



Industry Skills
Australia

Jobs and
Skills
Councils

An Australian Government Initiative



Maritime Industry

2024 Workforce Plan

About ISA

Industry Skills Australia (ISA) has been established as the Jobs and Skills Council (JSC) for the Transport and Logistics industry sectors, which includes Aviation, Maritime, Rail, Transport and Logistics, the emerging Omnichannel Logistics and Distribution, and Air and Space Transport and Logistics.

Owned and led by industry, our JSC is committed to building a world-class supply chain workforce to increase productivity, create better jobs and build opportunities for individuals.

We will do this through:

- leveraging our more than 30-year history with the transport and logistics industry,
- undertaking research and data analysis to inform workforce planning,
- advocating for a workforce development approach in tackling industry skills issues, and
- developing priority training package products.

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People first, for a future-fit
supply chain workforce

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About the Workforce Plan

Purpose

Workforce Planning is the strategic centrepiece for Jobs and Skills Councils to inform and establish each of their other functions. The Workforce Plan serves as a guide to identifying the contemporary drivers and challenges within Australia's Maritime industry and developing forward-thinking actions to address those challenges. Drawing upon a rich blend of data sources, including industry reports, stakeholder consultation and the direction from Strategic Workforce Planning Committee, it outlines the current obstacles impeding the industry's progress and proposes practical actions to overcome these hurdles.

The Workforce Plan begins the groundwork for ongoing evaluation and strategy refinement. It aims not only to diagnose current challenges but also to anticipate future trends and opportunities. This proactive approach ensures that the Australian Maritime industry remains agile and responsive to changing conditions.

A crucial aspect of this document is its collaborative nature, emphasising the value of stakeholder input. By incorporating diverse perspectives from industry experts, policy makers, and practitioners, the strategies presented are both robust and attuned to the real-world dynamics of the Maritime sector.

The Workforce Plan will be used to further engage with stakeholders, with the feedback received incorporated into future iterations of the Plan. As Jobs and Skills Councils mature and as the Workforce Plan is updated each year, it will seek to better understand current, emerging and future workforce challenges and opportunities, including skills gaps and shortages for all industries within Industry Skills Australia's remit, including small, niche and regional sectors and to develop appropriate strategies and advice for addressing diagnosed challenges. This also includes working with Jobs and Skills Australia to better understand the outlook for employment for each industry sector.

The Workforce Plan 2024 is not just a snapshot of the present but a roadmap for the future, guiding stakeholders in collectively navigating and shaping the evolving landscape of Australia's Maritime industry.



JSC Obligations

In 2023, the Australian Government established ten (10) Jobs and Skills Councils to address the many workforce planning and skills development challenges facing Australia, and to ensure that our national skills system meets the rapidly evolving needs of industry, individual employers, and the workforce.

Jobs and Skills Councils have four formal roles:

1

Industry Stewardship which involves gathering industry intelligence to reliably represent the views and needs of industry back to the VET system and its decision-makers;

2

Workforce Planning which enables industry to identify its workforce development issues and design high-impact solutions, which are then captured in the national Workforce Plan for the industry;

3

Training Product Development which focusses on improving the quality, speed to market and responsiveness of training products to employer and workforce needs;

4

Implementation, promotion and monitoring which is a broad role that involves supporting training providers, promoting careers, and monitoring how well the system is meeting the needs of industry and learners.

Jobs and Skills Councils are funded by the Australian Government (Department of Employment and Workplace Relations) but work collaboratively with a wide range of bodies.





Foreword

The Maritime Strategic Workforce Planning Committee (SWPC) comprised of senior industry leaders is empowered to identify immediate and emerging skill needs and the responses needed by the national skills system, industry and government. The Committee works on behalf of industry to shape and oversee the development of the Maritime National Workforce Plan based on intelligence and consultation with key stakeholders from across Australia.

The initial committee meeting, held in November 2023, focused on the challenges and drivers outlined in the Maritime 2023 Initial Workforce Plan. It delved into key priorities and identified additional opportunities for further exploration as potential solutions for the industry. Committee members, leveraging their firsthand industry intelligence and experience, are strategically positioned to contribute to the development of a long-term forecast and progression plan for the Maritime Industry. This collaborative effort is backed by Industry Skills Australia's extensive stakeholder engagement.

The Committee's role is important in implementing the Strategic Fleet Taskforce Report and the corresponding Government response. Moving forward, the Committee remains dedicated to monitoring the industry landscape. Its aim is to identify and prioritise areas that require support, ensuring the development of a resilient and agile workforce in the Maritime industry.

We appreciate your ongoing support as we collectively shape the future of our industry.

Angela Gillham

Chair, Maritime Strategic Workforce Planning Committee



Executive Summary

The Maritime industry comprises the operation, co-ordination, and maintenance of vessels for the transportation of passengers or freight by water. This includes navigation, engineering, deck operations, support, and autonomous operations.

Understanding key factors impacting the supply and demand of workers in the maritime industry assists in the identification of workforce issues and potential solutions.

Four megatrends have been identified that are impacting the Australian economy, businesses, and people:

- Digital technology and automation
- Decarbonisation
- Workforce supply challenges
- Industry skill development.

Where these mega trends are having a specific impact on the maritime industry, they are further explored in the key drivers and challenges.

Significant labour market dynamics and workforce challenges impacting the supply and demand of maritime workers include:

- National labour shortages and high competition for all available labour
- Attraction and retention of workers
- Occupational shortages of trained and skilled seafarers
- Long lead times to train and certify Australian maritime seafarers.
- Establishment of the Strategic Fleet which requires Australian crew.

The 2023 Initial Workforce Plan has been used to engage with stakeholders and gather real-time workforce intelligence to inform evidence based and industry supported actions for the 2024 Maritime Workforce Plan.

This plan also identifies and maps a number of related existing workforce strategies and initiatives to industry challenges and drivers. Where relevant, the 2024 Workforce Plan will seek to align with, or contribute to, these strategies and initiatives, or identify areas of collaboration with those responsible for their implementation.

Proposed Actions

Proposed actions set out in Table 2 of the Workforce Plan directly respond to the Australian Government Response to the Strategic Fleet Taskforce Final Report (November 2023).

Many of the Taskforce recommendations have broader applicability to the Maritime workforce. The Workforce Plan's Proposed actions have been designed to address both the urgent priorities of the Taskforce and establish a sustainable workforce model for industry to meet immediate and future workforce needs.

ISA has formulated proposed actions in response to industry's key priorities. These include:

Industry Challenge/Driver	Proposed Action
Recent regulatory changes will require amendments to Maritime Training Package.	<ul style="list-style-type: none"> • Marine Order 505 update – Update Maritime Training Package products to reflect new Marine Order 505 licensing and regulatory requirements. • Vessel traffic services – Update Maritime Training Package products to reflect changes for the Vessel Traffic Services Operator role.
We need to be planning now for large scale projects and initiatives involving the maritime workforce.	<ul style="list-style-type: none"> • National maritime skills network - Pilot an industry-driven Maritime Industry Skills Network for the maritime industry to underpin skills development for the Strategic Fleet whilst also supporting skills needs of the broader Maritime industry. • Maritime skills pipeline – Scope and design an agreed skills pipeline for the Australian maritime industry. The model will underpin the implementation and coordination of initiatives needed to establish a sustainable supply of skilled maritime workers. • Strategic Fleet workforce supply and demand forecast - Undertake a supply and demand forecast study to support decisions made by government and industry on how to build the Strategic Fleet workforce. • Strategic Fleet workforce career pathways - Using pathway data from the Strategic Fleet supply and demand forecast study, develop and promote career and learning pathways to support its establishment. • Revalidation and RCC model - Develop a revalidation and recognition of current competency model for Australia's Maritime workforce. • Occupational pathways for Defence - Develop a recognition of prior learning model to support transition from Naval occupations into civilian maritime occupations. • Occupational mobility - Develop occupational mobility pathways for Australia's maritime workforce. • Simulation - Develop a model that utilises technology (simulation) to develop real-world experience and seafaring capabilities which meets AMSA and IMO requirements.
The cost of delivering AMSA certified qualifications is creating a barrier to the skills pipeline for STCW occupations.	<ul style="list-style-type: none"> • Co-ordination of sea time - Develop a model for effectively co-ordinating sea time requirements across the maritime industry.

Additional engagement, research and consultation activity has been identified to assist in the development of future strategies or initiatives to inform the 2025 Workforce Plan. These focus areas cover the key themes associated with our challenges and drivers and include:

Industry Challenge/Driver	Proposed Action
<p>We need to be planning now for large scale projects and initiatives involving the maritime workforce</p>	<p>Decommissioning and Offshore Wind - Conduct further research to identify skills and workforce development implications.</p> <p>Diversity - Identify barriers to maritime workforce participation for under-represented cohorts. Engage with industry and relevant support organisations to determine potential strategies to assist in connection to employment.</p> <p>Broader maritime industry - Conduct further research and consultation to identify workforce challenges and skills implications for maritime workers operating in sector specific areas.</p> <p>Skilled Migration - Investigate the current temporary and permanent skilled work visas, including the recent transition from the Temporary Skill Shortage (TSS) visa to the new Skills in Demand (SID) visa, reviewing how they are meeting the needs of the workforce and addressing shortages.</p>
<p>The cost of delivering AMSA certified qualifications is creating a barrier to the skills pipeline for STCW occupations.</p>	<p>Regional training delivery - Engage with regional stakeholders to explore and develop strategies to support student cohorts in regional areas.</p>
<p>New technology and carbon emission reduction strategies on the horizon will have skill implications in the future</p>	<p>Decarbonisation - Engage with key stakeholders on decarbonisation policy and initiatives to identify the skills and training implications for Australian seafarers and determine the scope of any required training products.</p>





Industry Overview

The maritime industry is an intrinsic part of the Australian economy, with a workforce of over 28,000¹ (**Figure 1**) people employed across the major subsectors: passenger and freight transport, tourism, and support services.² The activities of the industry can be categorised into five (5) occupational areas (with further details provided in [Appendix A](#)):

- **Navigation** - commanding and navigating vessels.
- **Engineering** - maintaining marine systems, equipment, operation and maintenance of machinery and ships engines.
- **Deck Operations** - performing duties and functions on a vessel and/or assisting with deck or engine work.
- **Support Operations** - performing duties and functions to support vessel operations.
- **Autonomous Operations** - working or supervising Autonomous Maritime Systems operations in Near Coastal waters.

The industry includes seafarers who work on commercial and non-commercial (government) 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. To achieve AMSA certification seafarers are required to complete an approved course of study and qualifying sea time.

¹ Australian Bureau of Statistics, Detailed Labour Force Survey, EQ06 - Employed persons by Industry group of main job, November 2023 (annual average of original data)

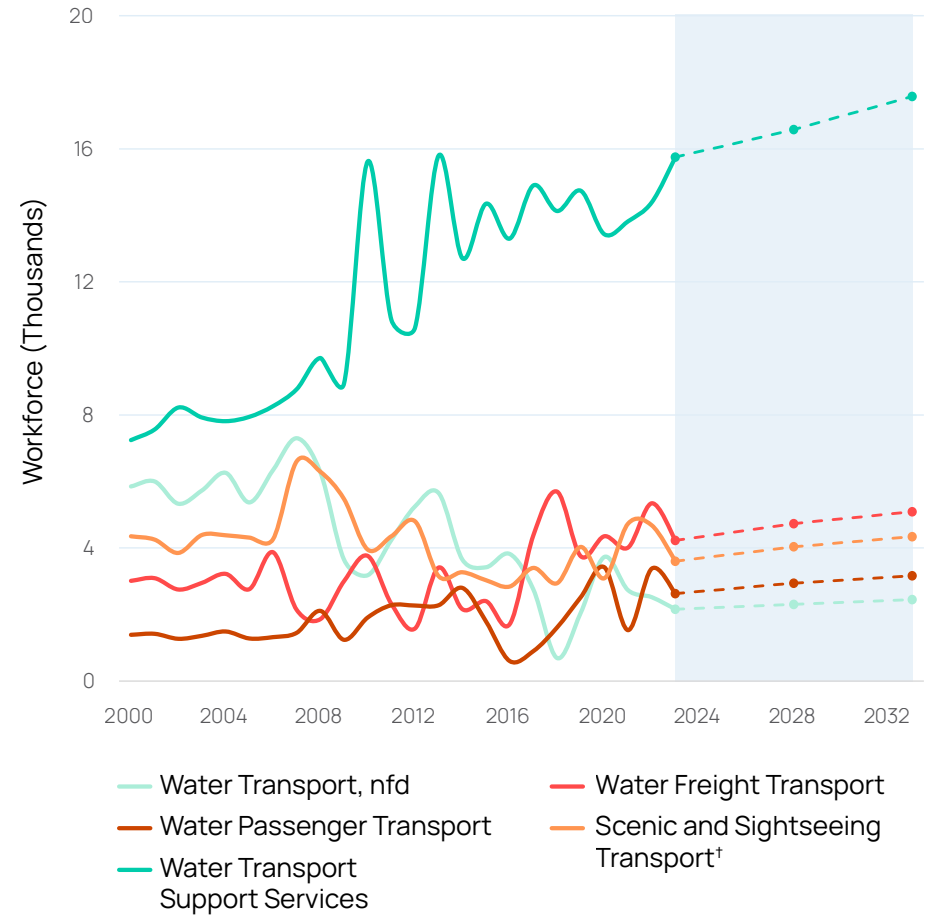
² NOTE: This figure is likely to be a significant underestimate of the true sea-going workforce, since maritime certificates are required in many related industries, such as oil and gas, defence, fishing and other sectors that are not captured here. The Australian Maritime Safety Authority has indicated that approximately 30 thousand certificate holding seafarers in November 2023 (comprising 29,039 near coastal seafarers and 3,778 STCW, with some holding both).



MARITIME WORKFORCE
FORECAST TO GROW BY
17% TO 2033

The industry had an estimated annual revenue of \$9.4 billion in 2022-23, adding \$3.5 billion to the Australian economy.³

Figure 1: Maritime Industry Workforce, 2000 - 2033



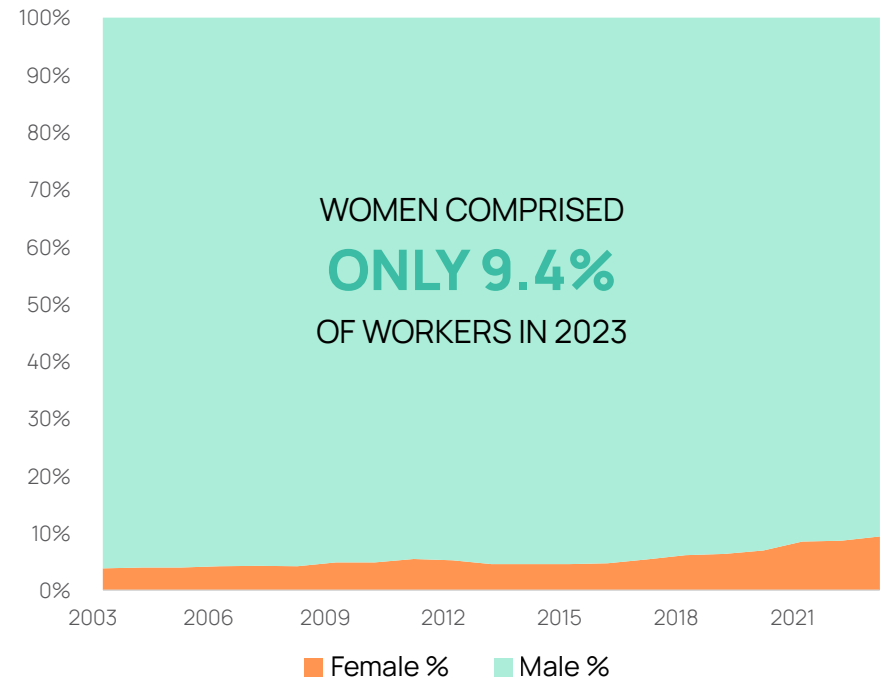
Source: ABS Labour Force/JSA Employment Projections

³ IBISWorld Industry Wizard (2023)



The median age of maritime operational workers is 45,⁴ with women making up only 9.4% of workers (**Figure 2**).⁵

Figure 2: Female Employment Share 2000 - 2023



Source: ABS 6291.0.55.003 - Labour Force, Australia, Detailed (four-year rolling average)

⁴ Australian Bureau of Statistics (2021) '2021 Census - Employment, income and education', TableBuilder

⁵ Australian Bureau of Statistics, Detailed Labour Force Survey, EQ06 - Employed persons by industry group of main job, November 2023 (annual average of original data)

MARITIME BUSINESS NO.

3099



35 with 200+ employees

161 with 20-199 employees

2903 with 0-19 employees

TOP 4 SECTORS BY WORKFORCE NO.

Water Transport Support Services



15778

Water Freight Transport



4029

Scenic and Sightseeing Transport†



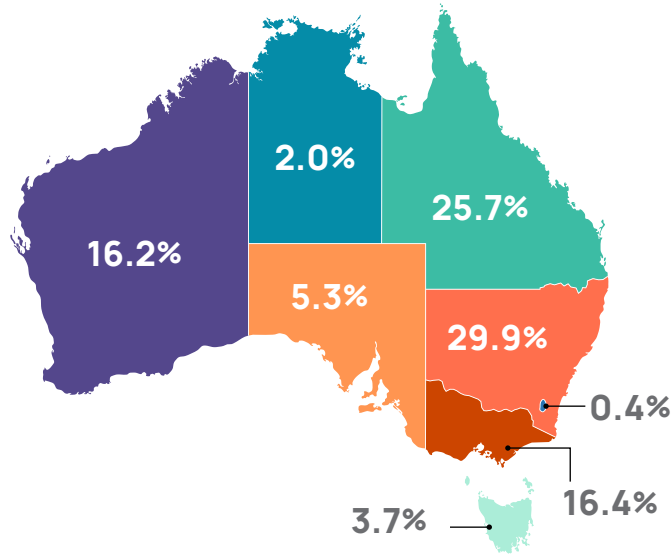
3585

Water Passenger Transport



2855

BUSINESS DISTRIBUTION BY STATE %



AUSTRALIA'S INTERNATIONAL TRADE CARRIED BY SEA

99%

GDP CONTRIBUTION \$B 2022-2023

3.5

DOMESTIC FREIGHT TASK GROWTH (PROJECTED TO 2030)

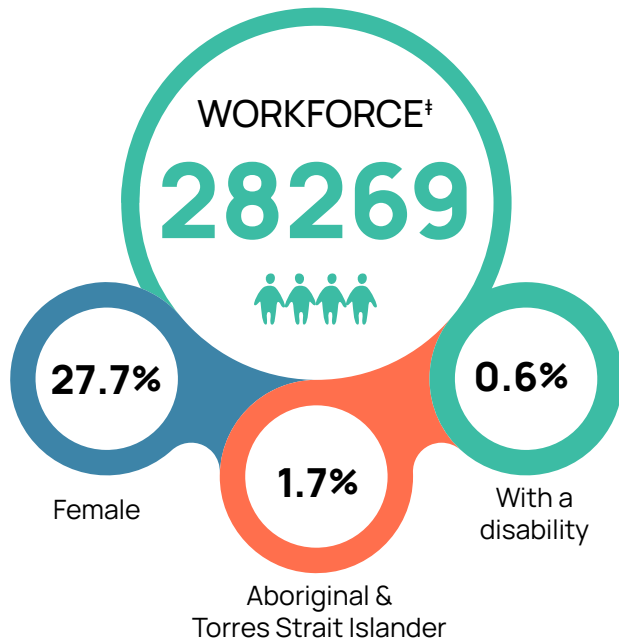
2.10%



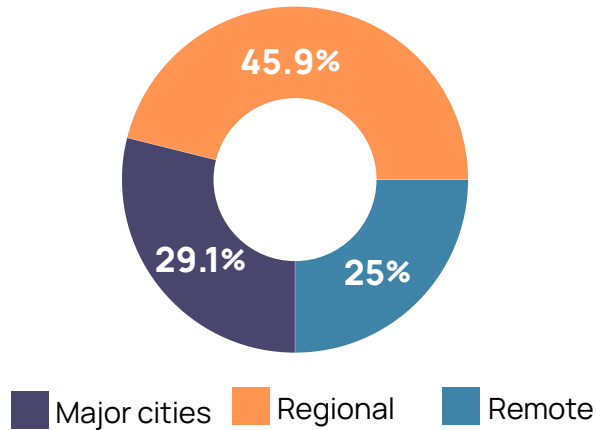
MARITIME INDUSTRY ESTIMATED ANNUAL REVENUE \$B 2024

9.35





RESIDENTIAL DISTRIBUTION OF WORKERS



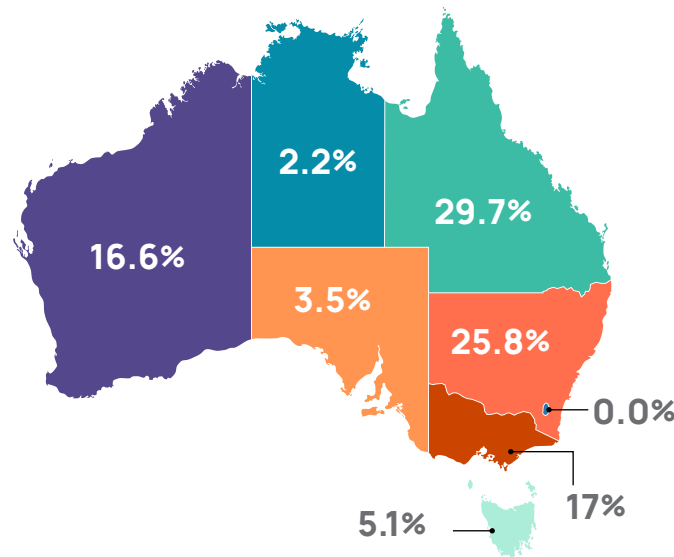
MEDIAN AGE

45

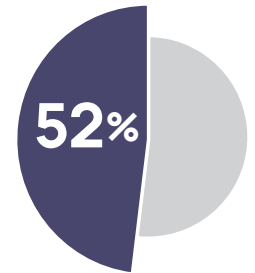
WORKFORCE NEARING RETIREMENT (AGED 56-66)

18.5%

WORKFORCE DISTRIBUTION



HIGHEST EDUCATION LEVEL OF WORKERS: VOCATIONAL



REGISTERED TRAINING ORGANISATIONS (RTO)

43

TOP 5 OCCUPATIONS

Ship's Master

Deck Hand

Ship's Engineer

Ship's Officer

Marine Surveyor



3576

2473

1877

521

483

[†] All employees in Maritime businesses, see Explanatory Notes to Data

Megatrends

Megatrends are overarching, transformative shifts that are reshaping the workforce, economies, and the global environment, exerting profound impacts across all transport sectors. These trends, which include digital transformation, automation, decarbonisation, and workforce supply/demand issues, pose cross-sector challenges that demand innovative and adaptive responses, including skills development and improvements in diversity and inclusion in the workplace. Understanding these megatrends is crucial for addressing industry-specific challenges and leveraging the opportunities they present in shaping the future of transportation. The megatrends identified in this section represent cross-cutting issues that are evident across Industry Skills Australia's four main industry sectors.

