of the lashing bars required to secure them as block units, are unsafe for handling by stevedores. Because

containers stacked above the 4th tier cannot be secured as block units, the container stacks become susceptible to collapse during heavy weather. This means that the existing container securing system is defective.

Every shipowner knows that the existing defective container securing system is present on their vessels before, and at the commencement of their voyages.

Shipowners who claim ignorance of this defect, leave themselves open to criticism for two reasons: their internal investigation into container stack collapses either on their own, or their competitors' vessels, if conducted with due diligence, would have readily identified this defect; secondly, it would demonstrate wilful blindness according to the great Lord Denning MR, in *The Eurysthenes* [1977] QB 49, 68:

"If a man suspicious of the truth, turns a blind eye to it, and refrains from enquiry — so that he should not know it for certain — then he is to be regarded as knowing the truth. The 'turning a blind eye' is far more blameworthy than mere negligence."

And Lord Roskill LJ in the same case (76):

"If the facts amounting to unseaworthiness are there staring the assured in the face so that he must, had he thought of it, have realised their implication upon the unseaworthiness of his ship, he cannot escape from being held privy to that unseaworthiness by blindly or blandly ignoring those facts or by refraining from asking relevant questions regarding them in the hope that by his lack of inquiry he will not know for certain that which any inquiry must have made plain beyond possibility of doubt."

Continue reading: <https://www.thedcn.com.au/news/containers-and-container-shipping/opinion-eliminating-the-risk-of-container-stack-collapses-solutions-and-unseaworthiness/>



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