Australian Government

Australian Institute of Marine Science

AIMS Index of Marine Industry: 2025

Prepared by Deloitte Access Economics for the Australian Institute of Marine Science

Acknowledgement of Country

The Australian Institute of Marine Science and Deloitte Access Economics acknowledge the Traditional Custodians of land and sea Country across Australia. We recognise Aboriginal and Torres Strait Islander people as Australia's first scientists and acknowledge their deep and timeless connection with Country. We pay our respects to Elders past and present, and acknowledge future leaders.

Warning: Aboriginal and Torres Strait Islander persons should be aware that this document might contain images of people who have passed away since publication.

CEO's Foreword

Professor Selina Stead BSc, MSc, PhD
Chief Executive Officer,
Australian Institute of Marine Science

I welcome readers to the 10th edition of the AIMS Index of Marine Industry. Over the past decade, the Marine Industry Index has provided a valuable lens through which to view the economic contribution of Australia's vast and diverse marine industry.

Achieving thriving oceans requires balancing an understanding of the ocean's economic contributions with cultural, environmental and social co-benefits.

Our oceans, estuaries, and connected waterways not only support thriving ecosystems but underpin industries that generate billions of dollars for the Australian economy and support hundreds of thousands of jobs.

The 2025 edition of the Index underscores the scale of the marine industry's economic footprint. In the 2022-23 financial year, the marine economy contributed $203 billion in total value added – representing 9.1% of Australia's GDP – and supported 713,000 full-time equivalent (FTE) jobs. From marine research to offshore energy, and from water transport to tourism, the 19 industry groups that form Australia's marine industry are strong contributors to our nation's prosperity.

Our reporting period has been defined by resilience and growth. Since the last edition, the marine industry has grown substantially, with economic output of $229 billion increasing by 19% between 2020-21 and 2022-23. Notably, domestic tourism has rebounded from the Covid travel restrictions, contributing to a 52% surge in total FTE employment across the marine industry from 2020-21 to 2022-23. Natural gas and offshore oil exploration remain key components of the sector, now comprising over half of total marine industry output.

Beyond economic metrics, this year's Index delves deeper into the evolving role of our oceans in shaping Australia's sustainable future. With the emerging recognition of the value of the blue economy, we are seeing new opportunities emerge – from offshore wind energy to the valuation of Indigenous Ranger ecosystem and coastal protection services. As we look ahead, working together with key interests to support sustainable oceans will be paramount.

I invite you to explore this edition of the Index, which offers a current snapshot that captures the diversity of Australia's marine industry and frames the evolution, adaption and value it brings to the national economy.

The economic contribution of Australia's marine industry

$203 billion in value added

In FY23

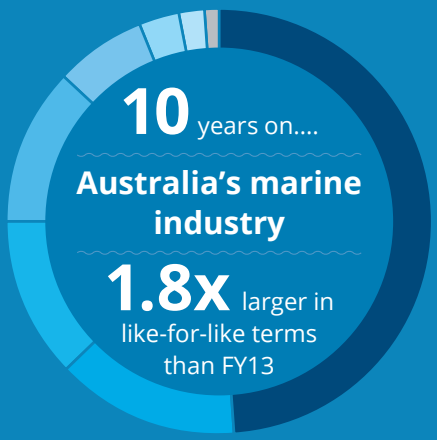
713,000 jobs in FTE

Measured through 37 industries. This includes...

19 quantitatively & **18** qualitatively assessed industries, grouped into **7** sectors. Industries are captured qualitatively where data was not available

Economic output

- WA – 49%
- NSW – 14%
- QLD – 12%
- VIC – 12%
- NT – 7%
- SA – 2%
- TAS – 2%
- ACT/OT – 1%



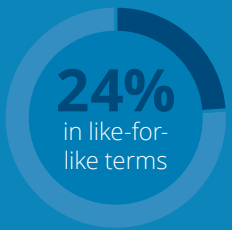
49% of Australia's total economic output was from Western Australia → with **78%** of WA's output driven by the natural gas industry

72% of output was derived from 3 industries

1. Natural gas
2. Domestic marine tourism
3. Water transport support services

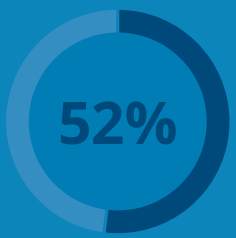
Economic contribution

Since FY21, the marine industry has expanded by



increasing direct value added contribution to GDP from **5.1%** to **6.3%** increasing direct value and supporting an additional **109** upstream industries

Since FY21, supported FTE jobs have grown by



The top 3 total FTE employing industries were

1. Domestic marine tourism
2. Natural gas
3. Water transport support services

Blue economy

Australia hosts approximately **12%** of the  's blue carbon ecosystems, contributing **5-11%** of the global blue carbon stock

Executive summary

Australia's marine environments are vast – capturing all saltwater environments linked to the ocean – including seas, estuaries, rivers, harbours, and connected waterways. These extensive ecosystems support various sectors across the Australian Economy, spanning marine research to sewerage and drainage services. In 2008, the AIMS Marine Index (Index) was developed to cut across 'standard' industry classifications to produce an holistic view of how goods and services which either depend on, or are produced within, Australia's marine environments contribute to the Australian Economy.

In its 10th edition, the 2025 AIMS Index of Marine Industry updates existing analysis to include estimates for financial years 2021-2022 (FY22) and 2022-2023 (FY23), and supports the ongoing effort by AIMS to understanding of the size and composition of Australia's marine industry, and how this is changing over time. Updated figures include estimates of the size and diversity of the marine industry, as well as the contribution of the marine industry to gross value added (both direct and indirect) and jobs across Australia (see Appendix B for the full methodology).

This report identifies several key insights relating to Australia's marine economy in FY22 and FY23.

The marine industry plays a significant role in the Australian economy. In FY23, the marine economy generated $229 billion of economic output - reflecting the total value of goods and services produced (see Appendix B for more information) - and contributed $203 billion in total value added. This contribution to value added is equivalent to 9.1% of Australia's GDP, including $140 billion generated across 19 industries, as well as a further $63 billion in indirect value added across 109 upstream industry groups. While this highlights the economic value generated by the marine industry itself, it highlights the role it plays in supporting the broader Australian economy.

The marine industry supports a large number of Australian jobs. The total employment contribution of the Australian marine industry was just over 712,000 FTE workers in FY23, including direct employment of 332,000 FTE workers and a further 380,000 FTE workers employed in supplying industries. This reflects approximately 5% of Australian total FTE employment. Domestic tourism was the primary direct employer, followed by recreational activities other than fishing and water transport support services.

The marine industry has experienced strong growth since the last edition of the Index. Output of the marine industry grew by 19% between financial year 2020-21 (FY21) (the latest year captured in the previous Index) and FY23.

Similarly, total value added has grown by 24% (in real terms) over this time, and the number of FTE jobs supported by the industry has increased by 52%. To put this in context, Australia's GDP per capita grew 0.3% over this same period.[1] The significant growth in jobs was largely driven by indirect employment, with around a quarter linked to tourism – fuelled by the return of international visitors and strong domestic demand – and nearly a third from the natural gas, with higher output supporting significant upstream employment.

Marine industry growth has been propelled by expansion of the natural gas and domestic tourism economic output. Between financial years FY21 and FY23, the economic output of natural gas, offshore oil exploration and extraction sector has grown by 12% – reaching $122 billion in output and comprising over half of the marine industry's economic output. The second largest industry by economic output in FY23 was the marine tourism and recreational activities sector, which grew 65% over the same period, reflecting the recovery of the tourism industry following the COVID-19 pandemic.

Not only has the marine industry grown since the last Index, but it has grown significantly in the past decade. Compared to financial year 2012-13 (FY13), economic output (holding industry coverage constant, as at the AIMS 2016 Index, and adjusting for inflation), has grown to be 1.8 times larger in the space of a decade. This reflects growth from $103 billion in output during FY13 to $184 billion in FY23, when comparing in like-for-like terms. This has also been underpinned by growth in the natural gas, offshore oil exploration and extraction sector – which now comprises 66% of marine industry economic output, compared to 54% a decade ago.

Moving forward, discussions of the marine industry will increasingly consider the role that ecosystems, and their health, play in sustaining long-term economic growth and prosperity. This edition of the Index explores the blue economy, highlighting opportunities to align economic goals with sustainability. Offshore wind, for example, could generate 100 times the capacity of Australia's two largest electricity networks. The Index also examines the broader social and environmental benefits of marine environments, such as coastal protection from mangroves and saltmarshes. In 2021, these services were valued at $228 billion – surpassing the marine industry's output in FY2021 and underscoring the need for a comprehensive approach to valuing Australia's marine economy.

Contents

Glossary

ABS: Australian Bureau of Statistics
AIMS: Australian Institute of Marine Science
ANZSIC: Australian and New Zealand Standard Industrial Classification
ARC: Australian Research Council
CGE: Computable General Equilibrium
CMBD: Centre for Marine Bioproducts Development
CRC: Cooperative Research Centre
DAE-RIOM: Deloitte Access Economics' Regional Input-Output Model
EBITDA: Earnings before interest, tax, depreciation and amortisation
EPA: Environmental Protection Agency
FTE: Full-time Equivalent
GDP: Gross Domestic Product
Goods and services: The products and services that are bought and sold in an economy[1]
GOS: Gross Operating Surplus
GVA: Gross Value Added
IO: Input-Output
IPA: Indigenous Protected Areas
LNG: Liquefied natural gas
LPG: Liquefied petroleum gas
NOPSEMA: National Offshore Petroleum Safety and Environmental Management Authority
NPV: Net Present Value
Output: The total value of goods and services produced in each of the sub-sectors, typically measured as gross revenue.
OT: Other Territories
Real terms: Figures expressed in real terms are adjusted for price changes (inflation) using the Consumer Price Index (CPI) as well as LNG export prices, providing a more accurate reflection of purchasing power and economic value over time
SEEA: System of Environmental-Economic Accounting
SROI: Social Return on Investment (SROI) is a form of cost-benefit analysis that examines the social, economic, cultural and environmental outcomes created and the costs of creating them using relevant financial proxies to estimate relative values.[2]
TUMRA: Traditional Use and Marine Resource Agreements
UN: United Nations
Value added: Value added measures the value of output (i.e., goods and services) generated by the entity's factors of production (i.e., labour and capital) as measured in the income to those factors of production. The sum of value added across all entities in the economy equals gross domestic product.
WEF: World Economic Forum

Planning and mapping marine and coral research activities with Woppaburra elders and traditional knowledge holders | Woppaburra Coral Project | Keppel Islands

1. Background

About this report

The marine economy is vast – capturing all activity occurring within Australia's marine environments. While industries are typically measured by the ABS using ANZSIC industry definitions (a standard national industrial classification system(Include new footnote), the broad nature of the marine economy means it captures activities occurring within several ANZSIC industries.

To address this, the AIMS Index of Marine Industry ('Index') was first developed by Deloitte in 2008, designed to assist AIMS in understanding and communicating the economic significance of the marine industry. Here, the Index utilises a unique methodology that combines outputs from multiple industries, with careful adjustments to avoid double counting. It also measures only the portion of output directly tied to marine-based activities, providing a holistic assessment of the marine industry's contribution to the Australian economy.

In addition, this report considers a fresh look at the blue economy and how it is conceptualised, by acknowledging and exploring some of the broader environmental, economic, cultural heritage and social benefits, through the sustainable use and management of marine ecosystems.

How does the Index consider the marine industry?

The marine industry encompasses economic activities occurring within saltwater environments linked to the ocean, such as seas, estuaries, rivers, harbours, and connected waterways.

It includes goods and services that depend on, or are produced within, these marine ecosystems. Under this definition, the Index considers the marine industry to be comprised of 37 industries, which sum to reflect the Australian marine economy.

Industry identification was guided initially by taxonomies from international bodies, including a joint UN–World Bank report[2] and the OECD,[3] which served as a starting point for determining relevant marine industries. While industry activity is typically classified using the Australia and New Zealand Standard Industrial Classification (ANZSIC) system,[4] this report adopts a hybrid approach - combining ANZSIC and non-ANZSIC definitions - to more accurately reflect the diverse range of activities that make up the marine economy and contribute to employment and GSP.

For example, water transport support services aligns with a specific ANZSIC category, whereas marine tourism is a cross-cutting industry spanning multiple sectors, including accommodation and food services, retail, and recreational services.

While the Index seeks to holistically consider the role of these 37 industries, data availability and measurement constraints has meant that some segments of the marine industry are unable to be quantified.

As such, the Index captures estimates which are underpinned by analysis of several 'quantified' industries, while recognising the role of other industries through qualitative discussion.

Under each edition of the Index, considerations are made as to whether changing data availability may require updates to the quantification of output in industries or the potential to include ones previously defined as 'qualitative'. Such changes limit the ability to compare results from previous editions, therefore driving any revisions to historic estimates shown within this report. Updates to methodology and industry coverage can be found in Appendix B.

The economic contribution of the marine industry is estimated using Deloitte Access Economics' Regional Input-Output Model (DAE-RIOM). This model draws on ABS Input-Output tables aligned with ANZSIC classifications to convert industry output into direct and indirect value added, as well as full-time equivalent (FTE) employment, using industry-specific expenditure profiles and IO-based ratios. Input-Output modelling is a standard method for measuring the economic value of an industry/organisation, and the methodology adheres to the guidelines published by the ABS.[4] The model accounts for potential double-counting in overlapping sectors (e.g. defence and shipbuilding) but operates under an unconstrained economic environment. Further methodological details are provided in Appendix B.

Preferred citation: Australian Institute of Marine Science & Deloitte Access Economics. (2025). AIMS Index of Marine Industry: 2025.

What sectors are included in the marine economy?

The **2025 Index is comprised of 19 quantitative and 18 qualitatively assessed industries,** with the inclusion of 'Scientific Research' as a quantified sector (qualitative in previous editions).

For ease of analysis, these industries have been organised into seven sector groupings (shown in table 1 below). For a detailed breakdown of the industries captured by the Index, and their definitions, see Appendix B.

Table 1: List of marine industries by sector

Sector	Marine industries	
Natural gas, offshore oil exploration & extraction	Natural Gas[+*]	LPG[+*]
	Oil production[+]	Oil exploration[+]
Marine tourism & recreational activities	Domestic marine tourism[+*]	Non-fishing recreational activities
	International marine tourism[+*]	Aquaria[A]
Water transport	Water transport support services	Water-based transport[+]
Fishing	Commercial fishing[+]	Recreational fishing[+]
	Marine-based aquaculture[+]	Indigenous fishing[A]
Marine infrastructure industries	Boatbuilding & repair[+]	Shipbuilding & repair[*]
	Marine equipment retailing[+]	Marinas & boating infrastructure[+]
Defence, marine safety & environment management	Australian Maritime Safety Authority[A]	Dredging[A]
	Surf Life Saving Australia[A]	Marine estate management[A]
	Australian Volunteer Coast Guard[A]	Scientific research[N]
	Marine Park management[A]	Defence
	National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)[A]	Sewerage & drainage services
Other resource extraction & use	Desalination[A]	Ocean renewable energy[A]
	Carbon capture[A]	Marine pipeline services[A]
	Bioprospecting[A]	Salt production[A]
	Marine and seabed mining[A]	Marine biotechnology[A]
	Offshore wind[A]	

Source: Deloitte Access Economics

Key

[A] Qualitative industry

[*]Methodology updates in 2025 Index

[N]Newly quantified in 2025 Index

[+]Industry is included in 2016 Index

Estimating the marine industry

How is the marine industry estimated?

Economic output provides an indication of scale by considering the total revenue from goods and services produced within the marine industry.

Economic contribution is quantified through two measures and estimated using Deloitte Access Economics' Input Output (IO) model, which is based on the ABS IO tables: gross *value added (GVA)* and *FTE employment*. Gross value added specifies the productive return of an industry, while employment considers the equivalent number of full-time workers employed within an industry across its different types of employment (e.g. full-time, part-time, shiftwork etc.). Each of these measures are reported in aggregate terms as well as in direct and indirect terms.

