



OCEAN BUSINESS LEADERS' SUMMIT

White Paper

July 2023



**2021
2030** United Nations Decade
of Ocean Science
for Sustainable Development



Ocean
Decade
Australia



We acknowledge the First Nations people of the land and sea where we work and live. We pay our respects to Elders past, present and emerging and celebrate the stories, culture and traditions of Aboriginal and Torres Strait Islander Elders of all communities who also work and live across Country.



**2021
2030** United Nations Decade
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for Sustainable Development

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#forTheocean



“

Talanoa is a Samoan word for talking,
it can also mean in-conversation, or
the exchange of words.

To break it down – Tala means
to open and noa means knots.
To talanoa is to open, or untie,
knots together.

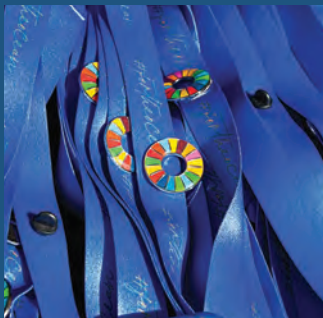
And that is what we are doing
here, together, today.

*Brianna Fruean,
Climate Activist and
Pacific Climate Warrior*

”



Ocean Business Leaders' Summit | 1-2 March 2023 | Sydney | Australian National Maritime Museum



“

Things that
seem brave
today, seem like
common sense
tomorrow.

*The Hon. Tanya
Plibersek, MP, 2023,
Ocean Business Leaders'
Summit, Sydney*

”



Message from Ocean Decade Australia

In 2021, Ocean Decade Australia was established with a vision of achieving a sustainable ocean future for all Australian stakeholders. We do this by connecting people and organisations through knowledge, networking, and learning.

Our five core principles include: focusing on one client - the ocean; building trust with Australian ocean stakeholders; amplifying efforts; being independent; and adding value to the United Nations Ocean Decade.

Since establishment, we have interviewed and consulted many hundreds of people across sectors and industries, in the process confirming that most of the conversations about the ocean occur in government, research and academic organisations, and through civil society. These were places we were familiar with, but we became increasingly curious by the limited discourse about the ocean, planetary and natural systems that we encountered when consulting with businesses, investment, finance, and industry sectors.

When we asked how and where the ocean and planetary systems featured in business and boardroom decision-making, it was not unusual to be assured that climate change was a priority but could *'we talk about the ocean another time'*.

The noticeable gap in connecting the ocean's role in regulating the climate has been a driver for our work and led to the inception of Australia's inaugural Ocean Business Leaders' Summit. Further consultation with the private sector, particularly with banking and finance, business owners, investors and entrepreneurs, revealed the opportunity to make the ocean neighbourhood and its resources visible in a different way, providing the impetus to bring together current and new entrants to the ocean economy, who have not had a natural way to meet and talk about how to share the ocean commons - a public good not well known or understood.

The ambition for the Summit was simple and yet deeply challenging with multiple knowledges of the ocean required to illuminate the complexity of ocean processes, and the very different ways in which we use, see and value the ocean.

We thank the 70+ presenters and the 257 participants for their active contributions. Most particularly, we thank our Advisory Group and Summit Partners for their direct and tireless support of a Summit that heralds a new era for Australia's ocean conversation.

Jas Chambers

Chair, Ocean Decade Australia and
Ocean Business Leaders' Summit

Dr Lucy Buxton

Director, Ocean Decade Australia and
Director, Ocean Business Leaders' Summit

About the Ocean Business Leaders' Summit

Summit design

Taking our lead from established frameworks and commitments, the inaugural Australian Ocean Business Leaders' Summit was established as a gathering of business, finance, research, science, community, and government stakeholders to broker dialogue and intellectual discussion about a sustainable ocean economy. It sought to generate collective understanding and identification of high-level actions while simultaneously growing awareness of the ecosystem of stakeholders, drivers and opportunities amongst the participants.