Digital Technology and Automation

The adoption of high-performance computing, AI, machine learning, sensors, the Internet of Things (IoT), robotics and other Industry 4.0 technologies is growing globally. The next wave of digital innovation is expected to generate \$10–15 trillion globally, and currently available technologies could contribute \$140–250 billion to Australia's GDP by 2025.⁶

There is a drive to increase the technical capabilities of Transport and Logistics using IoT, data analytics and automation to boost efficiencies and productivity.⁷ The increasing integration of smart technologies, driver assistance and other safety systems play a key role in improving the road transport sector's ability to enhance efficiency, safety and productivity. Unsurprisingly, logistics companies are turning to technology to reduce costs and improve productivity in transportation and warehousing.⁸

New technologies and increased levels of digitalisation and automation are continuously being introduced to the Maritime industry for reasons of safety, efficiency, and the environment.⁹ However, the changes brought about by rapid technological development need to ensure that seafarers are required to reskill and upskill to new tasks and embrace emerging job opportunities.¹⁰

The Aviation industry is on the verge of new revolution, propelled by incorporating cutting-edge technologies such as Uncrewed Aircraft Systems (UAS), remote digital tower technology¹¹, OneSky (a harmonised civil and military air traffic management system)¹² and Satellite-Based Augmentation System (SBAS).¹³ Similarly, the Rail industry is operating autonomous trains, smart devices and automated asset inspections using various technologies including LiDAR (Light Detection and Ranging) in asset management. As a result, by 2027 nearly 40% of the existing rail workforce will need to learn new digital skills, with the number of specialised digital workers needed, projected to grow by 84%.¹⁴

⁶ CSIRO. (2022). Global Megatrends impacting the way we live over coming decades

⁷ PwC. (2023). Shifting Patterns: The future of the logistics industry

⁸ McKinsey. (2023). Digital Logistics: Technology race gathers momentum

⁹ World Maritime University. (2023). Transport 2040: Impact of technology on seafarers – the future of work

¹⁰ World Maritime University. (2023). Transport 2040: Impact of technology on seafarers – the future of work

¹¹ Australian Aviation. (2019). Aircservices to trial remote digital tower prototype at Sydney. November

¹² Aircservices. (NA). What is OneSKY?

¹³ Australian Flying. (2018). Aircservices launches SBAS Project.

¹⁴ Future Rail Skills Forum. (2022). Shaping the next generation workforce

Digital connectivity and advanced capabilities offer significant opportunities to diversify and strengthen regional and remote economies. These advancements can attract and retain a more skilled workforce, contributing to regional economic growth and sustainability.¹⁵ However, this potential is hindered by underlying issues in these areas, including:

- A notable lack of local professionals with the necessary technical skills, which impedes the development and maintenance of digital infrastructure.
- Limited or unreliable internet access hampering the adoption of digital technologies and skilling opportunities.

This urban/rural divide is becoming increasingly critical as metropolitan areas surge ahead with rapid digital advancements.¹⁶

At the national scale, 2.7 million Australian jobs are at risk of being lost due to automation in almost all industry sectors by 2034.¹⁷ However, almost twice as many jobs as those lost to automation (4.5 million) will be augmented by automation requiring upskilling, reskilling and digital skills to provide a pathway to a future-ready workforce.¹⁸

Decarbonisation

The Australian Government is investing \$24.9 billion in the next seven years to support the development of new clean energy industries and the decarbonisation of existing ones.¹⁹ Around 7 in 10 business leaders recognise the need for Australia to achieve 'net zero' carbon emissions to keep up economically, while almost 8 in 10 believe that sustainable transformation is driving a competitive edge for companies.²⁰

According to the DCCEE,²¹ the transport industry was responsible for nearly a quarter (24.6%) of energy consumption in 2020-21 (**Figure 3**) and will need to be a major focus of emissions targets. In the years to 2050, emissions from the Transport industry can be reduced due to electrification of the light vehicle fleet as adoption of electric vehicles (EVs) increases from less than 2% of Australian car sales to more than 55% by 2030.²² Decarbonisation of long distance and heavy transport is expected to accelerate through 2030-2040²³ with trials for zero-emissions hydrogen fuel-cell battery trucks (FCEV)²⁴ and electric battery trucks

(BEV)²⁵ already under way for long range applications in Australia. The passenger transport sector's transition to zero emission vehicles is well underway with battery electric or hydrogen fuel cell buses already introduced into fleets across the country. The majority of states and territories have established policy commitments to transition their public transport fleets to zero emission vehicles with set target dates. The International Maritime Organization (IMO) has been working to steward the decarbonisation of the sector and has set targets to reduce shipping emissions intensity by at least 40% by 2030 and reduce greenhouse gas emissions to net zero by around 2050.²⁶ The use of hydrogen and fuels such as ammonia is also gaining traction in the maritime industry with trials already underway.²⁷ Additionally, in line with the Government's climate change agenda, the Maritime Emissions Reduction National Action Plan (MERNAP) developed by the Australian Government in collaboration with the Maritime industry will set strategic direction and recommend actions to achieve net zero emission.²⁸

¹⁵ Rural Economies Centre of Excellence. (2021). Leveraging digital development in regional and rural Queensland

¹⁶ Good Things Foundation Australia. (2021). Digital Nation Australia

¹⁷ ACS. (2020). Technology impacts on the Australian workforce

¹⁸ ACS. (2020). Technology impacts on the Australian workforce

¹⁹ Climate Council. (2022). The federal budget: three highlights and lowlights for climate. October

²⁰ Schneider Electric. (2023). Sustainability index 2023

²¹ Department of Climate Change, Energy, the Environment and Water, Australian Energy Statistics, Table E, September 2022

²² CSIRO. (2023). Pathways to Net Zero Emissions – An Australian Perspective on Rapid Decarbonisation

²³ CSIRO. (2023). Pathways to Net Zero Emissions – An Australian Perspective on Rapid Decarbonisation

²⁴ Power Torque. (2023). First Aussie Hydrogen Truck

²⁵ CleanTechnica. (2023). Volvo makes longest ever all-electric truck journey in Australia.

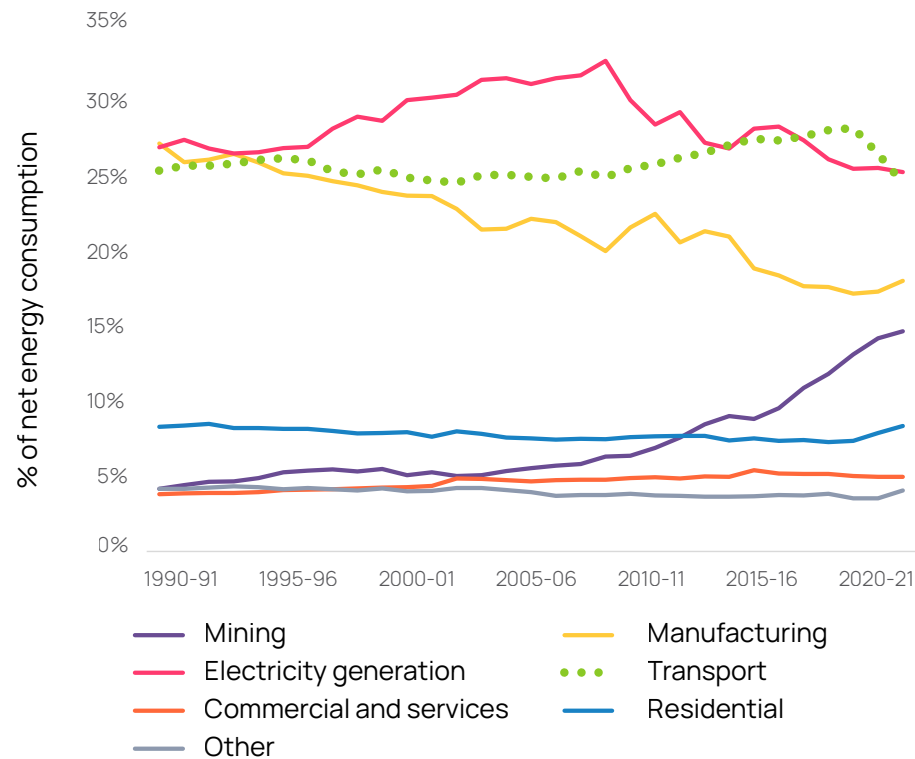
²⁶ International Maritime Organization. (2023). 2023 IMO Strategy on Reduction of GHG Emissions from Ships - Annex 15, Resolution MEPC.337(80)

²⁷ Offshore Energy. (2023). Carisbrooke Shipping to trial hydrogen engine on board one of its vessels

²⁸ Department of Infrastructure, Transport, Regional Development, Communications and the Arts. (2023). Maritime Emissions Reduction National Action Plan



Figure 3: Energy Consumption in Australia



Source: DCCEEW (2022), Australian Energy Statistics, Table E

TRANSPORT
ACCOUNTS FOR
1/4
OF AUSTRALIA'S
ENERGY USE



SAF (Sustainable Aviation Fuel) is expected to play a significant role in the decarbonisation of the aviation industry to 2050.²⁹ Also, electric, hydrogen-electric, and hydrogen powered fixed wing aircraft are considered the most attractive long-term solution to full industry decarbonisation, but the implementation may take some time.³⁰ Rail transport using electricity is projected to double by 2050 from 12% in 2020.³¹ Battery electric trains and hydrogen fuel cells are emerging options to displace the existing diesel fleet in the coming decades.

The Australian Government has committed to more than \$525 million to invest in regional hydrogen hubs and \$500m for electric vehicle charging infrastructure and hydrogen highways,³² creating new jobs in regional areas. In Australia, about a quarter of businesses have reported an increasing need for emerging skills related to the green economy.³³

Every country and sector contribute to emissions, either directly or indirectly, through day-to-day production and consumption. Integrating new technologies in diversification programs, reskilling, and redeployment programs may help address the socioeconomic impacts of digitalisation.³⁴

Workforce Supply Challenges and Diversity, Inclusion

The 2023 JSA's Skills Priority List (SPL) shows that 36% of occupations are in national shortage and about 5% higher than 2022 (31% of occupations).³⁵ JSA's Annual Jobs and Skills Report 2023, showed that occupations with a strong gender imbalance were more likely to be in shortage (**Figure 4**). The rise in shortages reflects the cumulative impacts of recruitment challenges, stemming from a persistently tight labour market which began tightening from late 2021. Addressing diversity and inclusion is essential for tackling skills shortages among transport occupations, where diversity is notably lacking. Australian businesses are investing in staff training, developing skills, and attracting young people and women into traditionally male-dominated industries and occupations.³⁶ Fostering equality, diversity and inclusion in industries is about challenging traditional mindsets and adopting more innovative work practices to attract and retain more diverse workforces.³⁷

²⁹ Department of Infrastructure, Transport, Regional Development, Communications, and the Arts. (2023). Scenario Analysis of the Future of Australian Aviation

³⁰ Department of Infrastructure, Transport, Regional Development, Communications, and the Arts. (2023). Scenario Analysis of the Future of Australian Aviation

³¹ CSIRO. (2023). Pathways to Net Zero Emissions – An Australian Perspective on Rapid Decarbonisation

³² Australian Trade and Investment Commission. (2020). Transition to net zero

³³ AiGroup. (2022). 2022 Skills Survey: Listening to Australian businesses on skills and workforce needs

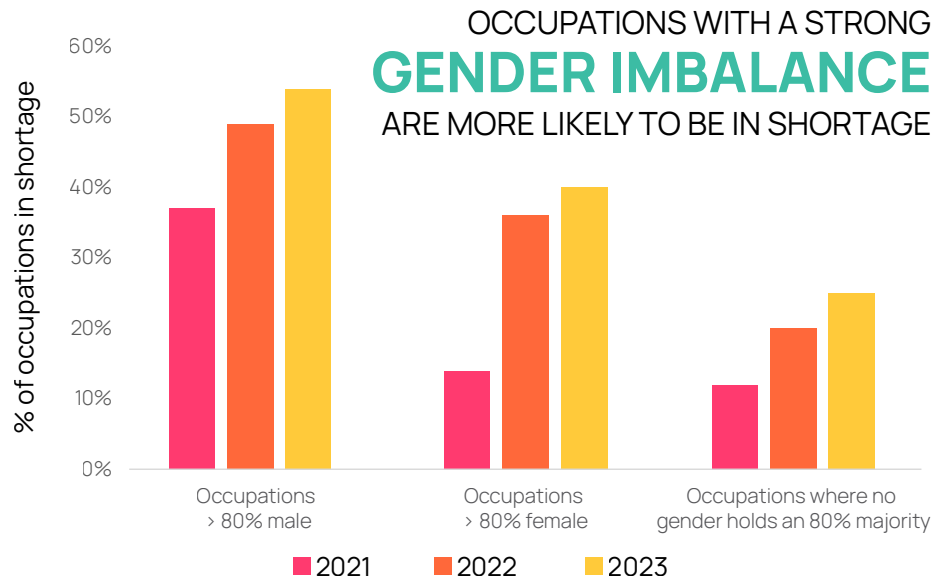
³⁴ McKinsey. (2022). The net-zero transition

³⁵ JSA. (2023). Skills priority list

³⁶ Infrastructure Magazine. (2023). Gender diversity is critical to addressing our sector's skills shortages

³⁷ McKinsey. (2023). Diversity Matters Even More: The Case for Holistic Impact

Figure 4: Occupational Shortages by Gender Balance



Source: National Skills Commission, Skill Priority List 2021 and 2022; Jobs and Skills Australia, Skills Priority List 2023

In the Transport industry, a shortage of truck and bus drivers is reported across every state and territory in Australia according to the latest Skills Priority List.³⁸ The presence of truck and bus drivers on the national Skills Priority List for 2 years is a strong indication of the current and future demand for this occupation.³⁹ There is also a reported shortage of deck officers, engineers and ratings across Australia. With a current global shortfall of 35,020 officers, projected to rise to 55,685 by 2027, Australia's seafarer demand is unlikely to be met solely through migration.⁴⁰

³⁸ JSA. (2023). Skills priority list

³⁹ JSA. (2023). Skills priority list

⁴⁰ Department of infrastructure, transport, communications and arts. (2023). Strategic fleet taskforce report

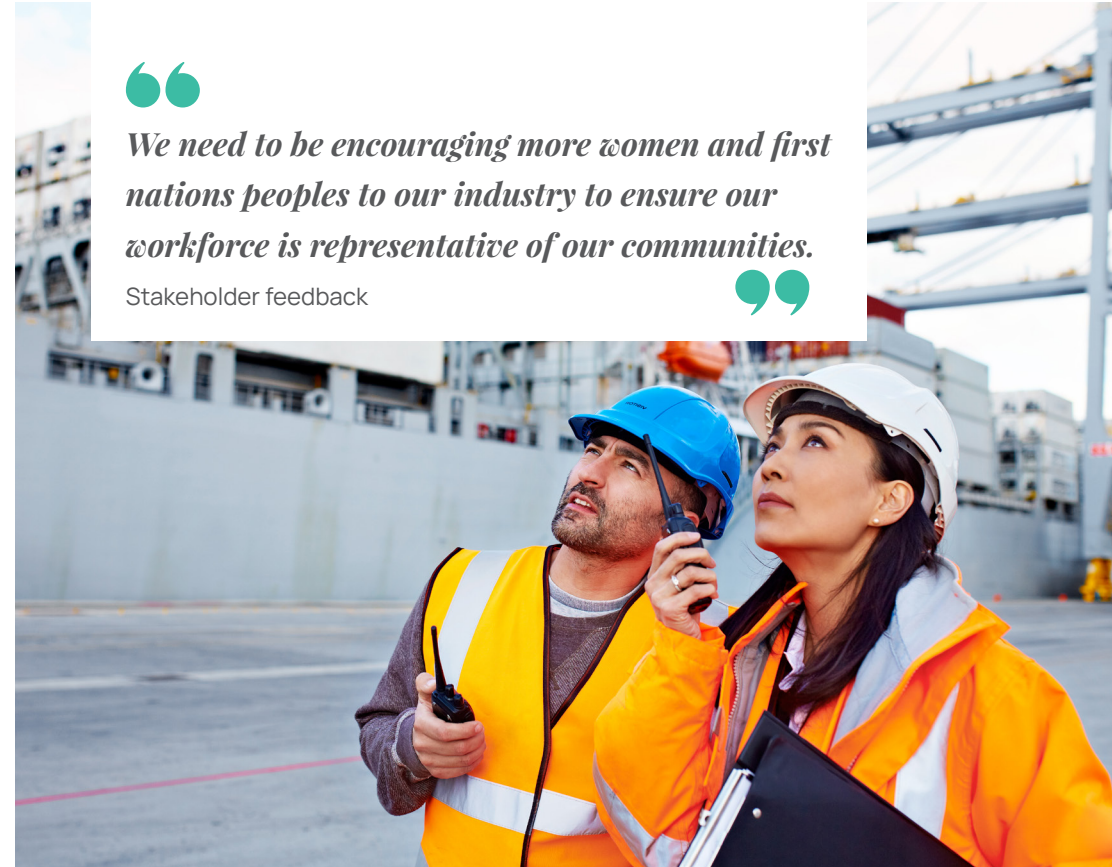
⁴¹ Financial Review. (2023). The 'alarming' workforce trend causing flight delays. February.

⁴² The Sydney Morning Herald. (2023). Airlines call for action on air traffic controller shortage as flight delays continue. August

⁴³ Simple Flying. (2023). Rex flying solo to fix Australian pilot shortage. May

⁴⁴ Australasian Railway Association. (2023). 2023/24 Strategic plan

⁴⁵ Australasian Railway Association. (2022). Building Australian Rail Skills for the Future



We need to be encouraging more women and first nations peoples to our industry to ensure our workforce is representative of our communities.

Stakeholder feedback



The Aviation industry has faced significant challenges and operational issues such as cancellation or long delays of flights due to a shortage of ground crew, pilots,⁴¹ or air traffic control staff.⁴² The pilot shortage has impacted regional airlines even more severely.⁴³ While skills shortages are not new in rail, the current convergence of challenges and threats to workforce capability means this will be a critical issue for the industry over the next three years.⁴⁴ The rail industry has also reported occupational shortages in key roles such as train drivers, controllers, or signalling technicians.⁴⁵



Skills Development

The Vocational Education and Training (VET) system today remains an effective and efficient way of imparting the skills needed for employment. Work-based learning models will be more important in the future as technology-driven changes need to be quickly transmitted across industries and around workplaces.⁴⁶ However, barriers such as perceptions of the VET sector⁴⁷ and a growing shortage of vocational trainers impacts on the attractiveness of the sector and on learner outcomes.⁴⁸

Delivering VET in regional and remote Australia to deal with occupational shortages faces several barriers,⁴⁹ including:

- a lack of high-quality training facilities
- up-to-date training equipment
- a lack of RTOs
- appropriately qualified trainers/assessors
- increased costs of training delivery
- numeracy and digital literacy
- the need for cultural competency in working with First Nations communities.

Additionally, one of the biggest challenges to achieving successful outcomes with disadvantaged groups is the high rate of attrition in attendance as a result of other factors such as health, housing, transport and family issues.⁵⁰ The lack of appropriate housing in particular was highlighted by stakeholders

as a significant barrier to support the future workforce in regional and remote Australia.⁵¹

The National Skills Agreement reflects a commitment by the Commonwealth, state and territory governments by investing \$12.6 billion to support the VET sector with capacity to deliver skills for critical and emerging industries.⁵² Creating greater flexibility within the VET system can yield better results by attracting more learners and leading to improved learner outcomes.⁵³ Supporting this approach, **the Australian Universities Accord Final Report**⁵⁴ outlines the importance of VET and higher education to meet the nation's skill demands and ensuring fair access to high-quality education.

Skills Ministers have agreed to progress some early changes to the current standards for RTOs which will come into effect from March 2024, including;

- New and updated training products from the updated Training and Education (TAE) training package.
- Enable people who hold an educational degree to be engaged as trainers/assessors.
- Allow people actively working towards the Certificate IV or Diploma to deliver training/assessment under supervision.
- Enable broader use of industry experts.
- Align the changes to Fit and Proper Person requirements.
- Implement minor amendments towards validation, language, and inclusion of wellbeing services to educational and support services.

⁴⁶ Department of the Prime Minister and Cabinet. (2019). Expert Review of Australia's Vocational Education and Training System

⁴⁷ Parliament of Australia. (2023). Inquiry into the Perceptions and Status of Vocational Education and Training. Terms of Reference.

⁴⁸ Department of the Prime Minister and Cabinet. (2019). Expert Review of Australia's Vocational Education and Training System

⁴⁹ Tabatha, G. & Andrahannadi, U. (2023). VET delivery in regional, rural and remote Australia: barriers and facilitators, NCVET

⁵⁰ Department of the Prime Minister and Cabinet. (2019). Expert Review of Australia's Vocational Education and Training System

⁵¹ Regional Australia Institute (2023). Against the odds - Realising regional Australia's workforce potential. Retrieved from https://regionalaustralia.org.au/Web/Shared_Content/Smart-Suite/Smart-Library/Public/Smart-Library-Viewer.aspx

⁵² Department of Employment and Workplace Relations. (2023). National skills agreement - Reforming the national VET system

⁵³ The Regional Australia Institute. (2023). 2023-2024 Federal Government Pre-Budget Submission.

⁵⁴ Australian Government. (2024). Australian universities accord final report

Conclusion

The intersection of digital technology, decarbonisation, and workforce challenges marks a transformative era for Australia's transport sectors. Rapid digital advancements are significantly altering the economic landscape, bringing the prospect of automation-related job displacement and new employment opportunities. Government and industry commitments to decarbonisation are also reshaping transportation's future. Addressing workforce issues, particularly in remote areas, and prioritising diversity and inclusion are key to industry growth and innovation. The VET system is central to this shift, adapting to industry needs and ensuring a future-ready skilled workforce.

Aligning these elements is crucial for Australia to effectively navigate and leverage these major trends.



Key Challenges and Drivers

A. We Need to be Planning Now for Large Scale Projects and Initiatives Involving the Maritime Workforce

Several upcoming national infrastructure projects and initiatives will require workers from the maritime industry. These projects will provide economic benefits to Australia and increase sovereign capability, however they also present challenges for building and maintaining a qualified maritime workforce. These projects and initiatives will include the crewing, operation, and maintenance of:

- vessels associated with the maritime strategic fleet.
- renewable energies including offshore wind farms.
- offshore oil and gas decommissioning.

Australian Maritime Safety Authority (AMSA) certifications are complex and extensive and include the achievement of a Maritime Training Package qualification, Skill Sets and Units of Competency.

Stakeholders are reporting that, depending on the job role, it can take up to 10 years for people to become AMSA certified for highly skilled job roles.⁵⁵

The long lead times for seafarers to become (STCW) AMSA certified, means workforce planning and development for maritime initiatives and projects needs to commence immediately.

Ongoing shortages of Masters, Officers, Engineers, and Integrated Ratings (**Table 1**), are compounded by challenges in attracting and retaining workers. Stakeholder feedback has also indicated significant shortages of Electro Technical Officers. Industry stakeholders have also raised concerns about workforce capacity to support these infrastructure projects and initiatives.

Table 1: Current and Consecutive Years of Shortage

Occupation	AUS	ACT	NSW	NT	SA	TAS	VIC	WA	QLD
Ship's Master				3					1
Deck Hand			2	3					1
Ship's Engineer	1	1	1	3	1	1	2	2	1
Ship's Officer			1						

Source: Skills Priority List (20 December 2023)

Since Census 2011, the number of maritime workers has been decreasing in both absolute and relative terms.⁵⁶ In the 10-year period to Census 2021, the number of maritime workers decreased by 6.5%. At the same time the overall Australian labour force increased by nearly 20%.⁵⁷

More recent data sources point to an increase in maritime workers since 2020 with 7.65% growth between 2021 and 2023.⁵⁸

Jobs and Skills Australia (JSA) Employment Projections report a 5.5% increase in maritime workers to 2028 and 11.8% to May 2033, slightly below the total labour force average of 14.2%.⁵⁹

These increases represent a substantial turn around in maritime employment; however, it is unclear whether this recent growth trajectory will meet the demands of the new projects and initiatives.