- *Direct value added:* the value of the economic activities of the marine industries (e.g. the profits, wages and net taxes of marine equipment retailers).
- *Direct FTE employment:* the reported full-time employment within a marine industry.
- *Indirect value added:* the value of upstream economic activities that are induced by marine industries (e.g. the purchase of gas and electricity by marine equipment retailers).
- *Indirect FTE employment:* full-time employment that supports across upstream industries.

These measures are used to communicate the significance of each marine industry, and use economic measures to rank and compare performance, growth over time and across geography.

Having an understanding of the economic importance of a marine industry also builds an understanding of the key sectors that contribute to Australia's GDP, at both the state and territory level and across key industries. For more details on the economic contribution framework, refer to the Technical Appendix B.

Note on results: Throughout this report, figures have been reported in nominal Australian dollar terms, unless stated otherwise. As such, FY22 figures are in FY22 Australian dollars and FY23 figures in FY23 Australian dollars.

Where comparing results between years, results have been inflated to FY23 dollars to allow like-for-like comparison.

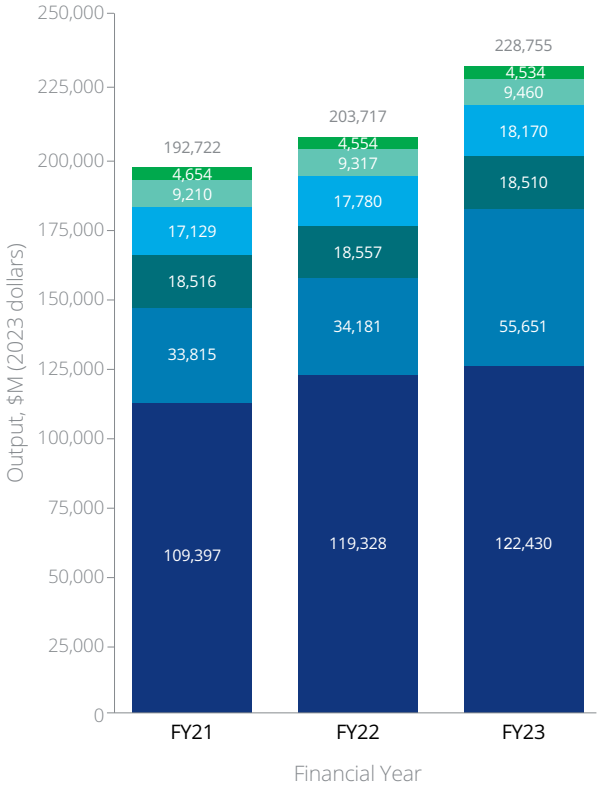
Dredging is a vital aspect of port operations in Australia. Without dredging, ships cannot not be assured safe passage into a berth. Dredging removes sand, silt, mud and rock from the ocean floor where it has collected through natural processes such as wind or wave action. AIMS works with ports to enable dredging operations to comply with water quality environmental standards. In a collaboration with the National Environmental Science Program, AIMS developed the dredging operations research and monitoring thresholds for corals used by Port of Townsville during their expansion to allow greater vessel access while increasing protection for the marine ecosystem.

2. Output of marine industries

Australia's growing marine industry economic output

Economic output was $229 billion in FY23, a 19% growth in like-for-like terms to the previous Index.

Figure 1: Output of Australia's marine industry by sector, FY21 to FY23 (like-for-like terms,* 2023 $)



Source: Deloitte Access Economics
Note: *Real terms accounting for CPI increase and methodology updates

**Global conflict-related price volatilities refer to the significant rise in commodity prices, primarily driven by the impact of the Russia-Ukraine conflict.

Note on methodology: Figures shown in Figure 1 reflect methodology updates adopted for the 2025 AIMS Index, and are presented here in FY23 Australia dollars. As such, estimates for FY21 shown may differ from the 2023 AIMS Index. For a detailed explanation of methodological updates, please refer to Appendix B.

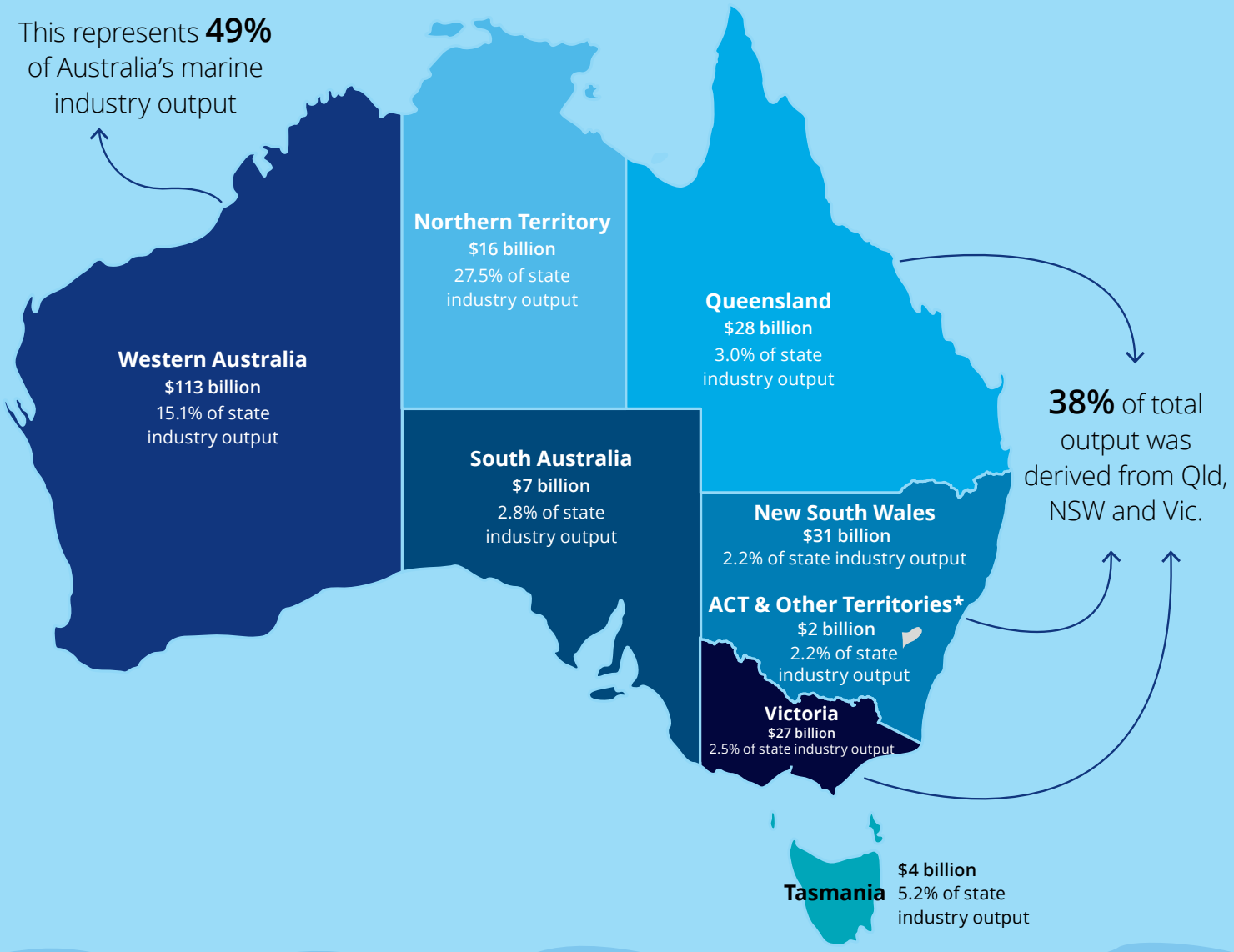
Total economic output refers to the national total revenue generated by the six sectors, which are comprised of 19 quantified marine industries. Industries discussed qualitatively have not been quantified due to data constraints. They still contribute to the overall output of the marine industry, however would not be captured in the reported quantitative metrics.

Economic output of the marine industry in FY23 was $229 billion. This is 19% larger in like-for-like terms than two years ago with growth driven by the marine tourism & recreational activities and natural gas, offshore oil exploration, and extraction sectors. These two sectors now represent 78% of Australia's marine industry total economic output in FY23, up from 74% in FY21.

The output of the Australia's marine industry in FY22 was $204 billion, an $11 billion increase from the previous Index year. In aggregate, the expansion of the marine industry between FY22-FY23 was more than double the increase between FY21-FY23 ($11 billion c.f. $25 billion). The majority of growth between FY22-FY23 was due to a 65% increase in output from the marine tourism & recreational activities sector. This increase reflects growth throughout the domestic marine tourism industry and a recovery in both the international marine tourism and non-fishing recreational activities industries following a relaxation of pandemic travel restrictions and significant investment from state and territory governments in tourism. While marine tourism and recreational activity increased overall, this masks significant regional variation, with some areas recovering more slowly than others. For instance, marine tourist visitation to Cairns remained around 35% below pre-pandemic levels as of FY23.[1]

Natural gas, offshore oil exploration & extraction has consistently ranked as Australia's largest marine industry sector contributing to over half of total economic output. Over two financial years, the sector has grown by $13 billion (a 12% growth rate), representative of global conflict price volatilities**. To put this growth into context, GDP per capita growth for Australia between the same period was 0.3%.[2]

Economic output across the states and territories



Industry breakdown

Natural gas is **78%** *of WA output*

Natural gas is **79%** *of NT output*

Domestic marine tourism is **50%** *of Qld. output*

Domestic marine tourism is **37%** *of NSW output*

Defence is **96%** *of ACT/OT output*

Natural gas is **33%** *of Vic. output*

Domestic marine tourism **34%** *of SA output*

Marine-based aquaculture is **30%** *of Tas. output*

Source: Deloitte Access Economics

*Note: ACT and Other Territories include Jervis Bay, Cocos Islands, Norfolk Island and Christmas Island.

Economic output across the states and territories (cont.)

Domestic and international marine tourism and scientific research industries have driven the majority of Australia's relative output growth.

Over the past two years, economic output has increased across almost all States and Territories, with the exception of the Northern Territory. Economic output growth was particularly fuelled by domestic and international marine tourism and scientific research industries.

Western Australia's output was $113 billion in FY23, the largest of any State or Territory and representing almost half (49%) of Australia's total marine industry output. It also had the greatest change in economic output in like-for-like terms than any other State or Territory, growing by $16 billion between FY21 and FY23. The growth in Western Australia's output was driven by natural gas (accounting for 47% of growth), followed by oil production (22%) and domestic tourism (22%).

In relative terms, referring to the growth rate (%) from FY21 to FY23, the ACT and Other Territories (ACT/OT)* had the highest growth (98% of which occurred in the ACT). This was primarily driven by an expansion in naval spending in defence, accounting for 76% of ACT/OT growth and representing 96% of all ACT/OT economic output in FY23.

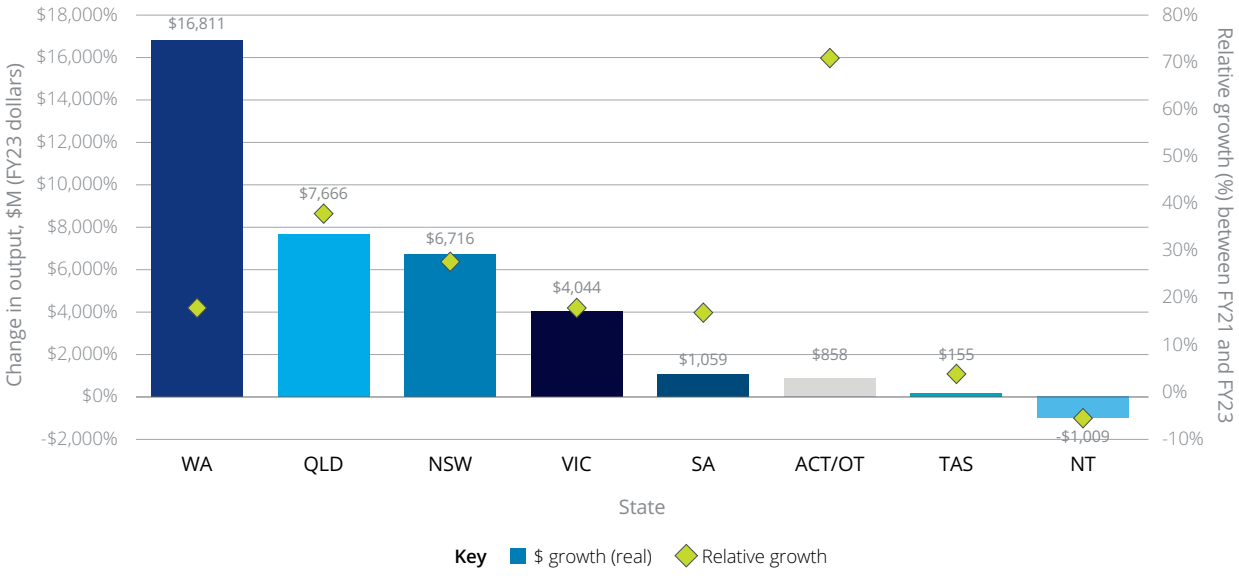
The domestic marine tourism and international marine tourism industries accounted for the majority of growth across Victoria, Queensland, and New South Wales. Almost 80% of domestic and international travellers in FY23 visited these three States.[1]

Scientific research was the leading industry driving economic output growth in Tasmania, Western Australia, and South Australia. This was fuelled by a 170% growth in scientific research for South Australia, 73% in Tasmania, and 63% in Western Australia.

For South Australia, the non-fishing recreational activities industry was also a significant driver contributing 67% of the State's relative growth.

The Northern Territory had a relative decline in output of -6% to $16 billion in FY23 as compared to FY21. This was impacted by a 7% relative decline in output in the Natural Gas industry (Northern Territory's largest industry) with shutdowns in the Northern Gas Pipeline in FY23 impacting gas production and a decline in production from the Bayu-Undan major offshore gas field after nearing depletion.[2]

Figure 2: Change in Australian marine industry output ($) and relative growth (%) between FY21 to FY23, by State & Territory



Source: Deloitte Access Economics

*Note: ACT and Other Territories include Jervis Bay, Cocos Islands, Norfolk Island and Christmas Island

Economic output across key industries

72% of economic output is comprised of three industries; natural gas, domestic marine tourism, and water transport support services.

The ***natural gas, domestic marine tourism,*** and ***water transport support services*** industries together comprised $123 billion in output for FY22 (in FY22 dollars) and $166 billion in FY23 (FY23 dollars), representing ***72% of total output***. However, growth throughout all industries reflects a broader variety of sectors throughout Australia's marine industry.