The focus was unashamedly the private sector - businesses who make and do things and shape the way in which funding of activities occurs. Through consultation with business, it became obvious that if we are to change our trajectory systemically, we needed to get real about where the impacts occur - when we make and do and consume - and how we work together to ameliorate, remove, or decide to live with those impacts.

Simply, the ocean deserves the difficult conversations we - as stewards and custodians - must begin and continue to have.

This Summit - symbolically held at the Australian National Maritime Museum - people to meet, hear and see each other in a connected way and begin the challenging conversations required. We realised that our years of consultation would be more valuable if we could bring people together to learn from each other to create the societal step change required.

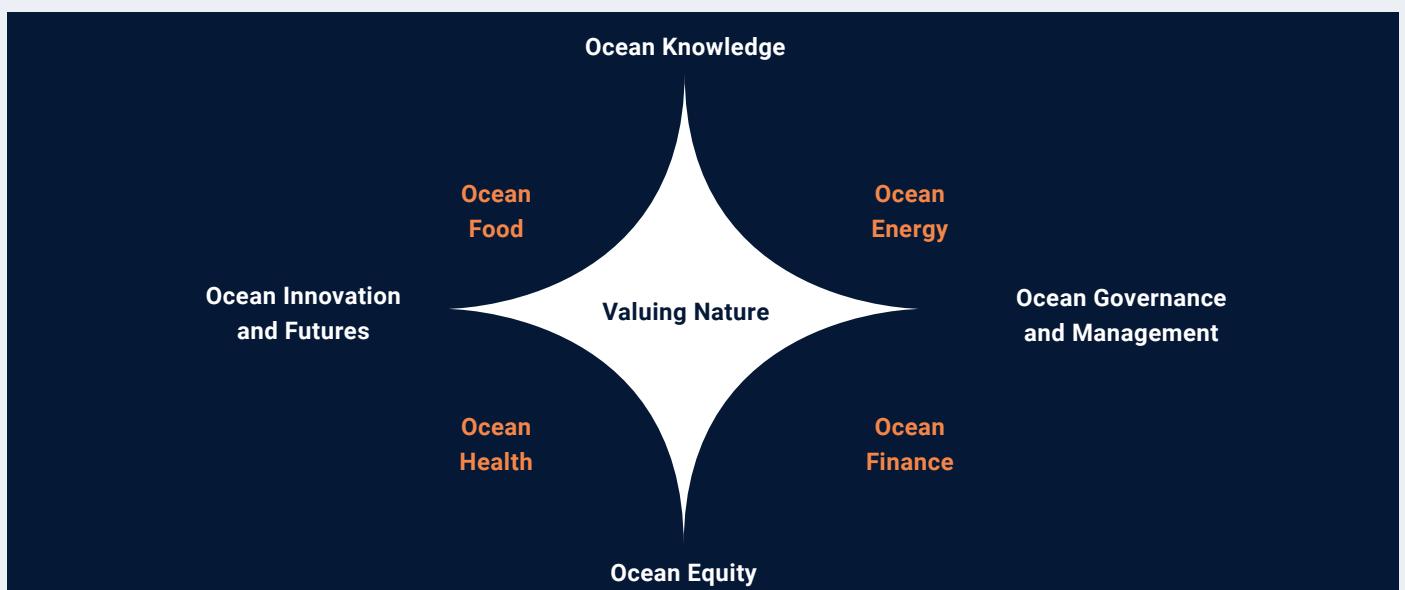
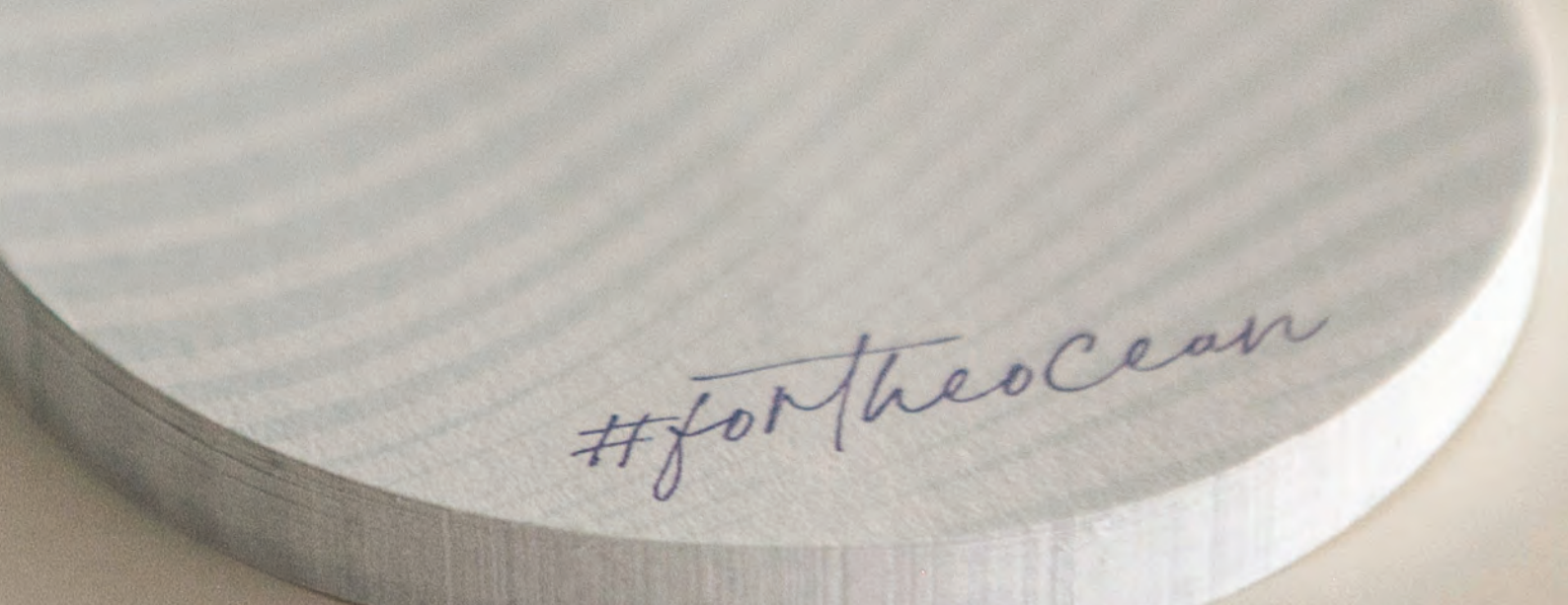
The Summit Agenda referenced existing frameworks including the United Nations Decade of Ocean Science for Sustainable Development, the High Level Panel for a Sustainable Ocean Economy, the United Nations Sustainable Development Goals, and the Taskforce on Nature-related Financial Disclosures.