Indicators of demand for maritime workers, as represented by online job ads (**Figure 5**), reached a peak in 2022 (along with job vacancies in general for all other sectors in Australia)⁶⁰ and has since fallen back 18.5% in 2023. Job ads remain elevated, being higher than at any other point since 2011.

⁵⁵ Strategic Fleet Taskforce Final Report (November 2023)

⁵⁶ ABS, Census 2011-2021

⁵⁷ ABS, Census 2006-2021

⁵⁸ Australian Bureau of Statistics, Detailed Labour Force Survey, EQ06 - Employed persons by Industry group of main job, November 2023 (annual average of original data)

⁵⁹ Employment projections produced by Victoria University for Jobs and Skills Australia, May 2023 to May 2033

⁶⁰ Australian Bureau of Statistics, Job vacancies, Dec 2023, accessed 1 February 2024, <https://www.abs.gov.au/statistics/labour/jobs/job-vacancies-australia/latest-release#job-vacancies-over-time>

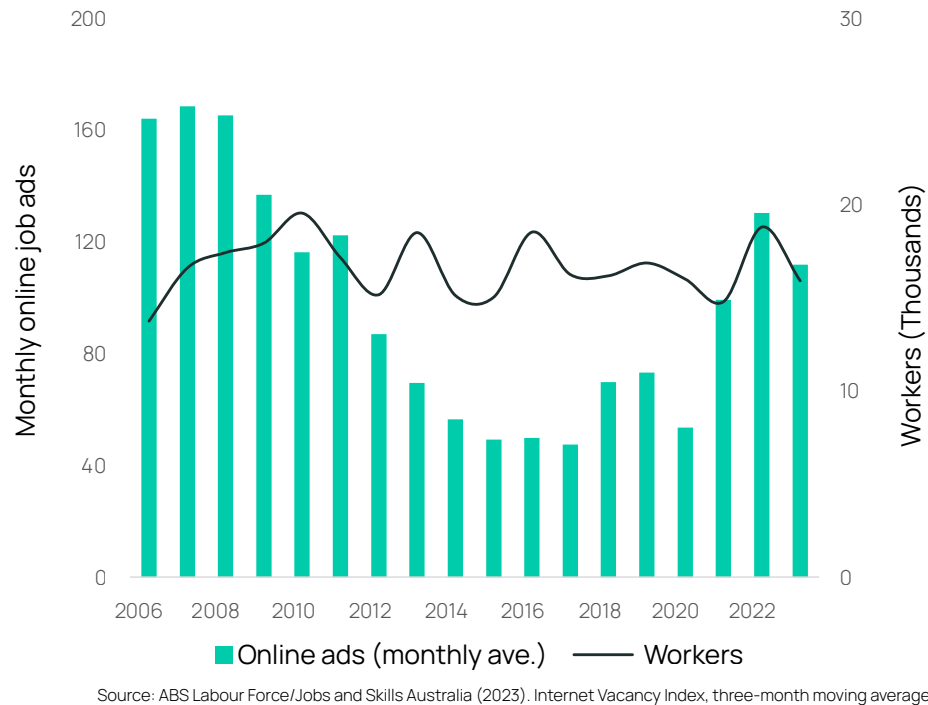


The acute and persistent maritime workforce shortages affect the whole industry.

Stakeholder feedback



Figure 5: Maritime Workers and Online Job Ads, 2006 - 2023

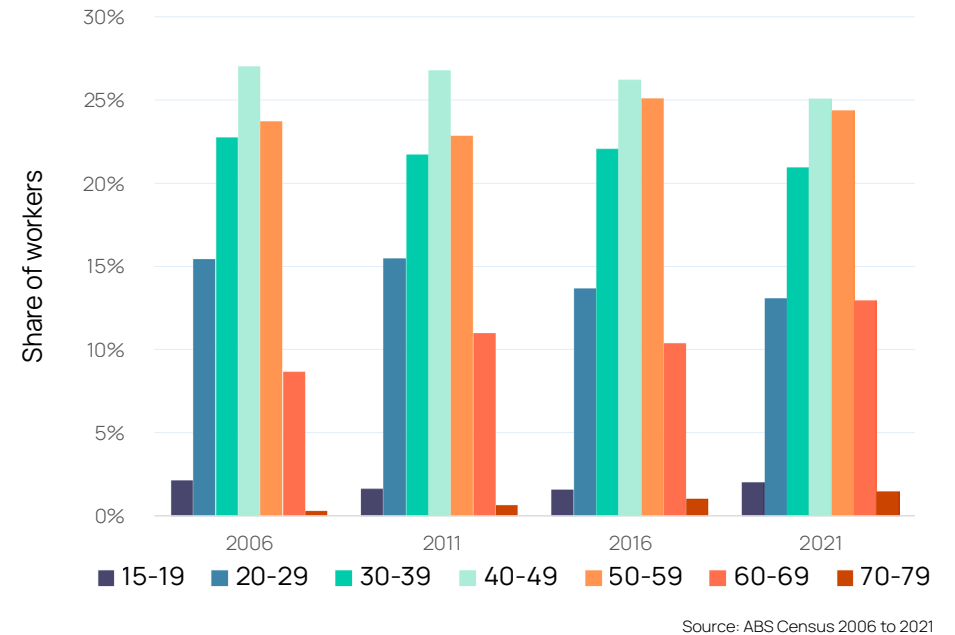


JOB AD DEMAND FOR MARITIME OCCUPATIONS REACHED A PEAK IN 2022 AND HAS SINCE FALLEN BACK **18.5%** IN 2023

At the same time, the maritime industry is experiencing challenges in retaining workers, with qualified seafarers leaving the industry to look for alternative career options.⁶¹ The realities of working job roles that involve extended periods away from home can make these occupations less attractive over time, especially for an ageing workforce (Figure 6).

The median age of maritime workers was 45 in Census 2021, an increase from 43 in 2006, and well above the national median of 40. The number of maritime workers above 60 has increased substantially, from 9% of workers in 2006, to 14.5% in 2021.⁶²

Figure 6: Maritime Workers Age Profile, 2006 - 2021



THE % OF WORKERS ABOVE 60 GREW TO **14.5%** IN 2021

⁶¹ Crewmirror. (2024). Shortage of Mariners in the Maritime Industry: Retention and Recruiting Challenges. <https://crewmirror.com/news/labor-shortage-a-top-10-news-story-for-2023/> (accessed April 2024)

⁶² ABS, Census 2006-2021

Planning needs to commence now if there is to be a pipeline of skilled and qualified seafarers for upcoming national infrastructure projects and initiatives. Fundamental to this planning is the establishment of accurate and contemporary data on:

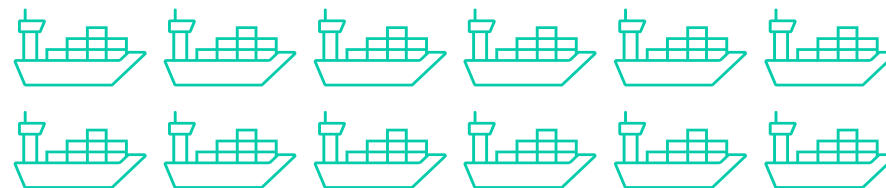
- existing workforce demographic by relevant occupation and location
- projected number of workers needed, and the likely timelines and variables impacting on that number
- numbers in training, projected completion rates and future capacity of the national skills system
- the likely intra and inter industry pathways for skilled workers and the lead-time for securing those workers.

The Strategic Fleet Taskforce Final Report is supportive of the Australian Government establishing a fleet of 12 vessels which would require 432 STCW qualified seafarers (**Figure 7**). The report also states that more than 12 vessels are required to meet Australia's strategic need and to provide capability. The Taskforce has suggested that the fleet will need to grow to 30-50 vessels.⁶³



Figure 7: Strategic Fleet Seafarer Requirements

STRATEGIC FLEET OF 12 VESSELS WILL REQUIRE



432 STCW QUALIFIED SEAFARERS

Source: Strategic Fleet Taskforce Final Report

While workforce requirements for offshore wind farms will be dependent on feasibility assessments and Government approval, it is expected that could add up to 60GW of capacity in Australia's offshore wind areas⁶⁴ and will create a significant number of jobs across the maritime industry.

Similarly, workforce requirements for offshore oil and gas decommissioning will be dependent on the complexity and type of offshore asset.⁶⁵

Decommissioning has commenced (Northern Endeavour facility) and as Australia's offshore oil and gas industry matures, and as Australia moves to reduce its emissions and its reliance on fossil fuels, decommissioning will be an increasingly important component of the offshore industry. The cost of decommissioning activity to industry in the decades ahead is estimated at A\$60 billion.⁶⁶

Involvement of seafarers in these projects may vary depending on scope and timeframes for commencement, seafarers can provide essential vessel operations and support services for these projects.

⁶³ Strategic Fleet Taskforce (Nov 2023) [Strategic Fleet Taskforce Final Report](#)

⁶⁴ Department of Climate Change, Energy, the Environment and Water (DCCEEW) (accessed January 2024)

⁶⁵ ACCR. (2023). Offshore oil and gas asset decommissioning.

⁶⁶ [offshore-decommissioning-roadmap-issues-paper.pdf](#) (storage.googleapis.com) (accessed February 2024)

Key Insight

Strategic Fleet Taskforce Final Report and Government Response

To advise on the establishment of a maritime Strategic Fleet, the Australian Government appointed the Strategic Fleet Taskforce on 20 October 2022. The [Taskforce's Final Report](#) was released in November 2023 and outlined 16 recommendations to guide the development of a Strategic Fleet. The Australian Government has formally responded to each of the recommendations and agrees to 12 out of the 16 recommendations in full or in-principle and commits to further exploration of the remaining four recommendations.

Recommendations 9, 11 and 13 apply to skills and workforce development activities. The workforce challenges and drivers in this Plan are reflected in the Taskforce Report with several issues requiring support from the National Skills System, JSA, ISA, Commonwealth and state agencies and the maritime industry.

Building a definitive data set and modelling future workforce supply and demand scenarios over the next 5-10 years is essential and urgent to ensure that decisions on how to build the requisite workforce are underpinned by an agreed evidence base.

Proposed actions set out in [Table 2](#) of the Workforce Plan directly support the Strategic Fleet Taskforce Final Report (November 2023).

Proposed actions include:

- [Maritime skills pipeline](#)
- [National maritime skills network](#)
- [Strategic Fleet workforce supply and demand forecast](#)
- [Strategic Fleet workforce career pathways](#)
- [Revalidation and RCC model](#)
- [Occupational pathways for defence](#)
- [Occupational mobility](#)
- [Co-ordination of sea time](#)
- [Simulation](#)

Further areas for research and consultation to inform the development of future strategies include:

- [Decommissioning](#)
- [Offshore Wind](#)
- [Skilled Migration](#)

Stakeholders are also reporting an upturn in offshore oil and gas, support for coastal trading vessels, existing demand from Bluewater vessels and other emerging energy industries including sea transportation in their domestic supply chains, as well as an increase in trans-shipment operations, defence support, crewing requirements for government owned vessels and shipbuilding.

The ISA Maritime Industry 2023 Initial Workforce Plan highlighted that ISA would conduct further research and stakeholder consultation to:

- determine the best approach to developing a planning model⁶⁷
- identify workforce capabilities, gaps⁶⁸ and opportunities to support decommissioning and offshore wind skills and training capabilities.

To develop a plan, we will work with Jobs and Skills Australia (JSA) and key maritime stakeholders to develop and validate a workforce supply and demand forecast model for Strategic Fleet.

To support the skills requirements for offshore wind and decommissioning we will work with key maritime stakeholders to further understand the needs for decommissioning and offshore wind.

⁶⁷ ISA Maritime Industry 2023 Initial Workforce Plan.

⁶⁸ Australian Government Department of Industry, Science and Resources. (2023). Roadmap to establish an Australian decommissioning industry for offshore oil and gas: Issues paper. September.





B. The Cost of Delivering Internationally Recognised Qualifications is Creating a Barrier to the Skills Pipeline for STCW

As a signatory to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), AMSA is required to monitor training and assessment of competence carried out by registered training organisations, which contributes to an AMSA licence.⁶⁹

Approved registered training organisations are required to demonstrate they meet International Maritime Organization (IMO) requirements relevant to their training and assessment system, including methods of delivery, assessment instruments,⁷⁰ Recognition of Prior Learning (RPL) processes,⁷¹ industry certification for assessors,⁷² equipment, and simulators.⁷³

Students are required to undertake an AMSA approved course at an AMSA approved registered training organisation to obtain an AMSA certificate of competency. Approved training courses for STCW occupations include qualifications and Skill Sets from the Maritime Training Package.⁷⁴

In 2022, government funding accounted for 78.2% of all VET enrolments in STCW qualifications,⁷⁵ indicating a high level of support for these programs. However, the range of STCW-related courses available through Fee-Free TAFE and VET traineeships is limited. Nationally, Fee-Free TAFE currently includes only one STCW qualification, MAR50320 Diploma of Maritime Operations.⁷⁶ In terms of VET traineeships, only MAR30220 Certificate III in Maritime Operations (Integrated Rating) relates to STCW, and this is offered exclusively in Victoria⁷⁷ and Western Australia.⁷⁸

⁶⁹ <https://www.amsa.gov.au/qualifications-training/training-organisations/evaluations-stcw-certificate-competencyproficiency> (accessed June 2023)

⁷⁰ <https://www.amsa.gov.au/qualifications-training/training-organisations/stcw-training-and-assessment-quality-standards-and> (accessed June 2023)

⁷¹ <https://www.amsa.gov.au/qualifications-training/training-organisations/stcw-recognition-prior-learning-policy-mt03> (accessed June 2023)

⁷² <https://www.amsa.gov.au/qualifications-training/training-organisations/lecturer-qualifications-required-stcw-course-delivery> (accessed June 2023)

⁷³ <https://www.amsa.gov.au/qualifications-training/training-organisations/stcw-training-and-assessment-quality-standards-and> (accessed June 2023)

⁷⁴ <https://www.amsa.gov.au/qualifications-training/training-organisations/our-approval-all-stcw-courses-provided-registered> (accessed June 2023)

⁷⁵ NCVER, Total VET Activity (2022), training.gov.au (accessed April 2024)

⁷⁶ Jobs and Skills WA. Diploma of maritime operations (master less than 500 GT/ Watchkeeper Deck). Retrieved April 2024, from <https://www.jobsandskills.wa.gov.au/courses/diploma-maritime-operations-master-less-500-gt>

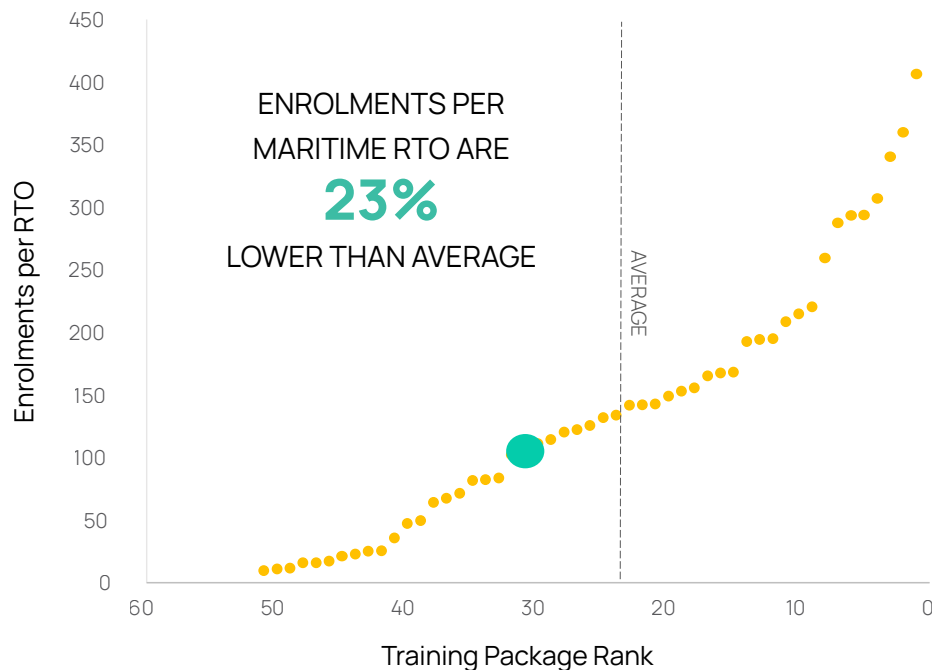
⁷⁷ Victorian Registration and Qualifications Authority. Australian technical specification: Maritime. Retrieved April 2024, from <https://www.vrqa.vic.gov.au/Documents/training/ATSMaritime.pdf>

⁷⁸ Department of Training and Workforce Development, Western Australia. (2024). PPI-STB register of Class AB qualifications at list April 2024. Retrieved April 2024, from <https://www.wa.gov.au/system/files/2024-04/dtw-d-pi-stb-register-class-ab-qualifications-at-list-apr2024.PDF>

Registered training organisations (RTOs) need to make a significant investment to register, develop, and maintain training courses that deliver highly specialised and technical job skills with stringent regulatory requirements (such as the STCW).

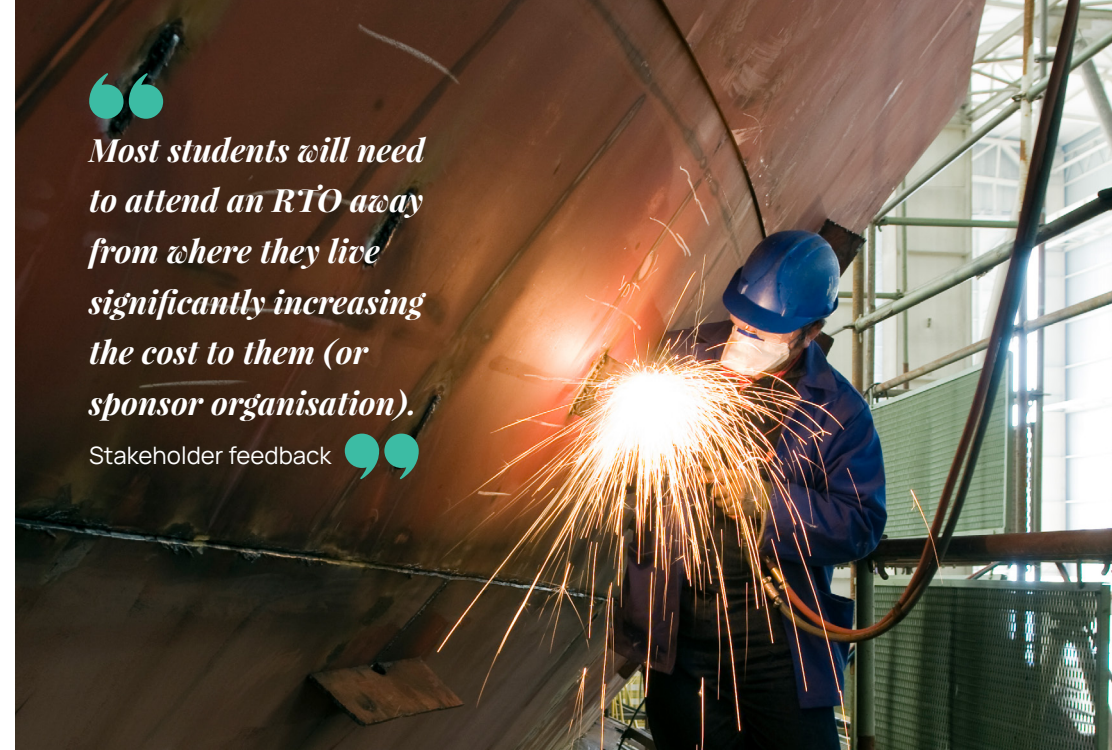
Their ability to achieve economies of scale and deliver cost-effective courses is challenged when enrolment numbers are low and can result in a lack of training delivery for specific skill areas, or in specific regions. Enrolments per RTO are 23% lower among RTOs offering maritime qualifications than the average across all training packages (Figure 8),⁷⁹ which directly impacts their capacity to recoup and sustain the substantial investment required.

Figure 8: Enrolments per Explicitly Scoped RTO



Source: NCVET Total VET Activity (average of enrolments, 2015 - 2022), training.gov.au

⁷⁹ NCVET, Total VET Activity (2015-2021), training.gov.au (accessed June 2023)



“
Most students will need to attend an RTO away from where they live significantly increasing the cost to them (or sponsor organisation).
 ”

Stakeholder feedback

Stakeholders are reporting flow-on impacts of low enrolments, such as:

- limited numbers of approved STCW training providers
- limited delivery locations
- increased costs for employers and seafarers (enrolment fees, and/or additional course costs such as travel and accommodation)
- limited training intakes
- lack of innovative delivery models.

While there is a strong relationship between the achievement of AMSA certification and employment outcomes, there is also an ongoing need for stakeholders, including governments and industry, to explore fair and equitable funding models that make training viable for training providers and cost effective for seafarers. This is an area that will require further industry and stakeholder consultation.

Resolving the cost of delivering training to achieve AMSA certified qualifications is considered critical and was identified by the Strategic Fleet Taskforce as a barrier to building and maintaining a certified workforce for the Strategic Fleet.

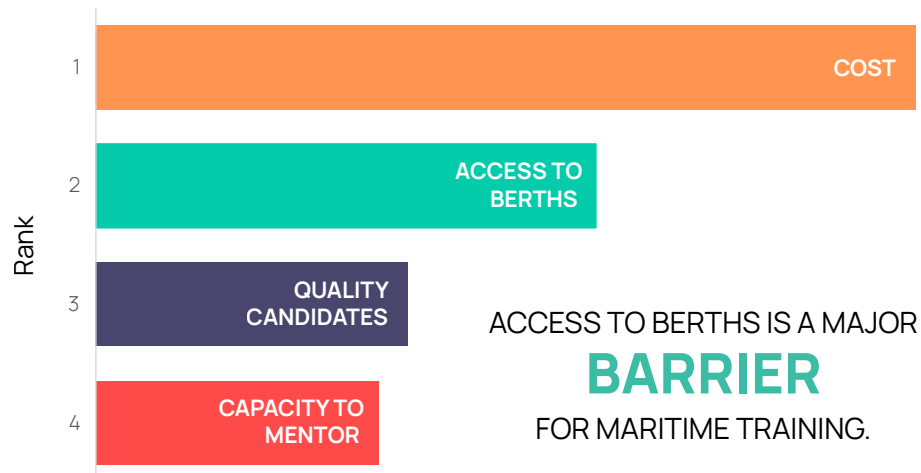
Proposed actions include:

- **National maritime skills network**

C. The Inability to Complete Qualifying Seagoing Service to Achieve AMSA Certification Makes it Critical to Start Working on Solutions to Maximise Training Berths

To be eligible to receive the AMSA certification required to work in the industry, a seafarer needs to complete a specified amount of qualifying seagoing service ('sea time') on a vessel.⁸⁰ Without completing qualifying sea service, seafarers are unable to be AMSA certified and are unable to work in the industry.⁸¹ Access to training berths remains a major barrier to completing qualifying sea time for seafarers (**Figure 9**).

