Industry Skills Australia

2026 WORKFORCE PLANNING UPDATE

MARITIME INDUSTRY

JSC Jobs and Skills Council
Transport and Logistics
An Australian Government Initiative

Acknowledgement of Country

Industry Skills Australia acknowledges the Traditional Owners of Country throughout Australia and recognises the continuing connection to lands, waters, skies and communities. We pay our respect to Aboriginal and Torres Strait Islander cultures and to Elders past and present.

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About ISA

Industry Skills Australia (ISA) is the Jobs and Skills Council for the Transport Supply Chain industries. These include Aviation, Maritime, Rail, Transport and Logistics, and the emerging sectors of Omnichannel Logistics and Distribution, and Air and Space Transport and Logistics.

ISA is owned and led by industry. Our goal is to build a world class workforce for Australia's Transport Supply Chain industries to boost productivity, create better jobs and build opportunities for individuals. Our 30-year history in the Transport Supply Chain industries supports us in researching workforce needs, promoting skills development and creating training products that meet industry priorities.

This document should be attributed as: Industry Skills Australia. (2026). Maritime Industry 2026 Workforce Planning Update.

Disclaimer
We have taken great care in preparing this Workforce Planning Update. We aim to provide accurate and helpful information. However, we cannot guarantee that this document is completely error free. Industry Skills Australia Limited is not liable for any harm or loss that may arise from dependence on this information. We encourage readers to use this report as a guide and seek further advice where needed.

Use of Artificial Intelligence
Artificial intelligence (AI) tools were used in a limited, supportive capacity during the preparation of this work. The purpose of their use was to enhance clarity and useability by refining text, summarising key information, analysing themes, and supporting the collection and transformation of data. AI was not used to generate images or replace original authorship or editorial judgement. All AI-assisted output was reviewed and verified by the author, who retains full responsibility for the accuracy and final content of this publication.

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Industry Skills Australia thanks the organisations that supplied images for this Workforce Planning Update: Goodline, NSW Maritime Aboriginal Traineeship Program, Svitzer, Teekay Shipping. [relevant page numbers to be added]

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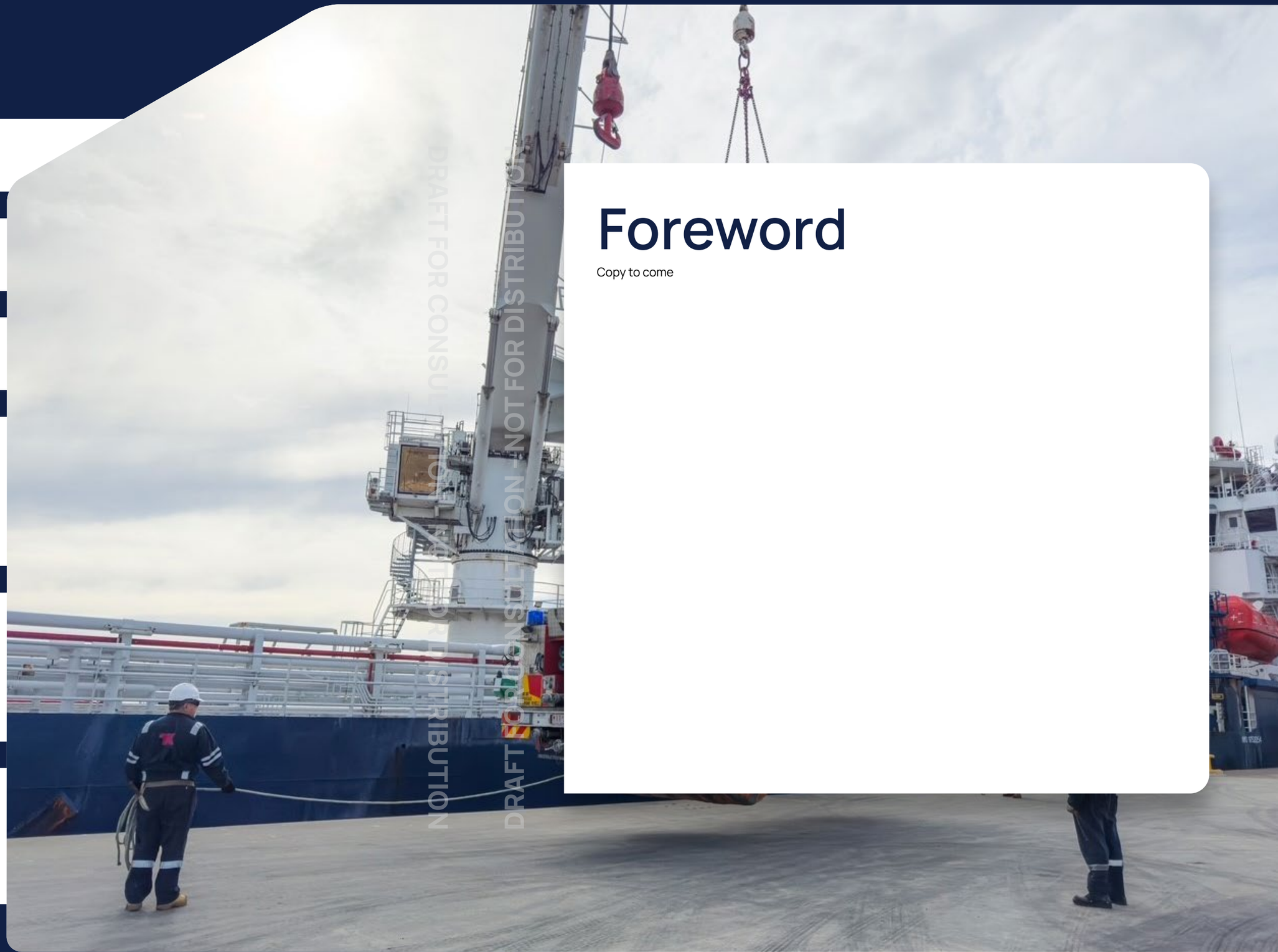

Foreword

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Executive Summary

The Maritime industry is crucial to Australia's productivity and sovereign capability through its role in supporting supply chain resilience. The industry provides Australian producers with access to international markets and enables the movement of passengers and freight around the country.

The 2025 Maritime Workforce Plan identified **key challenges and drivers** that are impacting the Maritime workforce. Further stakeholder consultation, research and analysis have confirmed the ongoing relevance of these issues for workforce planning. The key challenges and drivers point to four broad and interconnected priorities for the industry.

1. **Access to a Skilled Workforce**
2. **Availability of Training**
3. **Preparedness for Change**
4. **Coordinated National Response**

Collaborative Action

Addressing the Maritime industry's complex workforce challenges exceeds the remit and resources of any single stakeholder, making collaboration essential. The 2026 Workforce Planning Update highlights collaboration that is progressing shared priorities, this includes ISA-led actions and broader industry initiatives.

1. Access to a Skilled Workforce	2025	2026	2027
Improving Maritime Career Information		Underway	
Revalidation and Recognition of the Current Competence Model	Underway		
Occupational Pathways for Defence	Underway		
Increasing Diversity across Transport Supply Chain Industries		Underway	
Growing Equity in Maritime Leadership		Exploring	
Skilled Migration		Exploring	
Occupational Mobility for Australia's Maritime Workforce		Exploring	
Related: Australian Maritime Safety Authority: Seafarer Certification Annual Data			
2. Availability of Training	**2025**	**2026**	**2027**
VET Workforce Project	Underway		
Marine Order 505 – Phase 2 (RTO Capability)	Underway		
National Maritime Skills Network	Underway		
Maritime Simulator Opportunities	Underway		
Sea Time Simulation Trial		Planned	
Skill Requirements of the Broader Maritime Industry		Exploring	
Skills and Training Implications of the Strategic Fleet Pilot		Exploring	
Skills for Decommissioning and Offshore Wind		Exploring	
Improving Regional Training Delivery		Exploring	
Related: Australian Maritime Safety Authority: List of Approved Training Courses and Approved Short Courses			
3. Preparedness for Change	**2025**	**2026**	**2027**
Autonomous Maritime Systems	Completed		
Digital Skills	Underway		
Technology Futures Taskforce Phase 2 – Occupational Analysis		Planned	
Supporting the Decarbonisation of the Maritime and Ports Supply Chain		Exploring	
Related: Decarbonisation Policy (2023 Revised IMO Strategy on Reduction of GHG Emissions from Ships)			
Related: IMO Alternate Fuels Policy Acceleration			
Related: Interim Draft Guidance in Development by HWT for reference in development and approval of seafarer training			
Related: 2021 Outcome of the Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Vessels			
Related: Maritime Just Transition Taskforce			
Related: Australia's Offshore Resources Decommissioning Roadmap			
Related: Maritime Emissions Reduction National Action Plan (MERNAP)			
Related: International Maritime Organization: Alternative Fuel and Technology Safety Guidelines			
4. Coordinated National Response	**2025**	**2026**	**2027**
Strategic Fleet Workforce Supply and Demand Forecast	Completed		
Co-ordination of Sea Time	Completed		
Maritime Skills Pipeline	Underway		
Sea Time Coordination Feasibility Study and Pilot Program		Planned	
Streamlining Near Coastal to STCW Pathways		Exploring	
Related: Australian Government: Strategic Fleet Taskforce Final Report			
Related: Australian Government: Maritime Skills and Training Initiative (MSTI) Program			

Completed

Underway

Planned

Exploring

Related initiatives

Industry Overview

About the Industry

The Maritime industry is crucial to the operation of the Australian economy, enabling the movement of passengers and freight around the country and from around the world. Maritime shipping accounts for 99% of trade by volume and around 80% of the value of Australia's goods trade.[1] In 2024/25, the Maritime industry generated an estimated annual revenue of $9.6 billion and added $3.8 billion to the Australian economy.[2]

The Maritime workforce comprises nearly 29,000 people[3] and can be categorised into five occupational areas:

Navigation
Roles responsible for safely directing and operating a vessel, including planning routes, monitoring conditions, managing bridge operations and ensuring compliance with maritime regulations.

Engineering
Roles focused on operating, maintaining and repairing a vessel's mechanical and electrical systems, including engines, propulsion, power generation and onboard equipment essential for safe operations.

Deck Operations
Roles that carry out hands-on tasks essential to vessel operations, such as mooring, cargo handling, lookout duties, maintenance and assisting with deck or engine room activities as required.

Support Operations
Roles that enable vessel operations from both onboard and shore-based positions, such as logistics, safety management, administration and other functions that support crew and vessel performance.

Automated Operations
Roles that involve operating or supervising Autonomous Maritime Systems, including monitoring remote or semi-autonomous vessels, interpreting systems data and responding to technical or operational issues.

The industry includes seafarers who work on commercial and non-commercial vessels and personnel who are required to be certified by the Australian Maritime Safety Authority (AMSA).

Seafarers who work on domestic commercial vessels are required to hold Near Coastal AMSA certification. Seafarers who work on Australian or international vessels in Australian waters are required to hold STCW (Standards of Training, Certification and Watchkeeping) AMSA certification.[4] To achieve AMSA certification, seafarers are required to complete an approved course of study and qualifying sea time and meet medical fitness standards.