Interactive discussions with the participants led by panel moderators, keynotes and thought leaders traversed ocean knowledge, equity, innovation and governance.

Summit participants were allocated to Immersion topics for deeper facilitated conversations, where big ideas and areas for priority were generated.

Participants

The Summit brought together 257 participants representing First Nations, industry, business, investment and finance, philanthropy, community, science, engineering, innovation and young people. The Summit also included State and Federal Government representatives, defence and representation from the Pacific community.



Purpose of the White Paper

This white paper has been generated as a synthesis of the discussions held at the Summit and its purpose is to help inform development of Australia's sustainable ocean plan that aims to deliver a thriving sustainable ocean economy by 2050.

The Vision outlined is for a closer timeframe - 2030 - a major marker for evaluating efforts and the end of the UN Ocean Decade. As one participant noted, "we have 7 Summers left to 2030".

This paper will be distributed to Summit participants, our broader network and made publicly available, providing an actionable document for Ocean Decade Australia and all ocean stakeholders to use as a working document for future meetings and ongoing discussion.

It is intended as a starting point to support an uplift in understanding and diverse perspectives and identifies priorities that can then lead to more detailed work and action. It is acknowledged that wider consultation is needed across Australia's ocean stakeholders, and it is our intention to continue to work with our partners to facilitate this.