Figure 9: Barriers to Maritime training



Source: Maritime Industry Australia Limited (MIAL) 2018 Seafaring Skills Census

The decline of Australian flagged vessels in favour of foreign flagged and crewed vessels has reduced the available number of training berths and negatively impacted seafarers' capacity to complete qualifying sea time and sea-based training requirements for VET qualifications and to achieve AMSA certification.⁸²

The complexities and rigor of meeting qualifying sea service does not allow for a one size fits all approach to meeting these requirements. AMSA certification has different qualifying sea service requirements, which stipulates the length of sea service, the duties to be completed and the type of vessel on which that sea service needs to be completed.⁸³ Qualifying sea service is aligned with internationally agreed standards and requirements must be met.

Lack of access to training berths was identified by the Strategic Fleet Taskforce as a barrier to building and maintaining a workforce for the Strategic Fleet⁸⁴ and several measures to reduce these barriers (including a maritime training levy) were proposed.

The lack of coordination across industry and training providers has resulted in sea time (training berths) not being effectively accessed and utilised.

Proposed actions include:

- **Co-ordination of sea time**



⁸⁰ <https://www.amsa.gov.au/qualifications-training/sea-service-and-task-books#collapseArea344> (accessed June 2023)

⁸¹ <https://www.amsa.gov.au/qualifications-training/seafarer-certification-guidance-documents/guidance-international> (accessed June 2023)

⁸² ISA Maritime Industry 2023 Initial Workforce Plan

⁸³ Ibid.

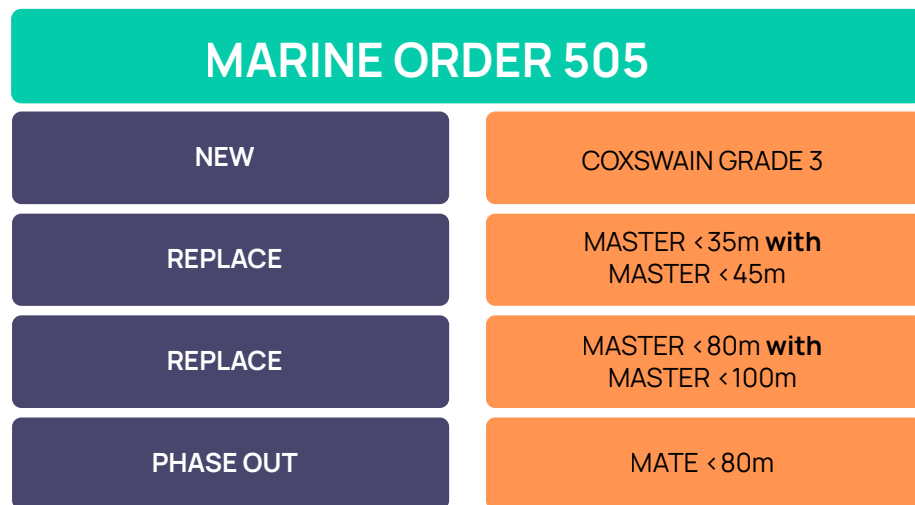
⁸⁴ Strategic Fleet Taskforce Final Report 2023, pg. 61.

D. Recent Regulatory Changes Require Amendments to the Maritime Training Package

A new maritime regulation known as Marine Order 505 (Certificates of competency – National Law) for domestic commercial vessels came into effect on 1 January 2023, following industry consultation over a two-year period.⁸⁵ This resulted in changes to AMSA Certificates of competency (**Figure 10**) including:

- introduction of a new licensing category Coxswain Grade 3
- replacement of the Master < 35m with Master < 45m
- replacement of the Master < 80m with Master < 100m
- phasing out of Mate < 80m certificate of competency.⁸⁶

Figure 10: Marine Order 505 changes



Source: Australian Maritime Safety Authority, Marine Order 505

In response to these changes Industry Skills Australia is currently working with AMSA and key stakeholders to update training package products for Near Coastal job roles to reflect the new MO505 licensing and regulatory requirements.

ISA, AMSA and key stakeholders will also:

- establish a community of practice and work with AMSA approved providers to align their training and assessment system with MO505 requirements.
- develop guidelines for AMSA approved providers to support RTO's and learners understanding of transition arrangements from National Standards for Commercial Vessels to MO505
- develop a new training package product for the new licensing category (Coxswain Grade 3) a to support occupational mobility.⁸⁷

Proposed actions include:

- [Marine order 505 update](#)
- [Vessel traffic services](#)

⁸⁵ <https://www.legislation.gov.au/Details/F2022L00423> (accessed 29/06/2023)

⁸⁶ <https://www.amsa.gov.au/about/regulations-and-standards/marine-order-505-certificates-competency-national-law> (accessed 29/06/2023)

⁸⁷ Australian Maritime Safety Authority Training Package changes to meet Marine Order 505 – Certificates of competency – national law (June 2023)



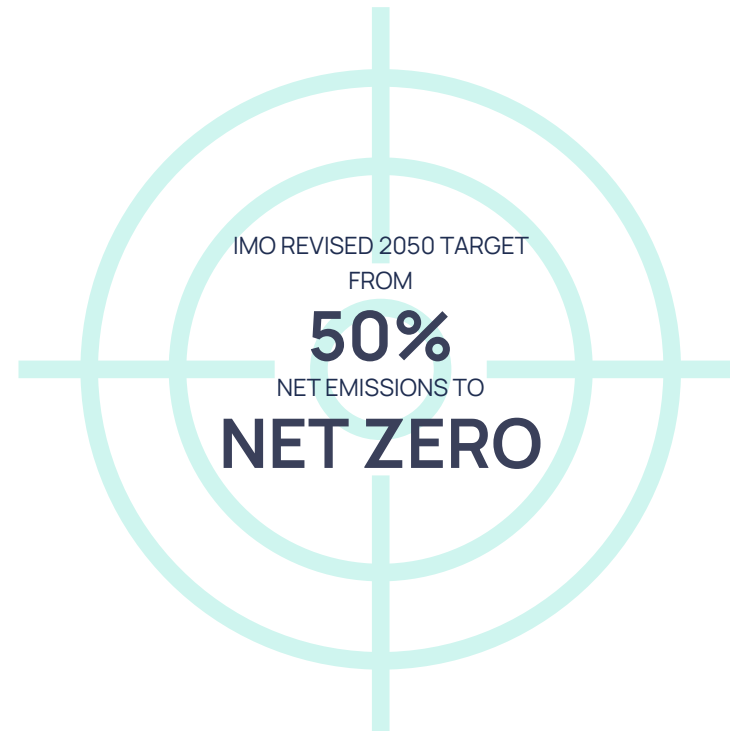
E. New Technology and Carbon Emission Reduction Strategies on the Horizon will Have Skill Implications in the Future

The International Maritime Organization (IMO) has adopted measures to reduce emissions of greenhouse gases from international shipping as a matter of urgency ('IMO Decarbonisation policy').⁸⁸ The adoption of cleaner fuels, such as liquefied natural gas (LNG), biofuels and new, low-carbon and zero-carbon fuels and technologies are being promoted by the IMO.⁸⁹

The IMO Green House Gas Strategy, adopted on 7 July 2023, amended its ambitions from 50% net emissions to zero net emissions by 2050 (**Figure 11**) and will have significant impact on the maritime industry.⁹⁰ This policy, includes a basket of globally binding technical and economic mid-term measures due to come into force in 2027⁹¹ will accelerate the adoption of new, low and zero-carbon fuels and new technologies⁹² and drive shipping's energy transition.⁹³ Stakeholders have highlighted the decarbonisation of the Domestic Commercial Vessel (DCV) fleet as a significant challenge, emphasising that the distance from infrastructure, coupled with skill shortages, will exacerbate the issue.



Figure 11: IMO Net Zero target



Source: 2023 IMO Strategy on Reduction of GHG Emissions from Ships

In response, industry has been exploring innovative ways to reduce its carbon footprint.⁹⁴ Several new technologies and alternative fuel technologies have been developed and are currently being trialled.⁹⁵

⁸⁸ <https://www.imo.org/en/MediaCentre/HotTopics/Pages/Cutting-GHG-emissions.aspx> (accessed July 2023)

⁸⁹ <https://www.amsa.gov.au/marine-environment/air-pollution/greenhouse-gas-emissions-international-shipping> (accessed August 2023)

⁹⁰ International Maritime Organization. (2023). 2023 IMO Strategy on Reduction of GHG Emissions from Ships - Annex 15, Resolution MEPC.337(80)

⁹¹ https://unctad.org/system/files/non-official-document/AHEM_2023_P5_BOURGEON.pdf

⁹² <https://www.amsa.gov.au/marine-environment/air-pollution/short-term-measure-reduce-greenhouse-gas-emissions-existing-ships> (accessed August 2023)

⁹³ A new climate deal for shipping: Three decades to zero (accessed 25 April 2024)

⁹⁴ <https://www.globalmaritimeforum.org/publications/mapping-of-zero-emission-pilots-and-demonstration-projects> (accessed August 2023)

⁹⁵ <https://nextgen.imo.org> (accessed August 2023)

Research has shown that maritime operations will also become more automated⁹⁶ and digitalised in the near future.⁹⁷

While there is a level of uncertainty around the uptake and viability of new technologies, and the timeframes for commercialisation⁹⁸ and implementation, there are implications for seafarer skills and training.⁹⁹ Certification and training to ensure safety standards and regulatory compliance will need to reflect the new technologies and alternative fuels that are adopted,¹⁰⁰ such as hydrogen, ammonia, battery electric systems and methanol.¹⁰¹

Seafarers will need to be upskilled in safety requirements, operation and maintenance of new systems, autonomous systems¹⁰², alternative fuels, and fuel technologies, as well as safety requirements to protect the community, passengers, and marine life.¹⁰³

The need for regulatory direction from the IMO and slow uptake of these new technologies in Australia, means that an immediate pathway for implementation of new skills requirements is not yet clear.¹⁰⁴

The Maritime Emissions National Action Reduction Plan (MERNAP) being developed the Australian Government highlights challenges for the skilling of Australian seafarers.¹⁰⁵

ISA will conduct further research and consultation on decarbonisation policy and initiatives to identify skills and training implications for Australian seafarers and develop training products as required.

Further areas for research and consultation to inform the development of future strategies include:

- **Decarbonisation**

⁹⁶ <https://www.imo.org/en/MediaCentre/PressBriefings/pages/MASRSSE2021.aspx> (accessed June 2023)

⁹⁷ <https://www.imo.org/en/About/Events/Pages/Maritime-Perspectives-IMO-Singapore.aspx> (accessed June 2023)

⁹⁸ DNV. (2022). Insights into seafarer training and skills needed to support a decarbonized shipping industry.

⁹⁹ Maritime Just Transition Taskforce. (2022). Mapping a Maritime Just Transition for Seafarers. November

¹⁰⁰ <https://greenvoyage2050.imo.org/alternative-marine-fuels-regulatory-mapping> (accessed June 2023)

¹⁰¹ <https://www.infrastructure.gov.au/sites/default/files/documents/mernap-issues-paper-energy-sources-and-technologies-december2023.pdf>

¹⁰² <https://tasdcrc.com.au/new-future-thinking-paper-autonomous-and-remotely-operated-vessels-2021-to-2040/> (accessed June 2023)

¹⁰³ Maritime Just Transition Taskforce. (2022). Mapping a Maritime Just Transition for Seafarers. November

¹⁰⁴ Ibid

¹⁰⁵ <https://www.infrastructure.gov.au/sites/default/files/documents/Issues%20Paper%203%20-Skills%20and%20Training.pdf>



Proposed Actions

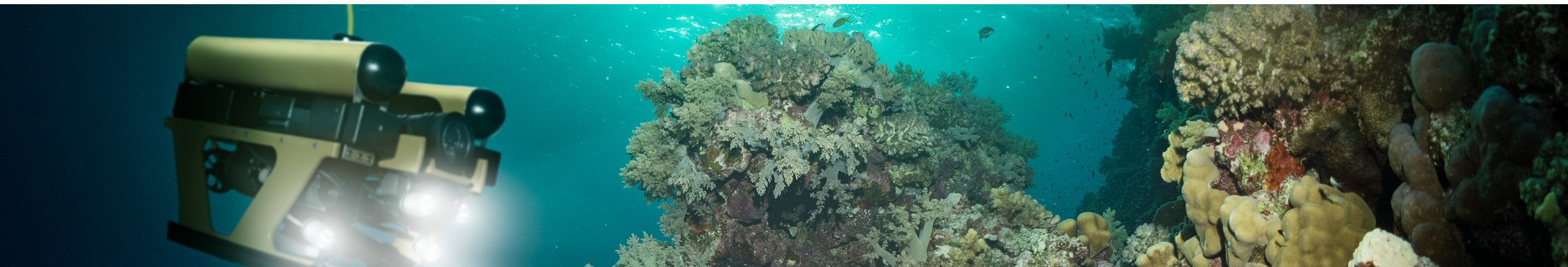
The 2024 Workforce Plan identifies the following proposed actions developed in consultation with industry to address the sector-specific and cross-sector issues.

Table 2: Proposed actions to address challenges and drivers.

Marine order 505 update		
Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> D. Recent regulatory changes require amendments to the Maritime Training Package Skills and training implications for Australian maritime seafarers. <p>Symptom</p> <ul style="list-style-type: none"> Graduates from the training system have insufficient / inappropriate skills for their occupations (due regulation changes) 	<p>Activity: To <u>update training package products</u> to reflect new Marine Order 505 licensing and regulatory requirements.</p> <p>ISA will work with key maritime stakeholders to:</p> <ul style="list-style-type: none"> update training package products to align with new MO505 licensing and regulatory information. develop a new training package product for Coxswain Grade 3 develop guidance materials for learners and students to support implementation. identify career and learning pathways for MO505 job roles. <p>Impact: Training package content will align with new regulatory and industry requirements which facilitates graduates having sufficient and appropriate skills for Near Coastal occupations. This project has commenced with reviewed training products due for submission to the Assurance Body in August 2024.</p> <p>Anticipated timing: November 2023 – October 2024</p>	<ul style="list-style-type: none"> Australian Maritime Safety Authority Unions (MUA, AMOU, AIMPE) Associations focused on near coastal certification and ship owners and operator Stakeholders who have experience and expertise in near coastal vessels and operations.
Vessel traffic services		
Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> D. Recent regulatory changes require amendments to the Maritime Training Package <p>Symptom</p> <ul style="list-style-type: none"> Graduates from the training system have insufficient / inappropriate skills for their occupations (due regulation changes) 	<p>Activity: To delete training package products as the current qualification is out of date and would require substantial change.</p> <p>ISA will work with key maritime stakeholders to:</p> <ul style="list-style-type: none"> delete of MAR30022 Certificate III in Vessel Traffic Services from Training Package update Maritime Companion Volume Implementation Guide to reflect this change. <p>Impact: Training package will no longer include outdated training package products. Training.gov.au will be amended to reflect this change at the same time as training package products are updated in response to the implementation of MO505 (see D: Recent regulatory changes require amendments to the Maritime Training Package).</p> <p>Anticipated timing: March 2024 – October 2024</p>	<ul style="list-style-type: none"> Australian Maritime Safety Authority Unions (MUA, AMOU, AIMPE) Operators of Vessel Traffic Services Jobs and Skills Council - Skills Insight

Maritime skills pipeline

Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> • <u>A. We need to be planning now for large scale projects and initiatives involving the maritime workforce</u> • Shortage of trained and skilled seafarers • Establishment of Strategic Fleet requires Australian crew. • Long lead times to train and certify Australian seafarers. <p>Symptom</p> <ul style="list-style-type: none"> • Occupational shortage • Industry competition for skilled workers as Australia embarks on multiple initiatives that will demand maritime workers. 	<p>Activity: Develop and validate a Maritime Skills Pipeline Model</p> <p>ISA will work with key industry stakeholders to scope, design and validate an agreed skills pipeline model for the Australian maritime industry to underpin the implementation and coordination of initiatives to build the maritime workforce by:</p> <ul style="list-style-type: none"> • identifying and reviewing the effectiveness of current approaches used to attract, skill and retain the maritime workforce. • reviewing state and national reports into the maritime industry (including Strategic Fleet Taskforce Final Report, WA Shipping and Supply Chain Taskforce Report, QLD Maritime Jobs Taskforce, Freight Victoria Career Analysis) • consulting with key stakeholders to scope and confirm user requirements (employer, worker/union, state training authorities, schools, VET, and higher education providers) • designing the draft maritime industry skills pipeline model in consultation with key stakeholders • validating the model and underpinning elements for each stage with broader industry. <p>Impact: Establishes an agreed framework for mapping existing and planned initiatives to build the maritime workforce and drives collaboration and co-ordination between the national skills system (jurisdictions and agencies), key industry stakeholders and regulators to optimise investment and minimise duplication of effort.</p> <ul style="list-style-type: none"> • Supports Recommendation 9, 11 and 13 of the Strategic Fleet Taskforce Final Report. • Underpins ISA proposed actions to address occupational shortages and develop a sustainable maritime workforce (Table 2) <p>Anticipated timing: 2024</p>	<ul style="list-style-type: none"> • Governments • State and federal agencies • Maritime Strategic Workforce Planning Committee • AMSA (Regulator) • Ship owners and operator association (MIAL) • Unions (MUA, AMOU, AIMPE) • Associations focused on near coastal certification (AMPTO & ACVOA)



National maritime skills network

Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> • A. We need to be planning now for large scale projects and initiatives involving the maritime workforce • B. The cost of delivering AMSA certified qualifications is creating a barrier to the skills pipeline for STCW occupations <ul style="list-style-type: none"> • Shortage of trained and skilled seafarers • Establishment of Strategic Fleet requires Australian crew. • Long lead times to train and certify Australian seafarers. <p>Symptom</p> <ul style="list-style-type: none"> • Occupational shortage • Thin training market • Highly regulated industry which requires training providers to meet stringent delivery and assessment requirements. 	<p>Activity: Pilot an industry-driven National Maritime Skills Network for the maritime industry.</p> <p>ISA will scope, design, and facilitate a pilot of an industry-driven National Maritime Skills Network model that would underpin skills development for the Strategic Fleet workforce whilst also supporting skill needs of the broader maritime industry. It would include:</p> <ul style="list-style-type: none"> • working directly with key stakeholders to establish the user requirements, key features, capability specifications and a working model for a National Maritime Skills Network • building, designing, and piloting a collaborative National Maritime Skills Network model that will increase collaboration between industry, employers, unions, regulators, TAFE institutes and States and Territory governments. • delivering and co-ordinating key elements of the Skills Pipeline to support high quality training delivery and assessment to meets skills requirements of the Strategic Fleet workforce. • developing and piloting ISA, States and Territory collaboration. • evaluating the outcomes and outputs from the National Maritime Skills Network pilot. <p>Impact: The pilot will 'showcase' how the National Maritime Skills Network model can successfully deliver high quality, industry-driven training to a thin market, that is heavily regulated.</p> <ul style="list-style-type: none"> • Supports Recommendation 9, 11 and 13 of Strategic Fleet Taskforce Final Report. • Underpins ISA proposed actions to address occupational shortages and develop a sustainable maritime workforce (Table 2) <p>Anticipated timing: 2024 – 2027</p>	<ul style="list-style-type: none"> • Maritime Strategic Workforce Planning Committee • RTOs and higher education providers • Government • JSC CEO forum • Maritime enterprises • AMSA (Regulator) • Ship owners and operator association (MIAL) • Unions (MUA, AMOU, AIMPE) • State and federal agencies • RTOs, higher education providers and schools • State and territory industry advisory bodies



Strategic Fleet workforce supply and demand forecast

Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> • <u>A. We need to be planning now for large scale projects and initiatives involving the maritime workforce</u> • Lack of accurate and contemporary data to underpin decision-making and informed investment in establishment of the Strategic Fleet workforce • Potential impact of offshore wind and decommissioning projects on crewing of Strategic Fleet. <p>Symptom</p> <ul style="list-style-type: none"> • Occupational shortage • Industry competition for skilled workers as Australia embarks on multiple initiatives that will demand maritime workers. 	<p>Activity: Develop a workforce supply and demand forecast for Strategic Fleet.</p> <p>ISA will work with JSA and key maritime stakeholders to develop and validate a scenario-based supply and demand forecast model for strategic fleet by:</p> <ul style="list-style-type: none"> • identifying the size and geographic location of the existing workforce by occupation • collecting industry-based intelligence and quantitative data sets on workforce size and occupational pathways • mapping intra and inter occupational (career) pathways and corresponding learning pathways using crew requirements outlined in the Strategic Fleet Taskforce Report • identifying student numbers and qualification focus of learners currently enrolled in nationally endorsed maritime qualifications and projected completion dates. • developing and validating likely industry scenarios and their potential impact on supply and demand of skilled workers over the next 5-10 years <p>Impact: Builds a definitive and authoritative data set on probable workforce supply and demand scenarios to support decisions made by government and industry on how to build the Strategic Fleet workforce.</p> <ul style="list-style-type: none"> • Supports Recommendations 9.1, 9.3, 9.5 and 11 of the Strategic Fleet Taskforce Final Report. <p>Anticipated timing: 2024</p>	<ul style="list-style-type: none"> • Maritime Strategic Workforce Planning Committee • Jobs and Skills Australia • Unions (MUA, AMOU, AIMPE) • Ship owners and operator association (MIAL) • AMSA (Regulator)



Strategic Fleet workforce career pathways

Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> • <u>A. We need to be planning now for large scale projects and initiatives involving the maritime workforce</u> • Shortage of trained and skilled seafarers • Establishment of Strategic Fleet requires Australian crew • Poor awareness of maritime careers, opportunities, and entry points <p>Symptom</p> <ul style="list-style-type: none"> • Occupational shortage • Highly regulated industry which limits easy inter and intra occupational mobility. • Lack of visibility and understanding of maritime career pathways. 	<p>Activity: Using data from the Maritime Workforce Supply and Demand Forecast Model on intra and inter occupational pathways and corresponding learning pathways, this activity will develop and promote Strategic Fleet career and learning pathway information to learners, existing workers, careers advisors, training providers industry organisations and unions.</p> <p>ISA will work with key maritime stakeholders and the National Careers Institute to develop materials supported by interactive campaign. It will include:</p> <ul style="list-style-type: none"> • Translating the maritime career and learning pathway data into contemporary and engaging promotional materials with a particular focus on Strategic Fleet occupations • Hosting interactive webinars for careers advisors and learners which feature industry personnel • Preparing a series of short videos for social media channels on career opportunities, recognition of prior learning and learning pathways for promotion across industry and RTO networks • using simulation to promoting maritime career pathways to school leavers and career changers in an engaging and safe manner. • Working directly with the National Maritime Skills Network and National Career Institute and key stakeholders to promote career pathways and support Strategic Fleet occupations. <p>Impact:</p> <ul style="list-style-type: none"> • supporting the establishment of crew for the Strategic Fleet • supporting the development of crew for the broader maritime industry including Near Coastal and maritime onshore job roles • increasing career transition opportunities into Strategic fleet occupations • increasing the mobility of skilled maritime labour • enabling upskilling of the existing maritime workforce. • Supports Recommendations 9.1 • Supports Recommendation 11 of the Strategic Fleet Taskforce Final Report . . <p>Anticipated timing: 2024 – 2025</p>	<ul style="list-style-type: none"> • Maritime Strategic Workforce Planning Committee • Unions (MUA, AMOU, AIMPE) • Ship owners and operator association (MIAL) • AMSA (Regulator) • National Career Institute • Career Industry Council of Australia • Year13 • National Maritime Skills Network (Project 2)