Although maritime occupations are highly male dominated, female employment has increased over the last decade with women now making up 8.7% of workers in operational roles, increasing from 4.6% in 2015.[5]

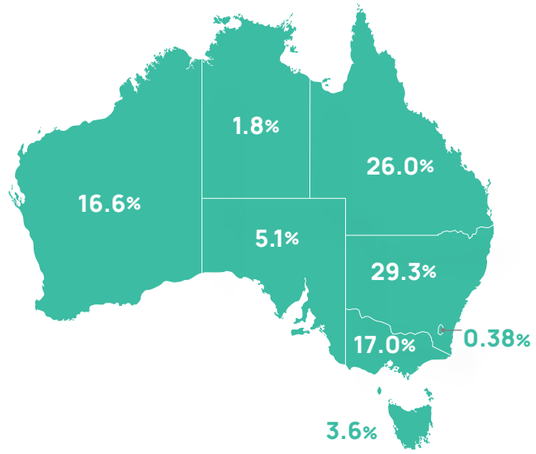
1 Infrastructure and Transport Ministers, National Freight and Supply Chain Strategy, Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts, 2025, p 34.
2 IBISWorld Industry Wizard, February 2026.
3 Jobs and Skills Australia, Employment Projections, May 2025 to May 2035.
4 Australian Maritime Safety Authority, Flag State Administration, AMSA website, n.d.
5 Australian Bureau of Statistics, EQ08 - Employed persons by Occupation unit group of main job, November 2025 (rolling 5 year average of original data).

NUMBER OF MARITIME INDUSTRY BUSINESSES
3,139

200+ employees	20-199 employees	0-19 employees
43	167	2,929

GDP CONTRIBUTION 2024-2025
$3.76B

BUSINESS DISTRIBUTION BY STATE %



MEDIAN GENDER PAY GAP
18%

TOP 4 SECTORS BY WORKFORCE NO.

Water Transport Support Services	Water Freight Transport
15,850	**4,254**
Scenic and Sightseeing Transport	Water Passenger Transport
3,614	**3,225**

ESTIMATED ANNUAL REVENUE 2024-25
$9.4B

WORKFORCE IN MARITIME COMPANIES
28,805 (2025)
30,626 (2030)

Link to ISA Data Dashboard

Refer to page 41 for sources

Impact of Global Megatrends

Megatrends are major long-term shifts that reshape the economy, workforce and global environment. They influence how industries operate, innovate and plan for the future. Six global megatrends are having significant and enduring impacts across industry and society.

Demographic Shifts

Demographic shifts are reducing overall workforce participation and intensifying existing skill shortages. Australia's ageing population, declining birthrates and slower migration growth has shrunk the pool of available workers. In Australia's Maritime industry, this is evident in hard-to-fill roles across STCW and Near Coastal sectors. The ageing workforce is already contributing to a loss of experienced seafarers and critical operational knowledge as older workers retire.

Recent research into the career expectations of young Australians highlights the challenges that Maritime employers face in attracting and retaining new entrants. Younger generations have a keen desire for rapid skill development and progression and are quick to move on when growth stalls.[6] These traits are potentially problematic in an industry where career progression pathways for highly skilled roles take a long time and are highly regulated. Maritime employers have observed that the demanding nature of work, irregular hours and extended time away from home deter young people from entering the industry. This aligns with research indicating that mental health issues are increasingly a concern for young people.[7] However, young people are also seeking meaningful work that contributes to a sustainable, purpose-driven future.[8]

Employers report that many young people have limited awareness of the breadth of career opportunities available to them in the Maritime industry. Clarifying entry and progression pathways and highlighting the personal and community benefits that arise from work in Maritime roles, could potentially attract more interest from young people in the range of roles available.

Although young workers are the most mobile cohort in the workforce, workers of all ages are increasingly transitioning into new occupations and industries.[9] Maritime employers have potential to attract transitioning mid-career workers who are seeking new career directions and meaningful work. Stakeholders have suggested that workers displaced by the uptake of AI in other industries may become available for entry into the Maritime industry. However, without clearly visible pathways and transition support, these potential workforce entrants will remain underutilised.

The composition of the Maritime workforce influences the industry's ability to respond to change. An ageing workforce may face greater challenges in upskilling quickly to support the adoption of emerging technologies and alternative fuels. At the same time, focusing workforce development primarily on the needs of new entrants risks overlooking the depth of experience and operational insight that will be needed to navigate future challenges. Balancing knowledge transfer with the development needs of new recruits will be essential for ensuring the workforce remains suitably skilled and resilient.

Technological Change

Advances in automation, artificial intelligence (AI) and remote vessel operation are transforming how work is performed in the Maritime industry, although the effect is not uniform across all sectors and operations. With technology evolving and being adopted unevenly across operations, the Maritime workforce will need to maintain foundational competencies while acquiring new digital and technical skills to support autonomous systems, data interpretation and technology-enabled safety practices.

Remote vessel operation is emerging in small and specialised segments of the Maritime industry, creating new skill requirements for workers who monitor and control these vessels from shore. These skills will need to be consistently reflected in Maritime qualifications and AMSA Certificates of Competency. Remote operations introduce new risks, including the challenge of responding to critical onboard incidents from shore and increased exposure to cyber-security threats. These developments highlight the regulatory complexities created by the introduction of new technologies and underscore the need for ongoing review and refinement of regulatory settings as these technologies mature.

Rapid technological change is increasing the need for a more risk-based and outcomes-focused regulatory approach. Moving toward less prescriptive regulation will support innovation and allow new technologies to be implemented safely and efficiently. As the Maritime industry has historically operated within highly prescriptive regulatory frameworks, AMSA will focus efforts on preparing stakeholders to adapt to this shift.

Energy Transition

While there is global and national momentum toward renewable and low-carbon energy systems, the pace and direction of this transition remain uncertain in Australia's Maritime industry. There are differing views on which fuels will dominate and when the adoption of alternative fuels will occur. Although some ports in the Pilbara are preparing to be ammonia-ready, and a small number of vessels is powered by liquid natural gas (LNG), most operators are cautious about investing in technologies and training for fuels that may not be widely adopted.

The uptake of alternative fuels will continue to be uneven, driven by a 'chicken-and-egg' dynamic where vessel operators wait for bunkering infrastructure before transitioning, while infrastructure providers will not invest without evidence of industry demand. Although dual-fuel vessels offer a transitional option, stakeholders anticipate that global developments will outpace domestic adoption. The Maritime workforce will need to remain agile, adaptable and prepared for shifting fuel technologies over time.

The International Maritime Organization is advancing two sets of interim training guidelines for seafarers using alternative fuels and has separated this work from the broader STCW review to enable earlier use of the guidelines in the development of training programs.[10,11] Australian Maritime industry stakeholders understand that, although Australia is unlikely to be at the forefront of fuel transition, the workforce needs to be prepared to avoid falling behind global safety and competency expectations.

Climate Impacts

International research indicates that seafarers are on the front line of climate change. One third of international seafarers have reported serious harm from severe weather in the last two years, compared to 20% of workers in other industries.[12] Increasingly challenging working conditions will impact the skills required by seafarers to continue operating safely amid more frequent and sudden storms.

The increasing frequency and severity of extreme weather events is also putting increased pressure on infrastructure management and resilience planning across the Maritime industry. Rising seas and more intense cyclones will accelerate the deterioration of infrastructure in Northern Australia, particularly in regions without major port facilities where loading ramps for front-end landing barges are essential to the viability of remote communities. When this critical infrastructure is damaged or disrupted, there will be increased need for workers with skills in recovery operations, maintenance and resilience planning, roles that are already in short supply across industry.

6 Randstad, The Gen Z Workforce Blueprint: future focused, fast moving [PDF], 2025.

7 M Dockery, A Duncan, A Mavisakalyan, V Sanchez Arenas, C Twomey and L Loan Vu, Youth in Focus: Navigating Wellbeing in a Changing World, Focus on the States Series, No. 11, Bankwest and Curtin Economics Centre, March 2025.

8 Deloitte, Gen Z and Millennial Survey: Living and working with purpose in a transforming world, Deloitte website, 15 May 2025.

9 Productivity Commission, 'Talent in transit: A study of labour mobility in Australia', Conference paper, ABS-RBA Conference, Sydney, 11–12 June 2024.

10 Lloyd's Register, IMO Human Element, Training and Watchkeeping (HTW12): Summary Report [PDF], 2026.

11 International Maritime Organization, Sub-Committee on Human Element, Training and Watchkeeping (HTW 12): Closing Remarks, IMO website, 27 February 2026.

12 R Weisbrod, 'Op-Ed: The impact of climate change on shipping', Marine Log website, 12 August 2025.

Geopolitical Instability

Global conflict and trade tensions are creating significant uncertainty for Australia's maritime industry. Geopolitical instability causes serious disruption to supply chains that would have major implications for the Australian economy and society. The effective operation of Australia's maritime fleet has become increasingly important in underpinning strategic response capability, and national resilience. In its commitment to the development of a Strategic Fleet, the Australian government has recognised this vulnerability and is working to build capability.

At the same time, the Australian Defence Force (ADF) is facing a significant workforce shortage. Between 2020 and 2023, recruitment inflow averaged only 80%, resulting in a shortfall of around 4,400 personnel.[13] This highlights the need for continued growth to meet future capability requirements. The 2024 Defence Workforce Plan sets a goal to grow the permanent ADF workforce to 69,000 by the early 2030s.[14] In this context, Defence is likely to look to adjacent industries for potential recruits. Given the existing shortages across the Maritime workforce, this further underscores the urgency of attracting and retaining workers and strengthening long-term capability to ensure both sectors can meet rising demand.

Infrastructure Demand

Australian governments are investing in new and upgraded national infrastructure to support growing urban populations and evolving economic activity. Major projects are underway across transport, renewable energy, housing and digital networks, reflecting the scale and urgency of national development needs. At the same time, these competing priorities place pressure on public funding, making it challenging for governments to resource all required works, even as ports and maritime assets must expand and modernise to keep pace with rising economic activity and future security demands.

For the maritime workforce, this trend will accelerate demand for specialised skills to operate and maintain next-generation infrastructure. Ports will require upgraded power systems capable of supporting larger vessels and alternative-fuel technologies, including the provision of green shore power. The Port Authority of NSW is leading this shift through a nearly $60 million investment in landside electricity supply for cruise ships at the White Bay Cruise Terminal.[15] Similar upgrades will be needed around the country as commercial vessels demand low-emissions port solutions to support their energy transition.

Additional infrastructure will be needed nationwide to manage larger vessels and vessels using alternative fuels, while in Northern Australia, new or upgraded floating and fixed assets are required to support defence and border force operations for national security. The integration of new technologies and energy systems in these infrastructure developments will impact the technical and digital skills required by Maritime workers to support safe and secure operations.

Strategic Fleet

The Australian Government has committed to the establishment of an independent Strategic Fleet of up to 12 Australian-flagged and crewed vessels, commencing with a pilot of three vessels. The Strategic Fleet will strengthen critical supply chains by enabling industry to move critical cargo either around the coast or internationally in a time of crisis.[16]

Establishing a skilled maritime workforce is critical to building the Strategic Fleet.

The final report of the Strategic Fleet Taskforce made 16 recommendations for the establishment of a Maritime Strategic Fleet. Several of the recommendations require action from the national skills system. As part of its response to the recommendations, the Australian Government has funded ISA to support work to progress recommendations 9, 11 and 13 of the final report.[17]

[13] Australian Government, Defence Workforce Factsheet [PDF], Defence website, n.d.

[14] Australian Government, Defence Workforce Plan Factsheet, Defence website, 2024.

[15] Port Authority of New South Wales, Australia's First Shore Power for Cruise Ships [video], Port Authority of NSW website, 21 March 2022.

[16] Infrastructure and Transport Ministers, National Freight and Supply Chain Strategy, Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts, 2025, p 34.