1 Natural gas industry

Natural gas output was $81 billion in FY22 (FY22 dollars) and $110 billion in FY23 representing approximately 47% of the marine industry's total output and an 11% growth across the two years in like-for-like terms. This increase was exaggerated by a large growth in the ***oil production*** and ***LPG*** industries due to significant price shocks as a result of global conflict. Particularly total revenue following a 187% increase in the price per megatonne between FY21 and FY23.[1]

2 Domestic marine tourism industry

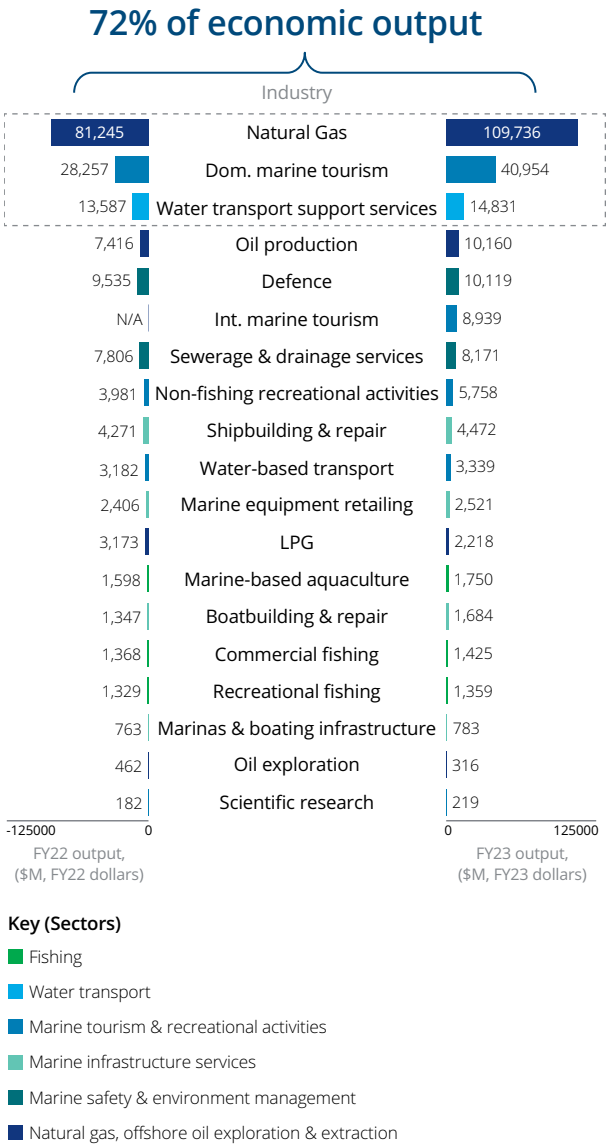
As the second largest industry, ***domestic marine tourism*** accounted for 16% (or $28 billion) of total marine industry output in FY22, and 18% (or $41 billion) in FY23, indicating the start of a post-pandemic tourism recovery.

Total tourism spend—including both marine and non-marine tourism—has now rebounded strongly, rising 24% above pre-pandemic levels (2018–19), while marine tourism alone has grown by 34% over the past decade. The extent of recovery post-COVID varies by activity and region. For example, the Great Barrier Reef Marine Park reported visitation in the Townsville/Whitsunday Management Area increasing by 10%, while the Mackay/Capricorn Management Area has experienced a 14% decline.[1] Beyond its economic contribution, tourism also delivers important social value by supporting regional communities, sharing cultural heritage, and fostering social cohesion through shared experiences and engagement with Australia's coastal and marine environments.

3 Water transport support services industry

Water transport support services such as tugboat operations and port terminal operations, produced $13.6 billion in output in FY22 (FY22 dollars), and $14.8 billion in FY23 (FY23 dollars), a 9% increase in like-for-like terms. Growth was driven by higher access charges, which now represent a larger share of industry revenue. Access charges increased as a result of strong global commodity and merchandise trade with higher throughput and associated congestion levels.

Figure 3: Industry output across the marine industry for FY22 and FY23 (nominal terms)



Source: Deloitte Access Economics

Note on methodology: Limited data was collected on International Marine Tourism in FY22 due to the COVID-19 pandemic. As such, no estimate could be produced for that year.

Growth in key sectors and industries

Growth in the output of the marine economy in the past two years was driven by marine tourism and recreational activities, and natural gas, offshore oil exploration and extractions.

The natural gas, offshore oil exploration and extraction and marine tourism & recreational activities are the two largest output sectors and grew significantly over the two financial years. This is reflective of volatility and price surges in the natural gas and oil production industries. For example, LNG production increased by 12% in value since FY21 (in real terms), but only 9% in volume terms. Over the same period fisheries production declined by 19% in value (in real terms), however the decline was only 2% in volume terms.

At the same time, the ***oil exploration*** industry contracted by 35% in like-for-like terms between FY22 and FY23, the largest decline of all industries and explained by a reduction in the number of new offshore wells (fell to three in 2023 compared to 50 in 2010).

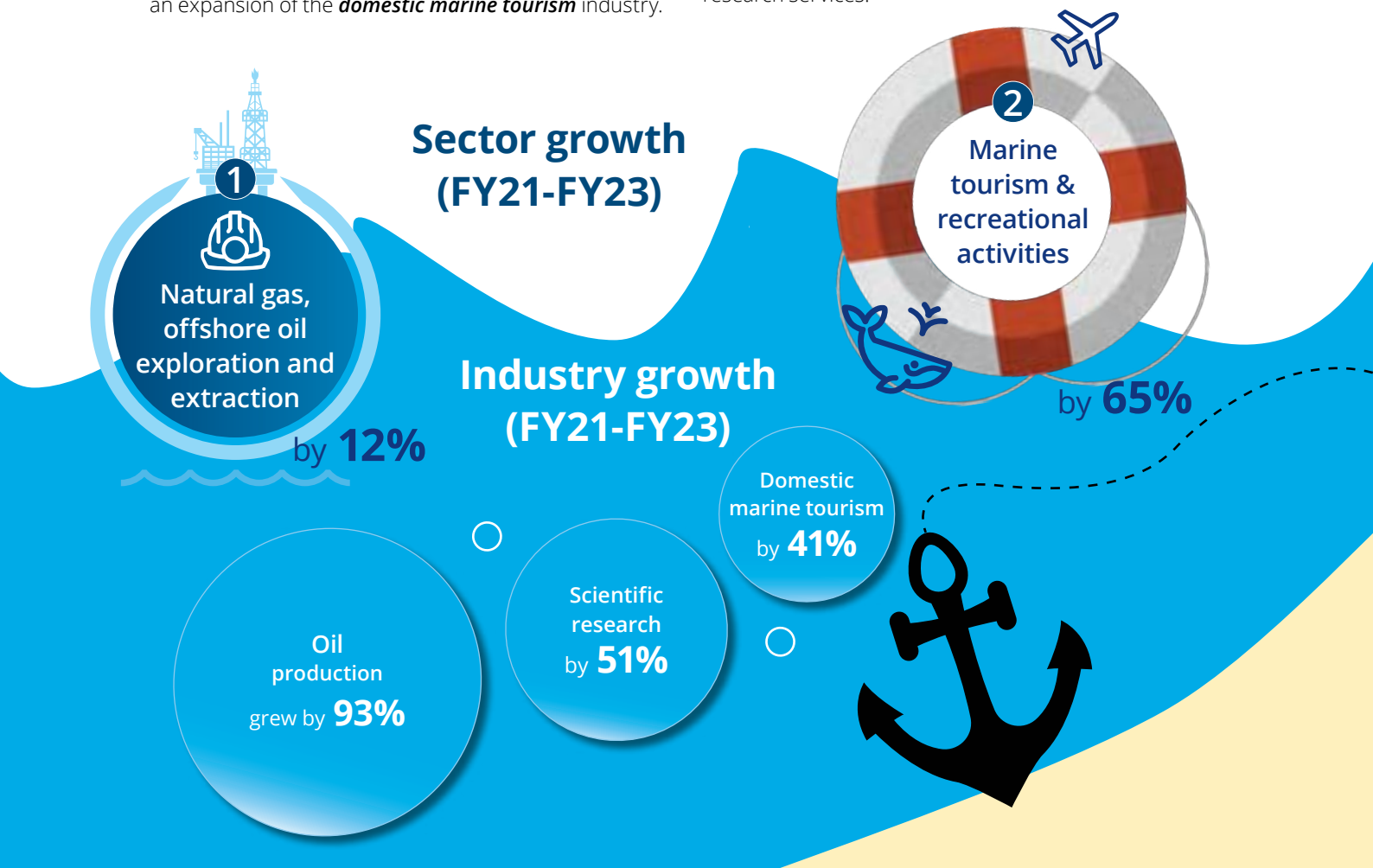
Moreover, a relaxation of COVID-19 restrictions facilitated a post-pandemic recovery for the ***marine tourism & recreational activities*** sector largely led by an expansion of the ***domestic marine tourism*** industry.

This growth is reflective of a return to travel in FY23 as compared to pandemic affected travel in FY21 and FY22.

The ***non-fishing recreational activities*** and ***scientific research*** had the second and third highest economic output growth between FY22 and FY23 expanding by 36% and 28%, respectively.

The ***non-fishing recreational activities*** industry expanded with the largest component, beach visits increasing by 24%, alongside a surge in surfing as a recreational activity. This is driven by a collective growth in the demand for nature- and marine-based activities over the past decade,[1] and particularly since the pandemic.

Scientific research, the newest industry measured in this AIMS Index, grew by 51% between FY21 and FY23 with an increase in economic output driven by a growth in the proportion of revenue derived from research services.



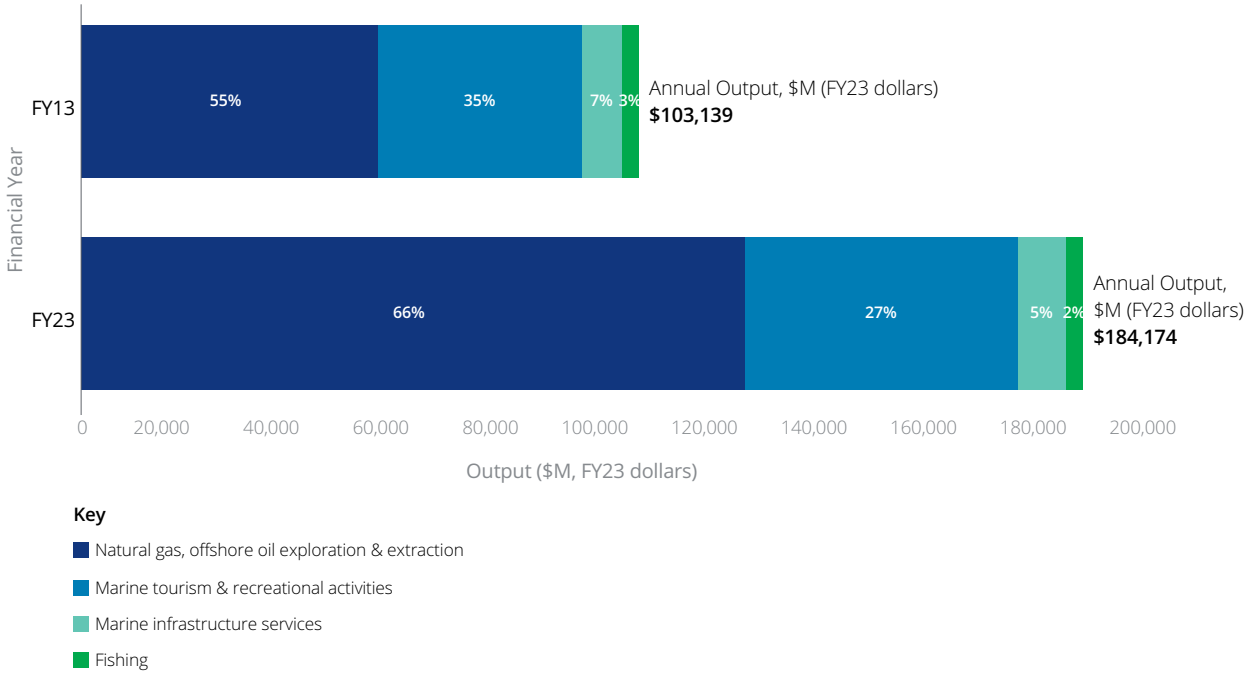
How has the marine industry output changed in the past decade?

10 years on, Australia's marine industry is now 1.8 times larger.

The marine industry has grown significantly over the past 10 years. It is now 1.8 times larger in like-for-like aggregate terms in FY23 than FY13, when keeping methodology and industries constant between the two years and accounting for inflation. This growth signifies increasing importance of the marine industry to Australia's economy, an industry that both relies on the long-term sustainable use of our oceans and provides key resources such as food, raw materials and energy, tourism and recreation, and transport.

A decade on, the output of all four sectors has increased and their respective sector size rank remains unchanged, however the composition of total economic output has shifted. Specifically, the natural gas, offshore oil exploration & extraction sector remains the largest sector but now contributes two-thirds, or 66% of total economic output in FY23, a 11 percentage point growth from FY13.

Figure 4: Comparison of Australia's marine industry economic output between FY13 and FY23 ($)*



Source: Deloitte Access Economics

***Note on methodology:** commentary on 10-year comparisons, as well as data in **Figure 4** only captures industries estimated for both periods for the respective AIMS Index reports. As such, this only captures sectors estimated under the 2016 AIMS Index and will differ from other estimates for FY23.

Data-limited industries

The vast nature of the marine industry means that many of its industries are difficult to quantify, despite playing a significant role in the marine economy.

There are 18 data-limited industries, including emerging and small sectors which play a vital role in the marine economy and are experiencing significant growth and innovation. These industries were excluded from quantification due to limited data availability and/or challenges in measuring their economic value. This stems from the nature of these industries, which are either emerging (e.g., offshore wind, ocean renewable energy, marine biotechnology) or not captured by traditional economic measurement frameworks (e.g., Indigenous fishing). Australia's industry data collection is often undertaken at an aggregated level, meaning detailed information is not always available for some small-to-medium enterprises operating in emerging or niche sectors. For a comprehensive list of data-limited marine industries, refer to Appendix B. These industries play an important role in the marine economy and have undergone notable changes recently, with some examples provided below.

Spotlight: Surf Lifesaving Australia

Surf lifesavers and lifeguards play a vital role in ensuring the safety of domestic and foreign coastal visitors in Australia. Many visitors are unaware of the ongoing efforts that protect them, such as regular risk assessments, flag placement, and the provision of advice, information, and assistance. These proactive measures help minimise the risk of harm and create a safer environment for all. In FY23, Surf Life Saving Australia reported 1.4 million patrol hours from over 46,000 proficient members, performing over 9,000 rescues and providing more than 40,000 first aid treatments, underscoring the critical role of this service in mitigating potential incidents.[1] The Office of Impact Analysis estimates the value of a statistical life at $5.7 million in 2024, underscoring the significant role surf lifesavers and lifeguards play in reducing fatalities.[2] Key developments since FY21 include the establishment of the Innovation Fund in December 2022, which fosters initiatives to enhance coastal safety, and the introduction of a carbon emission reduction program in collaboration with Zero Positive at Surf Life Saving clubs across Australia.[3]

9,000 *rescues*

40,000 *first aid treatments*

Spotlight: Marine biotechnology

Marine biotechnology involves using biological resources from marine organisms for developing products and technologies across various industries, including pharmaceuticals, agriculture, and food production. Australia's unique marine biodiversity, with nearly 70% of its marine species being exclusive to the region, offers significant opportunities in this field.[4] The Flinders University Centre for Marine Bioproducts Development (CMBD) has been conducting research into marine biotechnology since 2007, with recent innovations including Calci-boom, a calcium supplement created from brown seaweed extracts and lobster shell minerals, aimed at providing a tastier alternative to traditional supplements for children. Although Australia's marine biotechnology sector was valued at just 0.1% of the global market in 2014, the CMBD asserts that the country's pristine marine environment and stringent regulatory frameworks position it to capitalise on the sector's emerging growth opportunities.[5] Recently, the CMBD led a proposal that resulted in the establishment of the Marine Bioproducts Cooperative Research Centre, which began operations in 2019. The centre unites 70 partners and has secured $270 million in combined government and industry funding to drive research and the development of sustainable marine production technologies in Australia.[6]

70% *of Australia's marine species are unique to the region*

$270 million *funding for the national research centre*

Planning and mapping marine and coral research activities with Woppaburra elders and traditional knowledge holders | Woppaburra Coral Project | Keppel Islands

Case study

Case study: Indigenous Rangers Program

Australian and State Government-funded Indigenous Rangers Programs use traditional and cultural practices to manage and protect local environments.

Established in 2007, the Australian Government's Indigenous Rangers Program assists First Nations community-led organisations to manage Country in alignment with Traditional Owners' objectives and knowledge to deliver environmental, social, cultural and economic outcomes.

The marine environment plays a crucial role in cultural knowledge, practices, and connection to community for First Nations Peoples. The cultural management and stewardship of marine environments by First Nations Peoples is also fundamental to the sustainability and operations of these areas. Their custodianship across millennia has supported the long-term value derived from Australia's marine environment.