Revalidation and RCC model

Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> • <u>A. We need to be planning now for large scale projects and initiatives involving the maritime workforce</u> • Shortage of trained and skilled seafarers • Establishment of Strategic Fleet requires Australian crew. • Long lead times to train and certify Australian seafarers. <p>Symptom</p> <ul style="list-style-type: none"> • Occupational shortage • Highly regulated industry which limits inter and intra occupational mobility. • Low levels of recognition of prior learning (Total VET Students and Courses 2018-2022). 	<p>Activity: Develop a VET model to improve RPL outcomes and support AMSA revalidation and recognition of current competency for Australia's Maritime workforce.</p> <p>ISA will work with key maritime stakeholders to develop, pilot and evaluate an agreed VET model to support revalidation and recognition of current competency (RCC) for Australian seafarers by:</p> <ul style="list-style-type: none"> • identifying the critical features and underpinning elements that underpin an accessible, robust, and efficient model for revalidation and RCC of seafarers and which meets AMSA regulatory requirements. • designing a series of possible revalidation and RCC models for consideration, refinement, and agreement by key stakeholders • piloting and evaluating an agreed model for revalidation and RCC with partially qualified seafarers in collaboration with key stakeholders (occupations in shortage) • developing a tool to assist trainers and assessors with RCC • rolling out the agreed model through a National Maritime Skills Network <p>Impact: Increase the supply of Australian seafarers in response to existing occupational shortages and to meet the crewing needs of the Strategic Fleet.</p> <ul style="list-style-type: none"> • Supports Recommendation 9.5 of the Strategic Fleet Taskforce Final Report. • Supports the development of crew for the broader maritime industry including Near Coastal and maritime onshore job roles. <p>Anticipated timing: 2024 – 2026</p>	<ul style="list-style-type: none"> • Maritime Strategic Workforce Planning Committee • Maritime enterprises • AMSA (Regulator) • Ship owners and operator association (MIAL) • Unions (MUA, AMOU, AIMPE) • State and federal agencies • National Maritime Skills Network • RTOs and higher education providers • State and territory industry advisory bodies • Jobs and Skills Australia • National Maritime Skills Network (Project 2) • Jobs and Skills Australia



Occupational pathways for defence

Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> • A. We need to be planning now for large scale projects and initiatives involving the maritime workforce • Shortage of trained and skilled seafarers. • Defence readiness requires reduced involvement in responses to climate change disasters and humanitarian concerns. <p>Symptom</p> <ul style="list-style-type: none"> • Occupational shortage • No pathway for Navy to transition into the maritime industry for inter occupations. 	<p>Activity: Develop a recognition of prior learning model to support transition from Naval occupations into civilian maritime occupations.</p> <p>ISA will work with key stakeholders to map, design, and promote an RPL model to establish formal recognition and training pathways from Naval occupations into civilian maritime occupations by:</p> <ul style="list-style-type: none"> • working with AMSA to identify key Naval occupations which are most aligned with key skill shortages in officers and deck in civilian maritime. • mapping key Naval occupations and aligning them to nationally recognised training package products. • scoping any identified gaps in training pathways needed to support transition. • validating outcomes with key maritime and Navy stakeholders • designing an RPL model focussed on Naval occupations most closely aligned with key skill shortages. • working with the National Career Institute and key stakeholders to promote Naval-to-civilian maritime transition pathways and RPL process. <p>Impact: Accelerates the supply of Australian seafarers in response to existing occupational shortages and to meet the crewing needs of the Strategic Fleet by:</p> <ul style="list-style-type: none"> • contributing to the development of the Strategic Fleet workforce in a timely manner (given the long lead-times required for STCW certification) • optimising Government’s significant investment in training of Navy personnel • increasing career transition opportunities from Navy into civilian employment • increasing cross-industry collaboration. <p>Supports Recommendation 13a of the Strategic Fleet Taskforce Final Report.</p> <p>Anticipated timing: 2024 – 2026</p>	<ul style="list-style-type: none"> • Maritime Strategic Workforce Planning Committee • Maritime enterprises • AMSA (Regulator) • Ship owners and operator association (MIAL) • Unions (MUA, AMOU, AIMPE) • State and federal agencies • National Maritime Skills Network • RTOs and higher education providers • State and territory industry advisory bodies • National Maritime Skills Network (Project 2)



Occupational mobility

Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> • A. We need to be planning now for large scale projects and initiatives involving the maritime workforce • Shortage of trained and skilled seafarers • Establishment of Strategic Fleet requires Australian crew. • Long lead times to train and certify Australian seafarers. <p>Symptom</p> <ul style="list-style-type: none"> • Occupational shortage • Highly regulated industry which limits easy inter and intra occupational mobility. • Low levels of recognition of prior learning (Total VET Students and Courses 2018-2022). • Lack of visibility and understanding of maritime career pathways. 	<p>Activity: Develop occupational mobility pathways for Australia's maritime workforce.</p> <p>ISA will work with key maritime stakeholders to identify, formally recognise and promote skills that are portable between maritime occupations by:</p> <ul style="list-style-type: none"> • identifying the formal learning pathways needed to support occupational mobility (credit, credit transfer, recognition of prior learning, recognition of current competency, micro-credentials, dual certification). • identifying any gaps in existing training and assessment and the scope for future development • developing training products and bridging programs. • promoting maritime careers and the pathways into and within the industry. • working with the National Careers Institute to ensure occupational pathways are reflected in their resources. <p>Impact: Accelerates the supply of Australian seafarers in response to existing occupational shortages by:</p> <ul style="list-style-type: none"> • formal recognition of portable skills • supporting the establishment of crew for the Strategic Fleet • supporting the development of crew for the broader maritime industry including Near Coastal and maritime onshore job roles. • increasing the mobility of skilled maritime labour • enabling upskilling of the existing maritime workforce. <p>Supports Recommendation 9.1 of the Strategic Fleet Taskforce Final Report.</p> <p>Anticipated timing: 2024 – 2026</p>	<ul style="list-style-type: none"> • Maritime Strategic Workforce Planning Committee • Maritime enterprises • AMSA (Regulator) • Ship owners and operator association (MIAL) • Unions (MUA, AMOU, AIMPE) • State and federal agencies • National Maritime Skills Network • RTOs and higher education providers • State and territory industry advisory bodies • Association focused on near coastal certification (AMPTO & ACVOA) • National Career Institute • Seafood Industry Australia • National Maritime Skills Network (Project 2)

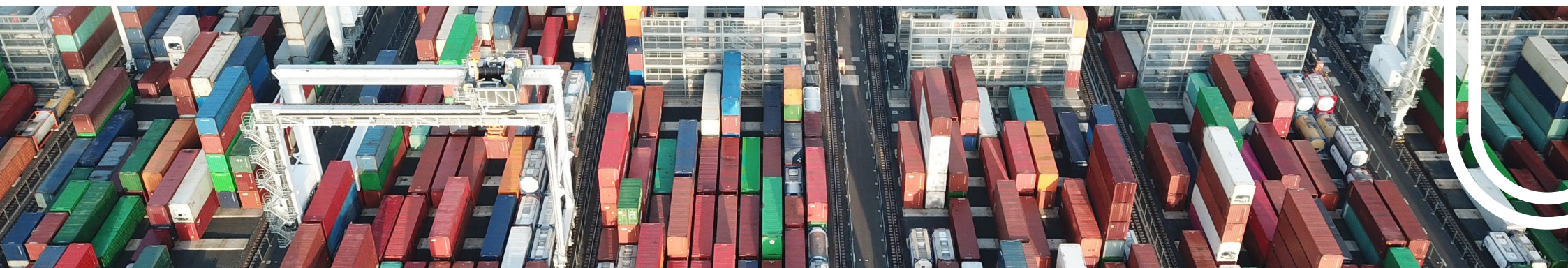


Co-ordination of sea time

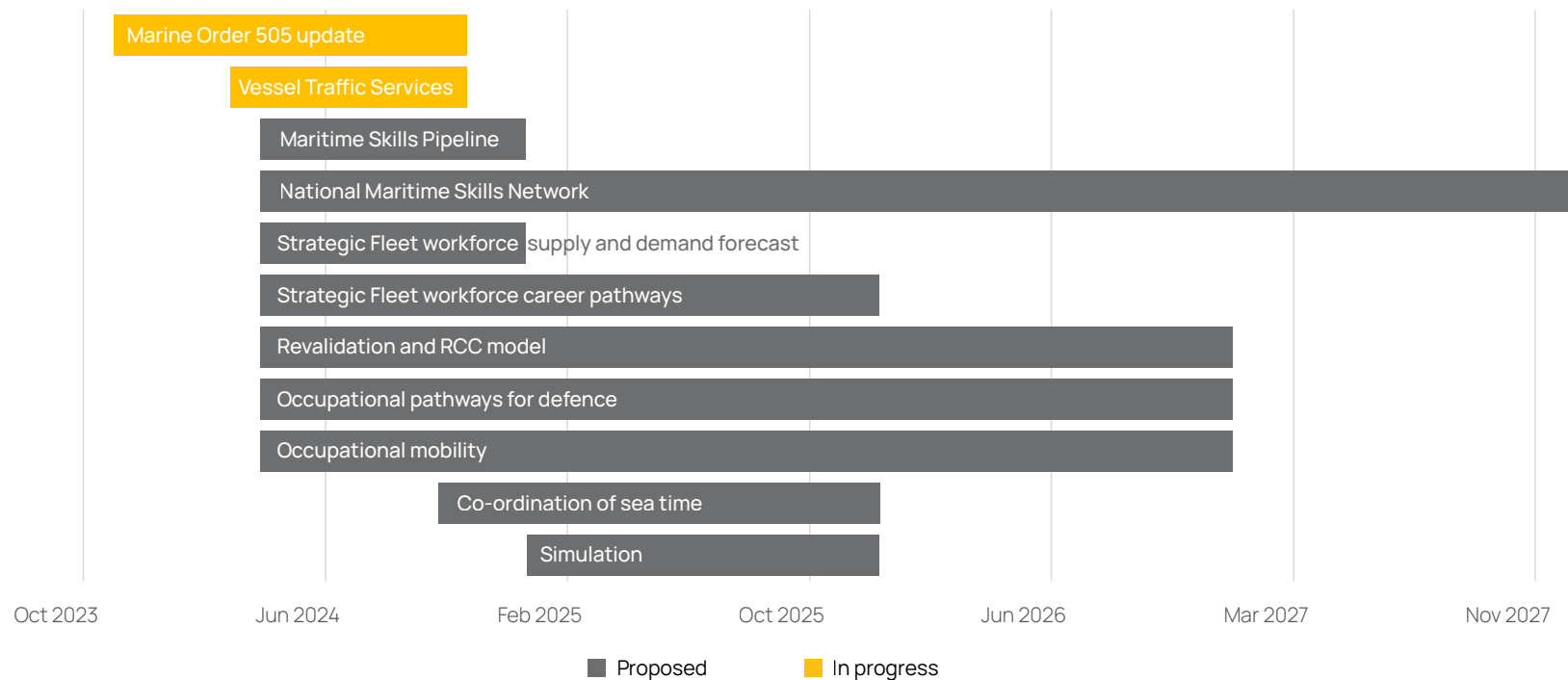
Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> • <u>A. We need to be planning now for large scale projects and initiatives involving the maritime workforce</u> • <u>C. The inability to complete qualifying seagoing service to achieve AMSA certification makes it critical to start working on solutions to maximise training berths</u> • Shortage of trained and skilled seafarers • Establishment of Strategic Fleet requires Australian crew. • Long lead times to train and certify Australian seafarers. <p>Symptom</p> <ul style="list-style-type: none"> • Occupational shortage • Reduction in Australian fleet has reduced capacity to meet sea time requirements. • Highly regulated industry which requires training providers to meet stringent delivery and assessment requirements. 	<p>Activity: Develop a model for effectively co-ordinating sea time.</p> <p>ISA will work with key maritime stakeholders to scope, design and validate a model for the effective coordination of sea time requirements across the maritime industry by:</p> <ul style="list-style-type: none"> • reviewing coordination models used in similar maritime economies. • identifying critical success factors and opportunities for innovative practice. • reviewing existing approaches utilised by the Australian maritime industry (group training, direct employment, recruitment agency) to determine key features and impact (benefits and limitations) of each approach • design and validate the sea time coordination model with key stakeholders. <p>Impact: Establishes an agreed model for effective co-ordination of sea time requirements which will:</p> <ul style="list-style-type: none"> • support establishment of the Strategic Fleet • support the development of crew for the broader maritime industry including Near Coastal and maritime onshore job roles. • meet critical and immediate occupational shortages • address the ongoing requirements of cadets and trainees. <p>Supports Recommendation 9.4 of the Strategic Fleet Taskforce Final Report.</p> <p>Anticipated timing: 2024</p>	<ul style="list-style-type: none"> • Maritime Strategic Workforce Planning Committee • Unions (MUA, AMOU, AIMPE) • Ship owners and operator association (MIAL) • AMSA (Regulator) • Maritime enterprises • VET experts who have experience and expertise in existing approaches (yet to be identified) • Stakeholders who have experience and expertise in innovative sea time models to be identified and existing approaches to be identified.

Simulation

Labour Market Dynamics	Proposed Action/Strategy	Key Stakeholders
<p>Key driver/challenge</p> <ul style="list-style-type: none"> • A. We need to be planning now for large scale projects and initiatives involving the maritime workforce • Shortage of trained and skilled seafarers. • Establishment of Strategic Fleet requires Australian crew. • Long lead times to train and certify Australian seafarers. <p>Symptom</p> <ul style="list-style-type: none"> • Occupational shortage • Highly regulated industry which requires training providers to meet stringent delivery and assessment requirements. • Challenges faced by employers and students to meet certification requirements. 	<p>Activity: Develop a model that utilises technology (simulation) to develop real-world experience and seafaring capabilities which meets AMSA and IMO requirements.</p> <p>ISA will work with key maritime stakeholders and AMSA to scope, develop and validate a training model that utilises simulation to support the achievement of AMSA certification by:</p> <ul style="list-style-type: none"> • working with AMSA and industry to benchmark and validate simulation requirements for the use of simulation in training. • working with AMSA to validate the use of simulation training to support training providers to meet STCW simulator training requirements. • identifying simulation requirements for nationally endorsed maritime training package qualifications and units of competency • scoping requirements for new and updated training package products to support the use of simulation. • developing a tool to assist training providers to deliver and assess simulated requirements in accordance with industry and regulatory requirements. • using simulation to promote maritime career pathways to school leavers and career changers in an engaging and safe manner. <p>Impact: Supporting the supply of Australian seafarers in response to existing occupational shortages by:</p> <ul style="list-style-type: none"> • Supporting AMSA revalidation and recognition of current competencies for partially qualified stakeholders • Reducing the cost of training which is a recognised barrier for employers and seafarers. • Utilising technology to lift the quality and currency of delivery and assessment. <p>Anticipated timing: 2025</p>	<ul style="list-style-type: none"> • Maritime Strategic Workforce Planning Committee • Maritime enterprises • AMSA (Regulator) • Ship owners and operator association (MIAL) • Unions (MUA, AMOU, AIMPE) • State and federal agencies • National Maritime Skills Network • RTOs and higher education providers • State and territory industry advisory bodies • National Maritime Skills Network (Project 2)



Proposed Action Schedule



Future Research and Consultation

Additional engagement, research and consultation activity has been identified to assist in the development of future strategies or initiatives to inform the 2025 Workforce Plan. These focus areas cover the key themes associated with our challenges and drivers and are not an exhaustive list as industry may raise additional issues as we work with them in 2024.

A. We Need to be Planning Now for Large Scale Projects and Initiatives Involving the Maritime Workforce

Decommissioning

Conduct further research on decommissioning to identify skills and workforce development implications.

Offshore Wind

Conduct further research on offshore wind to identify skills and workforce development implications.

Increasing industry diversity

Identify barriers to maritime workforce participation for under-represented cohorts. Engage with industry and relevant support organisations to determine potential strategies to assist in connection to employment.

Broader maritime industry

Conduct further research and consultation to identify workforce challenges and skills implications for maritime workers operating in sector specific areas including:

- Domestic commercial vessels
- Marine Surveying
- Onshore job roles (eg, Vessel Traffic Services, shore based navigational assistance/remote pilotage and autonomous vessels)
- Support roles for Defence.

This would include cross-collaboration with other Jobs and Skills Councils.

Skilled migration

In consultation with industry stakeholders, we will investigate the current temporary and permanent skilled work visas, including the recent transition from the Temporary Skill Shortage (TSS) visa to the new Skills in Demand (SID) visa, reviewing how they are meeting the needs of the workforce and addressing shortages.

B. The Cost of Delivering AMSA Certified Qualifications is Creating a Barrier to the Skills Pipeline for STCW Occupations

Improving regional training delivery

Engage with regional stakeholders to explore and develop strategies to support student cohorts in regional areas.

Strategic Fleet Taskforce Final Report 2023

To identify skills and training implications of recommendations from Strategic Fleet Taskforce Final Report 2023.



E. New Technology and Carbon Emission Reduction Strategies on the Horizon will Have Skill Implications in the Future

Decarbonisation

Conduct further research and consultation on decarbonisation policy and initiatives to identify the skills and training implications for Australian seafarers and determine the scope of any required training products.

To identify skills and training implications ISA will continue to **monitor and review**:

- outcomes of new technology trials and member state IMO authorised decarbonisation projects such as the Future Fuels and Technology for Low-and-Zero- Carbon Shipping Project ¹⁰⁶
- recommendations including any proposed skills development requirements outlined in [Maritime Emissions Reduction National Action Plan \(MERNAP\) 2023-2024](#)
- expansion of the Strategic Fleet to address specific skill and training requirements for seafarers in response to decarbonisation initiatives.
- broader impacts of digital technology, automation, and decarbonisation megatrends on the maritime industry including the [Blue Economy CRC](#).
- challenges faced by the maritime industry where skills development relies on competent and knowledgeable trainers who are in short-supply across the maritime sector.¹⁰⁷
- outcomes from ISA Technology Future Taskforce and the Jobs and Skills Councils' CEO Forum.

To support skills development and training implications we will work with key maritime stakeholders and JSC's to:

- develop training products to meet specialised training requirements in collaboration with other JSC's (including responses to alternative fuels, alternative fuel cargo, autonomous shipping) to meet industry needs.

High levels of engagement and cross-collaboration will be required between AMSA, industry, and RTO's to develop training products that address these needs.¹⁰⁸

ISA will continue to provide input and advice into key government initiatives where relevant.

¹⁰⁶ <https://www.imo.org/en/MediaCentre/PressBriefings/pages/Future-Fuels-and-Technology.aspx> (accessed June 2023)

¹⁰⁷ <https://www.infrastructure.gov.au/sites/default/files/documents/Issues%20Paper%203%20-Skills%20and%20Training.pdf>

¹⁰⁸ ISA Maritime Initial Workforce Plan (September 2023)



Approach to Consultation

Transport and Logistics industries are characterised by extremely high numbers of industry stakeholders at a national and state level, each with different perspectives and priorities. The sectors are highly diverse, comprising businesses ranging from complex national and global companies through to a multitude of small one and two person businesses. Over 99% of enterprises within our coverage are small business.

Not all of these stakeholder groups will want to engage in the workforce planning process. As part of our user-centred approach, we will work with our stakeholder groups and individual stakeholders to determine the level of involvement they would like and to what degree. If and when a stakeholder's focus shifts, we will adjust our engagement with them accordingly.

A listing of key stakeholder groups with which we will engage, including industry bodies and government related entities, can be found at [Table 3](#).



Table 3: Key Stakeholder Groups

STAKEHOLDER GROUPS	KEY STAKEHOLDER IDENTITY
INDUSTRY	<ul style="list-style-type: none"> • Enterprises • Industry peaks • Industry associations • Innovation sector • Unions • Occupational licensing/regulatory bodies • Professional bodies
INDIVIDUALS	<ul style="list-style-type: none"> • Existing workers • Apprentices/trainees • Learners • Job seekers
VET SYSTEM	<ul style="list-style-type: none"> • Registered Training Organisations • Individual VET practitioners • Jobs and Skills Councils • Industry Training Advisory Bodies (and equiv.) • VET regulators • Training Product Assurance Body
SCHOOLS SECTOR	<ul style="list-style-type: none"> • Secondary schools • Individual teachers • Secondary education authorities • Careers associations
HIGHER ED.	<ul style="list-style-type: none"> • Universities
GOVERNMENTS	<ul style="list-style-type: none"> • Dept. of Employment and Workplace Relations • Jobs and Skills Australia • National Careers Institute • NCVET • Dept. of Inf, Trans, Reg. Dev, Comms and the Arts • Regional Australia Institute • Regional Development Australia • State Training Authorities • National Transport Commission

Consultation and engagement with different groups of stakeholders will inform ongoing development of our Workforce Plans, including deepening our understanding of key workforce drivers and challenges, expanding our breadth and depth of data sources, filling evidence gaps, validating and providing context to workforce data, and developing effective actions/strategies to address workforce drivers and challenges.

The following key elements will form part of our consultation and engagement approach.

Industry Skills Australia Committees

ISA is establishing a range of mechanisms to provide input and advice into the Workforce Plans.

Strategic Workforce Planning Committees

The Strategic Workforce Planning Committees (SWPCs) are responsible for the development of the Workforce Plans, with a focus on identifying, forecasting and responding to workforce challenges, opportunities and emerging skills needs. They will shape and prioritise our actions through their Workforce Planning advice. The SWPCs comprise leaders from each major industry to ensure buy-in and leadership from across the industry (geographic, sector and business scale).

Our Strategic Workforce Planning Committee, comprising representatives of industry and unions, is a key mechanism for the collection and validation of industry intelligence, as well as strategy development.

Industry Advisory Council

ISA's Industry Advisory Council (IAC) will provide advice on leading trends from adjacent industries/client industries (e.g., online retail and its transformation of logistics). The IAC comprises of senior supply chain executives and industry leaders from a range of industries where supply chain effectiveness is core business or a key contributor to productivity.

It operates as a dynamic advisory mechanism to the Board and SWPCs by providing cutting-

edge business intelligence and strategic insights from across the economy.

Industry Engagement

Broader industry stakeholder engagement will involve consulting with stakeholder groups in **Table 3**.

Commencing from the development of the Year 2 Workforce Plan that is due in April 2024, we will implement a full cycle of industry consultation as per **Figure 12**. below.






JSC Engagement

ISA will engage and collaborate with the other Jobs and Skills Councils on shared workforce planning and skills development priorities. We will also consult and advise when ISA-led workforce planning strategies will impact on another JSC's scope of work, such as the usage of imported units and workforce development.



