



AUSTRALIAN
INDUSTRY
STANDARDS

INDUSTRY OUTLOOK

2021

MARITIME
INDUSTRY REFERENCE COMMITTEE



ABOUT THIS INDUSTRY OUTLOOK

The Industry Reference Committee (IRC) Industry Outlooks focus on the prioritisation of the skill needs of the industry sectors each IRC has responsibility for. The Maritime IRC Industry Outlook identifies the priority skill needs of the Maritime industry following a stakeholder consultation and research process conducted by Australian Industry Standards (AIS) on behalf of the IRC.

The document is deliberately brief, it does not seek to identify every issue within every sector. It is a snapshot of a continually evolving story that is intended to alert and inform a wide audience and enhance the industry's capacity to act.

IRCs are required to consult broadly with stakeholders to ensure a whole-of-industry view about the opportunities and challenges for the workforce and the Training Package review work necessary to meet industry needs.

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FROM THE CHAIR

The Maritime industry is an intrinsic part of the Australian economy especially in the import and export of goods. The industry has an estimated annual revenue of \$5.76 billion in 2020-21, adding \$2.03 billion to the Australian economy.

There are currently 66,000 domestic seafarers that are licensed and registered with the Australian Maritime Safety Authority (AMSA) including those who service the tourism industry, fishing/aquaculture, defence/navy, oil and gas industry, scientific services, search and rescue and many others. The industry currently employs over 66,000 certified seafarers and more than 28,000 uncertificated crew and volunteers. The Maritime IRC represents all commercial seafarers issued with Certificates of Competency by AMSA.

The industry has been impacted by the COVID-19 pandemic with disruptions to supply chains, vessel operations and vessels' passenger capacity. Border closures, lockdowns, and associated international impacts are challenging issues for the industry. The pandemic has adversely impacted the cruise industry with subsequent loss of revenues and jobs. Domestically, employment opportunities are now limited, with many qualified crew members leaving regional areas in search of other employment in other industries, which will contribute to a future skills shortage. The industry operates in a heavily regulated environment to maintain the safety of crew and maritime operations during COVID-19.

On a brighter note, the implementation of digitalisation and automation are gaining more pace in the industry. Underwater or surface autonomous vessels equipped with a range of data collection technologies are currently in operation. Autonomous technology will reshape the industry's technology-based operational systems and necessitate new skills and training.

Developments in information and communication systems are also creating new opportunities to improve the navigation of vessels and improve safety and efficiency. Examples of changes in technology such as dynamic positioning contribute to effective decision-making, enhanced safety, better environmental protection, and improved marine traffic management. The IRC is proposing several projects to accommodate for autonomous underwater vessel operations, dynamic positioning maintainers and marina operations to reflect recent changes and regulatory requirements.

The IRC will continue to monitor the industry landscape and review and update qualifications to ensure a resilient and agile workforce who can adapt to continual challenges and requirements.



Steven Moon OAM
Maritime IRC Chair

This IRC Industry Outlook was endorsed by the Maritime IRC on 07 June 2021.



“Developments in information and communication systems are also creating new opportunities to improve the navigation of vessels and improve safety and efficiency.”

MARITIME INDUSTRY REFERENCE COMMITTEE

The Maritime Industry Reference Committee provides the formal conduit for the Maritime industry in gathering information from the sector – including challenges, opportunities, trends, and skills requirements for training via the Vocational Education and Training (VET) system.

The Maritime Industry Reference Committee comprises industry leaders and experts who work to ensure skills standards and qualifications are developed to meet the needs of industry, now and into the future. This work involves engaging with broader industry stakeholders to ensure that skills standards keep pace with changing industry needs, technology innovations and regulatory requirements. The IRC also ensures that qualifications are responsive and support the portability of skills.

TRAINING PACKAGE

The IRC oversees nationally endorsed qualifications, referred to as the *Maritime Training Package*. The MAR Maritime Industry Training Package provides the only nationally recognised Vocational Education and Training (VET) qualifications for occupations involved in general purpose hands, coxswains, marine engine drivers, marine engineers, marine surveyors, cooks, integrated ratings, deck officers, ship's masters and marina operations. The MAR Training Package comprises 18 qualifications, 36 Skill Sets, and 179 Units of Competency and associated assessment requirements.