Traditional Owner custodianship is not only fundamental to the sustainability and operations of these areas, but also their continued availability for other marine industries, including tourism, fisheries, and recreational uses. This case study examines the Indigenous Rangers Program, which plays a vital role in supporting and contributing to marine management. While not quantified in the Index, the activities highlighted in this case study represent a significant contribution to long-term marine sustainability and the preservation of cultural values.

Operating around Australia, the Indigenous Rangers Programs support the environmental management of diverse land and water areas – enhancing landscape resilience, protecting biodiversity and preserving cultural heritage. Building engagement with community and Traditional Owners encourages intergenerational knowledge transfers, education and capability development and the creation of employment and training opportunities.[1]

As of March 2024, there were 128 Commonwealth funded Indigenous Ranger groups operating across Australia, with over half based in Queensland and the Northern Territory. A key component of this program is its role in Indigenous Protected Areas (IPAs) – land and sea areas that Indigenous communities voluntarily dedicate to conservation. In many cases, these programs are the sole providers of environmental management in remote regions. Indigenous Rangers operate in approximately 70% of IPAs, which comprise half of Australia's National Reserve System and deliver half of Australia's international 2030 obligation for protected estate.[2]

Over the past ten years, the Reef Authority (formerly known as the Great Barrier Reef Marine Park Authority) and Traditional Owners have formed strong partnerships with Traditional Owner groups to strengthen collaborative management of Sea Country. Together, they have invested in managing one of the most culturally significant and globally recognised marine areas – the Great Barrier Reef – through the Indigenous Land and Sea Country Partnership program.[3]

Traditional Use and Marine Resource Agreements (TUMRAs) are now used by 10 of the 70+ traditional groups on the Great Barrier Reef. Together with ghost net removal and climate change research, this partnership has helped to conserve populations of vital marine species, while ensuring there is a sustainable management of Sea Country. As of 2024, TUMRAs help manage over 43% of Australia's Marine Park coastline and around 20% of the Great Barrier Reef World Heritage Area.[4] The Girringun IPA in northern Queensland, with funding support by both Commonwealth and State government, exemplifies the Program's success, spanning over 1.2 million hectares, including marine areas within the Great Barrier Reef.[5] Girringun Rangers co-manage these estates alongside government agencies and conservation partners, undertaking activities such as marine patrols, monitoring seagrass and dugong populations, conducting biosecurity surveys, and responding to marine animal strandings.

The benefits of these programs is considerable. An analysis using the Social Return on Investment (SROI) methodology found that between the 2009 and 2015 financial years, a combined investment of $35.2 million into five IPAs generated social, economic, cultural, and environmental benefits valued at $96.5 million. Government was the largest beneficiary, particularly through reduced costs associated with land and sea management. The study also identified a net taxation gain resulting from increased employment within First Nations communities. Within this broader analysis, the Girringun IPA program itself achieved a social return on investment ratio of 2.2, highlighting the efficiency and effectiveness of Indigenous-led conservation efforts.[6]

Case study: Indigenous Rangers Program (cont.)

Australian and State Government-funded Indigenous Rangers Programs use traditional and cultural practices to manage and protect local environments.

This approach reflects alignment with best-practice principles outlined in a 2023 World Economic Forum (WEF), which calls for a shift from extractive environmental investment models to Indigenous-led approaches grounded in cultural responsibility, ecological science, and community leadership.[7] The Indigenous Ranger Sector Strategy highlights the program's progression in delivering place-based, culturally grounded outcomes. It also highlights opportunities to further strengthen the program by enhancing community decision-making power, partnership autonomy, and cultural data governance.[8] According to the WEF investor governance framework, these improvements will enhance the long-term value of these initiatives in contributing to the conservation on marine environments.

This case study provides insight into the significant value of Indigenous marine conservation. Yet it does not fully capture the broader benefits derived from Indigenous connections to land and sea, which are immeasurable. It serves as a reminder of the critical role of Indigenous-led environmental stewardship in Australia's protected area network, demonstrating the capacity of these programs to deliver long-term, sustainable outcomes. This case study has been developed based on the resources from the National Indigenous Australians Agency (NIAA).

When oil and gas facilities cease operating, they must be decommissioned in a safe and environmentally responsible manner. Australia's base case decommissioning is for complete removal, but titleholders may be able to leave some structures behind if they deliver an equal or better environmental outcome. Rigorous independent environmental research and data informs this decision-making. Leaving structures in the ocean may have both positive and negative effects on the marine environment.

3. Economic contribution of marine industries

Value added

The marine industry contributed a record $203 billion in total value added in FY23, growing 24% since FY21 in like-for-like terms.

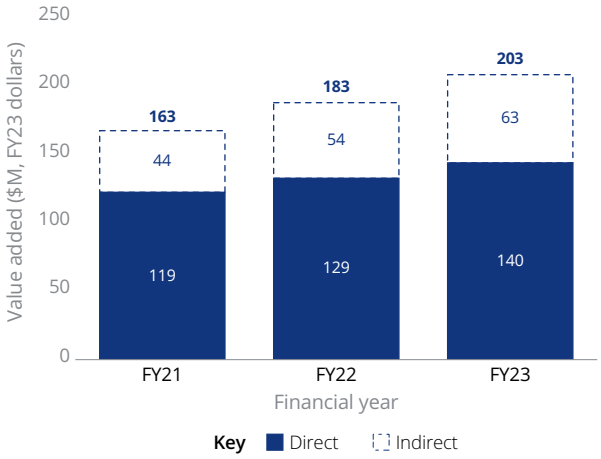
In FY23, the Australian marine industry was estimated to contribute a record $203 billion in total value added (equivalent to 9.1% of GDP), including $140 billion in direct value added across 19 marine industries and a further $63 billion in indirect value added across 109 upstream industry groups (Figure 5).

This represents significant growth in recent years. Since FY21, the economic contribution of the marine industry has expanded by 24% in like-for-like terms. This corresponds to an increase in the direct value added contribution to GDP from 5.1% to 6.3%. For context, the Australian health care and social assistance industry contributes 7.7% to GDP.

The total direct and indirect value added for each marine industry is provided in Figure 6. Natural gas and domestic marine tourism industries contributed the most to total value added in FY23 contributing $105.1 billion and $31.6 billion, respectively.

These industries also supported significant indirect value added throughout the economy, particularly domestic marine tourism where $16 billion – over half of its value added – occurs through upstream industries.

Figure 5: Value added time series ($ millions, FY23 dollars)



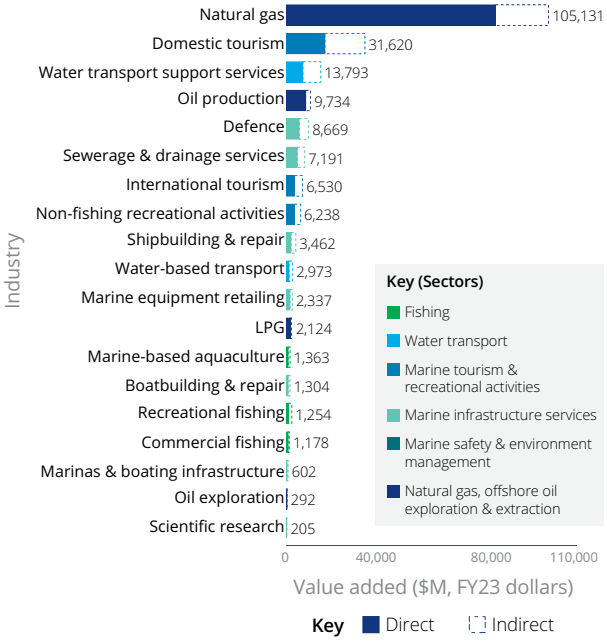
Source: Deloitte Access Economics

This reflects different positions in the supply chain, with downstream industries (e.g., services such as tourism) spending more per unit of output on inputs from other industries than upstream industries (e.g., primary producers such as fishing and natural gas). For example, the direct to indirect value added ratio of natural gas and oil production was 3.9, while services industries such as marinas and boating infrastructure (0.6) and shipbuilding and repair (1.0) have a higher relative indirect impact. As a result, downstream industries appear larger due to their high indirect value added, while upstream industries seem smaller as their contributions through downstream activities are not captured.

In total, a minimum of $10 million in value added was supported across 90 upstream industry groups through intermediate expenditures.* Primary industry beneficiaries included finance, professional, scientific and technical services, and construction.

For a detailed breakdown of direct and indirect value added by industry see Appendix A.

Figure 6: Direct and indirect value added by industry, FY23 ($ millions)**



*Note: Upstream industries may include marine industries (e.g. oil and gas exploration will include offshore).
**The values in Figure 6 do not sum to the total value added of the marine industry as industries may supply each other.

Source: Deloitte Access Economics

Employment

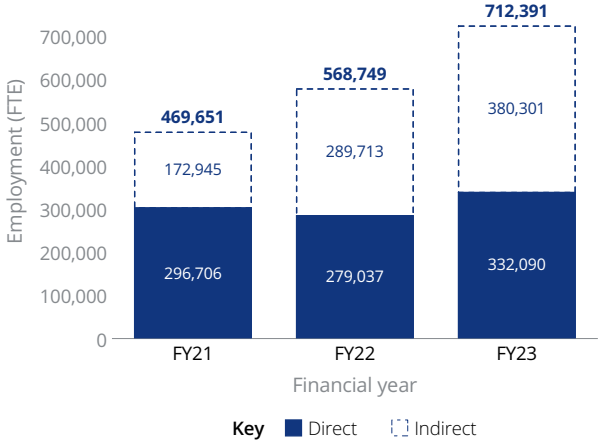
The marine industry supported a total of 712,000 FTE workers in FY23, growing 52% since FY21.

The total employment contribution of the Australian marine industry was approximately 712,000 FTE workers in FY23, including direct employment of 332,000 FTE workers and a further 380,000 FTE workers employed in supplying industries. Since FY21, total FTE supported has grown by 52% - faster than the rate of growth in total value added.

While natural gas was the primary generator of total value added to the economy, domestic tourism is the largest contributor to total FTE employment. After removing double counting, domestic marine tourism contributes nearly two times the level of total FTE employment than natural gas. This is partly due to the high labour intensity of the tourism industry. Domestic marine tourism remains the largest direct employer, supporting 149,000 FTE jobs, followed by other labour-intensive industries such as non-fishing recreational activities (38,000 FTE) and water transport support services (24,000 FTE).

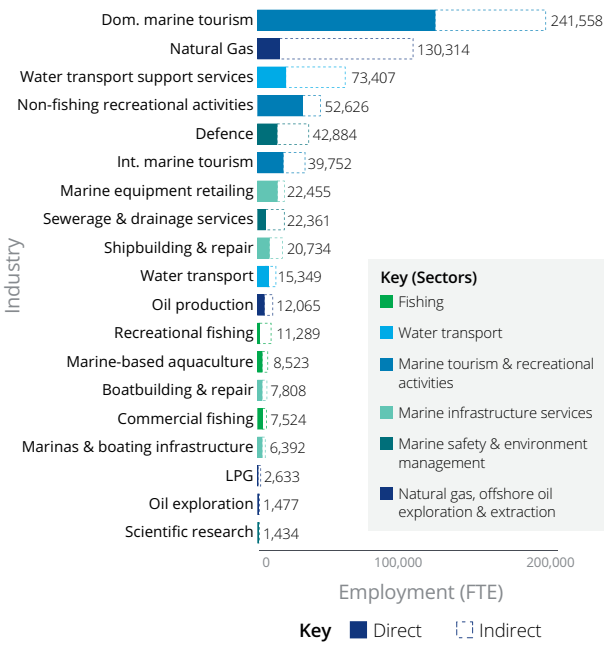
While direct employment in marine industries remains substantial, employment growth has been stronger in upstream industries. Since FY21, indirect employment has increased by 120%, outpacing the 12% growth in direct employment. This trend is driven by the expansion of industries with lower labour intensity and a higher share of indirect employment, including natural gas (86%), water transport support services (68%), and defence (62%), which together accounted for over half of the growth in indirect employment. Additionally, tourism - the largest employer - endured significant job losses during the pandemic, with the subsequent rapid recovery in demand outpacing the industry's ability to address skills shortages. While demand and output have expanded significantly since FY21, generating substantial indirect expenditure and employment, direct employment in FY23 remains at similar levels to FY21. For a detailed breakdown of direct and indirect employment by industry see Appendix A.

Figure 7: Employment time series (FTE)



Source: Deloitte Access Economics

Figure 8: Direct and indirect FTE employment by industry, FY23



Source: Deloitte Access Economics

4. The blue economy

What is the blue economy?

The blue economy is broader than the marine economy, encompassing wider environmental and social benefits while integrating economic objectives with longer-term sustainability considerations.

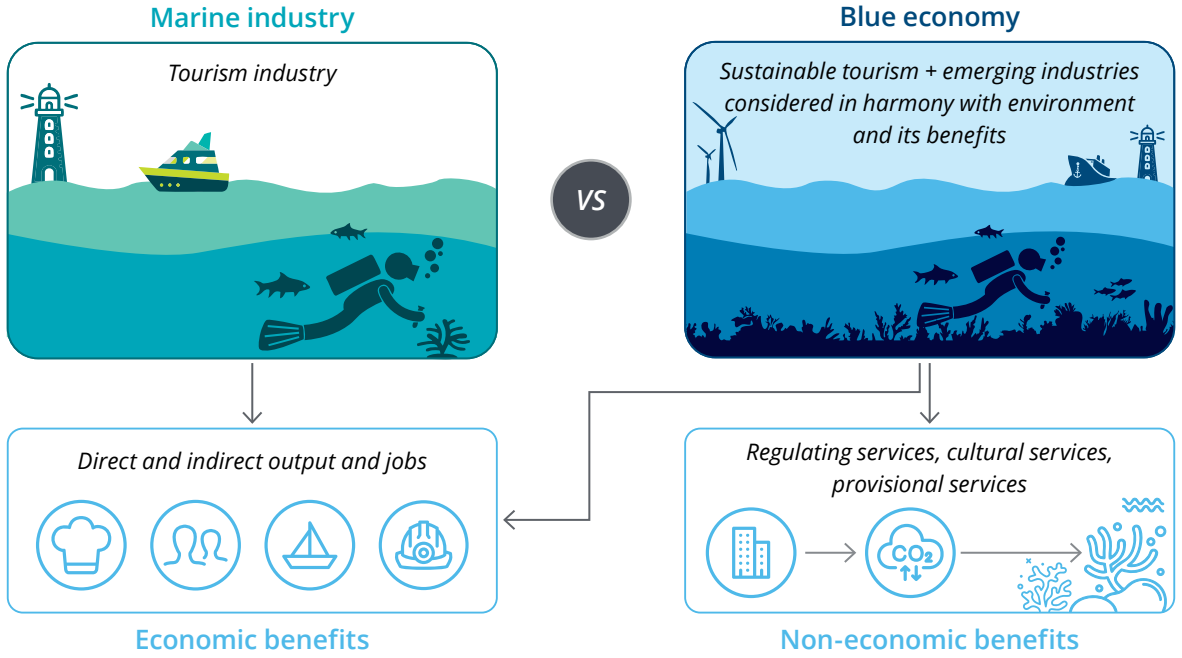
Since 2008, the AIMS Index of Marine Industry has offered valuable insights into the structure and evolving economic contributions of industries associated with the marine environment over time. However, the concept of the blue economy offers a broader framework. The blue economy includes marine economic activities but is also increasingly being used to refer to sustainable use of ocean resources to promote growth, social equity and preserve ecosystems, a view supported by global organisations like the World Bank[1] and UN.[2] Three key distinctions can be drawn from this framework:

1. **Broader economic benefits:** The blue economy includes not only the direct economic benefits derived from marine industries but also the wider environmental and social value generated from marine resources and ecosystems. This comprehensive view is essential for fostering sustainable, equitable growth and ensuring allocative efficiency in the distribution of natural resources. Allocative efficiency involves making sure resources are allocated where they are most needed, so their value to society matches the cost of extracting or using them.