WORKFORCE PLAN CYCLE (2025)

Figure 12: Full Workforce Plan Development Cycle

PROCESS & INDICATIVE TIMING	 DATA COLLECTION & DRAFTING Jun - Jul 2024	 INITIAL CONSULTATION Aug - Sep 2024	 DRAFTING & CONSULTATION Oct 2024 - Jan 2025	 SIGN OFF, SUBMISSION & PUBLICATION Feb- Mar 2025	 IMPLEMENTATION & MONITORING April 2025 onwards
KEY STEPS	<ul style="list-style-type: none"> Consolidate intelligence gathered from implementation and monitoring Undertake further research and consultation where required Refresh & review baseline data, previous year's megatrends, and new qualitative reports Consolidate input from SWPC, other ISA committees and key stakeholders 	<ul style="list-style-type: none"> Prepare Industry Skills Priorities Paper for initial stakeholder input Confirm Industry Skills Priorities with SWPC and key stakeholders Consult with stakeholders on Industry Skills Priorities Paper Analyse and respond to feedback Undertake further research/consultation as required 	<ul style="list-style-type: none"> Prepare first draft of the Workforce Plan, including proposed actions SWPC review draft, provide input and advice on proposed actions and priorities Release draft Workforce Plan on ISA website for public consultation Moderate, consolidate and analyse feedback Update Workforce Plan based on feedback 	<ul style="list-style-type: none"> SWPC review, validate and sign off final Workforce Plan Submit Workforce Plan to DEWR for formal approval Prepare and submit proposed actions Publish and promote Workforce Plan and activities/projects on ISA website 	<ul style="list-style-type: none"> Undertake promotion, build collaboration across stakeholders to deliver Workforce Plan priorities Implement approved actions Monitor and evaluate activity/project progress/outcomes Engage stakeholders to monitor the responsiveness of the national skills system
WHO WE CONSULT	<ul style="list-style-type: none"> Strategic Workforce Planning Committee Industry VET System Schools Sector Higher Education Individuals 	<ul style="list-style-type: none"> Strategic Workforce Planning Committee Governments Industry 	<ul style="list-style-type: none"> Strategic Workforce Planning Committee Governments Industry VET System Schools Sector Higher Education Individuals 	<ul style="list-style-type: none"> Strategic Workforce Planning Committee Governments 	<ul style="list-style-type: none"> Industry VET System Schools Sector Higher Education Governments
HOW WE CONSULT	<ul style="list-style-type: none"> Meetings Webinars Emails Surveys 	<ul style="list-style-type: none"> Internal meetings and input from SWPC Internal meetings 	<ul style="list-style-type: none"> ISA website Webinar Email and social media 	<ul style="list-style-type: none"> ISA website Webinar Email and social media Meetings Conference presentations 	<ul style="list-style-type: none"> ISA website Webinar Surveys Conference presentations Meetings

Bold – key points of consultation with stakeholders

Existing Workforce Strategies and Initiatives

Our implementation of the research, consultation and activities outlined above will be informed by existing workforce strategies and initiatives. Where relevant, we will seek to align our work with, or contribute to, these strategies and initiatives, or to collaborate with those responsible for implementing them.

Below is a mapping of the workforce strategies and initiatives that we have identified as relevant to the Maritime Industry and the key issues and evidence gaps outlined in this Workforce Plan. We will continue to add to this list as we consult further with industry.

MAPPING KEY:

A. We need to be planning now for large scale projects and initiatives involving the maritime workforce.

B - The cost of delivering AMSA certified qualifications is creating a barrier to the skills pipeline for STCW occupations

C - The inability to complete qualifying seagoing service to achieve AMSA certification makes it critical to start working on solutions to maximise training berths

D - Recent regulatory changes will require amendments to Maritime Training Package

E - New technology and carbon emission reduction strategies on the horizon will have skill implications in the future

Table 4: Existing Workforce Strategies and Initiatives

Title	Mapping	Description	How it will impact/inform the WFP
Australian Maritime Safety Authority (AMSA) Marine Order 505 – Certificates of competency – national law	D	National (effective 1 January 2023) <ul style="list-style-type: none"> • Outlines changes to AMSA certification framework and guidelines for Near Coastal job roles. • Marine Order 505 forms the basis for the proposed changes to the Maritime Training Package products. • Marine Order 505 includes: <ul style="list-style-type: none"> • AMSA certificates of competency that can be issued. • criteria which AMSA uses to issue a certificate of competency. • conditions on a certificate of competency • requirements for renewal of certificate. 	<ul style="list-style-type: none"> • Changes to AMSA certification framework and guidelines for Near Coastal job roles to be acknowledged as an initiative in the workforce plan 2024.

<p>International Maritime Organization</p> <p>Decarbonisation Policy (2023 Revised IMO Strategy on Reduction of GHG Emissions from Ships)</p>	A, E	<p>International/National (2023 – 2025)</p> <ul style="list-style-type: none"> • Represents work by the IMO to address greenhouse gas (GHG) emissions from international shipping. • Outlines short-, mid- and long-term reduction measures to be implemented by member states including Australia. • Highlights barriers, supportive actions, capacity building, technical co-operation, R&D initiatives to support reduction of GHG. 	<ul style="list-style-type: none"> • Decarbonisation strategies will impact adoption of new technologies and biofuels, with flow-on impacts on skills and training for seafarers. • As a result of this work, the IMO will establish new skills and training requirements. We will need to reflect these in cross-sectoral training products outlined in the workforce plan. This will require collaboration with other JSCs.
<p>International Maritime Organization</p> <p>2021 Outcome of the regulatory scoping exercise for the use of Maritime Autonomous Surface Vessels MASS</p>	A, E	<p>International/National (2021 – 2022)</p> <ul style="list-style-type: none"> • Represents work by IMO to integrate new and advancing technologies in its regulatory framework. • Outlines implications for introduction of MASS operations in the shipping industry. • Highlights four degrees of autonomy and identifies areas in the regulatory framework to be updated. 	<ul style="list-style-type: none"> • MASS Code will impact workforce planning for the industry with flow-on impacts on skills and training for seafarers. • The final recommendations will form part of the advice going forward to the Maritime Strategic Workforce Committee to inform workforce plans including potential funded activities to support MASS implementation.
<p>Maritime Industry Australia Ltd (MIAL) and Australian Resources & Energy Employers Association (AREEA) industry workshop 2023</p>	A, B, C, E	<ul style="list-style-type: none"> • Represents the views of a collection of end user industries under the general agreement that Australia faces a significant issue in accessing critical maritime skills. • Discussions focusing on: <ul style="list-style-type: none"> • medium- and long-term workforce demands. • end users of seafarer skills • key challenges faced by stakeholders. 	<ul style="list-style-type: none"> • The final report and its findings will form part of the advice going forward to the Maritime Strategic Workforce Committee and will inform workforce plan 2024 onwards.
<p>Det Norske Veritas (DNV)</p> <p>Maritime Just Transition Taskforce</p>	A, E	<ul style="list-style-type: none"> • International/ National • Taskforce established to: <ul style="list-style-type: none"> • conduct an initial assessment of the impacts decarbonization shipping industry will have on seafarers. • highlight challenges related to alternative fuels in shipping, developing skills and training requirements for seafarers. 	<ul style="list-style-type: none"> • Model could be used to inform how we identify skills seafarers need and challenges that need to be taken into consideration when developing training package products and implementation. • Provides an insight into the safety and technical skill requirements for seafarers and challenges in the implementation of skills requirements. • This will inform workforce plans 2024 onwards.
<p>Department of Employment and Workplace Relations in partnership with state and territory governments</p> <p>Fee-Free TAFE</p>	B	<ul style="list-style-type: none"> • National • Key focus is to address skills shortages and delivery fee-free TAFE and vocational education places for students wanting to train, retrain or upskill. • Fee Free TAFE in partnership with States and Territories to deliver over \$1.5 billion funding for 500,000 Fee-Free TAFE and vocational education and training (VET) places across Australia over 2023 to 2026. 	<ul style="list-style-type: none"> • The summary of funded initiatives will form part of the advice on funded pathways for maritime to the Maritime Strategic Workforce Committee and will inform workforce plans 2024 onwards.

<p>Department of Infrastructure, Transport, Regional Development, Communication and the Arts</p> <p>Australian Government Response to the Strategic Fleet Taskforce Final Report</p> <p>Strategic Fleet Taskforce Final Report (Public version)</p>	A, B, C	<ul style="list-style-type: none"> National Recommendations to establish and maintain a Australian maritime strategic fleet. 	<ul style="list-style-type: none"> The recommendations from the Strategic Fleet will inform Maritime Industry National Workforce Plan's and will inform workforce plans 2024 and onwards.
<p>Australian Department of Industry, Science and Resources</p> <p>Roadmap to establish an Australian Decommissioning industry (Issues Paper)</p>	A	<ul style="list-style-type: none"> National Roadmap will cover offshore decommissioning in Commonwealth waters. Will outline approaches to building and maintaining an Australian decommissioning industry. Will focus on making sure decommissioning activity in Australia occurs in a way that is safe, cost-effective and environmentally sound. 	<ul style="list-style-type: none"> Interim reports will provide an insight into the workforce challenges and skills requirements. The final report and its findings will form part of the advice going forward to the Maritime Strategic Workforce Committee to inform workforce plans 2024 onwards.
<p>Department of Infrastructure, Transport, Regional Development, Communication and the Arts</p> <p>Maritime Emissions Reduction National Action Plan (MERNAP) 2023-2024</p>	E	<ul style="list-style-type: none"> National MERNAP will outline the strategic direction and recommend actions to decarbonise the maritime sector in line with governments climate change agenda. Highlight how Australia can develop green shipping collaborations with international partners to support IMO net zero emissions by 2050. Highlight training and skills requirements for seafarers to support a just transition to decarbonisation. 	<ul style="list-style-type: none"> The recommended actions will form part of the advice going forward to the Maritime Strategic Workforce Committee to inform workforce plans 2024 onwards.
<p>Department of Employment and Workplace Relations</p> <p>National Skills Passport (Consultation Paper 2024)</p>	A	<ul style="list-style-type: none"> National (pending implementation) Practical solution that will support employers to source employees and support workers to promote their capabilities (skills and qualifications). 	<ul style="list-style-type: none"> The Consultation Paper will form part of the advice going forward to the National Maritime Skills Network and Maritime Strategic Workforce Committee to inform workforce plans 2024 onwards.
<p>Blue Economy CRC Report</p> <p>Offshore Wind Energy in Australia: Final Project Report (2021)</p>	E	<ul style="list-style-type: none"> National A study designed to inform approaches to developing offshore wind farms in Australia. Study which focuses on 10 proposed offshore wind farms in Australia Includes 6 recommendations for the development of offshore wind in Australia Highlights potential gap in data in terms of the number of seafarers who work on vessels that supply oil and gas facilities or seafarers servicing oil and gas industries. 	<ul style="list-style-type: none"> Study can be used as part of further research and consultation activities in workforce plans 2024 onwards.

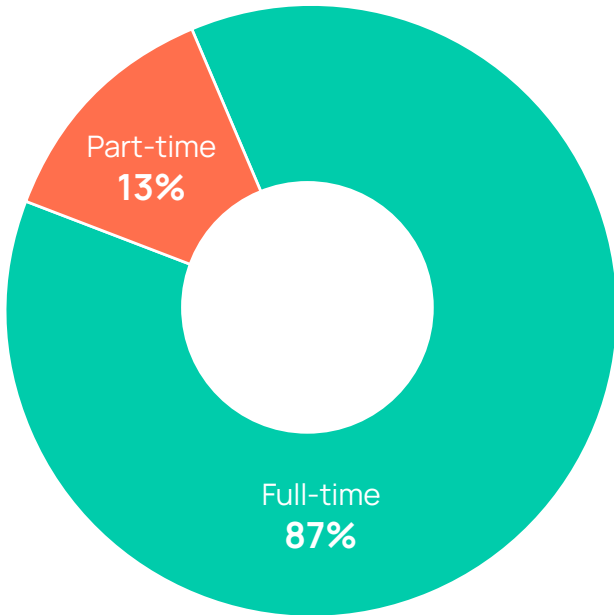
Jobs and Skills Australia The Clean Energy Generation: workforce needs for a net zero economy (2023)	E	<ul style="list-style-type: none"> National Capacity study focusing on workforce needs for Australia to transition to a clean energy economy Highlights workforce supply and demand issues including emerging skills, skills gaps and opportunities for regional growth, clean energy career and learning pathways, barriers and challenges that First Nations, women and migrants participation in the clean energy sectors. 	<ul style="list-style-type: none"> Study can be used as part of further research and consultation activities in workforce plans 2024 onwards.
Jobs and Skills Australia Towards a National Jobs and Skills Roadmap – Annual Jobs and Skills Report 2023	A	<ul style="list-style-type: none"> National Highlights current and future challenges for the Australian workforce and creates the foundation for a national jobs and skills roadmap to underpin a systematic approach to building Australia's workforce. This includes highlighting the role that the JSC's will play in the development of the national jobs and skills roadmap. 	<ul style="list-style-type: none"> The Consultation Paper will form part of the advice going forward to the National Maritime Skills Network and Maritime Strategic Workforce Committee to inform workforce plans 2024 onwards.
Australian Maritime Safety Authority Novel vessel policy statement (2022)	E	<ul style="list-style-type: none"> National Policy statement for the certification and assessment of 'novel' vessels Novel vessels include vessels with alternative fuel technologies, electric propulsion, autonomous vessels. 	<ul style="list-style-type: none"> This policy statement can be used as part of further research and consultation activities in workforce plans 2024 onwards.
Australian Government, state/territory funding initiatives for green energy transition	E	<ul style="list-style-type: none"> Hydrogen Headstart Program Powering the Regions Fund National Reconstruction Fund 	<ul style="list-style-type: none"> Initiatives can be used as part of further research and consultation activities in workforce plans 2024 onwards.
State and Territory funding initiatives	B	<ul style="list-style-type: none"> Doing what matters for maritime careers project (Victoria) Backing Queensland Maritime jobs (Qld) Maritime Employment Grant Program (Qld) Maritime Training Grant Program (Qld) 	<ul style="list-style-type: none"> Initiatives can be used as part of further research and consultation activities in workforce plans 2024 onwards.
Western Australian Government WA Shipping and Supply Chain Taskforce Final Report (2023)	A, B, C	<ul style="list-style-type: none"> National Recommendations to support WA shipping industry and supply chains. 	<ul style="list-style-type: none"> The recommendations from the Strategic Fleet will inform Maritime Industry National Workforce Plan's and will inform workforce plans 2024 and onwards.
Other Australian Government Initiatives	A, E	<ul style="list-style-type: none"> Food Supply Chain Capacity Study 2024 (in progress) National Defence – Defence Strategic Review 2023 National Skills Passport 	<ul style="list-style-type: none"> Initiatives can be used as part of further research and consultation activities in workforce plans 2024 onwards. National Skills Passport will form part of the advice going forward to the National Maritime Skills Network and Maritime Strategic Workforce Committee to inform workforce plans 2024 onwards.



Appendix A Reference Data and Charts

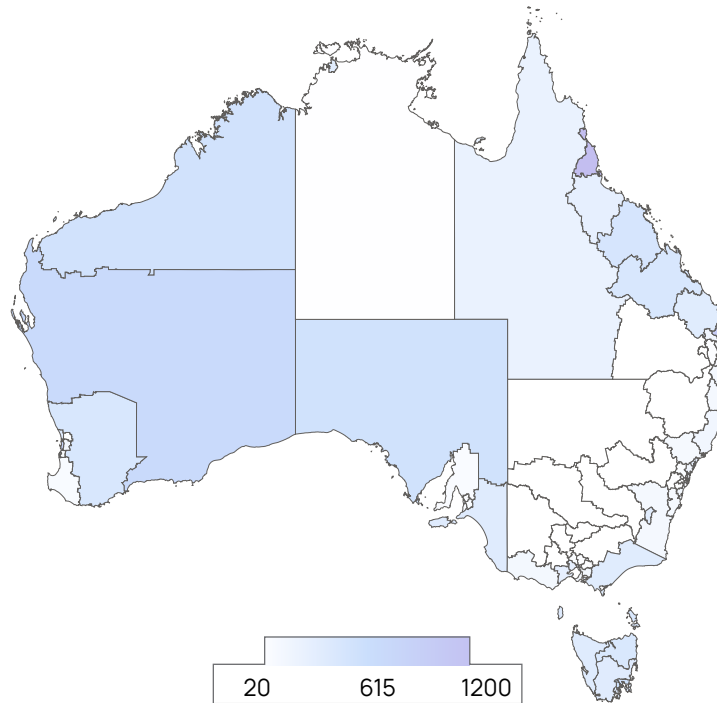
Employment and Distribution

Figure 13: Employment Status 2023



Source: ABS Labour Force Survey

Table 5: Distribution and Growth of Maritime Workers by Residence



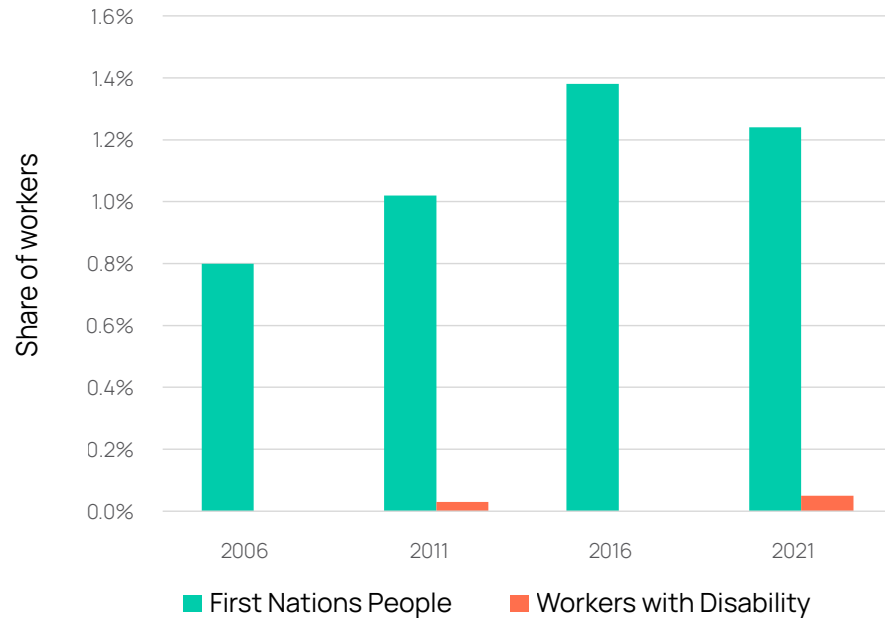
Source: JSA, NERO 2023

Residence	% of workers (2021)	Growth (since 2016)
Major City	44.2%	0.0%
Regional	25.6%	3.4%
Remote	15.9%	0.2%
Transitory ¹	14.3%	-21.2%

Sources: ABS Census, 2016 and 2021

Occupational Demographics

Figure 14: First Nations People and Workers with Disability, 2006 - 2021



Source: ABS Census 2006 to 2021

IN 2021, FIRST NATIONS INDIVIDUALS AND WORKERS WITH DISABILITIES COMPRISED **1.2%** AND **0.05%** OF WORKERS

Table 6: Top Employing Maritime Occupations, Growth and Demand

Occupation	2006	2011	2016	2021	Ave. Growth ¹⁰⁹	Future demand*
Ship's Master	2909	3462	3488	3576	1.39%	Below average
Deck Hand	2762	3057	2612	2473	-0.73%	Average demand
Ship's Engineer	1737	1913	1841	1877	0.52%	Below average
Ship's Officer	660	713	585	521	-1.56%	Below average
Marine Surveyor	396	409	445	483	1.33%	Below average

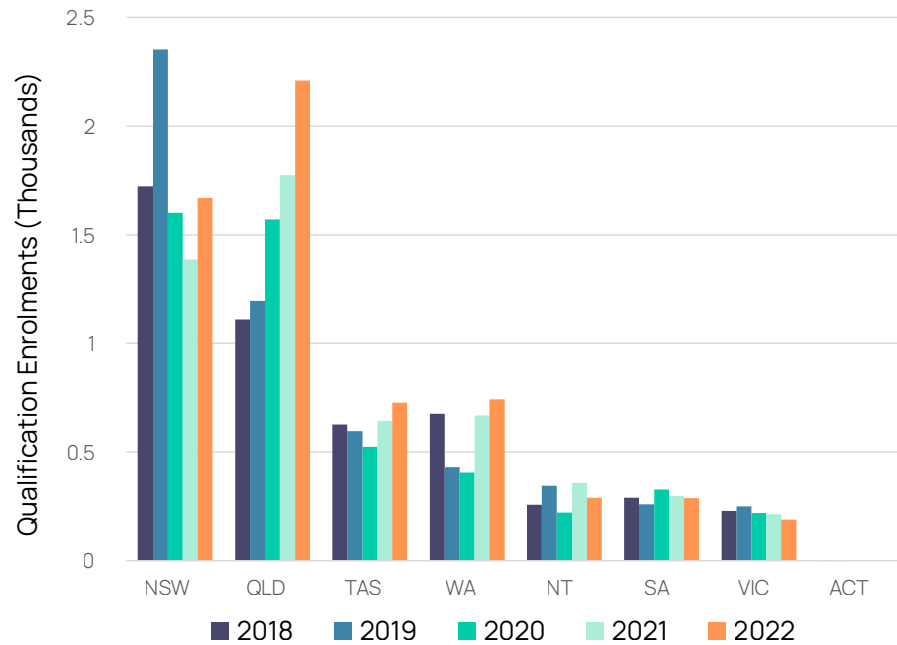
Sources: ABS Census, Skills Priority List (20 December 2023)

¹⁰⁹ Compound Annual Growth Rate (CAGR) has been employed to estimate the average annual growth in employment over intercensal periods.

Training

Please refer to 'Training system data' for a list of relevant VET and university qualifications associated with the charts.