How to read the White Paper

The eight areas of focus above provided the basis for discussion, with the concept of Valuing Nature at the centre. The breadth of participant discussion and feedback generated nine enablers (p. 22) that are considered critical to achieving a sustainable ocean economy in Australia.

The immersion conversations – energy, finance, food and health – identified a series of priorities and actions which are cross referenced to the enablers, identifiable via the following icons:

 **Ocean Energy**

 **Ocean Finance**

 **Ocean Food**

 **Ocean Health**

Speakers



Speakers, left to right, top to bottom

- Daryl Karp AM, Director and CEO, Australian National Maritime Museum
- Dr Patrick Hone, Managing Director, Fisheries Research and Development Corporation
- Alison Rowe, Managing Director, The Nature Conservancy Australia
- Dr Fiona Valesini, Director, Oceans Program – The Nature Conservancy
- Drew Clarke AO FTSE, Chair, Australian Energy Market Operator (AEMO)
- Erin Coldham, Chief Development Officer, Star of the South, Copenhagen Offshore Partners
- Sam Elsom, Co-founder and CEO, Sea Forest Ltd
- Dr Emma Carmody, Co-founder and Director Legal and Partnerships, Restore Blue
- The Hon Tanya Plibersek MP, Minister for the Environment and Water
- The Hon James Griffin MP, NSW Minister for Environment and Heritage
- Pete Ceglinski, CEO and Co-founder, SeabinTM
- Joanne Howarth, Founder and CEO, Planet Protector Packaging
- Nicole Yazbek-Martin, Head of the Australian Taxonomy Development, Australian Sustainability Finance Institute
- Karl Watfern, Co-founder and CTO, Hullbot
- Heidi Tait, CEO and Founder Tangaroa Blue Foundation
- Zoe Whitton, Managing Director, Pollination
- Bruce Tomlinson, Investment Director, Munderoo Foundation
- Dr Beth Fulton, Domain Leader, Integrated Ocean Stewardship – CSIRO
- Rear Admiral Lee Goddard CSC. Former Commander of the Australian Maritime Border Command and the Navy's Surface Fleet
- Raquel Carter, Chief Environmental Scientist, NOPSEMA
- Cameron Grebe, Head of Environment, Renewables & Decommissioning, NOPSEMA
- Dr Andrew Forrest, Chairman of Fortescue & Munderoo Foundation
- Anna Marsden, Managing Director, Great Barrier Reef Foundation
- Bill Wall, Lead Sustainable Sourcing Manager (Seafood) – Coles
- Jonathan Fievez, CEO, Carnegie Clean Energy
- Suluaifi Brianna Fruean, Climate Activist and Pacific Climate Warrior
- Danny Nielsen, Country Manager and Senior Vice President AU/NZ, Vestas
- Professor Gretta Pecl, Professor of marine climate change and IPCC lead Author
- Elizabeth O'Leary, Global Head of Agriculture & Natural Assets, Macquarie Asset Management (MAM)
- Joe Morrison, Group CEO, Indigenous Land and Sea Corporation (ILSC)
- Damon Gameau, Director, Writer, Producer and Presenter
- Emily Albert, Executive Director and Head of Impact, Alberts
- Dr Ben Milligan, Secretariat Director, Global Ocean Accounts Partnership, UNSW
- Emma Jenkin, Partner, Kilara Capital
- Tony Goldner, Executive Director, Taskforce on Nature-related Financial Disclosures
- Dr Katie Dafforn, Co-founder, Living Seawalls, Sydney Institute of Marine Science