2. **Emphasis on sustainable industries:** Central to the blue economy is the focus on the sustainable utilisation of marine resources. This involves encouraging the adoption of sustainable practices in established industries – such as fisheries, shipping, and coastal tourism – to enhance their sustainability and efficiency, as well as the development of emerging industries that align with long-term environmental objectives, including offshore renewable energy, sustainable aquaculture, and marine biotechnology.

3. **Long-term strategic outlook:** The blue economy adopts a long-term perspective, prioritising the management of the marine environment to support sustainable growth over time. This approach transcends the short-term economic gains associated with increased output, aiming instead for enduring economic resilience.

Figure 9: Visualisation of key differences between marine industry and blue economy



Source: Deloitte Access Economics

Note: The following page explores the non-economic benefits of the blue economy, including regulating services (e.g. carbon sequestration), cultural services, and social services.

The wider environmental and social benefits of the blue economy

Adopting a blue economy perspective highlights the broader benefits of marine ecosystems and their connection to economic activities.

In addition to the contribution of industry output, the blue economy recognises a wider range of intangible benefits (i.e. goods and services not traded in markets). These benefits can be categorised into provisioning (food/raw materials), regulating (maintaining environmental balance), and social/cultural services (recreation, cultural value). The UN is developing the System of Environmental-Economic Accounting (SEEA), a comprehensive approach to measuring natural resources and their societal services, enhancing the understanding of the economy-environment connection and supporting sustainable long-term management.[1] Some illustrative examples of these wider benefits are provided below.

Carbon sequestration

Marine ecosystems like mangroves, tidal marshes, and seagrasses sequester carbon by absorbing CO_2 through photosynthesis, storing it in biomass and soil.[2] Australia hosts approximately 12% of the world's blue carbon ecosystems, contributing 5–11% of the global blue carbon stock.[3] This helps mitigate climate change, offering social benefits like fewer extreme weather events and better air quality.[4] Additionally, slowing climate change promotes social equity by reducing the burden on vulnerable communities that are most impacted.[5] A case study into the valuation of this non-market benefit is provided on page 24.

Coastal protection

Marine environments, including reefs, also offer coastal protection by shielding communities and infrastructure from storm surge, waves and erosion. For example, shallow coral reefs can absorb up to 98% of wave energy.[6] In 2021, the ABS estimated that mangroves and saltmarshes protected 280,000 people, with the replacement cost of this service through seawalls valued at $228 billion, surpassing the marine industry's value.[7]

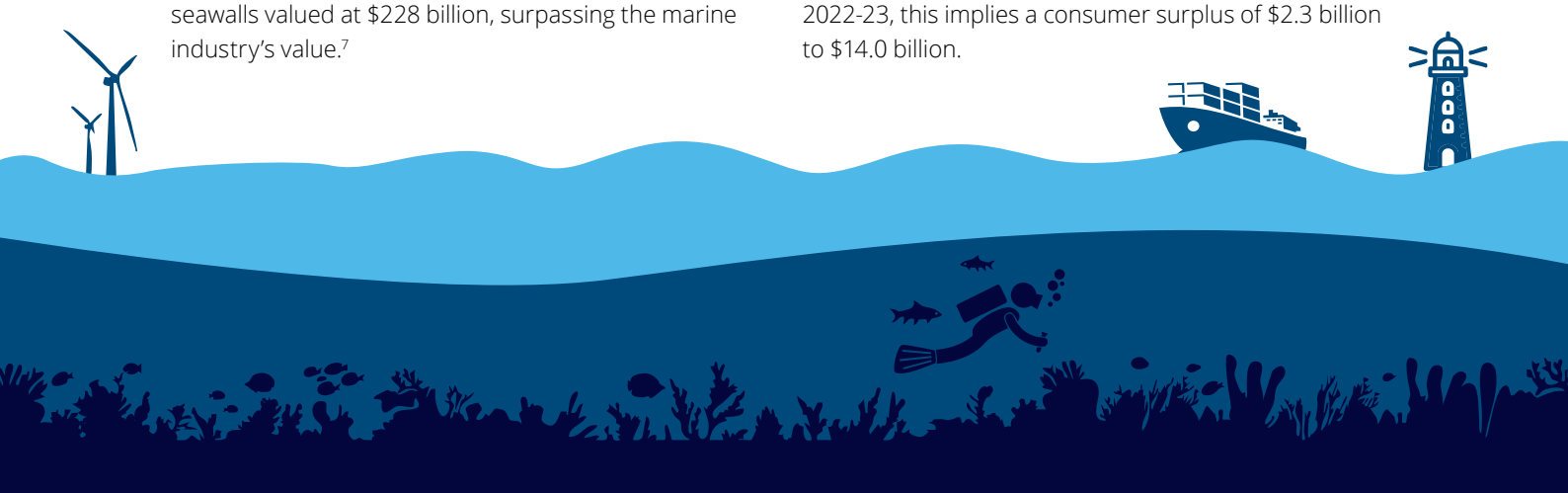
Cultural

For First Nations people, the marine environment holds deep cultural significance, viewed as an integral part of Sea Country. It is a source of sustenance, spiritual connection, ancestral connection, and identity.[8] Enduring ties to Creation Stories, Dreaming Tracks, and ceremonial traditions are evident in the Worimi Conservation Lands, where shell middens, stone artefacts, and burial sites reflect centuries of cultural connection.[9]

AIMS's Indigenous Partnerships program explicitly recognises First Nations as decision makers on their sea Country by obtaining their Free, Prior and Informed Consent (FPIC) for any research project that intersects with their lands, seas or interest. This FPIC-driven framework fosters equitable, ethical, culturally grounded partnerships, demonstrating AIMS's leadership in working to embed Indigenous Knowledge systems and governance structures into its marine science programs.

Social value

There are wider social benefits of the marine environment that will not be reflected in economic transactions, including the existence value – the value placed on knowing it exists independent of use – and recreational value – the utility derived from activities like swimming in the ocean which contributes to wellbeing. Various estimates of consumer surplus (the difference between what consumers are willing to pay versus what they actually pay) for beach visits range along the NSW and QLD coast range from $3.89 to $23.36 (measured in 2023 dollars: adjusted for inflation up to that point) depending on research design (the methodology used to estimate the consumer surplus).[10] Considering there were 600 million visits to the coast in 2022-23, this implies a consumer surplus of $2.3 billion to $14.0 billion.



Opportunities in the blue economy

A blue economy approach turns sustainability into an opportunity to unlock new, long-term opportunities and enhance economic and social prosperity.

The blue economy sees sustainability as an opportunity to maximise benefits and unlock new opportunities. A blue economy approach involves developing emerging industries aligned with sustainable outcomes while enhancing the sustainability of existing industries for long-term growth. This is illustrated in the following examples from the Australian marine industry.

Emerging industries

Offshore wind

The Global Wind Energy Council estimates Australia could generate up to 5,000 GW of electricity from offshore wind - 100 times the capacity of its two largest electricity networks.[1] This is an opportunity for a sustainable growth industry that can generate clean energy, create jobs, and contribute to carbon reduction.

Carbon restoration

Blue carbon restoration focuses on restoring marine ecosystems like seagrasses, mangroves, and saltmarshes to capture carbon and mitigate climate change.

Australia is developing a carbon credit system for restoring blue carbon ecosystems, which will provide incentives to create a blue carbon market.[2] The Blue Economy CRC conducted a market survey that revealed the potential scale of ocean-based carbon markets to be greater than $1 trillion.[3]

Enhancing existing industries

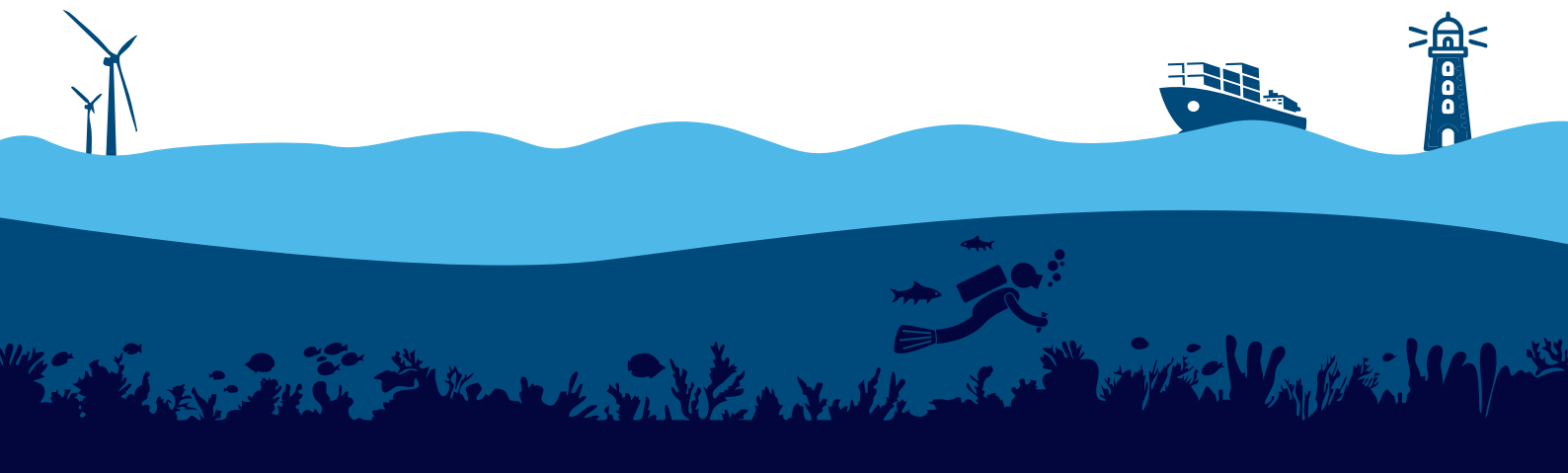
Sustainable tourism

'Ecotourism Australia' provides an accreditation that helps tourism businesses assess their sustainability efforts across environmental, socio-economic, and cultural impacts.[4] Achieving accreditation or certification provides a competitive edge and the potential to also improve operational efficiency.

Restorative and conservation aquaculture

Restorative aquaculture, such as bivalve and seaweed farming, enhances environmental outcomes like water filtration and can boost species abundance,[5] offering both ecological and economic benefits.

In contrast, conservation aquaculture focuses primarily on producing organisms that are appropriate to replenish and restore specific species or habitats. For example, the Australian Institute of Marine Science uses conservation aquaculture to produce genetically diverse and quality assured coral young with the aim to restore and adapt reefs where they are seeded.[6]



Case study: Carbon sequestration

Australia's blue carbon ecosystems sequestered approximately 24 million tonnes of CO_2 equivalent in 2021, valued at up to $607.5 million annually or $10.1 billion over 20 years.

Using an ecosystem accounting framework that follows the UN's SEEA, the services provided by blue carbon marine environments could be measured[1]:

- **Ecosystem extent accounts (physical):** The physical area and distribution of ecosystem types.
- **Ecosystem condition accounts (physical):** Assessment of the health of ecosystems by comparing characteristics over time.
- **Ecosystem services flow accounts (physical):** Record of the supply and use of ecosystem services by natural systems and economic units.
- **Ecosystem services flow accounts (monetary):** Monetary value of the ecosystem services based on physical quantities.
- **Ecosystem asset accounts (monetary):** Net present value (NPV) of ecosystem services.

Using this framework, and data published by the ABS National Ocean Accounts[2], it can be shown that 4.8-5.3 million hectares of combined Australian seagrasses, mangroves, and saltmarshes sequestered approximately 23.6 to 24.3 million tonnes of CO_2 equivalent (CO_2e) in 2021 (the current market price at which ACCUs can be bought or sold for immediate delivery). Using the average annual spot price of $25 per tonne for Australian Carbon Credit Units in 2021, this carbon sequestration service could be valued at $590.0-$607.5 million (2021 Australian dollars). This is the equivalent to the financial worth of emissions reductions as recognised in Australia's carbon market but does not recognise the full social costs of emissions (which are often higher). In net present value terms, assuming a 2% discount rate (as per recent studies by the United States EPA)[3] over 20 years, this service could be valued at approximately $9.8-$10.1 billion (2021 dollars). This highlights the broader societal benefits of marine resources, which are encompassed within a blue economy framework.

Table 2: SEEA framework worked example – Australia's blue carbon ecosystems

Accounting component	Ecosystem	Measurement	Value
Extent accounts	Saltmarsh	Area of the ecosystem	1.1M ha
	Seagrass		2.6-3.1M ha
	Mangroves		1.1M ha
Condition	Saltmarsh	Change in area of canopy cover	NA*
	Seagrass		NA*
	Mangroves (hectares)		+6% (in terms of ha) from 1998-2021
Flow (physical)	Saltmarsh	Annual sequestration	10.1MtCO_2-e
	Seagrass		4.9-5.6MtCO_2-e
	Mangroves		8.6MtCO_2-e
Flow (monetary)	Saltmarsh	Value in 2021 dollars	$252.5M
	Seagrass		$112.5M - $140.0M
	Mangroves		$215.0M
Asset (monetary)	Total	NPV over 20yrs	$9.8B - $10.1B

Source: Deloitte Access Economics analysis of ABS National Ocean Accounts (2022)
Note: Given it was the first release, the ABS National Ocean Account has not tracked the condition of seagrass and saltmarsh over time.

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Appendix A: Detailed sector and State/Territory results

Economic contribution results – Value added by industry

The table below presents the output of each marine industry and the total, reflecting its overall size, alongside value added, which represents its contribution to the economy.

Table A1: Direct and indirect value ($ million) added by marine sub-sectors in FY23 (non-additive)*

Marine industry	Output ($m)	Direct value added ($)	Indirect value added ($)	Total value add ($)
Marine resources activities and industries				
Fishing				
Commercial fishing	1,425	721	458	1,178
Recreational fishing	1,359	738	516	1,254
Marine-based aquaculture	1,750	709	654	1,363
Natural gas, offshore oil exploration and extraction				
Oil exploration	316	179	113	292
Oil production	10,160	7,789	1,945	9,734
LPG	2,218	1,700	425	2,124
Natural Gas	109,736	84,122	21,009	105,131
Marine-related service activities and industries				
Marine tourism and recreational activities				
Domestic marine tourism	40,954	15,499	16,121	31,620
International marine tourism	8,939	3,276	3,254	6,530
Non-fishing recreational activities	5,758	2,984	3,254	6,238
Water transport				
Water transport	3,339	1,517	1,457	2,973
Water transport support services	14,831	6,632	7,161	13,793
Marine safety and environment management				
Scientific research	219	112	93	205
Defence	10,119	5,166	3,503	8,669
Sewerage and drainage services	8,171	4,377	2,815	7,191
Marine infrastructure services				
Shipbuilding & repair	4,472	1,858	1,604	3,462
Boatbuilding & repair	1,684	700	604	1,304
Marinas and boating infrastructure	783	262	340	602
Marine equipment retailing	2,521	1,435	902	2,337

Source: Deloitte Access Economics

Table A2: Direct and indirect value added ($ million) by the marine industry FY23 (additive)

Marine industry	Output	Direct value added ($)	Indirect value added ($)	Total value add ($)
Total marine industry contribution	228,755	139,772	63,263	203,035

Source: Deloitte Access Economics

*Note: Each industry was analysed separately. Consequently, the values in 'indirect value added' column are not additive. Total indirect value added was estimated by marine industry activity to avoid double counting.

Economic contribution results – Employment by industry

The table below presents the employment of each marine industry and the total, providing further insight into their economic contribution.