[17] Australian Government, Australian Government Response to the Strategic Fleet Taskforce Final Report, Department of Infrastructure, Transport, Regional Development, Communications and the Arts, 2023.

Regional and Remote Workforce Issues

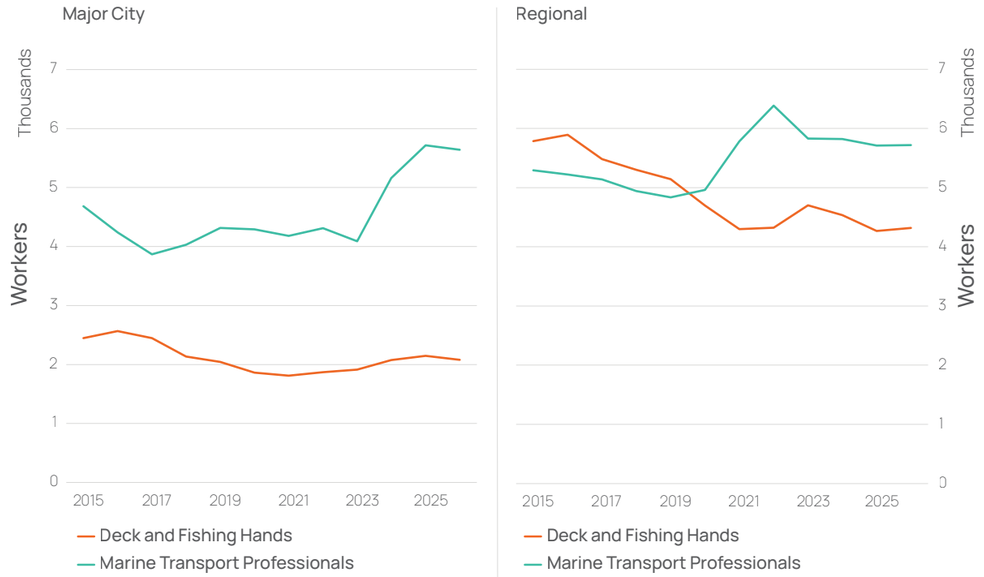
The Maritime industry is a critical enabler of coastal and regional connectivity and a significant employer in port cities and regional communities. As illustrated in **Figure 1**, employment trends have varied significantly between cities and regional areas. In major cities, overall employment experienced modest growth (+8.2%), driven by a 20.4% increase in Marine Transport Professionals, which offset a 15.1% drop in Deck and Fishing Hands. Conversely, regional areas saw a total employment decline of 9.4%, caused by a sharp drop (25.4%) in Deck and Fishing Hands alongside only a marginal increase (+8.0%) in Marine Transport Professionals. It should be noted that these figures (particularly for regional areas) are based on estimates rather than exact counts and should therefore be interpreted with caution.

Australia's maritime workforce is increasingly needed across regional areas to support a surge of emerging industry activity. Key developments include the growth of offshore wind in Gippsland (Vic), the expansion of vessel construction in Henderson (WA) and Osborne (SA), and the decommissioning market for offshore oil and gas. These developments are driving demand for specialised seafarers in regional workforces, reinforcing the importance of accessible training pathways, local workforce development and coordinated national planning to ensure that skilled maritime workers are available where industry growth is occurring.

Some sectors of the Maritime industry use a fly-in-fly-out (FIFO) model to deploy workers to regional operations, enabling employers to staff roles in remote locations and adjust to fluctuating operational demand. This mobility was disrupted during the COVID-19 border closures but in normal circumstances it is routine for workers to live far from their work locations. Roster arrangements, such as one month on/one month off for tug services in the Northwest, are used effectively to maintain operations.

Remote work can be challenging for seafarers due to the mental health impacts associated with isolation. Industry stakeholders report that young workers are reluctant to enter the industry due to the extended periods away from home which can contribute to stress, fatigue and broader wellbeing concerns.[18]

Figure 1: Maritime Occupation Trends, City vs Regional



Source: JSA, NERO, Regional and Northern Australia, Jan. 2026

[18] Ship Universe, Crew Welfare in Maritime Shipping: The Key Issues Facing Seafarers in 2025, SU website, 26 February 2025.

Table 1: Top Regions by Marine Transport Professionals Employment (2025)

Jurisdiction	Region	Workers
QLD	Cairns	559
QLD	Gold Coast	535
QLD	Sunshine Coast	482
SA	South Australia - Outback	354
WA	Western Australia - Outback (South)	319
VIC	Geelong	312
VIC	Latrobe - Gippsland	277
WA	Western Australia - Outback (North)	259
NSW	Newcastle and Lake Macquarie	254
NT	Darwin	170

Source: JSA NERO, February 2026

While remote working arrangements are common for STCW-certified seafarers, the Domestic Commercial Vessel (DCV) workforce is more likely to be regionally based, operating with local harbours or coastal areas. Permanent, location-dependent services, such as the Kangaroo Island ferry, rely on an on-site workforce rather than FIFO.

Attracting workers to regional areas can be constrained by a combination of structural and lifestyle barriers. Severe housing shortages in many regional areas make it difficult for workers and their families to relocate. Limited services and amenities, including scarce childcare, poor digital connectivity, inadequate transport links and reduced access to healthcare, can further deter potential workers.

Ensuring consistent, high-quality training for a dispersed Maritime workforce is a significant concern for employers. They report that the quality of remote delivery and online training varies between RTOs. This is particularly an issue when learners are required to demonstrate practical skills. Effective collaboration between RTOs and employers is seen as essential to maintain training quality, ensuring that remote delivery is supported by meaningful opportunities for practical skill development.

Occupational Snapshot

Link to ISA Data Dashboard

QR CODE

OCCUPATIONS IN SHORTAGE

- Deck Hand
- Marine Engineer
- Marine Pilot
- Marine Technician
- Ship's Master
- Ship's Officer

FEMALE (%)

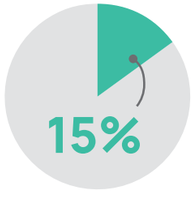
7.4%

HIGHEST MEDIAN AGE

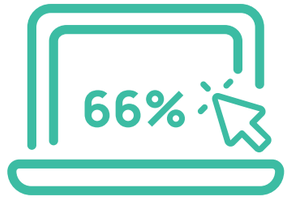
Marine Transport Professionals

48 YEARS OLD

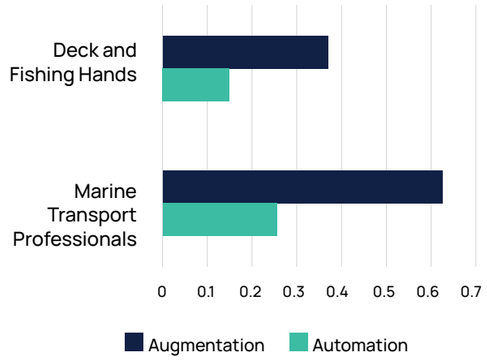
PART-TIME



ONLINE JOB AD GROWTH 2020-2025



AI AUTOMATION/AUGMENTATION EXPOSURE



WORKERS IN MARITIME ROLES (2025)

16,850

WORKERS IN MARITIME ROLES (2030)

17,320

LOWEST VACANCY RATE (%)

Deck and Fishing Hands

0.45%

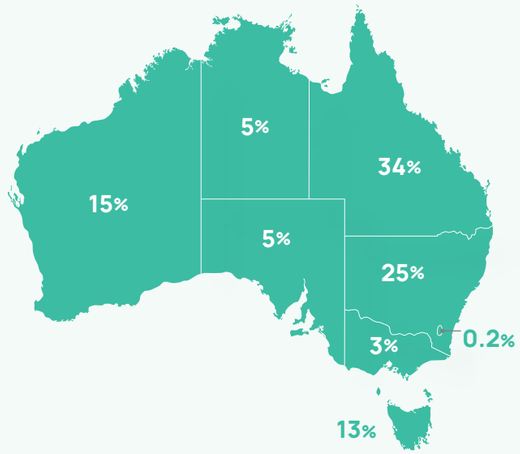
Refer to page 41 for sources

Training Highlights

Link to ISA Data Dashboard

QR CODE

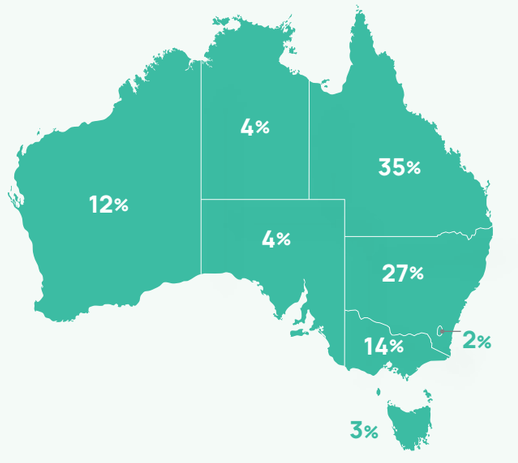
QUALIFICATION ENROLMENTS BY STATE%



HIGHER EDUCATION ENROLMENTS (2023)

537

RTO MAP (EXPLICIT SCOPE)



VETiS STUDENT COUNT

414

RTOs WITH SCOPE TO DELIVER MARITIME QUALS

50

TRAINING PACKAGE SUMMARY

18 qualifications
43 Skill Sets
189 Units of Competency

PARTICIPATION IN TRAINING

Female	First Nations	Disability
18.4%	10.9%	3.8%

TOP 5 QUALIFICATIONS BY ENROLMENTS (2024)

Cert II in Maritime Operations (Coxswain Grade 1 Near Coastal)	2,260
Cert I in Maritime Operations (General Purpose Hand Near Coastal)	1,296
Cert III in Maritime Operations	977
Cert III in Maritime Operations (Marine Engine Driver Grade 2 Near Coastal)	644
Cert I in Maritime Operations (Coxswain Grade 2 Near Coastal)	467

APPRENTICESHIPS/ TRAINEESHIPS

(% of MAR enrolments)

1.3%

HIGHEST GRADUATE EMPLOYMENT RATE (2020/2021)

Cert IV in Maritime Operations Master up to 45 metres Near Coastal)

94%

Refer to page 41 for sources

Progress on Industry Priorities

The 2025 Workforce Plan identified **key challenges and drivers** that are impacting the Maritime workforce. Further stakeholder consultation, research and analysis have confirmed the ongoing relevance of these issues for workforce planning.

Key challenges and drivers influence workforce requirements in four broad and interconnected ways.

Key Challenges and Drivers identified in 2025 Workforce Plan

Skilled workforce shortage pose a major challenge for Australia's Maritime industry → impacts **the supply and demand for workers** and points to a need for...

Maritime training faces barriers from high costs, limited course availability and trainer shortages

Upskilling trainers and assessors to effectively implement updated Maritime Training Package products in response to regulatory change → influences **the skills of workers and new entrants** and points to a need for...

The industry faces complex challenges in adapting to decarbonisation and new technologies → drives **future industry skill requirements** and points to a need for...

The limited availability of training berths is a major barrier to completing qualifying sea time → affects **the nature of the Australian Maritime industry** and points to a need for...

Industry Priorities for Workforce Planning and Development

1 Access to a Skilled Workforce

2 Availability of Training

3 Preparedness for Change

4 Coordinated National Response

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1 Access to a Skilled Workforce

The 2025 Workforce Plan reported that skilled workforce shortages pose a major challenge for Australia's Maritime industry.