- Amy Low, Brand and Marketing Director, Piping Hot Australia
 - David Carter, CEO, Austral Fisheries
 - Misha Schubert, CEO, Science & Technology Australia
 - Professor Chris Turney, Pro Vice-Chancellor of Research, University of Technology Sydney
 - Kylie Ahern, CEO and Founder, STEM Matters Publisher, The Brilliant
 - Sandy Laurie, Vice President, Roc Partners
 - Dr Ian Cresswell, Co-chief Author National State of the Environment Report 2021
 - Bel Quince, Climate Strategy Executive, NAB
 - Mark Ryan, Managing Director and CEO, Tassal Group
 - Emma Herd, Partner, Climate Change and Sustainability, EY
 - Dr Russell Reichelt AO FTSE, Australian Representative, Ocean Panel, Department of Climate Change, Energy, the Environment and Water and Chair, Marine Estate Management Authority, New South Wales
 - Zali Steggall OAM, MP
 - The Hon Murray Watt, Minister for Agriculture, Fisheries and Forestry Minister for Emergency Management, Senator for Queensland
 - Sam Bastounas, CEO, Pacific Bio
 - José Matías del Pino, Co-founder and COO, OpenSC
 - Dr Stuart Minchin, Director General, The Pacific Community (SPC)
 - Kal Glanznig, Young Changemaker
 - Professor Trevor McDougall, AC, Scientia Professor of Ocean Physics and 2022 recipient of the Prime Minister's Prize for Science
 - Natasha Larcos, Ocean Advocate
 - Lizzie Welborn, Professional Surf Ironwoman, ocean lover
 - Sam Fricker, Youth eco-entrepreneur
 - Tim Johnston, CollaborOCEANS Founder and Artist
 - Bernie Hobbs, Summit Co-host
 - Adam Spencer, Summit Co-host
- Ocean Business Leaders' Advisory Group:
- Dr Sue Barrell AO FTSE
 - Dr Lucy Buxton, Director, Ocean Decade Australia
 - Jas Chambers, Chair, Ocean Decade Australia
 - Nick Chiarelli, CEO & Co-founder, Ocean Impact Organisation
 - Terence Jeyaretnam - Climate Change and Sustainability Services Partner, Ernst & Young, Australia
 - Greg Johannes, Chair, Blue Economy Cooperative Research Centre
 - Andra Müller, Founder & CEO of Jewelrock
 - Shane Phillips, CEO, Tribal Warrior
 - Veronica Papacosta, CEO, Seafood Industry Australia
 - Miranda Taylor, CEO, National Energy Resources Australia
 - Louise Watson - Managing Director, Country Head Australia & New Zealand at Natixis Investment Managers
 - Dr Tony Worby, Director, Planet Portfolio & Flourishing Oceans, Minderoo Foundation

Executive Summary



Australia, with its unique environmental and cultural heritage, has a significant stake in ocean conservation.

The ocean is recognised as a new economic frontier, offering opportunities for economic growth, employment, and innovation. However, unlike previously untouched areas, the ocean has not been spared from human impact. Stressors including rising sea temperatures, pollution, resource overexploitation, biodiversity loss, sea-level rise, and extreme weather events have only recently been understood and experienced by humans.

The ocean plays a crucial role in regulating the planet's climate by acting as a heat sink and absorbing carbon dioxide. It also influences global climate patterns through its circulation patterns and currents. Conversely, climate change has profound effects on the ocean and its inhabitants, including ocean warming, ocean acidification, and changes in currents and circulation.

This interconnected relationship between the ocean and climate systems is referred to as the ocean-climate nexus. It highlights the mutual interactions, feedback loops, and interdependencies between the two systems. Understanding and addressing this nexus is crucial for effective climate change mitigation and adaptation strategies.

Australia, with its unique environmental and cultural heritage, has a significant stake in ocean conservation, particularly as the steward of the World Heritage Site - the Great Barrier Reef - but it is also a nation surrounded by four connected bodies - the Pacific, Southern and Indian Oceans, as well as the Timor, Tasman and Coral Seas¹.

To sustain the expanding ocean economy, driven by factors such as increasing human population, trade, food security, innovation, and investment opportunities, it is crucial to strike a balance with the need to

protect ocean health and ensure long-term prosperity for all Australians who rely on the ocean economy for their livelihoods and wellbeing. Australia's ocean economy must be sustainable, safeguarding and investing in our social, economic and environmental wealth for future generations.

Several key areas contribute to this sustainable approach.