MARITIME IRC MEMBERS

Chair: Steven Moon,
Association of Marine Park
Tourism Operators

Deputy Chair: Brent Warhurst
Australian Maritime Officers
Union (AMOU)

Chris Ha
Sealink

Fuji D'Souza
Australian Maritime Safety
Authority (AMSA)

Glen Williams
Maritime Union of Australia
(MUA)

Henning Christiansen
Australian Institute of Marine
and Power Engineers (AIMPE)

Malcom Merrey
Spirit of Tasmania

Mark Shannon
Serco Asia Pacific

Oliver Krcoski
Austral Fisheries

Sarah Cerche
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MARITIME INDUSTRY OVERVIEW



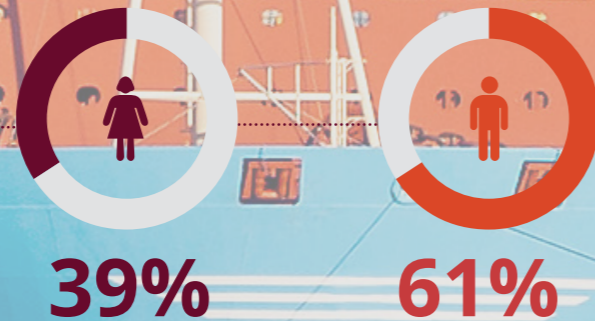
179
Units of Competency

18
Qualifications

36
Skill Sets

61
Registered Training Organisations

Gender Distribution

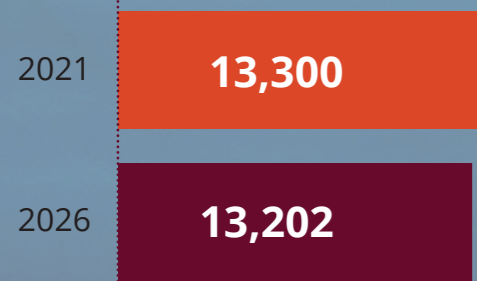


Ageing Rate
2.6X
faster than all industries

44.2
Average Age

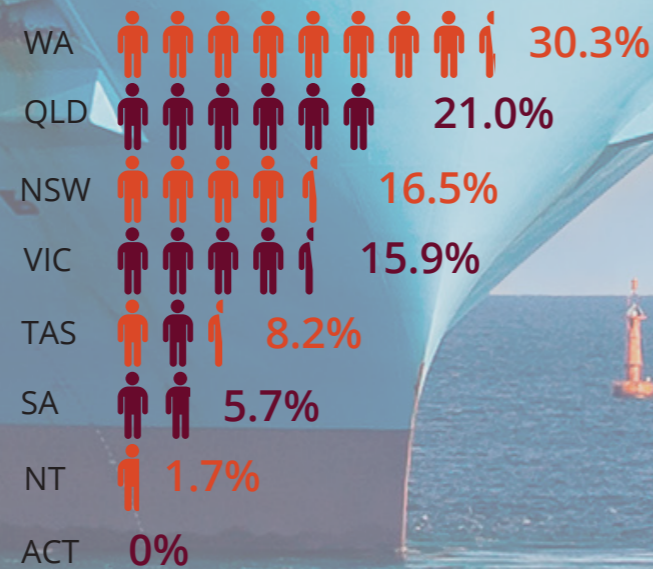
66,000
Domestic Seafarers
REPORTED BY AMSA

Water Transport Current and Projected Workforce Size*



-0.7%
Employment Growth to 2026

Workforce Size by State



Industry Value

\$5.76B
Revenue
2019-20

\$2.03B
Value Add

Business Composition

1363
Small Businesses

92
Medium Businesses

21
Large Businesses

1476
Total Number of Enterprises

*NOTE: The water transport workforce is a sub-category of all domestic seafarers and related figures are presented as merely representative of the broader maritime workforce. Industrial and workforce data relating to tourism, marine rescue, fishing, aquaculture and other industries that utilise the Maritime training package are not captured. Total VET Activity data records approximately six thousand enrolments in Maritime per year which, for an industry that requires recertification every five years, would suggest an active workforce of more than 30,000. Domestic seafarer data as provided by AMSA suggests the true figure may be as high as 66,000.