Occupational Shortages

Australia's maritime labour market has tightened significantly in 2025, with shortages that were previously concentrated in particular states and territories now extending across the country. While only Ship's Engineers and Masters appeared in shortage nationally in 2024[19], the 2025 data show a broadening pattern, with Deck Hands and Ship's Officers assessed as being in shortage nationwide (**Table 2**). The OSCA classification[20] also provides greater granularity in 2025 than the ANZSCO[21] framework in prior years, additionally identifying shortages among Marine Pilots and Technicians. It is important to note that the occupational groupings used by OSCA/ANZSCO include **both** Near Coastal and STCW-qualified seafarers. The differing dynamics of these two cohorts are discussed separately in the following sections.

Table 2: Maritime Occupations in Shortage 2025

Occupation title	AUS	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Deck Hand	S	S	S	S	S	S	S	S	S
Marine Engineer	S	S	S	S	S	S	S	S	S
Marine Pilot	S	S	S	S	S	S	S	S	S
Marine Technician	S	S	S	S	S	S	S	S	S
Ship's Master	S	S	S	S	S	S	S	S	S
Ship's Officer	S	S	S	S	S	S	S	S	S

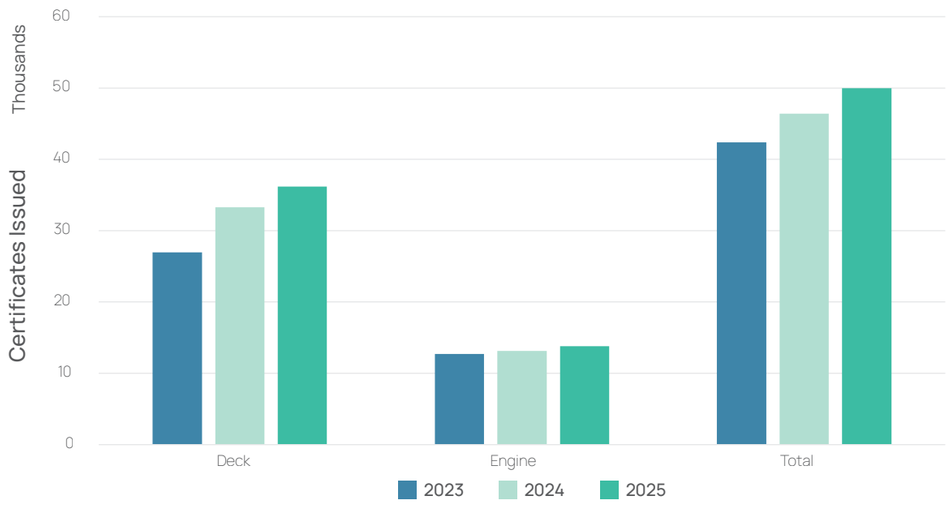
Source: Occupational Shortage List (February 2026)
S = Shortage, R = Regional Shortage, NS = No Shortage

In the **STCW sector**, shortages have been reported for Marine Engineers, Masters and Electro-Technical Officers. These roles are in demand in emerging energy sectors including offshore wind, decommissioning, trans-shipment operations, defence support and crewing requirements for Government vessels. The demand for seafarers is highly cyclical, with sectors such as offshore oil and gas and emerging offshore wind drawing heavily on the workforce at different times, and additional competition coming from adjacent industries including fishing and aquaculture.

In the **Near Coastal sector**, although AMSA have issued record numbers of Certificates of Competency (**Figure 2**), shortages have been reported for Coxswain Grade 1 and Marine Engine Driver Grade 1. In passenger services, employers report that the shortage has resulted in services not operating or operating with less competent crew that may pose risks to compliant operations.

19 Industry Skills Australia, Maritime Industry 2025 Workforce Plan, ISA website, 2025, p 18.
20 Australian Bureau of Statistics, OSCA – Occupation Standard Classification for Australia, Version 1.0, ABS website, 6 December 2024.
21 Australian Bureau of Statistics, ANZSCO – Australian and New Zealand Standard Classification of Occupations, ABS website, 22 November 2022.

Figure 2: Growth in Near Coastal Seafarer Certificates Issued, 2023–2025



Source: AMSA 2025. Seafarer certification annual statistics

> *"We are constantly chasing competent crew – the industry segment that pays the most often wins the employees of choice."*
>
> [ISA survey respondent]

Operators in both the STCW and Near Coastal sector have observed that changing industry demands are creating **competition for skilled workers** within the maritime industry, and with adjacent industries such as offshore oil and gas, tourism, and fisheries and aquaculture. The Australian Navy is also facing recruitment challenges that hinder plans to increase the number of seafarers involved in national security tasks and in the submarine service over the period to 2040.[22] Over this time, Defence may compete with the Maritime industry for new entrants. Concerned industry stakeholders have expressed a view that the current training pipeline output is insufficient to replenish retiring officers and engineers.[23]

In the tourism and passenger transport sectors, employers report that **skill shortages create challenges for business operations**.

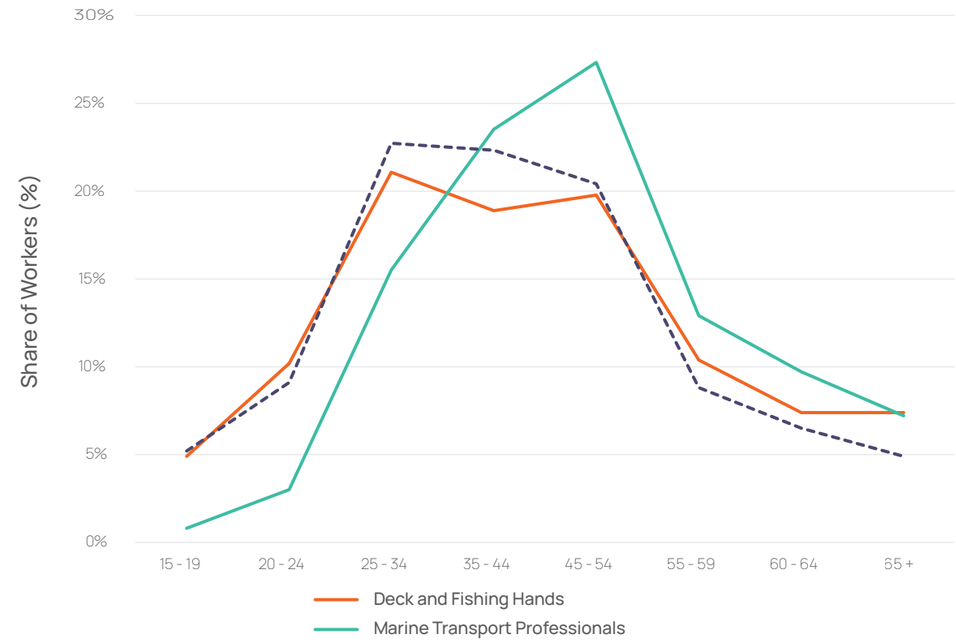
Stakeholders hold varying perspectives on the **use of international seafarers** in the Maritime industry, reflecting different implications across the STCW or Near Coastal sectors. Some employers would like to see qualified Masters included on the skilled occupations list to help attract migrant workers, while others note that the complexity of recognising overseas qualifications limits the transferability across comparable roles. At the same time, industry stakeholders have raised concerns about Australia's reliance on international seafarers and foreign-flagged vessels for the national freight task, citing potential implications for sovereign capability. Historical data bears out these concerns, as seen in the changing composition of the major trading fleet over the last three decades (**Figure 3**). In the early 1990s, there were 73 Australian-registered major trading vessels and only three foreign-flagged. By 2022-23, this had reversed: around 20 Australian-flagged major vessels remained, compared to 81 foreign-flagged. The Australian Government's commitment to establishing a Strategic Fleet crewed by Australian Seafarers seeks to strengthen national resilience, and some employers have indicated that additional incentives may be needed to support the recruitment of Australian crew.

Figure 3: Trends in Australian and Overseas-Registered Major Vessels

Source: BITRE Australian Sea Freight 2002-03, 2023-24, ABS Year Book 1995

In both the STCW and Near Coastal sectors, an **ageing maritime labour force** (**Figure 4**) will exacerbate the skills shortage as experienced seafarers leave the industry. Stakeholders are concerned about the critical industry knowledge that will be lost as this occurs. Findings from ISA's Strategic Fleet Supply and Demand Forecast Study indicate that the number of seafarers coming through the training and certification system may not replace those retiring.[24]

Figure 4: Age Distribution of Marine Occupations Compared with National Median



Source: JSA, Occupational Profile data, Nov 2025

[22] Naval Studies Group, A Maritime Strategy for Australia 2035, University of New South Wales (Canberra), November 2025, p 42.

[23] M O'Gorman, Australia Maritime Shipping Sector – Overview Report 2025, 10 June 2025.

[24] Industry Skills Australia, Strategic Fleet Supply and Demand Forecast Study, publication forthcoming.

JSA's recent Gender Economic Equality Study shows that in 2022–23 the national occupational median gender pay gap was 25.7%.[25] **Deck and Fishing Hands recorded a much higher gap** at 37.8%[26], placing them just outside the top 10 occupations with the largest pay disparities. This group is also among the top 20 most male-dominated occupations, with women making up only 3.4% of workers in 2025.[27] In contrast, Marine Transport Professionals had a significantly lower pay gap of 15.5%[28] and were somewhat less male-dominated, with women representing 9.8% of the workforce.[29]

Industry stakeholders recognise that more needs to be done to attract women into maritime roles. Stakeholders report that recruitment practices, as well as workplace conditions and facilities in some sectors, may discourage women from entering or remaining in the industry.

> *Programs aimed at increasing the numbers of women into the maritime industry are critical."*
>
> [ISA survey respondent]

Entry and Progression Pathways

While stakeholders agree on the need to attract more entrants into the Maritime industry, there is concern that **entry and progression pathways lack visibility**. For the STCW workforce, the Supply and Demand Forecast Study[30] found that while the current system of Marine Orders provides multiple prescribed ways to progress through certified roles, only a small number of pathways is used. Greater clarity around progression pathways would help new entrants and career advisors to navigate the system.

> *Entry and progression pathways are particularly critical. There is a significant lack of understanding of the many opportunities that a career in maritime can bring."*
>
> [ISA survey respondent]

There is concern among employers that there is a **lack of awareness of career opportunities** in the Maritime industry, particularly among younger cohorts. While stakeholders agree that more promotion to young people is needed, they also recognise the importance of raising broader awareness to attract career changers, women and people from other currently underrepresented groups.

> *Focus on appealing to the broader workforce, 'including women' but not singling them out, and demonstrate the rewards of being involved in our industry."*
>
> [ISA survey respondent]

Some employers report **challenges in recruiting young people** noting that certain aspects of maritime work may be unappealing to younger generations. Employers emphasise that many roles involve demanding work in challenging conditions, which can influence perceptions of job attractiveness. Several employers have implemented training programs and traineeships that have successfully supported young entrants into the industry. While casual crew arrangements can create workforce instability, some employers are reluctant to invest in long-term cadetships or traineeships. Others observe that increased regulation of onboard operations has reduced opportunities for workers to develop skills through on-the-job experience and exposure.

The Supply and Demand Forecast Study provided new insights into **pathways between Near Coastal and STCW seafaring roles** that highlight the underused potential of the Near Coastal sector as a feeder pathway.[31] Between 2016 and 2023, only about 1% of Near Coastal graduates who went on to complete an additional qualification progressed to an STCW qualification. Yet, this small cohort represents nearly 7% of all new STCW completions over that period.[32] Further investigation into how, when and why individuals transition between these qualification streams could provide insight into ways to support greater workforce mobility in the Maritime industry.