- Coordinated consultation, governance, investment, and impact measurement are necessary to support ocean-based activities and integrate emerging industries into existing regulatory frameworks.
- Fishing and aquaculture both play significant roles in contributing to global food security by increasing the availability of nutritious food. Fishing and aquaculture help alleviate the strain on terrestrial ecosystems and land-based agriculture by providing an alternative source of protein. As global populations continue to grow, diversifying food production to include seafood can reduce pressure on agricultural lands and contribute to sustainable food systems.
- The energy sector plays a crucial role in a sustainable ocean plan by providing a clean, renewable, and abundant source of power. As the world seeks to transition away from fossil fuels and reduce greenhouse gas emissions, ocean energy and offshore renewables offers a promising solution to meet the increasing global energy demand. Developing ocean energy and offshore renewables as part of a comprehensive sustainable ocean plan is a vital step towards achieving a low-carbon future and preserving the health and resilience of our oceans for future generations.

- Finance is a limiting factor in improving the health of the oceans. The current level of investment falls significantly short of the funding needed to achieve the United Nations Sustainable Development Goals for Life Under Water (SDG 14). While efforts are being made to make the ocean investible and attract financial capital into ocean-positive businesses, there is a need for more focus and investment in Australia and our region.
- Science, technology, and innovation are expected to play a crucial role in expanding ocean economies while addressing environmental challenges. Remote sensing, big data, autonomous systems, and the adaptation of existing technologies have the potential to transform the productivity and monitoring of ocean businesses.

Protecting the ocean's health is not only critical for business and society but for all life on this planet. Coordinated efforts from various sectors, effective regulation and governance, and increased investment are needed to ensure a healthy ocean and a thriving ocean economy.

- Ocean-based economic sectors contribute at least **\$1.5 trillion** annually in value-added to the overall economy and this number could reach \$3 trillion by 2030²
- **31 million jobs** (direct full-time employment - 1. fisheries 2. tourism)²
- The ocean could sustainably produce **6x** more food than it does today³
- Ocean-based solutions could deliver **21%** of necessary emissions reductions by 2050³
- A sustainable ocean economy can deliver **40x** more renewable energy by 2050³
- A sustainable ocean economy can create **12 million** new jobs by 2030³
- Australia has the third largest Exclusive Economic Zone (EEZ) in the world, where **80%** of the area is classified as offshore. The EEZ is a sea area for which a coastal state holds sovereign rights to explore and use its natural marine resources across a range of marine activities.⁴
- **Over 85%** of Australia's population lives within 50km of the coast.⁵

Australia's Ocean Economy

The ocean economy, or blue economy, has different definitions depending on the interests, needs, capacities, perspectives and context of a country. The World Bank⁶ defines the blue economy as the “*sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ocean ecosystem*”.

It recognises the interconnectedness of ocean health and human well-being, emphasising the need for integrated and collaborative approaches to ensure the sustainable use of ocean resources and preservation of marine ecosystems for future generations. A decline in ocean health poses a significant threat to the global economy, with estimations suggesting that by 2050, the financial implications of this decline could exceed \$400 billion annually⁷.

The Ocean Business Leaders' Summit underscored the breadth of Australia's ocean economy, encompassing a wide range of economic sectors and activities that rely on the ocean systems, ecosystems and its resources. Key sectors for Australia's ocean economy include fisheries/aquaculture, maritime transportation, offshore renewable energy, tourism and recreation and marine technology and research. Each of these sectors relies on Australia's unique coastal and marine ecosystems in a myriad of ways.

In addition to their role as fundamental life support systems, Australia's marine and coastal ecosystems provide various services to communities and the economy^{8,9}, including:

1. Provisioning services: fisheries, building materials;
2. Supporting services: life-cycle maintenance for both fauna and local, element and nutrient cycling;
3. Regulation and maintenance services: carbon sequestration and storage, erosion prevention, waste-water treatment, moderation of extreme events;
4. Cultural services: tourism, recreational, aesthetic, and spiritual benefits.