Figure 15: Commencing Maritime Qualification Enrolments, 2018 – 2022



Source: NCVET Total VET Activity

ENROLMENTS IN QLD HAVE NEARLY DOUBLED
(99.2%) SINCE 2018

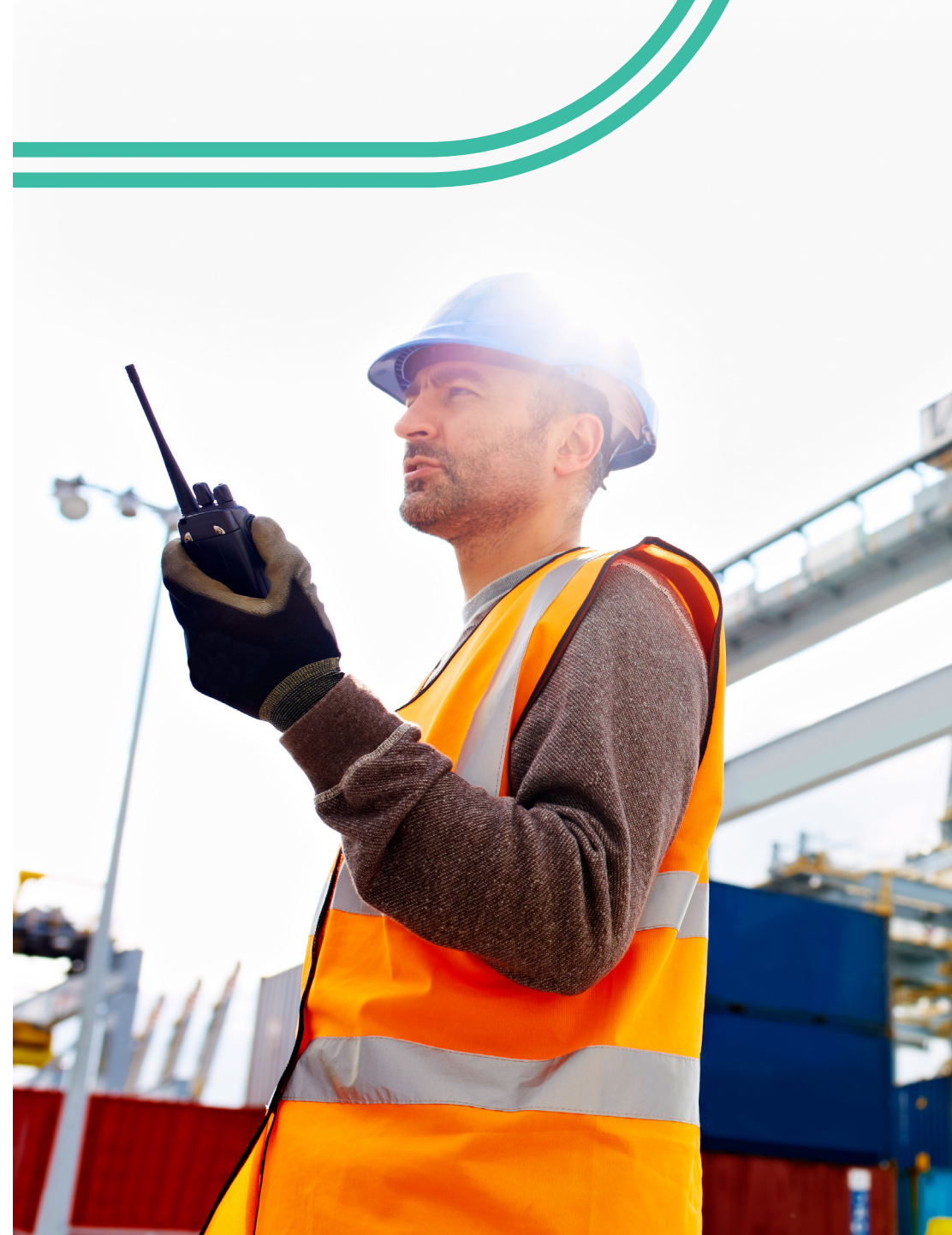
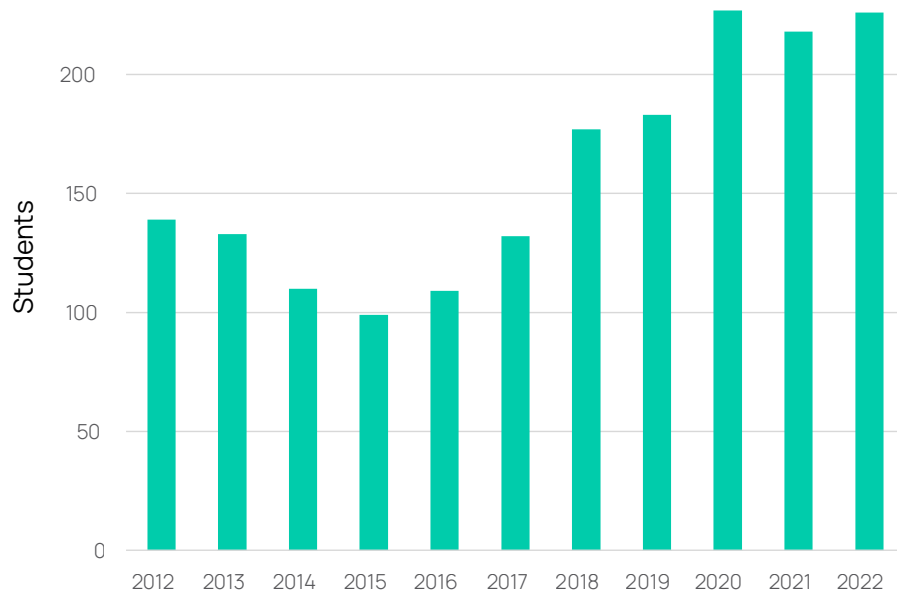


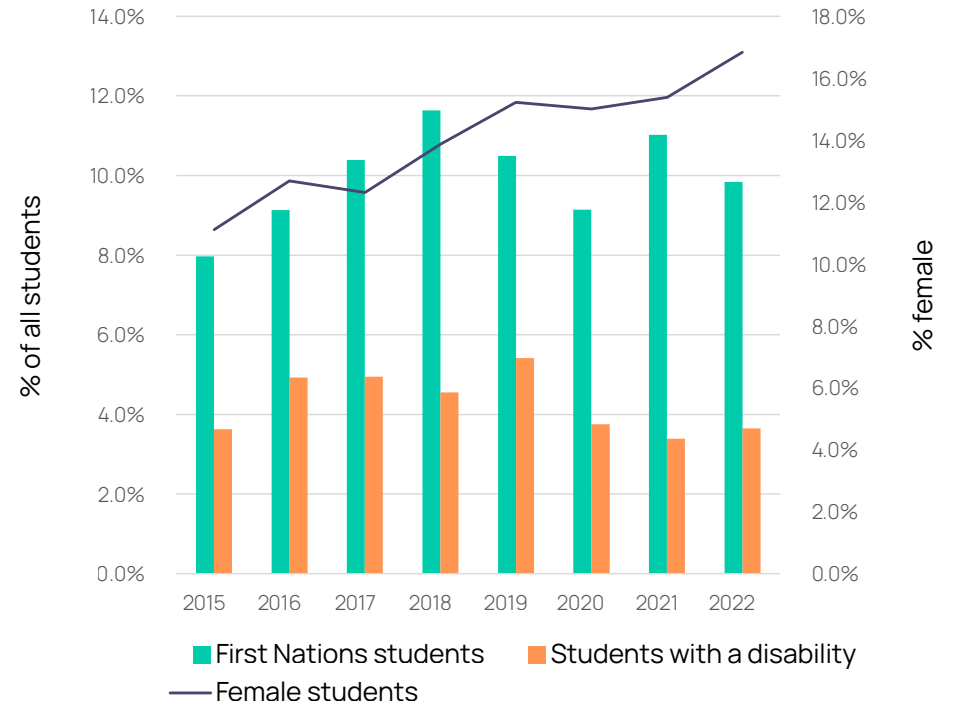
Figure 16: Maritime VETiS Students, 2012 - 2022



Source: NCVET VET in Schools

VETiS STUDENT ENROLMENTS HAVE
INCREASED BY 71.2%
 IN THE LAST 5 YEARS

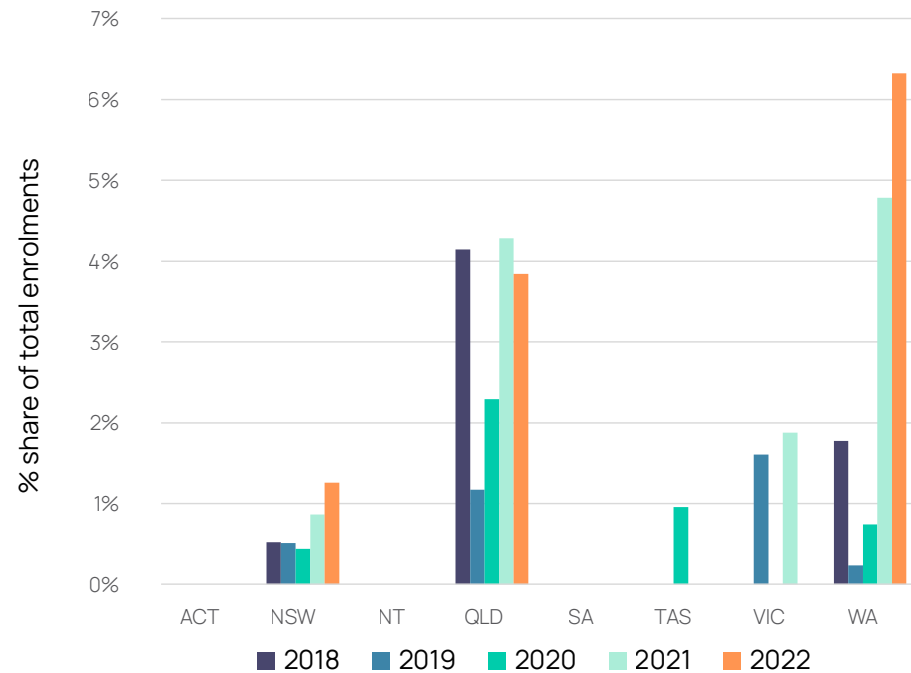
Figure 17: Share of Qualification Enrolments by Diversity Measures



Source: NCVET Total VET Activity

THE SHARE OF **FEMALE STUDENTS** HAS INCREASED
 BY ABOUT 50% SINCE 2015. **FIRST NATIONS
 ENROLMENTS** HAVE AVERAGED AROUND 10% OF ALL
 ENROLMENTS FOR THE LAST 5 YEARS. THE SHARE OF
STUDENTS WITH A DISABILITY
 IS YET TO RETURN TO PRE-COVID LEVELS.

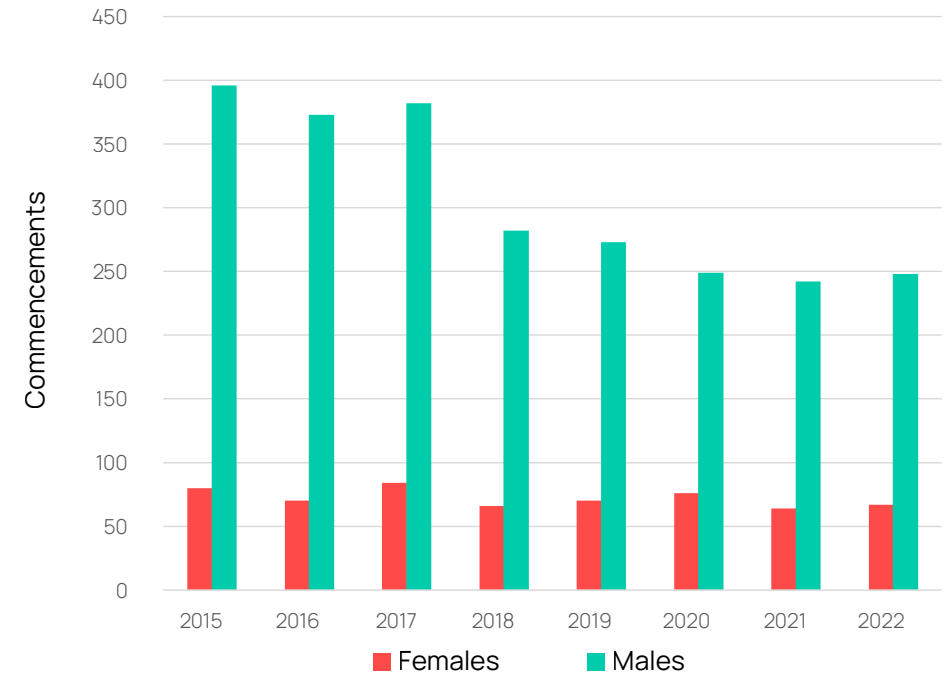
Figure 18: Apprenticeships/Traineeships Share of Total Enrolments



Source: NCVET Total VET Activity

WA AND QLD STAND OUT WITH
4 TO 6%
 OF MAR ENROLMENTS BACKED
 BY APPRENTICESHIPS/TRAINEESHIPS

Figure 19: Commencements in Maritime-related University Qualifications by Gender



Source: Australian Government Department of Education

THE NUMBER OF STUDENTS IN
 TERTIARY MARITIME QUALIFICATIONS HAS
DROPPED BY A THIRD
 SINCE 2015

Training System Data

Qualification Enrolments¹¹⁰

Qualification	2018	2019	2020	2021	2022	Certification
MAR10220 Certificate I in Maritime Operations (General Purpose Hand Near Coastal)	777	981	779	669	841	Near Coastal
MAR10418 Certificate I in Maritime Operations (Coxswain Grade 2 Near Coastal)	457	431	352	489	514	Near Coastal
MAR20121 Certificate II in Maritime Operations (Linesperson)	49	19	2	0	0	N/A
MAR20321 Certificate II in Maritime Operations (Coxswain Grade 1 Near Coastal)	1499	1780	1492	2009	2370	Near Coastal
MAR20421 Certificate II in Maritime Operations (Marine Engine Driver Grade 3 Near Coastal)	204	182	127	153	165	Near Coastal
MAR30022 Certificate III in Vessel Traffic Services	0	0	0	0	0	IALA
MAR30122 Certificate III in Marina Operations	23	2	0	5	2	N/A
MAR30220 Certificate III in Maritime Operations (Integrated Rating)	58	94	100	54	82	STCW
MAR30320 Certificate III in Maritime Operations (Marine Cookery)	2	1	2	0	2	COST
MAR30821 Certificate III in Maritime Operations (Marine Engine Driver Grade 2 Near Coastal)	573	693	745	701	792	Near Coastal
MAR30921 Certificate III in Maritime Operations (Master up to 24 metres Near Coastal)	858	890	952	911	943	Near Coastal
MAR31021 Certificate III in Maritime Operations (Master Inland Waters)	2	10	2	0	4	Near Coastal
MAR31222 Certificate III in Autonomous Maritime Systems	0	0	0	0	0	N/A
MAR40121 Certificate IV in Maritime Operations (Chief Integrated Rating)	0	0	0	0	0	STCW
MAR40220 Certificate IV in Maritime Operations (Marine Engine Driver Grade 1 Near Coastal)	56	65	23	58	80	Near Coastal
MAR40320 Certificate IV in Maritime Operations (Master up to 45 metres Near Coastal)	191	187	232	198	187	Near Coastal
MAR50120 Diploma of Marine Engineering	45	42	41	53	52	STCW, Near Coastal
MAR50320 Diploma of Maritime Operations	38	53	18	16	17	STCW, Near Coastal
MAR60120 Advanced Diploma of Marine Engineering (Class 1)	28	14	30	19	32	STCW
MAR60220 Advanced Diploma of Maritime Operations (Master Unlimited)	67	24	13	13	5	STCW
Grand Total	4927	5468	4910	5348	6088	

Note: enrolment numbers include all versions of the qualification across the years they were available (e.g. MAR10220 Certificate I in Maritime Operations (General Purpose Hand Near Coastal) includes enrolments for MAR10313, MAR10220, MAR10318 and MAR10120.)

- STCW (Standards of Training Certification and Watchkeeping)
- COST (Certificate of Safety Training)
- IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities Standard 1050)

¹¹⁰ NCVET VOCSTATS <<https://www.ncver.edu.au/research-and-statistics/vocstats>>, extracted on December 2023

Qualification Completions¹¹¹

Qualification	2018	2019	2020	2021	2022	Certification
MAR10220 Certificate I in Maritime Operations (General Purpose Hand Near Coastal)	552	645	638	563	667	Near Coastal
MAR10418 Certificate I in Maritime Operations (Coxswain Grade 2 Near Coastal)	408	503	340	474	452	Near Coastal
MAR20121 Certificate II in Maritime Operations (Linesperson)	6	50	13	10	0	N/A
MAR20321 Certificate II in Maritime Operations (Coxswain Grade 1 Near Coastal)	1173	1132	1165	1385	1461	Near Coastal
MAR20421 Certificate II in Maritime Operations (Marine Engine Driver Grade 3 Near Coastal)	167	164	107	125	124	Near Coastal
MAR30022 Certificate III in Vessel Traffic Services	0	0	0	0	0	IALA
MAR30122 Certificate III in Marina Operations	0	4	0	0	0	N/A
MAR30220 Certificate III in Maritime Operations (Integrated Rating)	22	26	28	25	35	STCW
MAR30320 Certificate III in Maritime Operations (Marine Cookery)	7	1	0	0	0	COST
MAR30821 Certificate III in Maritime Operations (Marine Engine Driver Grade 2 Near Coastal)	530	601	608	644	675	Near Coastal
MAR30921 Certificate III in Maritime Operations (Master up to 24 metres Near Coastal)	688	645	687	782	759	Near Coastal
MAR31021 Certificate III in Maritime Operations (Master Inland Waters)	7	8	1	0	2	Near Coastal
MAR31222 Certificate III in Autonomous Maritime Systems	0	0	0	0	0	Near Coastal
MAR40121 Certificate IV in Maritime Operations (Chief Integrated Rating)	0	0	0	0	0	STCW
MAR40220 Certificate IV in Maritime Operations (Marine Engine Driver Grade 1 Near Coastal)	55	50	15	45	82	Near Coastal
MAR40320 Certificate IV in Maritime Operations (Master up to 45 metres Near Coastal)	165	164	170	157	162	Near Coastal
MAR50120 Diploma of Marine Engineering	45	37	32	44	52	STCW, Near Coastal
MAR50320 Diploma of Maritime Operations	28	22	20	16	13	STCW, Near Coastal
MAR60120 Advanced Diploma of Marine Engineering (Class 1)	21	14	16	18	15	STCW
MAR60220 Advanced Diploma of Maritime Operations (Master Unlimited)	25	16	12	5	5	STCW
Grand Total	3899	4082	3852	4293	4504	

¹¹¹ NCVET VOCSTATS <<https://www.ncvet.edu.au/research-and-statistics/vocstats>>, extracted on December 2023

Number of RTOs scoped to deliver Maritime Qualifications¹¹²

Qualification	RTO count	Certification
MAR10220 Certificate I in Maritime Operations (General Purpose Hand Near Coastal)	26	Near Coastal
MAR10418 Certificate I in Maritime Operations (Coxswain Grade 2 Near Coastal)	27	Near Coastal
MAR20121 Certificate II in Maritime Operations (Linesperson)	1	N/A
MAR20321 Certificate II in Maritime Operations (Coxswain Grade 1 Near Coastal)	37	Near Coastal
MAR20421 Certificate II in Maritime Operations (Marine Engine Driver Grade 3 Near Coastal)	22	Near Coastal
MAR30022 Certificate III in Vessel Traffic Services	0	IALA
MAR30122 Certificate III in Marina Operations	1	N/A
MAR30220 Certificate III in Maritime Operations (Integrated Rating)	3	STCW
MAR30320 Certificate III in Maritime Operations (Marine Cookery)	1	COST
MAR30821 Certificate III in Maritime Operations (Marine Engine Driver Grade 2 Near Coastal)	24	Near Coastal
MAR30921 Certificate III in Maritime Operations (Master up to 24 metres Near Coastal)	26	Near Coastal
MAR31021 Certificate III in Maritime Operations (Master Inland Waters)	3	Near Coastal
MAR31222 Certificate III in Autonomous Maritime Systems	0	N/A
MAR40121 Certificate IV in Maritime Operations (Chief Integrated Rating)	1	STCW
MAR40220 Certificate IV in Maritime Operations (Marine Engine Driver Grade 1 Near Coastal)	10	Near Coastal
MAR40320 Certificate IV in Maritime Operations (Master up to 45 metres Near Coastal)	17	Near Coastal
MAR50120 Diploma of Marine Engineering	5	STCW, Near Coastal
MAR50320 Diploma of Maritime Operations	5	STCW, Near Coastal
MAR60120 Advanced Diploma of Marine Engineering (Class 1)	3	STCW
MAR60220 Advanced Diploma of Maritime Operations (Master Unlimited)	2	STCW

¹¹² Training.gov.au (as at 20 December 2023)



Maritime-related university qualifications¹¹³

Qualification Type	Course Name
Diploma	Digital Technologies (Submarines)
Advanced Diploma	Applied Science (Nautical Science)
Associate Degree	Engineering (Maritime)
Associate Degree	Global Logistics And Maritime Management
Bachelor	Applied Science (Marine Electrical Engineering)
Bachelor	Applied Science (Marine Electro-Technology)
Bachelor	Applied Science (Marine Electrotechnology)
Bachelor	Applied Science (Marine Engineering)
Bachelor	Applied Science (Maritime Technology Management)
Bachelor	Business (Maritime and Logistics Management)
Bachelor	Business (Maritime and Logistics Management) Honours
Bachelor	Engineering (Marine & Offshore Engineering - Co-Operative Ed
Bachelor	Engineering (Marine & Offshore Engineering) (Honours)
Bachelor	Engineering (Marine And Offshore Engineering) (Honours)
Bachelor	Engineering (Marine And Offshore Engineering) Honours
Bachelor	Engineering (Marine And Offshore Systems) Honours
Bachelor	Engineering (Maritime) (Honours)
Bachelor	Engineering Technology (Maritime)
Bachelor	Global Logistics And Maritime Management With Honours
Bachelor	Maritime Engineering (Specialisation) (Honours)
Bachelor	Maritime Engineering (Specialisation) (Honours) (Co-Operative Education)
Graduate Certificate	Marine Engineering

Qualification Type	Course Name
Graduate Certificate	Maritime and Logistics Management
Graduate Certificate	Maritime Engineering
Graduate Certificate	Maritime Engineering (Naval Engineering)
Graduate Certificate	Maritime Management
Graduate Certificate	Maritime Studies
Master	Business Administration (Advanced) (Maritime and Logistics Management)
Master	Business Administration (Maritime and Logistics Management)
Master	Business Administration (Maritime Technology And Management)
Master	Business Administration (Shipping And Maritime Management)
Master	Business Administration Maritime Management
Master	Engineering (Maritime Design)
Master	Maritime Engineering (Advanced)
Master	Maritime Engineering (Professional)
Master	Maritime Engineering (Technology Management)
Master	Maritime Policy
Master	Philosophy (Maritime and Logistics Management)
Master	Philosophy (Maritime Logistics Management)
Doctor	Philosophy (Marine Craft Operation)
Doctor	Philosophy (Maritime Engineering And Technology)
Doctor	Philosophy (Maritime Engineering)

¹¹³ Australian Government Department of Education

Maritime Occupational Areas

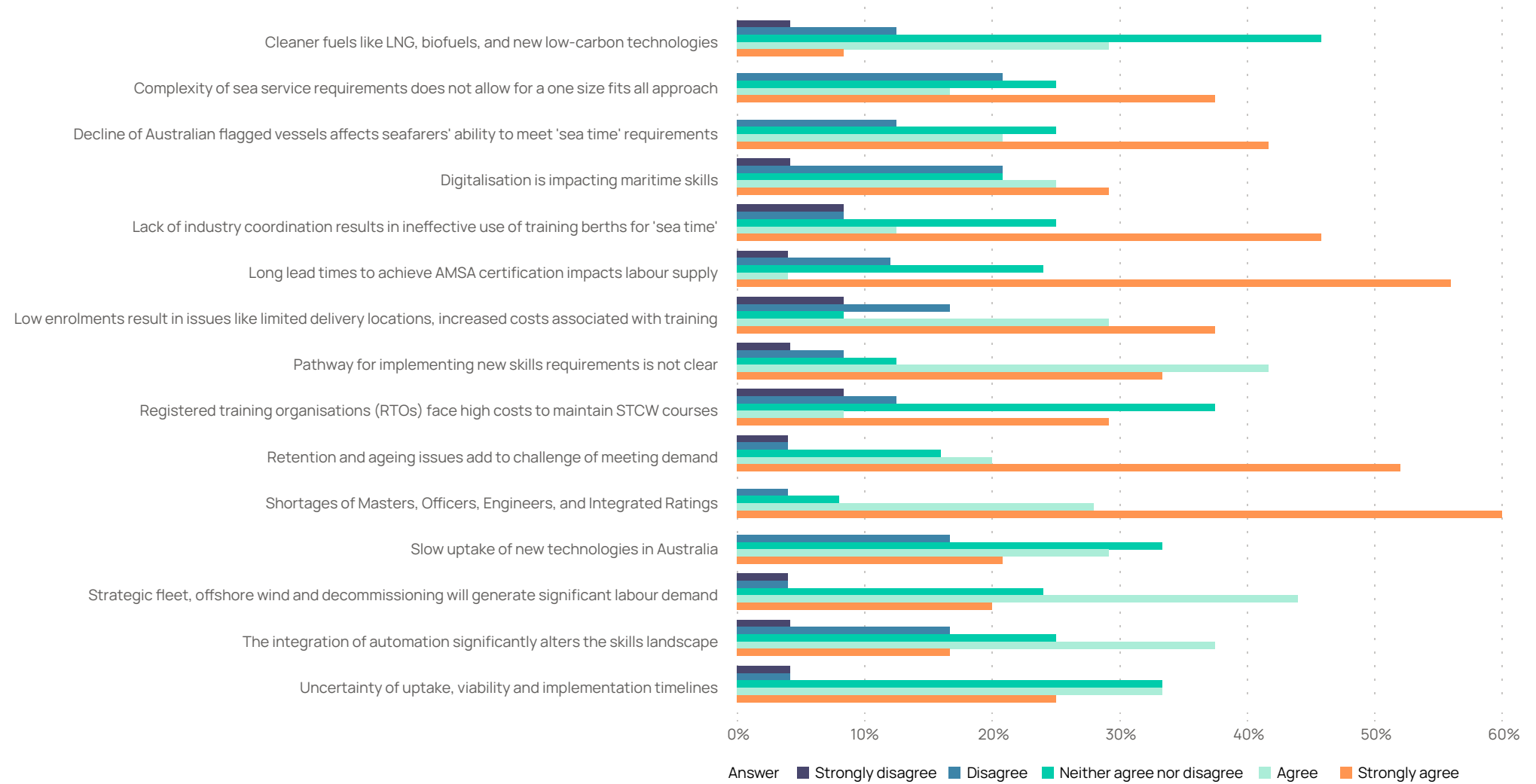
Industry Skills Australia acknowledges that the ANZSCO codes used by the VET system to identify occupations in the Maritime industry do not always correspond with the way in which the industry describes itself. The table below describes job roles in terms that industry will recognise. We have developed this framework as a starting point to assist in conversations with industry stakeholders and will further refine it over time in collaboration with the Strategic Workforce Planning Committees. Job roles that have no clear ANZSCO alignment are identified with a dash, '-'.