While 1% of NC graduates progress to STCW qualifications, they represent nearly 7% of all new STCW completions.

Strategic Fleet Workforce Supply and Demand Forecast Study

The Australian Government has committed to developing a Strategic Fleet of up to 12 Australian flagged and crewed vessels, commencing with a three vessel pilot. However, workforce planning for the Strategic Fleet is constrained by the absence of an authoritative national dataset. Fragmented data sources and inconsistent occupational classifications limit understanding of the workforce's true size, composition and capability.

To address the identified data gap, ISA undertook a Strategic Fleet Workforce Supply and Demand Forecast Study, integrating data from multiple sources to model Australia's maritime workforce requirements over the next 5-10 years. Working closely with Jobs and Skills Australia (JSA), the Australian Maritime Safety Authority (AMSA) and key industry stakeholders, ISA developed a system-dynamics model to forecast workforce supply and demand.

The ISA study comprised of three key components: workforce profile, career and training pathways, and supply and demand forecast.

Study Component	Key Findings
Workforce Profile: A detailed and authoritative analysis of the current size, demography and scope of Australia's existing maritime freight workforce.	• Median workforce age is 49 years, indicating an ageing workforce with more than one third retiring within 10 years. • Around 50% of Masters and Class 1 Engineers are nearing retirement with too few junior officers in the development pipeline. • Women represent only 3.5% of the STCW workforce, and fewer than 1% of engineering-qualified seafarers. • Female seafarers are younger on average, suggesting early signs of improved gender diversity.
Career and Training Pathways: A mapping and analysis of entry and progression routes within the maritime workforce, including transitions between Near Coastal and STCW qualifications.	• The training pipeline is younger (median graduate age 33), but demographic gaps persist, especially for women in Deck officer training. • STCW graduates move into core maritime roles, while Near Coastal graduates span a broader range of occupations, often via labour-hire. • Progression to senior officer roles typically takes 6-8 years.
Supply and Demand Forecast: A comprehensive projection of the number of seafarers required over the next 5-10 years across various scenarios that consider the demands of the Strategic Fleet, offshore wind farm construction and maintenance, and oil and gas decommissioning.	• Development of the Strategic Fleet will stabilise the workforce baseline for Australian-crewed vessels but will not offset the commercial pressures driving the decline of the broader trading fleet. • Workforce shortages will intensify due to accelerating retirements. • Competition for skilled crew will increase, particularly from the offshore energy sector. • Training berth shortages are the most critical bottleneck that limits the supply of new seafarers.

These findings indicate that workforce shortages will intensify without co-ordinated, system-level intervention and expanded training capacity to rebuild Australia's maritime capability.

[25] Jobs and Skills Australia, Occupational gender pay gap [Dashboard], JSA website, 2025.
[26] Jobs and Skills Australia, Intersectional gender pay gap [Dashboard], JSA website, 2025.
[27] Australian Bureau of Statistics, EQ08 - Employed persons by Occupation unit group of main job, November 2025 (rolling 5 year average of original data).
[28] Jobs and Skills Australia, Intersectional gender pay gaps [Dashboard], JSA website, 2025.
[29] Australian Bureau of Statistics, EQ08 - Employed persons by Occupation unit group of main job, November 2025 (rolling 5 year average of original data).
[30] Industry Skills Australia, Strategic Fleet Supply and Demand Forecast Study, publication forthcoming.
[31] Industry Skills Australia, Strategic Fleet Supply and Demand Forecast Study, publication forthcoming.
[32] Industry Skills Australia, Strategic Fleet Supply and Demand Forecast Study, publication forthcoming.

ISA-led Actions

Improving Maritime Career Information

This project supports workforce attraction and development by improving how careers in the industry are promoted and understood. Working with key partners, it will strengthen awareness of the sector and provide clear, accessible career information. The project will showcase the value of working in the sector, outline job roles, skills, qualifications and pathways, and leverage existing initiatives where possible. Together, these activities will raise awareness and support long-term workforce growth and retention.

Revalidation and Recognition of the Current Competence Model

Through this project, ISA will develop, pilot, and evaluate a national VET model to improve RPL outcomes and support AMSA's revalidation and recognition of current competency processes, accelerating certification for Australian seafarers. By targeting high demand roles and strengthening collaboration across government, industry, and training organisations, it helps address workforce shortages and supports the Strategic Fleet. The project will scope and design model options, develop an agreed national framework, establish a pilot program through the National Maritime Skills Network, and create tools for trainers and assessors to ensure consistent, accessible, AMSA compliant recognition processes.

Occupational Pathways for Defence

A national Recognition of Prior Learning framework is being developed to support Naval personnel transitioning into civilian maritime occupations and to accelerate the supply of qualified seafarers. By aligning Defence experience with maritime skill shortages, the initiative strengthens workforce capability for the Strategic Fleet and the broader industry. Industry Skills Australia is working with AMSA, industry, unions, and training providers to map Defence roles to training products, identify pathway gaps, and validate a nationally consistent model. The project will enhance career mobility for Defence personnel and support government efforts to build a skilled, responsive maritime workforce.

Increasing Diversity across Transport Supply Chain Industries

This project is building a comprehensive understanding of the current diversity and inclusion landscape across the Transport Supply Chain industries to inform scalable solutions in a second phase. It responds to fragmented diversity and inclusion efforts and the persistent underrepresentation of women, First Nations peoples, CALD communities, neurodiverse individuals and people with disabilities. By analysing demographics, reviewing existing initiatives, mapping gaps, and consolidating tools and resources, the project will deliver an environmental scan and recommendations that support a more inclusive, resilient and future focused workforce.

Growing Equity in Maritime Leadership

In close collaboration with industry, ISA will facilitate the co-design and validation of a national maritime equity leadership strategy to attract women and underrepresented groups to the maritime industry. The strategy will specifically target high-demand maritime technical and leadership occupations and develop an implementation framework.

Skilled Migration

This activity will examine existing skilled migration pathways and policy settings for Transport Supply Chain occupations to assess how well they meet the current and emerging skill needs of industry. The work will involve analysis of available data and targeted consultation with industry, unions and government stakeholders. It will consider issues raised by stakeholders, including the responsiveness and cost of existing processes, and the extent to which current settings ensure that migrant workers have the skills, experience, and safety awareness required to perform effectively in Australian workplaces.

Occupational Mobility for Australia's Maritime Workforce

ISA will work with key maritime stakeholders to identify, formally recognise and promote skills that are portable between maritime occupations.

Related Initiatives

Australian Maritime Safety Authority: Seafarer Certification Annual Data

AMSA publishes annual data on active STCW and Near Coastal Certificates of Competency/ Proficiency with breakdowns by occupational category, gender and age.

2 Availability of Training

The 2025 Workforce Plan reported that maritime training faces barriers from high costs, limited course availability and trainer shortages. The 2025 plan also identified the challenge of upskilling trainers and assessors to effectively implement updated Maritime Training Package products in response to regulatory change.

Training Consistency

The Maritime industry is experiencing persistent **concerns about the quality and consistency of training**, with employers frustrated by variable outcomes across jurisdictions. Stakeholders highlight that inconsistent standards create challenges in ensuring a uniformly skilled workforce. Safety-critical training is also an area of heightened concern, with regulatory requirements underscoring the need for RTOs to deliver high-quality, compliant programs.

Feedback from industry also points to **structural gaps in training delivery** that limits exposure to real-word operational environments. Graduates who lack sufficient practical experience increase operational risks for employers and may be limited in their ability to work across different vessel types, having had little exposure to different cargo operations during training.

In the offshore wind sector, stakeholders caution against the **risk of substandard or non-compliant training** as demand for new skills grows. They emphasise the need for strong oversight to prevent RTOs from offering training that does not fully align with required industry and VET regulator standards.

> *We have observed a significant decline in the practical knowledge and skill levels of recently trained staff. This lack of fundamental understanding, despite formal qualification, substantially increases the risk of serious injury in the maritime workplace."*
>
> [ISA Survey Respondent – Tourism sector]

Cost of Training

The **high cost of maritime training** is a significant barrier for both employers and potential entrants to the industry.[33] Training expenses vary widely across sectors, but research indicates that a small number of employers are carrying a disproportionate share of the training load, highlighting the need for a more equitable distribution of this burden.[34]

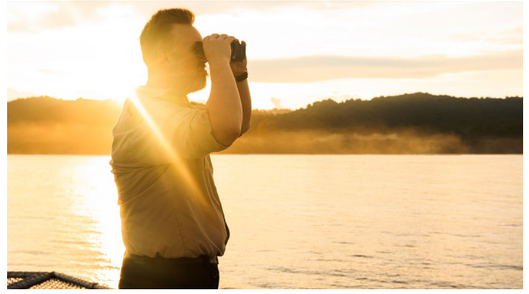
The **cost of training their workforce is compounded for employers** who have the added expense of staff replacement or backfilling while workers attend training. Industry stakeholders have observed that workers sometimes leave their position before employers achieve a return on their investment in training. This experience can deter employers from further investment.

There is a **high cost for RTOs** to register, develop and maintain training courses that deliver the highly specialised and technical job skills that meet STCW requirements. These necessary RTO investments drive up the cost of training.

Additionally, RTOs are grappling with a **shortage of qualified trainers and assessors** that impacts their capacity to deliver training effectively. With seafarers already in short supply, RTOs struggle to attract experienced personnel into onshore instructor roles when they cannot offer wages that compete with those available for seafarers working at sea.

Employers from the Near Coastal and Tourism sectors report that high trainee costs **limit the number of recruits** they can take on. Stakeholders have indicated that traineeships can provide an effective workforce development approach when employers are encouraged to take them up through tax incentives.

> *As an employer who is often seen as a first step into the marine industry, our training/ recruitment costs vs retention period is disproportionately high. Government funding to support these new entrants to the industry would be extremely beneficial to sustain this."*
>
> [ISA Survey Respondent from the Tourism Sector]

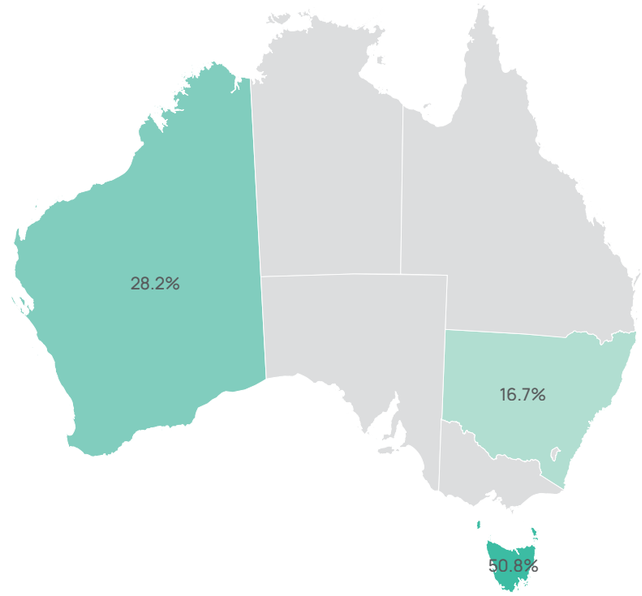


Course Availability

Industry stakeholders report that access to training is restricted by **limited course availability**. STCW training is not available in every jurisdiction. Aside from meaning that individuals must travel interstate to undertake their chosen course, state-based training incentives may also be unavailable for some trainees.

Only **12 organisations are approved to deliver STCW training** in Australia, and full STCW qualifications are offered in just three states – Western Australia, New South Wales and Tasmania.[35] Tasmania alone accounts for more than half of all graduates (**Figure 5**), with many trainees relocating there because options in their home states are limited. This concentration of providers means that aspiring seafarers from other states face high travel and accommodation costs, as well as logistical challenges, to access the training they need.