INDUSTRY FAST FACTS



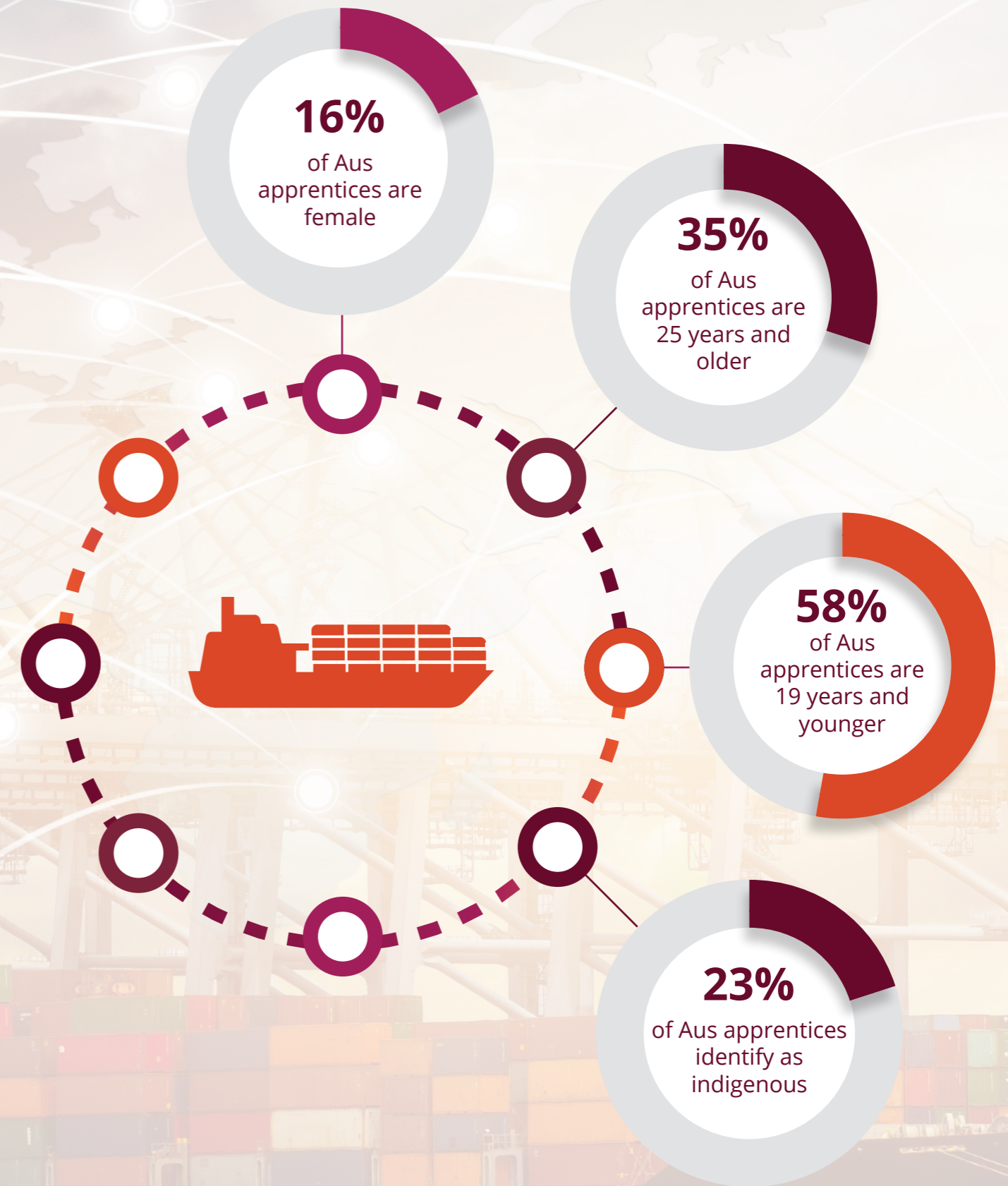
109.1B
tonne kilometres of freight
was moved by coastal
shipping in 2017-18