Table A3: Direct and indirect employment (FTE) by marine sub-sectors in FY23 (non-additive)*

Marine industry	Direct employment (FTE)	Indirect employment (FTE)	Total (FTE)
Marine resources activities and industries			
Fishing			
Commercial fishing	4,063	3,461	7,524
Recreational fishing	7,882	3,407	11,289
Marine-based aquaculture	3,763	4,761	8,523
Natural gas, offshore oil exploration and extraction			
Oil exploration	692	785	1,477
Oil production	1,711	10,355	12,065
LPG	373	2,260	2,633
Natural Gas	18,477	111,837	130,314
Marine-related service activities and industries			
Marine tourism and recreational activities			
Domestic marine tourism	148,773	92,785	241,558
International marine tourism	21,395	18,356	39,752
Non-fishing recreational activities	37,670	14,956	52,626
Water transport			
Water transport	6,212	9,137	15,349
Water transport support services	23,601	49,806	73,407
Marine safety and environment management			
Scientific research	782	652	1,434
Defence	16,283	26,602	42,884
Sewerage and drainage services	6,628	15,733	22,361
Marine infrastructure services			
Shipbuilding & repair	9,838	10,896	20,734
Boatbuilding & repair	3,705	4,103	7,808
Marinas and boating infrastructure	3,717	2,674	6,392
Marine equipment retailing	16,524	5,931	22,455

Source: Deloitte Access Economics

Table A4: Direct and indirect employment (FTE) by the marine industry FY23 (additive)

Marine industry	Direct value added (FTE)	Indirect value added (FTE)	Total value add (FTE)
Total marine industry contribution	332,090	380,301	712,391

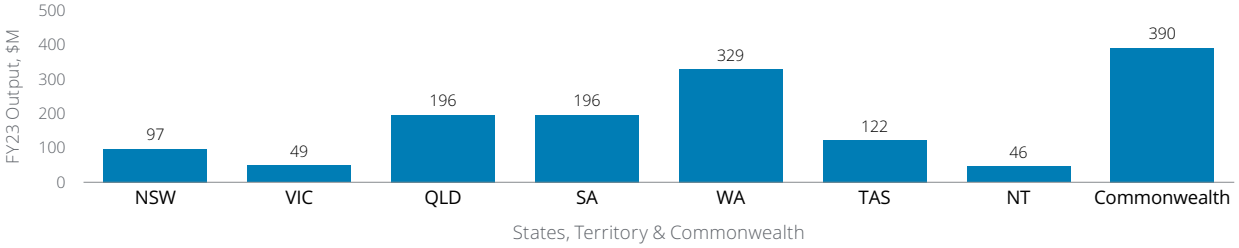
Source: Deloitte Access Economics

**Note: Each industry was analysed separately. Consequently, the values in 'indirect value FTE' column are not additive. Total indirect value FTE was estimated by marine industry activity to avoid double counting.*

Australia's marine industry economic output – by state and territory

The output of each marine industry by state highlights the regional distribution of the industry's scale, reflecting the geographic spread of activities.

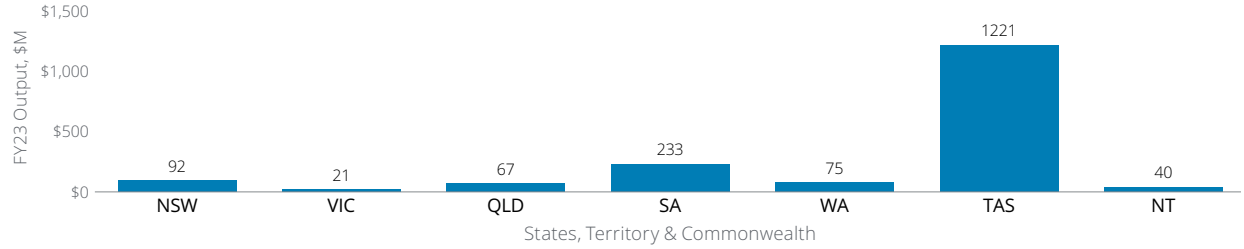
Figure A1: Commercial fishing economic output in FY23 $ million) – by state and territory



Source: Deloitte Access Economics

Note: State breakdowns are based on historical State and Territory growth rates, due to data availability. Commonwealth includes fisheries within Commonwealth waters as part of the Commonwealth Marine Reserves e.g. Macquarie Island, Coral Sea, Heard and McDonald Islands fisheries.

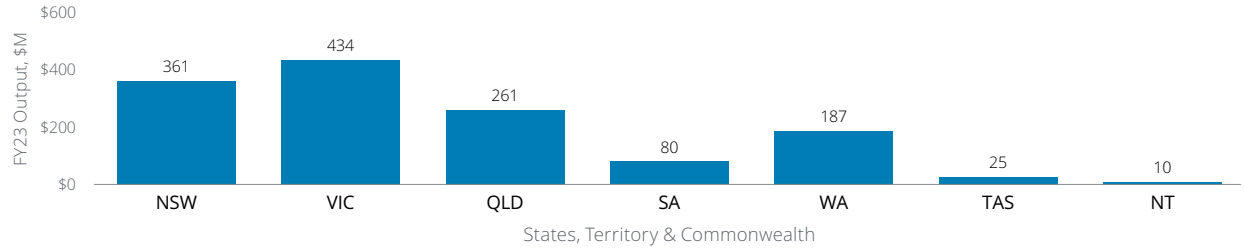
Figure A2: Marine-based aquaculture economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State breakdowns are based on historical State and Territory growth rates, due to data availability.

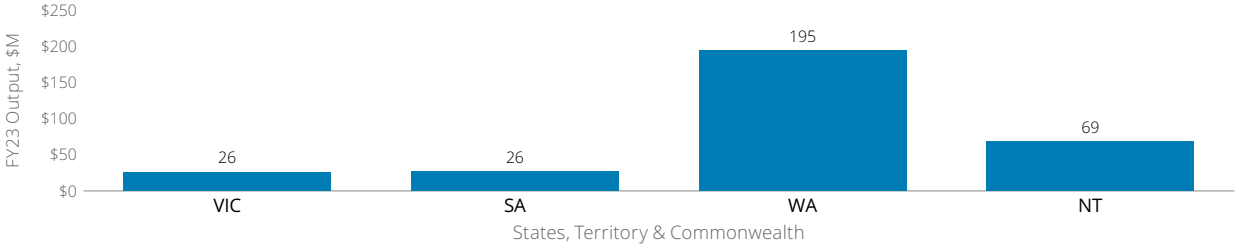
Figure A3: Recreational fishing economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State-level projections have been calculated by scaling the previous state-level expenditure by the growth in total expenditure, reported up to the most recent survey.

Figure A4: Oil exploration economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

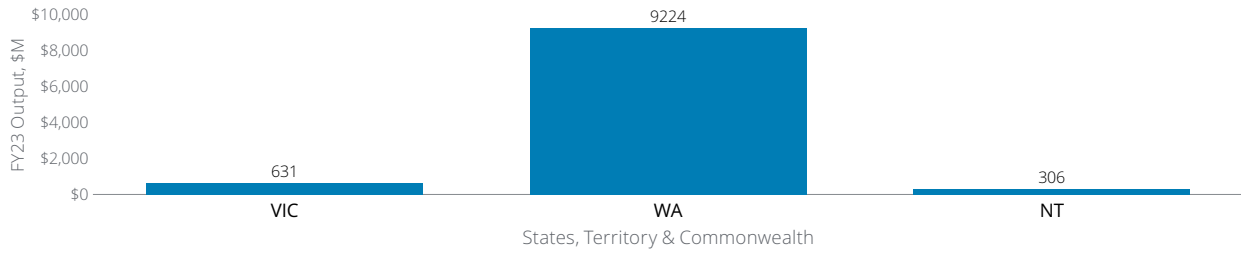
Note: State and Territory shares based on onshore and offshore exploration expenditure.

Note: For Figures A1-A19, ACT and Other Territories include Jervis Bay, Cocos Islands, Norfolk Island and Christmas Island.

Australia's marine industry economic output – by state and territory

The output of each marine industry by state highlights the regional distribution of the industry's scale, reflecting the geographic spread of activities.

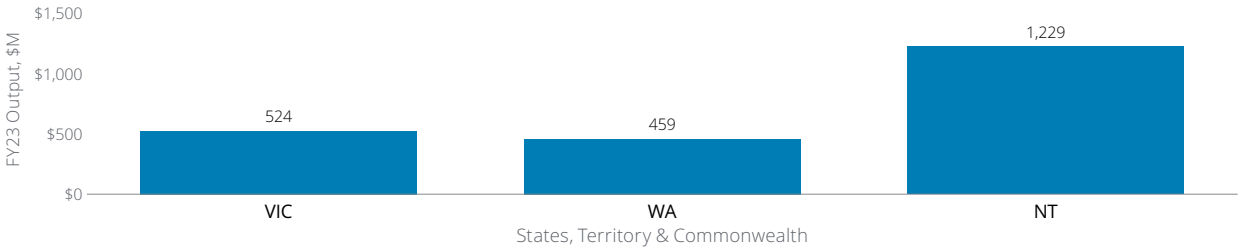
Figure A5: Oil production economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State breakdowns are based on historical State and Territory growth rates, due to data availability.

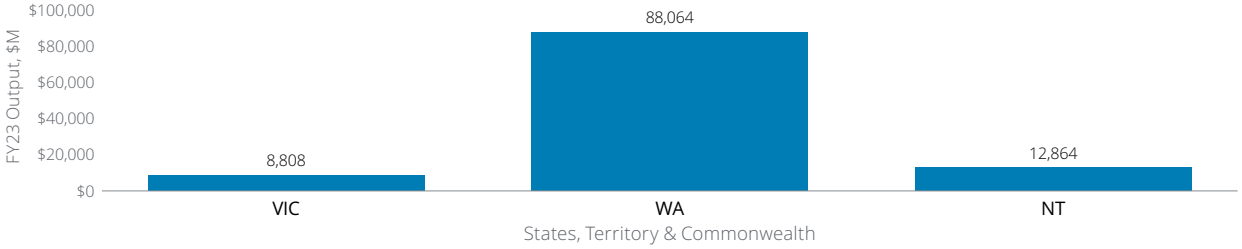
Figure A6: LPG economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State/Territory output derived by proportion of offshore LPG domestic production.

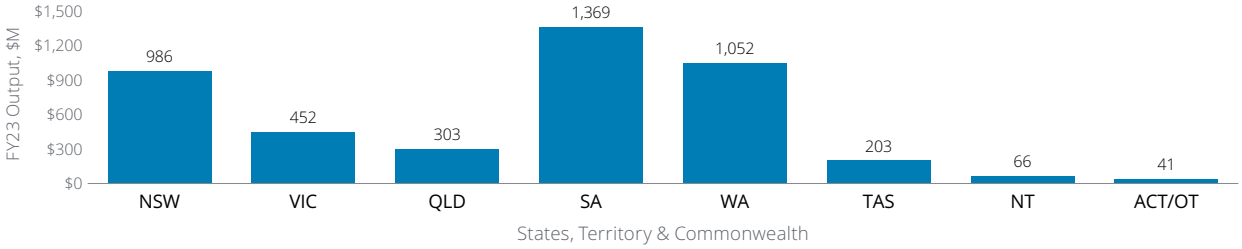
Figure A7: Natural gas economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State/Territory output is its share of total conventional gas production.

Figure A8: Shipbuilding and repair economic output in FY23 ($ million) – by state and territory



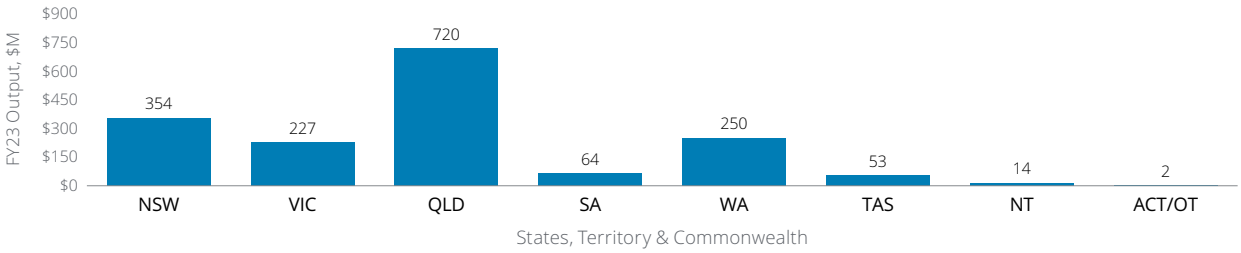
Source: Deloitte Access Economics

Note: State/Territory output estimated by applying each State/Territory's share of employment to the industry's total sales and services income.

Australia's marine industry economic output – by state and territory

The output of each marine industry by state highlights the regional distribution of the industry's scale, reflecting the geographic spread of activities.

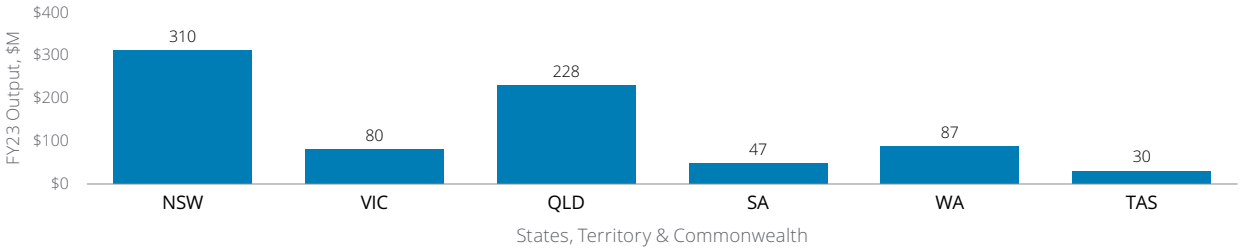
Figure A9: Boatbuilding and repair economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State-level output is calculated based on employment.

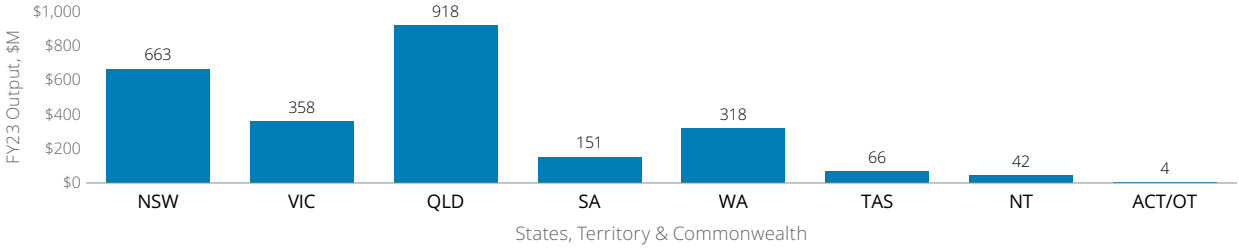
Figure A10: Marinas and boating infrastructure economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State-level output is calculated based on the previous state share of national output, due to data availability.

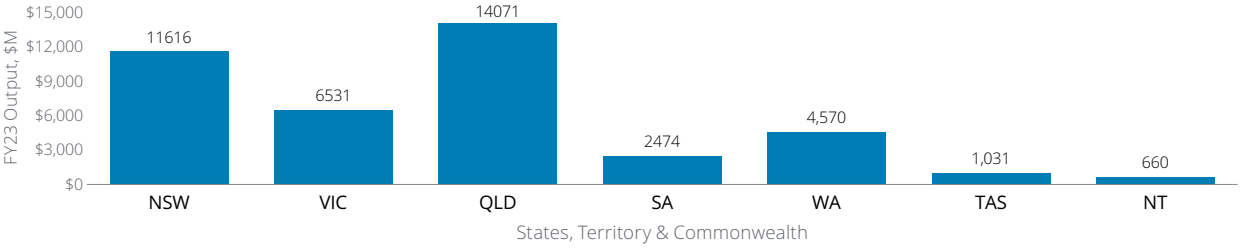
Figure A11: Marine equipment retailing economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State-level output is calculated based on employment.