Figure 5: STCW Training Completions by Location (2016-2023)



Source: NCVER custom completions data supplemented with AMSA CoC applications to complete Tasmanian higher-ed coverage

Employers from the tourism and passenger services sectors have expressed concern about the **lack of training options in Queensland**. Some would like to have more maritime programs available in regional areas. Due to their considerable distance from training locations, some employers would like to see online delivery options for parts of the Coxswains and Master 24 courses.

[33] Maritime Industry Australia Ltd, Government investment a welcome boost for strategic maritime skills, Media Centre, Maritime Industry Australia Ltd website, 4 March 2025.

[34] Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts, Strategic Fleet Taskforce - Final Report [PDF], p 61.

[35] Australian Maritime Safety Authority, Approved training courses, AMSA website, Australian Government, n.d.

First Nations Pathways

Career success through the NSW Maritime Aboriginal Traineeship Program

The NSW Maritime Aboriginal Traineeship Program develops job ready maritime professionals through a carefully structured, culturally safe and highly supported two-year traineeship. It delivers Certificate II in Maritime Operations (Coxswain Grade 1 Near Coastal) qualification, combining in-house technical instruction with broad operational exposure. Trainees rotate through various Maritime teams gaining practical experience across Maritime Environmental Services (keeping waterways clean), Boating Safety (compliance and education) and Product Services (customer service), building strong workplace knowledge and skills.

Trainees build maritime theory and vessel handling competence while learning the systems, behaviours and professional expectations needed to thrive in a work environment. As Learning and Development Officer, Transport for NSW, Daniella Peev notes:

"It's just so inspiring to see how a traineeship can change someone's life……and then it enriches the workplace."

A defining strength of the program is its flexible block training design. Each month, trainees undertake one week of classroom or practical learning with an experienced maritime trainer, followed by three weeks embedded with operational teams completing AMSA aligned tasks. Rotations across multiple functions provide holistic experience, career visibility and responsive learning that moves between classroom and on water activities without losing momentum. Standards and Liaison Officer, Transport for NSW, Bahram Abedi explains:

"If there is one day when the brain is not ready to sit in the classroom, we go on the water and do the tasks practically…. If they're very engaged in the classroom, we keep going."

The training model

- Community engagement activities to build awareness of maritime careers, followed by joint recruitment with the Transport for NSW Aboriginal Employment Unit and a two-year employment placement for successful participants.
- Rotation through multiple maritime roles during the first 12 months to gain on water and off water experience supported by on-the-job learning.
- Completion of 1,800 hours of blended training for the Certificate II in Maritime Operations (Coxswain Grade 1 Near Coastal) including the AMSA Task Book.
- Hands-on training with real maritime assets, including vessel operations in varied conditions to build the strong technical capability required to operate domestic commercial vessels.
- Establishment of critical capabilities required to work in the industry, including digital skills to support trainees to become confident workers. As Peev observes, 'they're developing all those skills and then they can be role models for their communities'.

Program outcomes

- Since the program's 2019 refresh, eight trainees across three cohorts have enrolled, leading to five graduates, three of whom are now in permanent NSW Maritime roles. Other graduates have been employed in positions across the wider maritime industry.
- Earlier cohorts (2013–2018) also saw three trainees progress into permanent NSW Maritime roles, while two other graduates shifted into government careers.
- The program's excellence has been recognised externally, with NSW Maritime named a finalist in the Australian Institute of Training and Development (AITD) Excellence Awards (Best Learning Culture in an Organisation).

Reflecting on long term impact of the program, Abedi shares:

"One former trainee mentioned that this was the best training he'd ever had, and he is now on a very good salary with qualifications we helped him earn."

Benefits

For employers, the program produces experienced, confident, safe operators trusted with high-value vessels and familiar with compliance, inspections, audits and major event operations. The experience energises internal teams, strengthens mentor capability, enhances organisational culture and advances the organisation's Reconciliation Action Plan (RAP) commitments. As Peev remarks:

When we have a trainee, everyone comes alive. It builds culture and diversity in the teams."

For trainees, the model provides paid employment, uniforms, nationally recognised qualifications and the AMSA certificate of competency required to work. Trainees gain confidence, resilience and workplace readiness, often becoming role models in their communities. Abedi notes:

"We pay them to study, provide uniforms, and by the end of two years, they're well equipped to work anywhere."

To safeguard quality, the program has a dedicated program owner/coach, strong mentors, cultural safety, authentic on water training and an independent assessment. Leveraging in-house assets and partnering with employment units supports targeted recruitment, continuous improvement and a model that builds capability, strengthens culture and deepens community connection. Abedi advises the best outcomes happen when trainees take ownership of their traineeship experience.

Key Insights

- A culturally safe two-year traineeship builds job-ready Aboriginal maritime professionals through flexible block training and real operational exposure.
- A robust training model includes targeted community engagement, flexible learning, hands-on training with real assets and completion of the Certificate II in Maritime Operations (Coxswain Grade 1 Near Coastal).
- Rotations in various maritime roles, adaptive learning and strong mentoring create confident operators with technical, digital and professional skills who often become community role models.
- Since 2019, the program has produced successful graduates now employed in NSW Maritime and the wider industry, earning sector recognition for excellence.
- Employers gain experienced, skilled, confident, safety focussed operators who strengthen team culture and help progress Reconciliation Action Plan (RAP) commitments.
- Trainees receive paid employment, nationally recognised qualification and develop job readiness, supported by flexible learning and dedicated mentoring.

ISA-led Actions

VET Workforce Project

Aimed at building and supporting a secure and sustainable VET workforce, this project is in its critical second phase. ISA is now investigating and validating VET workforce challenges and issues identified in Steam 1 and exploring industry-led responses. ISA is collaborating with stakeholders across aviation, maritime, rail, and transport and logistics to refine a skills and competency framework and identify practical pathways to attract, develop, and retain a diverse and capable VET workforce.

Marine Order 505 – Phase 2 (RTO Capability)

The Marine Order 505 Implementation Project has been established to assist Registered Training Organisations (RTOs) in transitioning to the updated Marine Order 505 training products endorsed by Skills Ministers on 14 November 2024. This initiative supports RTOs in understanding, adopting, and delivering revised training products that align with the regulatory changes introduced under Marine Order 505 (Certificates of Competency – National Law). These changes affect qualifications and units of competency for Near Coastal maritime roles and aim to enhance safety, consistency, and career progression across the sector. To support this transition, the project provides practical guidance, resources for trainers and assessors, and tools to help RTOs implement the updated Maritime Training Package effectively and confidently.

National Maritime Skills Network

The National Maritime Skills Network ('The Network'), brings together Registered Training Organisations (RTOs) from across the nation to strengthen collaboration, drive innovation, and deliver world-class training for Australia's maritime workforce. Foundation Membership of the Network comprises the three main TAFE Institutes and a dual sector provider who deliver the Maritime Training Package qualifications. Following its national launch in 2025, the Network has established governance, a public website, and a collaboration Hub for members. ISA is also developing a professional development program for trainers and assessors, informed by extensive engagement with RTOs, learners, and employers. Through these initiatives, the Network builds cohesive communities of practice, expands training access, and supports the development of a highly skilled maritime workforce.

Maritime Simulator Opportunities

ISA is exploring how simulation technology can be integrated more effectively into maritime training to accelerate seafarer development, enhance safety, and support AMSA and IMO certification standards. By addressing long training lead times and workforce shortages, it aims to improve training quality, reduce costs, and build capability for the Strategic Fleet. ISA is collaborating with AMSA, industry, unions, regulators, and education providers to benchmark requirements, identify simulation needs, update training products, and develop tools that support consistent, standards aligned delivery. The project will strengthen workforce readiness through innovative, scalable training solutions.

Sea Time Simulation Trial

Building on the Maritime Simulator Opportunities project, this activity will scope, design, validate and pilot a trial model to support the use of simulation in achieving sea time requirements for high demand maritime occupations.

Stakeholder Consultation

ISA will conduct consultation activities to inform the development of future initiatives that support the Maritime workforce. Stakeholder engagement will explore:

- Skill Requirements of the Broader Maritime Industry
- Skills and Training Implications of the Strategic Fleet Pilot
- Skills for Decommissioning and Offshore Wind
- Improving Regional Training Delivery

Related Initiatives

Australian Maritime Safety Authority: List of Approved Training Courses and Approved Short Courses

AMSA maintains a list of approved training courses that meet the standard of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended (STCW) and that of Marine Orders 70 to 73. The information on approved courses is provided as a guide to assist individuals who want to qualify for a certificate in accordance with the STCW convention.

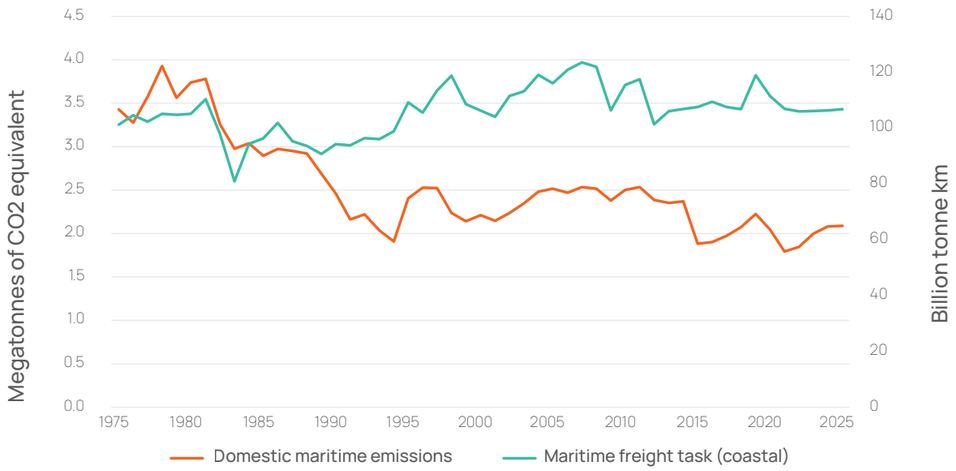
3 Preparedness for Change

The 2025 Workforce Plan reported that the industry faces complex challenges in adapting to decarbonisation and new technologies.

Decarbonisation

For Australia's domestic maritime sector, **decarbonisation is underway**. As illustrated in **Figure 6**, the sector shows a clear decoupling between freight activity and emissions. Coastal freight volumes have trended upward while CO_2-equivalent emissions have generally declined or remained stable, reflecting long-term improvements in vessel efficiency and operational performance. This mirrors the global picture, where the IMO's Fourth Greenhouse Gas Study[36] reported that seaborne trade grew by 40% between 2008 and 2018 while CO_2 emissions fell by 10%, demonstrating a similar break in the historical linkage between activity growth and emissions.