80%
of Australia's imports/
exports (by value) carried by
sea

Australia is the
5th largest
user of shipping services in
the world

10%
of world sea trade passes
through Australian ports

90
Australian apprentices currently
in training



IRC RESPONSE TO SKILLS NEEDS

Maritime Industry Trends

COVID-19 - Supply Chain, Crew Retention and Passenger Management

The pandemic has caused significant disruptions in supply chains, vessel operations and the capacity of vessels to carry passengers. The inconsistencies surrounding border closures (National and International) are a major hurdle for not only the supply chain but also for employment and business survival in this sector. The maritime industry has been significantly impacted by the pandemic and is struggling to maintain tourism, ferry and cargo operations. The industry is exposed in the international sector as seafarers enter ports of countries with severe COVID issues, risking personal infection and introducing COVID back into Australia. In the domestic sector employment opportunities are disappearing with many qualified crew members leaving regional areas in search of other employment which will result in an extreme skills shortage.

Workforce Impact

Industry requires seafarers to have the skills and knowledge to operate vessels and to ensure the safety of crew and passengers in the COVID-19 environment. Safety of life at Sea is paramount, as well as vessel maintenance. These priority skill needs encompass all areas of vessel operations from command on the bridge and engine rooms to procedures for the safe cleaning of vessels and contact surfaces to safeguard against the transmission of COVID or other diseases.

Maritime Industry Trends

Safety

The adoption of emerging technologies, automation, and regulatory change in the Maritime industry is significant and highlights the need to further address safety requirements.

Technologies, especially those related to electrical and refrigeration equipment, need to be installed, maintained and operated safely on vessels in compliance with regulations to ensure safety.

Workforce Impact

The Maritime engineering workforce needs to be up skilled in the safe operation, maintenance and repair/replacement of electrical and refrigeration equipment.

Industry also requires seafarers involved in mooring and dredging operations to address additional safety requirements.

The IRC Response

- The IRC and industry are currently addressing this need by reviewing the Certificate II in Maritime Operations (Linesperson) and developing units of competency for dredging operations.
- The IRC and industry have identified the need to develop Skill Sets which enable a Marine Engine Driver Grade 1 Near Coastal and above to carry out necessary refrigeration and electrical repairs and maintenance and comply with relevant State legislation and IMO laws.
- The IRC and industry have identified the need to review Certificate III in Marina Operations to update and include current industry practices aligned with new and emerging automated mooring technologies and changed transport security and maritime regulatory requirements.

The IRC Response

- The IRC will engage with stakeholders in the development of Units of Competency to assist with vessel operations, ensuring crew and passenger safety and the preservation of life at sea.
- The Maritime IRC will closely monitor emerging changes to Marine Orders as they are introduced by the National Regulator and ensure the Training Package is updated promptly to reflect the changes.



Maritime Industry Trends

Automation

Autonomous vessels are having a more prominent focus in the industry. The Australian Maritime Safety Authority (AMSA) has recently approved the operation of an unmanned surveillance vessel equipped with radar, cameras, and sensors for various applications. The development and trials of electric and autonomous ships are well underway across the world and autonomous underwater vessels are currently in operation. These vessels still operate in conjunction with human supervision. There are currently regulatory and safety challenges that need to be addressed before the rollout of this technology.

Workforce Impact

AMSA is considering a qualifications framework for the operators of autonomous and unmanned systems and Australia's regulatory framework may be applied to autonomous and unmanned vessels. The workforce will need to be aware of the regulatory framework to ensure compliance and safety and have the skills and knowledge to operate these vessels.

Maritime Industry Trends

Digitalisation and Navigation

E-navigation and digital developments in information and communication systems is impacting the industry. New systems enable the harmonised collection, integration, exchange, presentation, and analysis of marine information on board and ashore by electronic means to enhance navigation and improve safety and security. Examples of changes in technology include dynamic positioning, electronic charts and Dynamic Positioning Maintainer.

An increasing number of new vessels are also equipped with Dynamic Positioning (DP) systems which help to keep vessels at a fixed position and heading by integrating a variety of systems and functions through a computer control system. DP systems use a vessel's sensor data to calculate the steering angle and thrust power to offset the environmental factors and keep the vessel on the desired route and position.

Workforce Impact

Australian seafarers need relevant training to fill the growing number of Australian maritime positions available for operators and maintainers of vessels with Dynamic Positioning systems.