Figure A12: Domestic marine tourism economic output in FY23 ($ million) – by state and territory



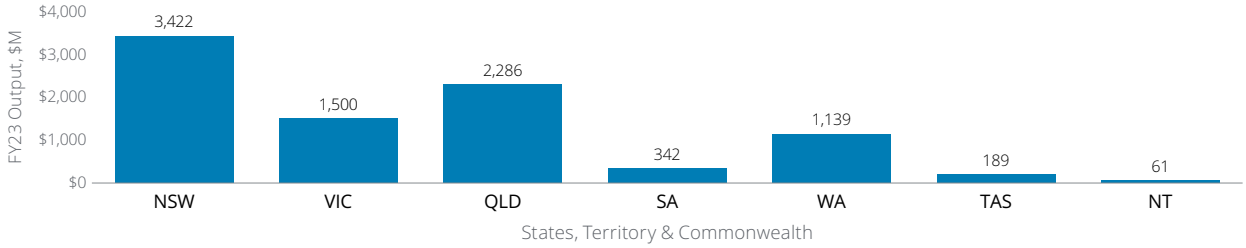
Source: Deloitte Access Economics

Note: Output uses State/Territory domestic tourism data from Tourism Research Australia.

Australia's marine industry economic output – by state and territory

The output of each marine industry by state highlights the regional distribution of the industry's scale, reflecting the geographic spread of activities.

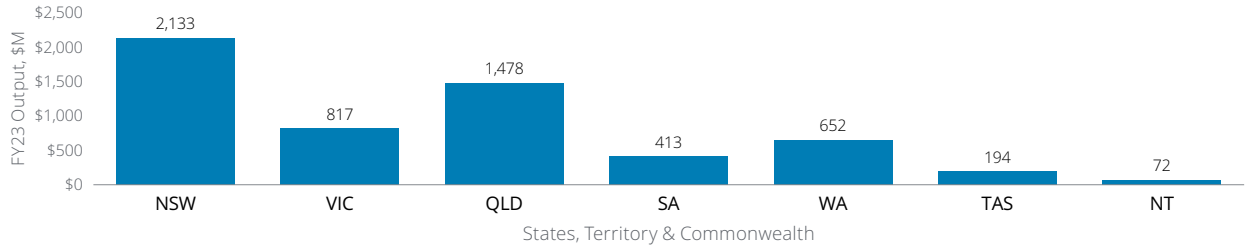
Figure A13: International marine tourism economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: Output uses State/Territory international tourism data from Tourism Research Australia.

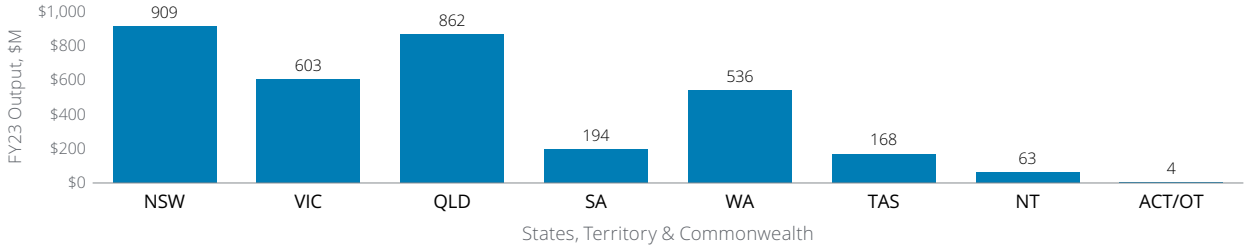
Figure A14: Non-fishing recreational activities economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State-level output uses data on state participation and vessel registration to attribute total output.

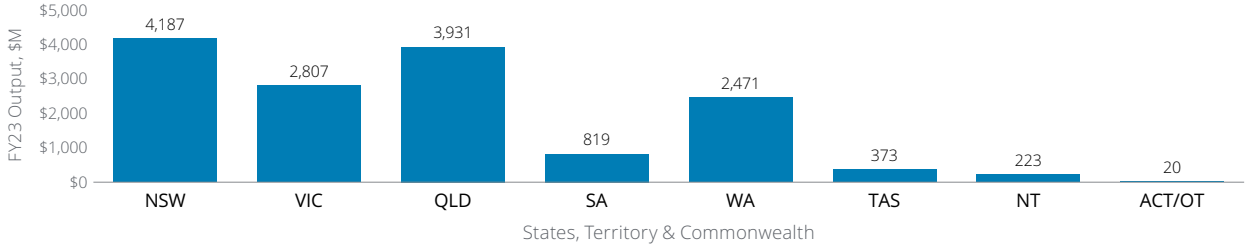
Figure A15: Water-based transport economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State/Territory output allocated by State/Territory share of industry employment.

Figure A16: Water transport support services economic output in FY23 ($ million) – by state and territory



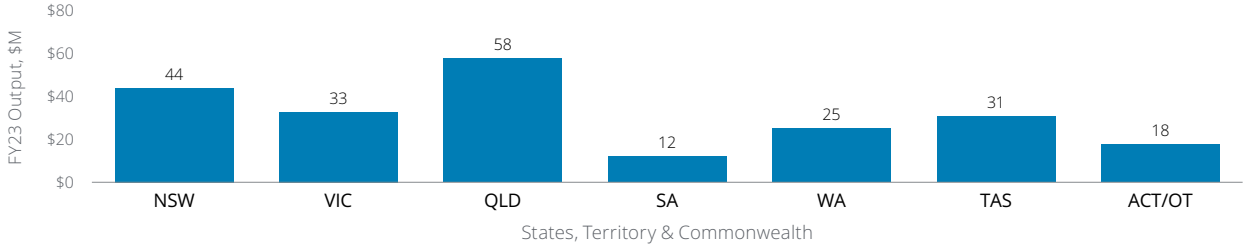
Source: Deloitte Access Economics

Note: State/Territory output scaled by share of industry employment.

Australia's marine industry economic output – by state and territory

The output of each marine industry by state highlights the regional distribution of the industry's scale, reflecting the geographic spread of activities.

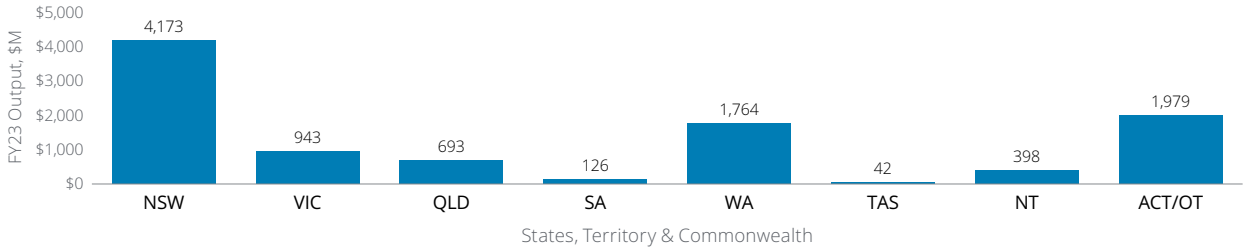
Figure A17: Scientific research economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: Attributed to State/Territory based on the allocation of grant funding using ARC data.

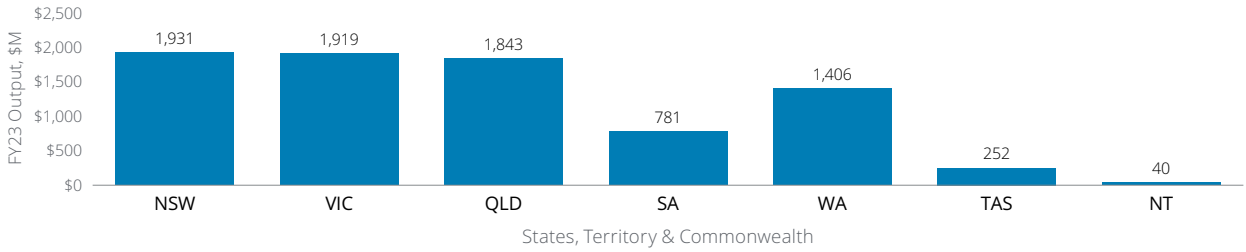
Figure A18: Defence economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State/Territory output derived from Navy Departmental outputs proportional to employment by State/Territory.

Figure A19: Sewerage and drainage services economic output in FY23 ($ million) – by state and territory



Source: Deloitte Access Economics

Note: State/Territory output was estimated by applying each State/Territory's share of national coastal employment in water supply, sewerage and drainage services to total national revenue for the industry.

A long-range solar-powered autonomous drone aircraft, developed and operated by XSun Australia, is being tested to understand how it could be used for long range marine monitoring, including surveying coral reefs to inform the management of the World Heritage-Listed Great Barrier Reef.

Aerial photogrammetry surveying could be significantly faster and more cost efficient than traditional marine monitoring survey methods and could also detect marine mammals such as whales and dugongs, allowing the capture of large volumes of data to improve the monitoring of vulnerable species and habitats.

Appendix B: Economic contribution methodology

Marine industries

A total of 37 industries were included in the AIMS 2025 Marine Index. Output was quantified using data from various sources (e.g., economic studies, government databases, annual reports) and was updated as new, more reliable data became available or when more effective approaches were identified. Qualitative industries were not quantified in this report due to limited data availability.

Table B1: Marine industries included for AIMS 2025 Marine Index

Marine industry sectors	Marine industries	Treatment in this Index	Definition	Data sources
Natural gas, offshore oil exploration and extraction	Natural Gas +*	Quantitative	Natural gas extraction and liquified natural gas production activities at offshore locations	Department of Industry, Science and Resources (2024), *Resource and Energy Quarterly*
	Oil production +	Quantitative	Activities undertaken to produce crude oil through the extraction of oil and gas deposits at offshore locations	Department of Climate Change, Energy, the Environment and Water (2024), *Australian Petroleum Statistics 2024* APPEA (2021), *Oil and Gas Industry Financial Survey: Results from 1987-88 to 2020-21*
	LPG +*	Quantitative	Activities that refine raw natural gas materials to form condensate and liquefied petroleum gas at offshore locations	Department of Industry, Science and Resources (2024), *Resource and Energy Quarterly*
	Oil exploration +	Quantitative	Activities involved in locating potential sites for oil and gas drilling and extraction at offshore locations	ABS (2024), *Mining and Petroleum Exploration, Australia*
Marine tourism and recreational activities	Domestic marine tourism +*	Quantitative	Travel from an Australian residence to take part in activities in or that rely on the marine environment	Tourism Research Australia. (2023). *National Visitor Survey*. Tourism Research Australia. (2022). *National Visitor Survey*.
	International marine tourism +*	Quantitative	Travel from an international residence to take part in activities in or that rely on the marine environment	Tourism Research Australia. (2023). *International Visitor Survey*. Tourism Research Australia. (2022). *International Visitor Survey*.
	Non-fishing recreational activities	Quantitative	Recreational activities by coastal residents including going to the beach, surfing, and boating (excluding fishing)	Surf Life Saving Australia. (2023). National Coastal Safety Report 2023 Surf Life Saving Australia. (2022). National Coastal Safety Report 2022 Tourism Research Australia. (2023). *National Visitor Survey*. Tourism Research Australia. (2022). *National Visitor Survey*. ABS (2021). *Census of Population and Housing*. Mike Raybould and Neil lazarow. (2007). *Economic and social values of beach recreation on the Gold Coast* Watercraftzone. (2021). *Jet Ski and PWC licence fees in Australia, how every state compares.* Gold Coast City Council. (2008). *A socio-economic study of recreational surfing on the Gold Coast, Queensland.* Credit One (2023), *Boat Ownership Statistics Australia* Transport for NSW. (2018). *Recreational boating participation survey*
	Aquaria	Qualitative	Aquarium operating activities	N/A
Water transport	Water transport support services	Quantitative	Stevedoring services, port and water transport terminal operations, tugboat operations, lighterage and navigation services	IBIS World (2023), *Stevedoring Services in Australia* *IBIS World* (2023), *Navigation, Towage and Services to Water Transport in Australia* IBIS World (2023), *Port and Water Transport Terminal Operations in Australia*
	Water-based transport	Quantitative	Activities involved in transporting passengers by boat charters and ferries, including water passenger transport services. It also includes transporting sea freight between domestic ports, international ports and ship freight management services	ABS (2023), *Australian Industry*.
Marine infrastructure services	Boatbuilding & repair +	Quantitative	Manufacturing or repairing vessels of less than 50 tonnes displacement	ABS (2023), *Australian Industry*.
	Shipbuilding & repair +	Quantitative	Manufacturing or repairing vessels of greater than 50 tonnes displacement	ABS (2023), *Australian Industry*.
	Marine equipment retailing +	Quantitative	Activities including boat retailing (new and used), boat trailer retailing, marine accessory retailing, outboard motor retailing and sailing or yacht retailing	IBIS World (2023), *Marine Equipment Retailing in Australia*
	Marinas & boating infrastructure	Quantitative	Activities related to marina operations	Marine Business News (2024), *Why are Marinas Important?*

Source: Deloitte Access Economics

**Sub-sectors with methodology updates*
+ Sub-sectors included in AIMS 2016 Marine Index

Marine industries (cont.)

A total of 37 industries were included in the AIMS 2025 Marine Index. Output was quantified using data from various sources (e.g., economic studies, government databases, annual reports) and was updated as new, more reliable data became available or when more effective approaches were identified. Qualitative industries were not quantified in this report due to limited data availability.

Table B2: Marine industries included for AIMS 2025 Marine Index

Marine industry sectors	Marine industries	Treatment in this Index	Definition	Data sources
Fishing	Commercial fishing +	Quantitative	Fishing activities from wild capture fisheries such as rock lobster (Panulirus cygnus) and grab potting, prawn (Dendrobranchiata) fishing, and fish trawling, seining and netting	Department of Agriculture, Fisheries and Forestry (2024), *Agricultural Commodities March 2024, Outlook Tables, Table: Fisheries*
	Marine-based aquaculture +	Quantitative	Offshore longline and rack aquaculture (such as mussel and oyster faring) and offshore caged aquaculture	Department of Agriculture, Fisheries and Forestry (2022), *Gross Value of Fisheries and Aquaculture Production, Australia* Department of Agriculture, Fisheries and Forestry (2024), *Agricultural Commodities March 2024, Outlook Tables, Table: Fisheries*
	Recreational fishing*	Quantitative	The capture or attempted capture of aquatic animals in Australian waters (freshwater, estuarine, marine) other than for commercial purposes	Henry, G. (2003). *The National Recreational and Indigenous Fishing Survey. Tasmanian Aquaculture & Fisheries Institute.* Tourism Research Australia. (2023). *National Visitor Survey*. Tourism Research Australia. (2022). *National Visitor Survey*. FRDC (2021), *2019-2021 National Recreational Fishing Survey*
	Indigenous fishing	Qualitative	Indigenous fishing applies to an Aboriginal or Torres Strait Islander person who has a traditional connection with the area being fished and is fishing for personal, domestic, ceremonial, educational or non-commercial need	No/limited data available
Defence, marine safety and environment management	Australian Maritime Safety Authority	Qualitative	An Australian statutory authority responsible for the regulation and safety oversight of Australia's shipping fleet and management of Australia's international maritime obligations	No/limited data available
	Surf Life Saving Australia	Qualitative	A not-for-profit organisation that provides voluntary lifeguard services and competitive sport	No/limited data available
	Australian Volunteer Coast Guard	Qualitative	An organisation that provides search and rescue services, vessel tracking, marine radio, and training	No/limited data available
	Marine Park management	Qualitative	Various state and federal government departments in addition to Traditional Owner Prescribed Body Corporates responsible for marine park operations of Australia's 62 marine parks	No/limited data available
	National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)	Qualitative	The Australian Government offshore energy regulator responsible for the health and safety, well integrity and environmental management aspects of offshore oil and gas operations in Australian Commonwealth waters	No/limited data available
	Dredging	Qualitative	The removal of sediments and debris from the bottom of lakes, rivers, harbors, and other water bodies	No/limited data available
	Marine estate management	Qualitative	Government organisations that coordinate policies and programs for maintaining and improving the marine environment, including the ocean, estuaries, coastal wetlands and coastlines.	No/limited data available
	Scientific research	Quantitative	Research conducted by an Australian research institution under the Australian Research Council's (ARC) or through funding by the Fisheries Research and Development Corporation's (FRDC) or AIMS.	Australian Research Council. (2025). *ARC Data portal: Grants Search*. Fishing Research Development Corporation (2023), *Annual Report 2022-23* Australian Institute of Marine Science (2023), *Annual Report 2022-23*
	Defence	Quantitative	Navy capabilities defined by all Navy activities funded by own source revenue	Department of Defence (2023). *Annual Report 2022-23*.
	Sewerage & drainage services	Quantitative	Activities required to operate sewerage or drainage systems or sewage treatment plants that discharge into the marine environment. It includes the sewerage pumping station operation, sewage treatment plant operation, sewerage system operation, stormwater drainage system operation and town drainage system operations	IBIS World (2023). *Sewerage and Drainage Services in Australia*

Source: Deloitte Access Economics

**Sub-sectors with methodology updates*
+ Sub-sectors included in AIMS 2016 Marine Index

Marine industries (cont.)