Figure 6: Trends in Domestic Maritime Emissions and Coastal Freight Task



Source: BITRE, Australian Infrastructure and Transport Statistics Yearbook 2025, Australian aggregate freight forecasts - 2022 update

Despite an unexpected delay in adopting the International Maritime Organization (IMO) Net-Zero Framework in 2025, Australia's **long-term commitment to decarbonisation remains unchanged**.[37] The Australian Government's Transport and Infrastructure Net Zero Road Map and Action Plan identifies a range of decarbonisation technologies that will be required to achieve deep reductions emissions by 2050. These include the use of low carbon liquid fuels (LCLFs), hydrogen-derived fuels such as methanol and ammonia, and hydrogen. For shorter journeys and smaller vessels, there will also be opportunities for battery electric technology.[38]

For companies that had begun preparing for the IMO framework, the delay has caused some uncertainty.[39] Some industry stakeholders report that **legislative change will be required** to drive the uptake of new technologies for decarbonisation. While these stakeholders suggest that demand for new skills may not be imminent, AMSA roundtables in 2025 highlighted the Maritime industry's readiness to engage with sustainability, shipping decarbonisation and technological transition.[40]

At the AMSA Shipping Decarbonisation roundtables in 2025, industry representatives from shipping operators to fuel suppliers and port authorities stressed the **need for coordinated action to adopt alternative fuels and electrification solutions**. The discussions underscored the critical role of collaboration, regulatory support and workforce capability development in preparing the sector to meet national emissions-reduction goals. Building a skilled workforce was identified as a key enabler of the transition, including through the development of new training products and awareness-raising material.[41] Industry stakeholders report that Maritime qualifications need to be reviewed to identify any changes required to accommodate the evolution of electric powered vessels.

Technological Change

New technologies are being adopted in the Maritime industry to **improve safety and operational efficiency**. However, survey responses show wide variation in how quickly innovations, such as automation and AI, will take hold across the sector. Frequently, AI is seen as supportive, by enhancing functions such as weather reporting and vessel tracking, rather than as a driver of job losses.

Industry stakeholders report that **autonomous shipping and remote piloting will require a new set of workforce skills**. With technology evolving unevenly across maritime operations, older competencies may still be required alongside emerging ones. This creates a dual challenge: ensuring learners can access the new skills demanded in some contexts while retaining the foundational competencies still needed in others.

Supporting the **recognition of transferable skills**, across maritime sectors and adjacent industries, will be critical for enabling workers to move into new technology-driven positions as they emerge. As onboard systems become more sophisticated, there is growing recognition of the need to develop soft skills that support leadership, teamwork, critical thinking, problem-solving and clear communication.[42] When combined with technical expertise, soft skills are seen to foster a culture of continuous improvement on safety and efficiency by enabling all crew members to contribute.[43]

[36] International Chamber of Shipping, IMO report on GHG finds a decoupling between trade and emissions in shipping, International Chamber of Shipping website, 7 August 2020.

[37] Australian Maritime Safety Authority, Shipping decarbonisation: Feedback from industry, AMSA website, 2025.

[38] Australian Government, Transport and Infrastructure Net Zero Roadmap and Action Plan: Transport Sector Plan [PDF], September 2025.

[39] L McAllister, What the delay of the IMO's Net-Zero Framework means for maritime decarbonization, Reuters website, 7 November 2025.

[40] Australian Maritime Safety Authority, Shipping decarbonisation: Feedback from industry, AMSA website, 2025.

[41] Australian Maritime Safety Authority, Shipping decarbonisation: Feedback from industry, AMSA website, 2025.

[42] Maritime Trainer, The Rise of Autonomous Ships, Alarming Fleet Safety Trends, and the Call for Proactive Leadership, Bulletin, Maritime Trainer website, 16 July 2025.

[43] Maritime Trainer, Leading from every position: Building a culture of proactive seafarers, Maritime Trainer, Monthly Bulletin Issue 7, July 2025.

ISA-led Actions

Autonomous Maritime Systems

Updated Maritime Training Package products, endorsed in August 2025, enhance flexibility and efficiency in developing skills for Autonomous Underwater Vehicle and Autonomous Surface Vessel operations. The updated Certificate III in Autonomous Maritime Systems and two related Skill Sets support emerging job roles, ensuring operators are equipped to manage autonomous technologies safely and productively. These changes streamline training delivery and help industry build capability for evolving autonomous maritime operations.

Digital Skills

ISA is analysing the digital skills required across Australia's transport supply chain to support and strengthen workforce capability. Using the international DigComp framework, the project will develop Digital Occupational Profiles for key roles in Aviation, Maritime, Rail, and Transport and Logistics. These profiles will define the digital knowledge, skills and proficiency levels required for workers to support their readiness in an increasingly digital operating environment. The profiles will also inform a strategic review of training packages by identifying skills gaps and reskilling needs that reflect these evolving job roles and digital skill requirements.

Technology Futures Taskforce Phase 2 – Occupational Analysis

The Technology Futures Taskforce (TFT) will pilot a methodology to identify new and emerging technologies set to reshape key transport supply chain occupations and the training products that support them. It will combine AI analysis with expert insights from industry to validate the findings and anchor them into the Australian context.

The phase will focus on four transport supply chain occupations undergoing significant technological change. It will deliver occupation reports, map affected training products, estimate the technology adoption rate and develop a scalable Technology Trend Radar. Together, these outputs will strengthen workforce readiness, guide upskilling and reskilling, and enable training packages to anticipate future skill needs.

Supporting the Decarbonisation of the Maritime and Ports Supply Chain

This project will focus on identifying gaps in skills and knowledge related to the storage, handling, and operational use of alternative fuels. This will be used to inform a review of the nationally endorsed training packages to determine whether current qualifications need updating to meet emerging emissions reduction requirements.

Related Initiatives

International Maritime Organization: 2023 IMO Strategy on Reduction of Green House Gas (GHG) Emissions from Ships

The 2023 IMO GHG Strategy provides a framework for Member States that sets out the future vision for international shipping, the levels of ambition to reduce GHG emissions and guiding principles. It includes candidate mid- and long-term further measures with possible timelines and their impacts on States. The strategy also identifies barriers and supportive measures including capacity building, technical cooperation and research and development.

International Maritime Organization: 2021 Outcome of the Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS)

In 2021, the Maritime Safety Committee (MSC) of the IMO completed a regulatory scoping exercise to assess how safe, secure and environmentally sound MASS operations might be addressed in IMO instruments. Following completion of the scoping exercise, the MSC has been developing a draft goal-based instrument regulating the operation of maritime autonomous surface ships.

Australian Government: Australia's Offshore Resources Decommissioning Roadmap

The Offshore Resources Decommissioning Roadmap outlines how the Australian Government plans to build a strong domestic industry for safely and sustainably decommissioning offshore oil and gas infrastructure. It focuses on creating the right regulatory settings, partnering with First Nations communities, improving access to infrastructure, supporting new jobs in recycling and waste management, and building a skilled and diverse workforce to meet future decommissioning needs.

International Maritime Organization: Alternative Fuel and Technology Safety Guidelines

The IMO's Maritime Safety Committee (MSC) is overseeing the development of safety guidelines for the use of alternative fuels in shipping. Interim guidelines have been developed for LNG, ammonia, LPG and methanol/ethanol.

Australian Government: Maritime Emissions Reduction National Action Plan (MERNAP)

The Australian Government committed to MERNAP in 2023 in recognition of the challenges and opportunities for decarbonising maritime transport. MERNAP is being co-designed by the Australian Government, industry and academic partners to identify, prioritise and implement actions that will reduce emissions across the maritime sector, including domestic shipping, ports and related supply chain activities.

4 Coordinated National Response

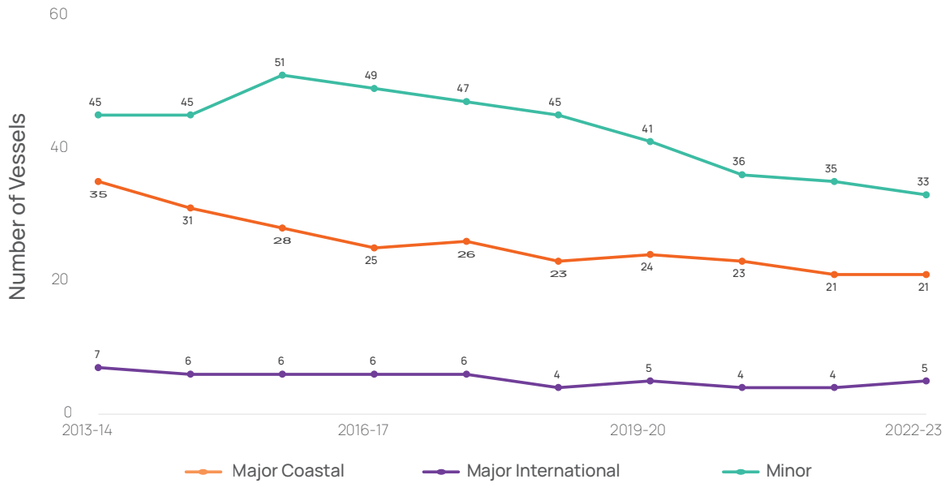
The 2025 Workforce Plan reported that the limited availability of training berths is a major barrier to completing qualifying sea time.

Sea Time Berths

Seafarers **must complete a specified amount of qualifying sea service**, or 'sea time', on a vessel to be eligible for AMSA certification.[44] There are sea time requirements for STCW and Near Coastal seafarers. These are aligned to national standards for Near Coastal and to international requirements for STCW.[45] To complete the required sea time, prospective sea farers need access to training berths on suitable vessels.[46]

Access to training berths has been a major barrier for people undertaking maritime training. Industry stakeholders report that the decline in the domestic fleet has limited the number of available training berths, which in turn limits maritime training capability. This decline is starkly illustrated by findings from ISA's Strategic Fleet Supply and Demand Forecast Study (**Figure 7**). Over the decade to 2022-23, the total number of trading vessels employing Australian crew[47] fell by 32%, from 87 vessels to just 59. This reduction was driven by a 40% contraction in the Coastal fleet and a 27% drop in the Minor fleet. Furthermore, recent reflagging means the Australian-crewed International fleet has practically vanished, leaving a known total of just two vessels[48] in 2024.

Figure 7: Australian-Crewed Vessels by Type



Source: BITRE Australian Sea Freight 2023-24, Seacare Authority, Annual Reports and Exemptions

A **lack of coordination across industry and training providers** has meant that available training berths are not always used effectively[49]. The final report of the Strategic Fleet Taskforce proposed measures to improve access to training berths including mandated training berths and the introduction of cadetship programs.

National Collaboration

Industry stakeholders are **looking for government leadership** on initiatives to address persistent workforce challenges for the Maritime industry. Some stakeholders have called for government support through tax incentives and co-contribution training models to help employers with workforce development that will strengthen their operations and the wider industry.

Collaborative initiatives are underway with participation from government, industry, unions and training providers. The Australian Government has invested $16.9 million to support skills and training in the Maritime industry, including the provision of access to training berths for up to 20 trainee seafarers annually. In line with the recommendations of the Strategic Fleet Taskforce, the Australian Government has funded ISA to lead activity to address training barriers that underpin the Maritime skills shortage.

The establishment of a **National Maritime Skills Network brings key stakeholders together** to develop solutions for the national skills system to support the supply of maritime skills for the industry. The Network will drive innovation in maritime training through communities of practice focused on teaching, learning and assessment. It also aims to improve access for learners by expanding the geographic spread of training options.

> *More and more, different stakeholders are coming together to have a conversation on how to reach the end goal: creating a skilled workforce.*
>
> [ISA Survey Respondent]

Maritime skills are needed to **support Australia's emerging offshore industries**, including offshore wind, and decommissioning oil and gas. Establishing nationally consistent qualification requirements and funding settings, rather than fragmented, jurisdiction-based approaches, will be important for ensuring a skilled, mobile and future-ready seafaring workforce.

[44] Australian Maritime Safety Authority, Sea service and task books, AMSA website, n.d.

[45] Australian Maritime Safety Authority, Guidance—international certificates, AMSA website, n.d.