Occupational Area	ANZSCO Occupation Titles	Job Roles
1. Navigation	231213 Ship's Master, 231214 Ship's Officer	Master Unlimited, Master < 3000 GT, Chief Mate < 3000 GT, Master < 500 GT, Mate < 500 GT, Chief Mate, Watchkeeper Mate Deck
	231213 Ship's Master	Master < 100 metres Near Coastal (NC)
	231213 Ship's Master	Master < 45 metres NC, Master < 24 metres NC, Master (Inland waters) NC
	-	Coxswain Grade 3 NC, Coxswain Grade 2 NC, Coxswain Grade 1 NC
2. Engineering	231212 Ship's Engineer	Engineer Class 1 (Steam and Motor), Engineer Class 1 (Steam), Engineer Class 1 (Motor), Engineer Watchkeeper, Engineer Class 2
	231212 Ship's Engineer	Engineer Class 3 NC
	-	Electro-Technical Officer
	-	Marine Engine Driver Grade 3 NC, Marine Engine Driver Grade 2 NC, Marine Engine Driver Grade 1 NC.
3. Deck Operations	899211 Deck Hand	Chief Integrated Rating, Integrated Rating, Able Seafarer - Deck, Able Seafarer - Engine, Navigational Watch Rating, Engine Room Watch Rating
	351411 Cook	Marine Cook
	899211 Deck Hand	General Purpose Hand
4. Support Operations	899211 Deck Hand	Linesperson
	231299 Marine Transport Professionals nec	Vessel Traffic Services Operator
	149999 Hospitality, Retail and Service Managers nec	Marina Manager, Marina Assistant
	231215 Marine Surveyor	Marine Surveyor
5. Autonomous Operations	-	Autonomous Surface Vehicles (ASV) Operator, Autonomous Underwater Vessels (AUV) Operator, ASV Technician, AUV Technician in Near Coastal waters

Stakeholder Survey Summary

The stakeholder survey was conducted between December 2023 to January 2024 and was designed to test the identified challenges and drivers and to capture proposed strategies from industry.

Stakeholder Consensus on Workforce Issues



Impact on organisations

Survey participants were queried about the impact of the identified drivers and challenges on their organisations. The following presents a summary of these key insights.

- A. Upcoming Projects Need Workforce Planning: Crew shortages due to an aging workforce, with a lack of new entrants and difficulties in retaining staff.
- B. High Costs creating barriers for Maritime Training: High costs and limited regional offerings hinder the development of skilled maritime workers, while higher-paying sectors attract trained personnel away
- C. Challenges meeting sea time requirements: Stringent sea time requirements and a small Australian fleet present barriers to obtaining necessary certifications, affecting industry entry.
 - Skills implications of emerging technology and decarbonisation strategies: Rapid tech advancement and unclear future regulations cause career security concerns, leading to a shortage of workers trained in new maritime technologies and strategies.

Proposed solutions

Respondents were asked for recommended solutions to tackle the identified drivers and challenges. Below is a summarised overview of these recommendations.

- A. Upcoming Projects Need Workforce Planning:
 - Greater government support for promoting maritime careers.
 - Direct funding towards trainee positions and dedicated training vessels.
 - Encouragement of early career entry through secondary schools.
 - Encouraging the return of an Australian shipping industry.
- B. High Costs creating barriers for Maritime Training:
 - Increase remote learning opportunities to reduce travel costs.
 - Improved delivery models such as blended learning.
 - Utilising new technologies to support training delivery.
 - Fund and support Training providers and training systems appropriately.
- C. Challenges meeting sea time requirements:
 - Adaptability in sea service requirements to assist in qualifying.
 - Government incentives to grow the Australian fleet.
 - Centralised training fund not influenced by individual stakeholder groups.
 - Expansion of the cadet model which is subsidised
 - Clarifying career and learning pathways.
- E. Skills implications of emerging technology and decarbonisation strategies:
 - Collaborative government and industry efforts to protect employees from redundancy due to technology.
 - Incorporation of emerging technologies within training courses.
 - Regulatory frameworks providing direction on green technologies in shipping.
 - Pathways for transitioning to new sectors like offshore wind.

Other key drivers

Respondents were invited to discuss any other significant drivers and challenges influencing skills and workforce development within their sector. The following provides a summary of these critical issues.

- Notable gap in providing learning opportunities aligned with industry needs, including inadequate upskilling pathways and lack of standardised recognition for prior learning, placing burden on individuals.
- Struggles to attract, skill, and retain workers, competing against higher-paying sectors, with transient workforce leading to high turnover.
- Growth of new industries and demographic shifts, including ageing population, necessitate maximising domestic labour sourcing and attracting overseas skilled personnel.
- Scarcity of Australian ships and lack of maritime simulation centres for training, needing strategic recruitment and education overhaul.
- Ideological push to reduce local content and reliance on foreign vessels, highlighting the need for policy reform to enhance sovereign capability.
- Need for improvement in maritime training quality and certification process to fast-track talent and prevent loss to better-paying sectors.
- Acute shortages of skilled shipwrights, fitters, machinists, and engineers, indicating need for strategic skill development within domestic talent pool.

Public Consultation Summary

Draft Workforce Plans were published on the Industry Skills Australia website in March 2024 and feedback invited from the Aviation subscribers.

The following table describes the main feedback themes and how they were responded to in the Workforce Plan.

Feedback Theme	Response in the Workforce Plan
<p>Difficulties in obtaining sea time. Stakeholders indicated there were several barriers to the achievement of sea time, addressing these barriers was a priority and highlighted the importance of meeting IMO and AMSA qualifying sea service requirements.</p>	<p>The workforce plan acknowledged barriers to achieving sea time in its key drivers and challenges. A proposed action is to develop a model for effectively co-ordinating sea time. This includes designing and validating this model with industry which includes AMSA. Proposed action has been scheduled for commencement in 2024.</p>
<p>Impact of decarbonisation. Stakeholders had differing opinions and views on the impact of decarbonisation including the uptake digitalisation and automation on the industry, their workplace or sector of their industry. Stakeholders provided examples of how their organisations had taken on decarbonisation initiatives. Stakeholders also highlighted alternative fuels, new technologies, automation, and the potential impact on seafarer skills.</p>	<p>The workforce plan acknowledged the impact of decarbonisation in its key drivers and challenges. A proposed action for further research and consultation to be continued in 2024 will focus on decarbonisation. This includes reviewing and monitoring the impact of key policies and initiatives (eg. MERNAP, outcomes of member state decarbonisation projects, IMO basket of measures for 2027). Existing workforce strategies and initiatives highlights how approaches to decarbonisation informs the Workforce Plan.</p>
<p>Data gaps. Stakeholders highlighted gaps relating to the ANZSCO codes including inability separate out the demand for Masters, Engineers and Officers is difficult (no distinction between Near Coastal vs STCW job roles), lack of supply and demand data, and reliance on JSA data sets vs other sets of data (eg. Data held by individual maritime organisations including maritime regulator data, RTO projected enrolments), no distinction between STCW and non-STCW enrolment data.</p>	<p>The workforce plan acknowledges the gaps in data in particular the ANZSCO code and highlights the ABS review of these codes. A proposed action is the supply and demand forecast which will support crewing requirements for Strategic Fleet. This includes industry being given the opportunity to provide their data sets as part of this process. Explanatory notes were added to clarify data sets and/or data sets updated.</p>
<p>Existing Workforce Strategies and Initiatives. Stakeholders highlighted several initiatives which could be included into the workforce plan.</p>	<p>Existing Workforce Strategies and Initiatives in the workforce plan were updated.</p>
<p>Proposed Actions. Stakeholders provided advice and feedback on issues that needed to be considered when implementing Proposed Actions (eg. suggestion that a risk analysis be conducted to ensure that regulatory requirements are met; suggestion that research be conducted into the number of training berths available).</p>	<p>ISA will continue to work with stakeholders who expressed concerns about some of the Proposed Actions when completing detailed scoping of projects.</p>
<p>Language distinction. Feedback from stakeholders highlighted that in some instances the need to clearly distinguish between the language and role of VET vs the language and role of the maritime regulator (eg. AMSA/IMO is responsible for setting the requirements for revalidation; VET provider is responsible for the training and assessment system which students use to meet revalidation requirements)</p>	<p>The workforce plan was updated so the RCC and revalidation model, clearly articulated the role of the maritime regulator and the role of the VET system. Language was updated to ensure consistency.</p>

Inclusion of non-STCW job roles and other sectors of the industry. Feedback from stakeholders suggested that the workforce plan had an over emphasis on Strategic Fleet and needed to include proposed actions for non-STCW job roles and maritime workers in other sectors.

Proposed Actions in the workforce plan were updated to confirm that sectors of the maritime industry (such as Near Coastal).

Additional demand. Feedback from stakeholders highlighted additional workforce demand (eg. defence support, coastal trading, existing demand from Bluewater vessels)

Key challenge and drivers updated to include new industry and other maritime workforce requirements.

Changes to training package products in response to regulatory requirements. Feedback highlighted that the proposed action could be read as being an update to MO505 vs update to training package products in response to MO505. Also highlighted that the VTS and skills development for marine surveying needed to be clarified.

Proposed action was updated to clarify the focus of the MO505 and VTS project. Marine surveying was included as a proposed action for further research and consultation to be continued in 2024.

Megatrends. Stakeholders had differing opinions and views on the impact of megatrends in the maritime industry.

Key driver and challenge on decarbonisation was updated.



ANZSCO and ANZSIC Classifications

This section provides a detailed breakdown of the Australian and New Zealand Standard Classification of Occupations (ANZSCO) and the Australian and New Zealand Standard Industrial Classification (ANZSIC) as they have been used in this document to quantify occupations and industry.

ANZSCO data is presented at two levels of detail. The highest level of detail (6-digit) is available for Census and Skills Priority List data while 4-digit data is available for the quarterly Labour Force data, Employment Projections and the Internet Vacancy Index and others.

ANZSIC data is also presented at two levels of detail. The highest level of detail (4-digits) is available for Census, Counts of Australian Businesses and IBISWorld Industry Class reports, that approximately align to 4-digit ANZSIC while 3-digit data is available for the quarterly Labour Force data, Employment Projections and others.

Note: 'nec' stands for 'not elsewhere classified' and 'nfd' stands for 'not further defined'. If the Census/Survey respondent didn't provide enough information to categorise the occupation/industry at the highest level of detail, 'not further defined' is used and the respondent is still counted.

ANZSCO Code	Title	Level of Detail
231200	Marine Transport Professionals, nfd	6-digit
231212	Ship's Engineer	6-digit
231213	Ship's Master	6-digit
231214	Ship's Officer	6-digit
231215	Marine Surveyor	6-digit
231299	Marine Transport Professionals, nec	6-digit
899200	Deck and Fishing Hands, nfd	6-digit
899211	Deck Hand	6-digit
2312	Marine Transport Professionals	4-digit
8992	Deck and Fishing Hands	4-digit



ANZSIC Code	Title	Level of Detail
4810	Water Freight Transport	4-digit
4820	Water Passenger Transport	4-digit
5212	Port and Water Transport Terminal Operations	4-digit
5219	Other Water Transport Support Services	4-digit
480	Water Transport, nfd	3-digit
481	Water Freight Transport	3-digit
482	Water Passenger Transport	3-digit
5210	Water Transport Support Services, nfd [†]	4-digit
521	Water Transport Support Services [†]	3-digit
5010	Scenic and Sightseeing Transport [†]	4-digit
501	Scenic and Sightseeing Transport [†]	3-digit

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 and ANZSIC.

- ANZSCO (Australian and New Zealand Standard Classification of Occupations) categorises occupations based on skill level and specialisation.
- 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 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) 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.

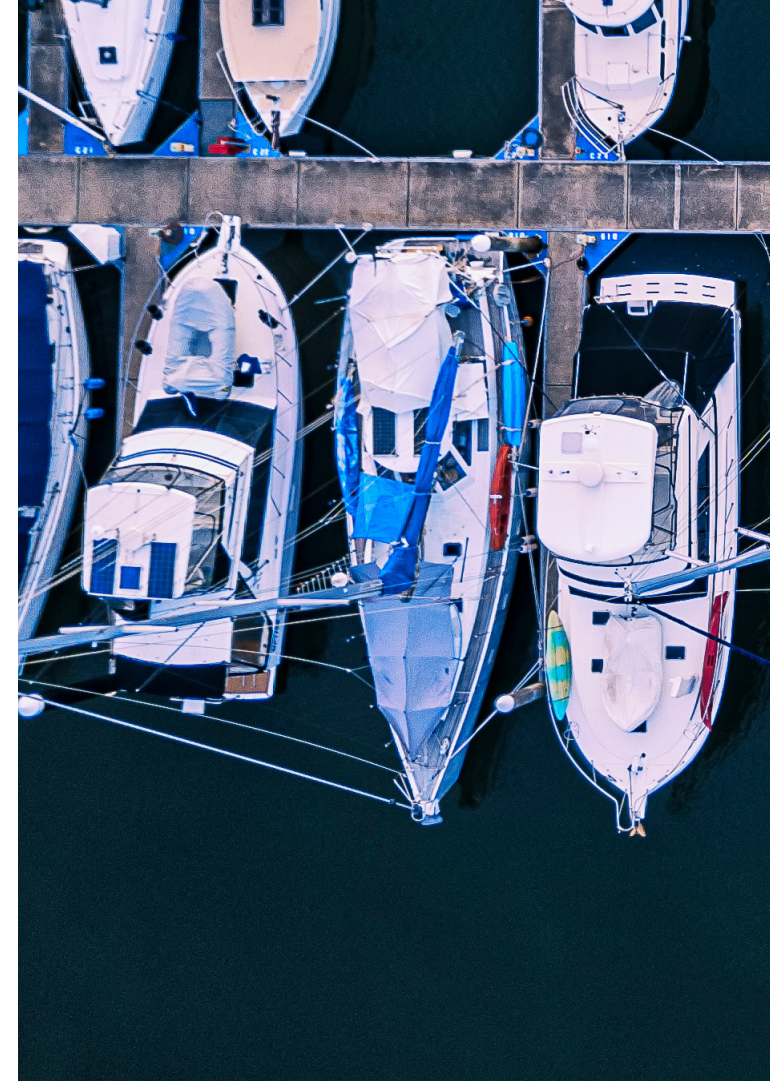
Employment projections

Jobs and Skills Australia provides employment projections for specific quarters, spanning from May 2023 to May 2033. In contrast, we use the annual average of employment figures from all quarters to smooth the data. To ensure internal consistency, we apply the projected percentage growth rates to the annual average employment figures from the Labour Force Survey. This method avoids discrepancies that might arise from using the specific employment levels of May 2023, which can differ from the annual average.

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.

Water Transport Support Services is an industrial category that is split between the Maritime workforce (port and terminal operations sub-categories) and Transport and Logistics workforce (Stevedoring Services sub-category). This split is based on historical Census distributions.



*Future demand is calculated by Jobs and Skills Australia for each occupation by looking at two things: how many more jobs there will be in the future and how many people will leave their current jobs. Occupations are then given a rating like "Above average," "Average," or "Below average," based on these predictions compared to all other occupations.



Data Gaps

Outside of Census years, the resolution of labour force data is not high. Maritime has only two occupational categories at the 4-digit ANZSCO level. As a practical example, separating demand for Masters, Engineers or Officers is not straightforward since they are only available at 6-digit resolution.

The Australian Bureau of Statistics (ABS) is currently undertaking a comprehensive review of the Australian and New Zealand Standard Classification of Occupations (ANZSCO) to reflect the contemporary labour market, the first major review since 2006. From October to December 2023, the focus will be on occupations in

water transport (Maritime industry). ISA will provide feedback on the accuracy of current occupation skill levels and descriptions and any occupations anticipated to emerge in the next 5 to 10 years.

The Maritime Training Package is utilised by more industries than just the maritime transport industry. Workforce data relating to marine rescue, fishing, aquaculture and other industries that utilise the Maritime training package are not captured in the Water Transport category. In the most recent Census, only 38%¹¹⁴ of Maritime workers were identified as working in the Water Transport or Water Transport Support Services sectors, with the majority dispersed in various other sectors.

Appendix A lists qualification completions; however, these figures should not be compared with enrolment numbers to ascertain completion rates. Instead, completion rates¹¹⁵ are calculated by the National Centre for Vocational Education Research (NCVER), reflecting the proportion of qualifications that are ultimately completed. It's important to note that these rates are available for all qualifications collectively, but not for specific training packages or individual qualifications.

¹¹⁴ ABS Census 2021

¹¹⁵ NCVER 2023, VET qualification completion rates 2022, NCVER, Adelaide

Appendix B

Glossary of Terms

Gap analysis - The process of quantifying and identifying the difference between current workforce and skills needs and what will be required into the future.

Labour shortage - Where the demand for unskilled labour (entry level or otherwise) is greater than the supply of those available and willing to work under existing industry conditions

Registered Training Organisation - Organisations that are approved by ASQA, WA TAC or VRQA to deliver nationally recognised training in the VET sector

Reskilling - Involves learning new skills outside of a person's existing skillset which are often closely adjacent to their current function, but can be geared toward a different path entirely

Skill Set - A single unit of competency or a combination of units of competency from a training package that link to a licensing or regulatory requirement, or a defined industry need

Skill shortage - where the demand for specific skills (or knowledge) is greater than available within the current workforce

Occupational shortage - Where the demand for employees in specific occupations is greater than the supply of those who are qualified, available and willing to work under existing industry conditions

Training Provider - Any organisation or individual providing education or training services

Upskilling - Undertaking learning to expand a person's existing skill set. Upskilling enhances a worker's performance in their current role, potentially advancing them along their career path

Workers - The term refers to occupational data (ANZSCO)

Workforce development - Design or delivery of initiatives to build the skills and capability of the workforce. May include but is not limited to: skills audits and skills analyses; on or off-the-job training; skills recognition; recruitment, job design and career pathways; assessment and evaluation.

Workforce Plan - The repeated, systematic and cyclical identification, analysis and planning of workforce skill needs at the enterprise (micro) or sector/region (meso) or whole of industry/economy (macro) level

Workforce Planning - Analysis, research and strategies to identify, forecast and respond to the current, emerging and future workforce challenges and opportunities

Workforce - The term refers to industrial data (ANZSIC)

Sources for infographics on pages 13-14

ABS Counts of Australian Businesses

Business No
Business distribution by state %

ABS Labour Force 2023

Top 4 sectors by workforce no.
Workforce
Female %
Workforce distribution

AMSA Corporate Plan 2023-24

Australia's international trade carried by sea

BITRE Yearbook 2022

Domestic freight task growth (projected to 2030)

Census 2021

Aboriginal & Torres Strait Islander %
With a disability %
Workforce with vocational education
Median age
Workforce nearing retirements (aged 56-66)
Top 5 occupations

IBISWorld Industry Wizard

GDP contribution \$b 2022-2023
Estimated annual revenue \$b 2023-2024

NCVER, Total VET Activity 2022

Qualification enrolment 2022

NERO 2023

Residential distribution

training.gov.au, RTOs with explicit scope to deliver quals

Registered training organisations (RTO)

Appendix C

Methodology

The Workforce Plan adopts a comprehensive approach to understand and address workforce driver and challenges in our industries. Our methodology is designed to be evidence based, industry supported and actionable, ensuring that the insights we generate are both relevant and practical.

1. Generating Hypotheses

Initially, we formed “hypotheses” about the workforce. A hypothesis is an idea that is proposed so that it can be tested to see if it might be true. For example, we might hypothesise that the demand for truck drivers is high due to ongoing issues with attracting and retaining employees in these roles. Individual hypotheses are grouped into narrative sections, for example “A. Attraction and retention in the Transport and Logistics sectors”. These hypotheses guide our research and analysis, helping us to focus on specific areas of interest.

2. Data and Research Support

To validate our hypotheses, we draw on both qualitative and quantitative sources, including labour market reports, academic studies, news articles and a wide variety of data. This step is crucial for grounding our hypotheses, ensuring that the problems we have identified are backed by solid evidence.

3. Stakeholder Survey

The stakeholder survey is designed to test our hypotheses with industry. For each hypothesis we:

- measure agreement among stakeholders.
- gain an understanding of how the identified issues are impacting organisations.
- capture suggested responses to the issues.
- identify any additional key drivers not previously considered.

The insights gathered from stakeholders play a pivotal role in shaping the Plan. Their feedback not only tests the relevance of the identified challenges but also enriches the development of Proposed Actions with practical solutions.

4. Developing Proposed Actions

A key part of our methodology involves the Labour Market Dynamics and Potential Strategies Mapping tool. This tool allows us to:

- Diagnose our hypotheses as having one or more ‘symptoms’, symptoms being categories of shortages/ surpluses of skills and workers. These symptoms indicate how the labour supply is meeting demand.
- Identify potential strategies to respond to the identified issues.

- Evaluate existing initiatives, identifying any that are aligned with our hypotheses. This helps to ensure our Proposed Actions complement, rather than duplicate, existing efforts.

5. Incorporating Feedback

Prior to public consultation, we seek feedback from the relevant industry SWPC (Strategic Workforce Planning Committees). This step is crucial for ensuring our findings and recommendations are relevant, practical, and aligned with the needs and priorities of industry.

6. Public Consultation

A draft of our report is made available for public consultation, allowing a broader audience to contribute their insights and feedback via a feedback form. This phase enables us to fine-tune our challenges/ drivers and validate Proposed Actions through direct engagement with our stakeholders.



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