A total of 37 industries were included in the AIMS 2025 Marine Index. Output was quantified using data from various sources (e.g., economic studies, government databases, annual reports) and was updated as new, more reliable data became available or when more effective approaches were identified. Qualitative industries were not quantified in this report due to limited data availability.

Table B3: Marine industries included for AIMS 2025 Marine Index

Marine industry sectors	Marine industries	Treatment in this Index	Definition	Data sources
Other resource extraction & use	Desalination	Qualitative	Activities that involve removing mineral components from saline water	N/A
	Carbon capture	Qualitative	Offshore processes that trap carbon dioxide produced by burning fossil fuels or other chemical or biological processes and storing it in such a way that it is unable to affect the atmosphere, with the aim of mitigating the effects of climate change	N/A
	Bioprospecting	Qualitative	Activities that involve searching for useful organic compounds in the marine environment, commonly involving the collection and examination of biological samples (plants, animals, microorganisms) for sources of genetic or biochemical resources	N/A
	Marine and seabed mining	Qualitative	The extraction of submerged minerals and deposits from the sea floor, including deep sea mining which involves the retrieval of deposits from the ocean below 200 metres	N/A
	Offshore wind	Qualitative	The generation of electricity through wind farms in marine bodies of water	N/A
	Ocean renewable energy	Qualitative	Other ocean renewable energy involves tidal energy, wave energy, energy from ocean currents and ocean thermal energy conversion	N/A
	Marine pipeline services	Qualitative	Activities involved in installing, maintaining or repairing pipelines that are laid on the seabed or inside a trench under a seabed	N/A
	Salt production	Quantitative	Salt production activities that involve the evaporation of seawater	N/A
	Marine biotechnology	Quantitative	The creation of products and processes from marine organisms through the application of biotechnology, molecular and cell biology	N/A

Source: Deloitte Access Economics

**Sub-sectors with methodology updates*
+ Sub-sectors included in AIMS 2016 Marine Index

Economic contribution modelling

Economic contribution is measured in terms of employment (FTE) and value added to the economy, using Deloitte's in-house Regional Input-Output Model (DAE-RIOM).

To measure the economic contribution of the marine industry to the economy, two primary measures are used: value added and employment (FTE).

Value added

Value added measures the value of output (i.e., goods and services) generated by the entity's factors of production (i.e., labour and capital) as measured in the income to those factors of production. The sum of value added across all entities in the economy equals gross domestic product. Value added is the sum of:

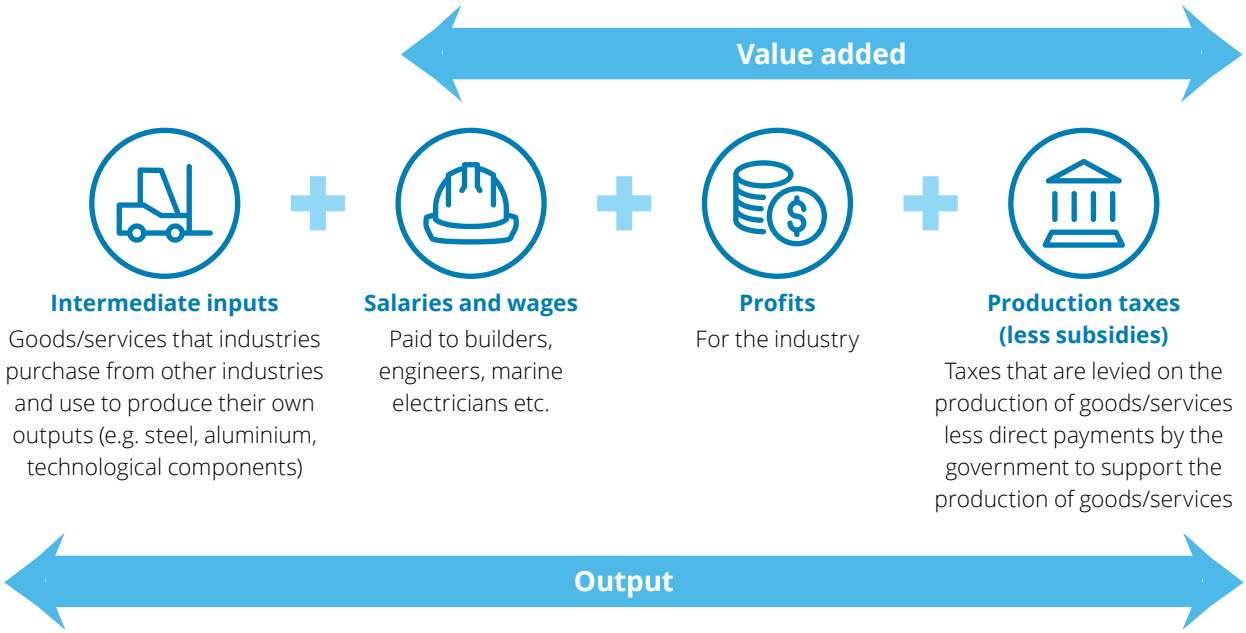
- Gross operating surplus (GOS) – GOS represents the value of income generated by the entity's direct capital inputs, generally measured as the earnings before interest, tax, depreciation and amortisation (EBITDA)
- Tax on production less subsidy provided for production – this generally includes company taxes and taxes on employment. Given the returns to capital before tax (EBITDA) are calculated, company tax is not included, or this would double count that tax
- Labour income is a subcomponent of value added. It represents the value of output generated by the entity's direct labour inputs, as measured by the income to labour.

The direct economic contribution is a representation of the flow from labour and capital involved in the economic activity itself. The indirect economic contribution is a measure of the demand for goods and services produced in other industries as a result of demand generated by economic activity associated with the marine industry. It should be recognised that these are the type of normal industry linkages that characterise all economic activities. Unless there is significant unused capacity in the economy (such as unemployed labour) there is only a weak relationship between a firm's economic contribution as measured by value added (or other static aggregates) and the welfare or living standard of the community.

Employment

Employment is also used to assess the economic contribution of an industry. Similar to value added, this can be assessed by the direct employment in a marine industry, and the indirect employment it supports across upstream industries. Employment is measured in FTE terms, which measures the equivalent number of full-time workers that an industry employs across its different types of workers. Employment is also calculated using Deloitte's model based on the ABS IO tables.[1]

Figure B1: Output versus value added for the boatbuilding and repairs industry



Source: Deloitte Access Economics

Economic contribution modelling (continued)

Economic contribution is measured in terms of employment (FTE) and value added to the economy, using Deloitte's in-house Regional Input-Output Model (DAE-RIOM).

The contribution of the marine industry is estimated by Deloitte Access Economics' Regional Input-Output Model (DAE-RIOM), which is based on the ABS Input-Output tables. The industry classification used for input-output tables is based on the Australian and New Zealand Standard Industrial Classification[1] (ANZSIC), with 114 industry groups in the modelling framework.

These tables contain information about an ABS industry's profile of intermediate expenditure across different industries, facilitating the use of ratios to convert marine industry output into intermediate expenditure across industries. The profile of intermediate expenditure is then converted into indirect value added by applying the industry relationship between value added and output from the IO tables. Direct value added can be estimated in the same manner. The estimate of FTE employment is based on the ratio of FTE employment per output, also calculated from the ABS IO tables. This approach is standard for estimating the contribution of an industry/ organisation to GDP and jobs at a point in time, and as such is fit for purpose to get the metrics required for this reports' aim - to size the contribution of marine industries to Australia's economy.

Additionally, there is a risk of double counting value added when summing the value added of a demand-side activity that consumes a measured supply-side activity. For example, defence may purchase ships built by the shipbuilding industries.

To avoid double counting the indirect contribution that defence makes to shipbuilding with the direct contribution of the shipbuilding industry, the indirect contribution is removed. This adjustment is only performed when aggregating the total value added of multiple industries, meaning industry-level contribution figures will not sum to the aggregate total value added.

Input-Output (IO) modelling is a standardised method for estimating the economic contribution of an industry at a given point in time. However, it has several limitations. The IO framework does not capture productivity spillovers between sectors - for example, efficiency gains in marine transport that reduce costs for exporters across multiple industries. Nor does it include downstream effects, such as economic activity generated by restaurants serving seafood from commercial fisheries. This exclusion avoids double counting and prevents overstating an industry's significance. Additionally, IO models assume unconstrained economic conditions, meaning increased activity in one sector does not raise prices or displace activity elsewhere. As a result, the estimated total and indirect contributions may represent an upper bound.

The framework also omits broader flow-on impacts that more dynamic models - such as Computable General Equilibrium (CGE) models - can capture. CGE modelling is better suited for evaluating long-term, economy-wide impacts of policy changes. Furthermore, IO does not account for social or environmental outcomes, which are better assessed through frameworks like the SEEA. A cost-benefit analysis (CBA) is another effective tool which could be used to assess the return on investment of a specific intervention by weighing its economic, social, and environmental costs and benefits. While each approach has strengths and limitations, IO modelling is the most appropriate tool for this study's objective:[2] estimating the current economic contribution of the marine economy.

Economic contribution modelling (continued)

Economic contribution is measured in terms of employment (FTE) and value added to the economy, using Deloitte's in-house Regional Input-Output Model (DAE-RIOM).

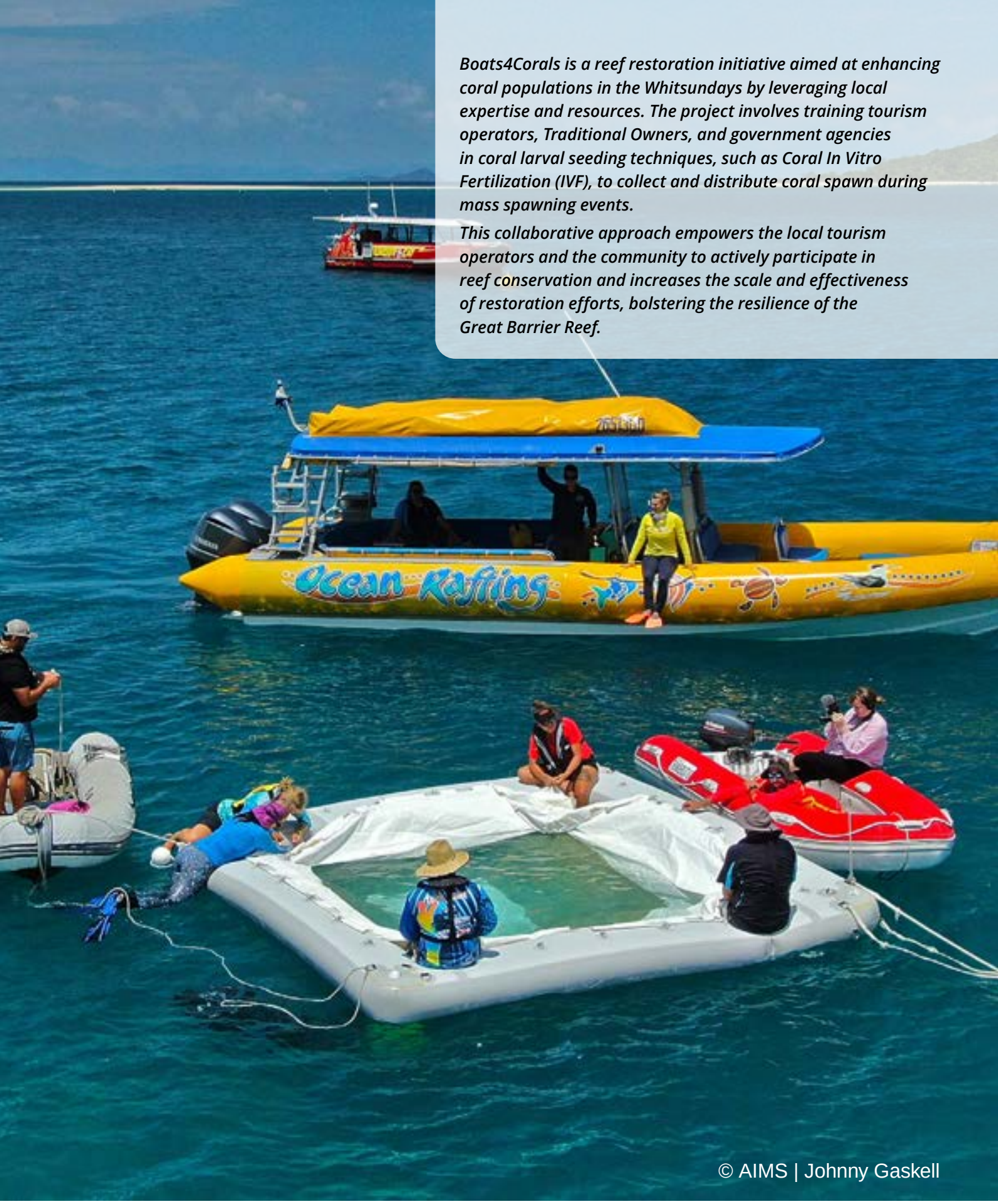
Summary of methodology changes

When new data sources emerge or methodological refinements are required, adjustments are made to improve the accuracy of industry output estimates. New industries are also incorporated when reliable quantification becomes feasible. This section outlines key methodological updates and the approach for estimating scientific research, while methodologies for other industries remain unchanged.

- **Natural gas and LPG:** The estimation of natural gas production value now utilises the Resources and Energy Quarterly[3] as a data source, replacing the previous method of scaling the FY20 monetary value of LNG based on production volumes (which was necessitated by the discontinuation of the prior data source). Under the new approach, the implied export price is applied to total production volumes to derive total industry output. The methodological updates applied to natural gas have also been adopted for LPG estimation.
- **Recreational Fishing:** Recreational fishing participations has been updated to using recent survey data[4] (2019–2021). Per-person state expenditure has been adjusted in line with the growth in national expenditure[5] since the previous survey period. The product of these parameters provides industry output.
- **Commercial Fishing:** State-level projections for commercial fishing have been refined using historical state and territory growth rates, given state-level data availability.
- **Tourism:** Due to data constraints, a revised approach uses state-level tourism data instead of unit-level data. Average visitor expenditure is calculated by visitor type and reason for visit by tourism region (coastal only), along with total length of stay for visitors conducting marine-related activities. Marine-related tourism expenditure is then estimated by applying average spend to total marine nights/days at the state level.
- **Scientific Research:** Scientific research has been newly incorporated into this edition. Its economic contribution has been estimated through:
  - Allocating Australian Research Council (ARC) grants[6] for marine-related research evenly across the lifespan of each project.
  - Aggregating revenue received for research services, including government funding, sourced from the Australian Institute of Marine Science[7] (AIMS) and the Fisheries Research and Development Corporation.[8]

Boats4Corals is a reef restoration initiative aimed at enhancing coral populations in the Whitsundays by leveraging local expertise and resources. The project involves training tourism operators, Traditional Owners, and government agencies in coral larval seeding techniques, such as Coral In Vitro Fertilization (IVF), to collect and distribute coral spawn during mass spawning events.

This collaborative approach empowers the local tourism operators and the community to actively participate in reef conservation and increases the scale and effectiveness of restoration efforts, bolstering the resilience of the Great Barrier Reef.



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