[46] Australian Government, Strategic Fleet Taskforce - Final Report, Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts website, 2023.

[47] Including both domestic and foreign flagged vessels.

[48] The foreign-flagged ICS Reliance and Woodside Goode.

[49] Australian Government, Strategic Fleet Taskforce - Final Report, Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts website, 2023.

Building Australia's Maritime Workforce through the MSTI Program

The Australian Government has established Maritime Skills and Training Initiative (MSTI) program to support 20 trainees and cadets each year by providing them access to berths needed to complete the sea time required for international certification (STCW). The program is funded at $13.8 million from 2025–26 to 2028–29, with $3.451 million allocated annually.

The program aims to:

- increase availability of training berths on vessels to ensure more Australian trainee/cadet seafarers can access sea time to complete their qualifications.
- address the skills shortage of Australian seafarers certified to the STCW level in the Australian maritime industry.
- respond to Australia's maritime skills shortage and support the implementation of the Strategic Fleet.

More details: Maritime Skills and Training Initiative (MSTI) Program | business.gov.au

ISA-led Actions

Strategic Fleet Workforce Supply and Demand Forecast

A Strategic Fleet Workforce Supply and Demand Forecast was developed to identify the maritime workforce Australia needs over the next 5–10 years. It provides evidence-based scenarios to support decision making associated with the development of a skilled workforce for the Australian Government's Strategic Fleet. By establishing a clear picture of current workforce capacity, enrolments, pathways, and future demand scenarios, the Study will inform the national skills system, industry, and governments with evidence required to plan training, build workforce capability, and support recommendations of the Strategic Fleet Taskforce.

Coordination of Sea Time

This project has designed model options for a national approach to coordinating sea time to improve trainee access to training berths and accelerate progression toward AMSA certification. It supports the Strategic Fleet Taskforce's call for better on-the-job training pathways and supports workforce development for the Strategic Fleet and the wider maritime sector. Through engagement with industry and training providers, the project is testing and refining draft model options and will deliver an Options Paper and Final Report to inform policymakers on effective sea time coordination.

Maritime Skills Pipeline

A national Maritime Skills Pipeline Model is being developed to strengthen Australia's maritime workforce by improving training pathways, accelerating seafarer supply, and supporting coordinated workforce planning. Through research, stakeholder engagement, and analysis of workforce development practices, the project will produce a draft model and implementation recommendations that support national skills planning and key Strategic Fleet Taskforce priorities.

Sea Time Coordination Feasibility Study and Pilot Program

Building on the findings of the Coordination of Sea Time project, this will develop a feasibility business case to better understand and assist the delivery of a preferred sea time coordination model, proposed by the maritime sector. It will also develop an implementation plan for a coordination of sea time pilot program and a national training berth register.

Streamlining Near Coastal to STCW Pathways

This project will examine how Australia's maritime certification and workforce development frameworks could operate as a single, integrated system to improve career mobility for seafarers. It will map an end-to-end training pathway from Near Coastal qualifications to STCW, identify barriers and opportunities to streamline pathways and work with AMSA to address any regulatory constraints.

Related Initiatives

Strategic Fleet Taskforce Final Report

The Final Report of the Strategic Fleet Taskforce was delivered to the Australian Government in June 2023. It outlines recommendations for establishing a national Strategic Fleet of Australian-flagged, Australian-crewed vessels to improve the nation's economic resilience, supply chain security and maritime workforce capability.

Australian Government: Maritime Skills and Training Initiative (MSTI) Program

The MSTI program provides up to $13.8 million over 4 years from 2025-26 to 2028-29. The grant program addresses the recommendation of the Strategic Fleet Taskforce that the Australian Government should establish a scheme to provide financial assistance to organisations that provide berths for cadets and trainees to complete mandatory sea time requirements to obtain STCW certification. The program will assist approximately 20 trainee/cadet seafarers per year.

Appendices

Appendix A: Explanatory Notes to Data

Occupational Data (Workers) vs Industrial Data (Workforce)

When analysing the workforce and industry data in Australia, two classifications are commonly used: ANZSCO/OSCA and ANZSIC.

- ANZSCO (Australian and New Zealand Standard Classification of Occupations) or OSCA (Occupation Standard Classification for Australia) categorises occupations based on skill level and specialisation
- While OSCA replaced ANZSCO for use in Australia in December 2024, the underlying data (such as the Labour Force Survey, or the Occupational Shortage List) are yet to be updated.
- ANZSIC (Australian and New Zealand Standard Industrial Classification) classifies businesses into industry sectors. This groups companies based on the primary activities they are engaged in.

In simple terms, ANZSCO/OSCA is about what people do in their jobs, and ANZSIC is about the industry or sector where businesses operate. They are used for different purposes and are not directly comparable.

In this document, we use the term 'Workers' when referring to occupational data (ANZSCO/OSCA) and industry 'Workforce' when referring to industrial data (ANZSIC).

Occupational Shortage vs Skills Shortage

In this document, we distinguish between occupational shortages and skills shortages.

- Occupational shortage: This occurs when employers struggle to fill vacancies for a specific occupation or can't find employees with specialised skills needed in that occupation. Essentially, there aren't enough qualified people available to do the job.
- Skills shortage: This refers to a situation where the existing workforce does not possess the right skills to meet the demands of their sector or occupation. It's not about the number of employees, but about the quality or suitability of their skills.

Business Count

In the Counts of Australian Businesses data, industries are classified by the main industry linked to a business ABN. This method has limitations. Firstly, businesses operating in several States/Territories are counted only once, making enterprise figures appear low in some areas. This does not mean that there are no enterprises in those regions; rather, that their headquarters are located elsewhere. Secondly, if an organisation operates in multiple industries, it is only counted in one, leading to potential inaccuracies in industry classification.

Training Data

Total VET Activity (TVA) data is collected from all types of RTOs and not only those in receipt of Commonwealth or State funding.

Endnotes/Special References

† Scenic and Sightseeing Transport is an industrial category that covers all transport modes, and the workforce is split proportionately among the transport sectors according to historical Census distributions.

Sources for infographics

Data	Source
Automation/augmentation exposure	JSA, Our Gen AI Transition, Occupation exposure data 2025 Note: JSA exposure scores estimate the potential for Gen AI to augment or automate tasks in each occupation. They reflect technical potential rather than actual adoption or employment effects.
Business No Business distribution by state %	ABS Counts of Australian Businesses 2025
Female (%)	ABS Labour Force 2023 2025, four-quarter average data
GDP contribution $b 2024-2025 Estimated annual revenue $b 2024-2025	IBISWorld Industry Wizard
Higher education enrolments (2023)	Jobs and Skills Atlas, 2026
Highest graduate employment rate (2020/2021)	JSA, VET Graduate Outcomes 2020-21
Highest median age	JSA, Occupation Profile data (Nov 2025)
Lowest vacancy rate (%)	JSA, Jobs and Skills Atlas 2026
Median gender pay gap	Workplace Gender Equality Agency (WGEA) 2024/25
Occupation Shortages	JSA, Occupation Shortage List 2025
Online job ad growth % (2020 - 2025)	JSA, Internet Vacancy Index 2025
Part-time (%)	JSA, Occupation Profile 2025
Qualification enrolments 2024 Qualification enrolments by state % VETiS student count Gender/First Nations/Disability % (2024) Apprenticeships/Traineeships (% of MAR enrolments) Top 5 qualifications by enrolments (2024)	NCVER, Total VET Activity 2024
RTOs scoped to deliver Maritime quals Training Package summary (# quals, units, skill sets) RTO map (Explicit scope)	training.gov.au 2026
Top 4 sectors by workforce no.	ABS Labour Force Industry (JSA, Trended) 2025
Workforce in Maritime companies (2025) Workforce in Maritime companies (2030) Workers in Maritime roles (2025) Workers in Maritime roles (2030)	JSA, Employment Projections 2025

Appendix B: Abbreviation List

ABS	Australian Bureau of Statistics
ADF	Australian Defence Force
AI	Artificial Intelligence
AMSA	Australian Maritime Safety Authority
ANZSCO	Australian and New Zealand Standard Classification of Occupations
ANZSIC	Australian and New Zealand Standard Industrial Classification
ARENA	Australian Renewable Energy Agency
ASQA	Australian Skills Quality Authority
DCV	Domestic Coastal Vessel
FIFO	Fly-in Fly-out
GHG	Greenhouse Gas
IMO	International Maritime Organization
ISA	Industry Skills Australia
JSA	Jobs and Skills Australia
JSC	Jobs and Skills Councils
LCLF	Low Carbon Liquid Fuels
LNG	Liquid Natural Gas
MASS	Maritime Autonomous Surface Ships
MERNAP	Maritime Emissions Reduction National Action Plan
MSC	Maritime Safety Committee
MSTI	Maritime Skills and Training Initiative
OSCA	Occupation Standard Classification for Australia
RPL	Recognition of prior learning
RTO	Registered Training Organisation
STCW	Standards of Training, Certification and Watchkeeping
SWPC	Strategic Workforce Planning Committee
TVA	Total VET Activity
VET	Vocational Education and Training
VR	Virtual Reality

Appendix C: Methodology

ISA's workforce planning process is underpinned by deep industry knowledge and a commitment to delivering reliable and forward-looking workforce advice.

Ongoing engagement with industry informs our comprehensive approach to workforce planning. We speak regularly with stakeholders to understand real-world workforce issues. We then combine these insights with careful analysis of workforce and training data.

By reviewing evidence to continually test what we hear, we build a clear and practical picture of how industry is changing and what pressures lie ahead.

The 2026 Workforce Planning Update builds on the industry intelligence compiled in the 2025 Workforce Plan and provides information on the progress of initiatives to address identified industry challenges.

Key steps in preparing the 2026 Workforce Planning Update

1 Stakeholder engagement

Industry roundtables, leader dinners and targeted consultations validated the challenges identified in the 2025 Workforce Plan and flagged new and emerging issues

2 SWPC reflection

The SWPC reviewed consultation insights to refine themes, confirm industry priorities and shape potential actions.

3 Scoping survey

A public survey tested themes, priorities and proposed responses with industry stakeholders.

4 Draft development

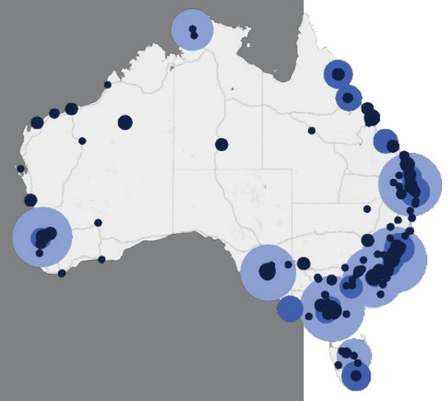
Quantitative and qualitative data were analysed to illustrate identified challenges and document progress against industry priorities.

5 Public feedback

A draft update was shared with stakeholders for review and comment.

6 Finalisation

Guided by the SWPC, stakeholder feedback was incorporated to refine and complete the 2026 Workforce Planning Update.



Roundtables

Through a national series of Industry Dinners and Roundtables, ISA heard directly from industry stakeholders across Australia. This on-the-ground engagement with industry leaders, employers, unions, industry organisations and government representatives provides critical intelligence that cannot be captured through data alone. It plays a central role in understanding the real-world challenges facing the industry and clarifying where effort is most urgently needed.

Stakeholders highlighted the complex workforce challenges affecting their operations and stressed the need for collaboration to address interconnected issues within and across industry sectors. They also helped to identify practical, forward-looking solutions to advance industry priorities.

Industry Skills Australia

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