The IRC Response

- The IRC will refer to various Digital Transformation reports to inform its thinking.
- The IRC is preparing a project proposal, in consultation with stakeholders, focused on the skills required to operate autonomous underwater vessels and unmanned surface vessels. These skills will be used for exploration and research, search and rescue, weather and ocean monitoring, and salvage operations.

The IRC Response

- New Skill Sets and Units of Competency related to Dynamic Positioning were endorsed as part of Release 7.0 of the Maritime Training Package.
- The IRC is proposing to address the skills needs of dynamic positioning maintainers.
- The IRC is also monitoring the need for further digital navigation training as paper-based charts become redundant and replaced with e-navigation tools
- The IRC will monitor various Digital Transformation reports and trends to inform its thinking.



Maritime Industry Trends

Industry-Specific Cybersecurity

With about 50,000 ships at sea or in port at any given time, the Maritime industry is highly **exposed** to cyberattacks. The nature of the Maritime industry and technologies can expose the industry to growing cyber security risks. Disruptions caused by **cyberattacks** or compromised systems can have severe repercussions such as physical harm to the ship, personnel, and cargo, potentially causing the loss of the ship or sensitive data.



Workforce Impact

The industry needs to have a robust cyber security strategy and build industry-specific cyber security awareness and training to bridge the gap in developing appropriate cyber security skills for managing industrial control systems.

Increasing digitalisation means the maritime industry needs to progressively develop workforce skills to (a) minimise the risk of cyber attacks, and (b) reinstate digital businesses systems as quickly as possible in the event of a cybersecurity incident – including compliance with regulatory requirements.



The IRC Response

- The IRC will monitor and import cyber-security related Skill Sets and Units of Competency developed by other IRCs as required.
- The IRC will refer to various Digital Transformation reports and the work of the new Digital Skills Organisation (SO) to inform its thinking.



KEEPING INDUSTRY ENGAGED

Industry plays a key role in the identification of skills needs and the development of skills standards. An industry-led Vocational Education and Training (VET) system brings together industry and the VET sector with the joint goal of growing the capability and agility of Australia's workforce in line with industry's current and emerging skill needs.

With the advent of the double disruption of COVID-19 and accelerating digital transformation, there is an even greater need to ensure we have a workforce with the right skills at the right time. The Australian economic recovery and our global competitiveness will be underpinned by a strong and responsive vocational education and training system.

Fundamental to a strong and responsive vocational education and training system is engagement with industry stakeholders. A strong industry voice and its leadership of the VET system will be central to ensuring that we leave no worker behind in the journey ahead.

The VET system plays a significant role in ensuring enterprises have a highly skilled workforce, with opportunities to upskill and reskill existing workers, as well as prepare new entrants for the world of work. Industry leadership and engagement will ensure training to meet the needs of employers, provide better job outcomes, and equip workers with transferrable skills to increase their mobility and broaden their career paths.

The industry can support the Maritime IRC to collect evidence-based data through a range of intelligence gathering methods and engagement activities to ensure advice and decision making is informed, accurate, and reflective of industry needs.





ABOUT AUSTRALIAN INDUSTRY STANDARDS


Australian Industry Standards (AIS) provides high-quality, professional secretariat services to the Maritime IRC in our role as a Skills Service Organisation. AIS provide services to eleven allocated IRCs which cover Aviation, Corrections, Gas, Electricity Supply (Generation and Transmission, Distribution and Rail), Electrotechnology, Maritime, Public Safety (including Police, Fire and Emergency Services, Defence), Rail, Transport and Logistics, and Water industries. AIS supports these important industry sectors using our in-house capability and capacity in technical writing, quality assurance, project management and industry engagement in the production of Training Packages.

AIS was established in early 2016, 20 years after its predecessor the Transport and Logistics Industry Skills Council (TLISC) was established in 1996. More information about AIS can be found at <http://www.australianindustrystandards.org.au>.

- We support industry growth and productivity through our modern innovative approach to establishing skills standards.
- We provide high-quality, professional secretariat services to help our allocated industry reference committees develop the skills that industry needs.
- We partner with industry to shape the workforce of the future.

 Visit our Engagement Hub on our website – www.australianindustrystandards.org.au

 Talk to a member of our team (details are available on our website or by calling (03) 9604 7200)

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