While more than 85% of Australians live within 50 kilometres of the sea, Australia's ocean economy extends beyond coastal communities, impacting all Australians and playing a vital role in the nation's overall well-being¹⁰. While coastal communities, businesses and industries along the land/sea interface have a direct connection to the ocean and its resources, the influence of the ocean economy has nationwide implications, contributing to economic growth, job creation, and the interconnected supply chains that span the country.

In 2020-21, marine industries contributed significantly to the economy by generating \$118.5 billion in output, adding \$105.3 billion in value to the GDP, and supporting 462,000 full-time equivalent jobs¹⁰.

In comparison, the economic output of accommodation and food services was \$104.2 billion, and \$135.6 billion for all electricity, gas, water and waste services in Australia.

Australia is a signatory to key global agreements relevant to the ocean economy, including the 2030 Agenda for Sustainable Development, the Convention on Biological Diversity, the Paris Agreement on Climate Change, and most recently the Kunming-Montreal Global Biodiversity Framework.

In 2020, as a member of the High Level Panel for a Sustainable Ocean Economy, Australia also committed to sustainably manage 100% of the ocean area under national jurisdiction, guided by a Sustainable Ocean Plan, by 2025¹¹.

Australia's ocean economy is part of a broader regional economy and the two should not be considered in isolation. The concept of an “ocean neighbourhood” was raised throughout the Summit and reflects the interdependencies between Australia's ocean economy and that of its neighbours.

How Australia transitions towards a sustainable ocean economy will directly impact the ocean neighbourhood. If done thoughtfully and inclusively, this will create new opportunities, new partnerships and prosperity for the Pacific.



“

The ocean is deep
and dark and
unknown. Most of
us don't think across
the horizon, and
we definitely don't
think down deep...
The challenge is
how to bring the
whole wonder
of the ocean alive
for everybody.

*Dr Tony Worby, Director,
Planet Portfolio & Flourishing
Oceans, Minderoo Foundation*

”

Challenges

The ocean faces a range of significant challenges arising from human activities that affect its health and sustainability, temperature, and natural phenomena. Addressing these ocean challenges requires international cooperation, sustainable management practices, and the adoption of innovative solutions.

The Summit identified challenges in the Australian context as outlined below. For completeness, we include identified global challenges and recommend further reference to the identified Ocean Decade Challenges¹².

Australian challenges identified at the Summit

- **Regulation and jurisdiction:** Australia lacks a national regulatory framework to guide the development of sustainable ocean-based industries and protection of coastal and marine ecosystems. This was emphasised as a key limiting factor in developing a competitive offshore wind sector in Australia as well as a barrier to scaling sustainable finance to support the establishment of a domestic manufacturing and labour market for this emerging new energy sector. Streamlining processes and establishing clear policies can support this sector to realise its potential in Australia and the region.
- **Infrastructure, technology, and innovation:** Australia has yet to prioritise ocean technology and innovation, despite its potential for global leadership. Immediate investment in onshore port infrastructure, and the transmission connections to get power from the coast to the relevant high-voltage transmission node is needed to facilitate offshore energy projects. Long-term commitment, planning and funding are necessary for environmental-economic transformation.
- **Cross-sector partnership:** Building trust and partnerships among ocean users is crucial, addressing potential challenges with fishers, recreation users, and defence. Future decarbonisation efforts could include ocean food producers incorporating renewable energy and adopting sustainable practices throughout the supply chain.
- **Investment and partnership:** Insufficient investment hampers the transition to a sustainable ocean economy. Projects face challenges attracting funding due to size or risk-return ratios. Blended finance models combining public and private capital can bridge the funding gap and achieve sustainability goals.
- **Scale:** Limited understanding and scaling of ocean-based solutions result in limited funding streams and impact investment effectiveness. Challenges include managing wild fish populations, finding feed alternatives, and addressing bycatch.
- **Sustainable finance:** The value of marine and coastal natural capital is not accurately reflected, hindering decision-making. Challenges exist in managing ocean assets due to their 'commons' nature. Australia's ocean estate receives less focus and capital compared to Europe.
- **Ocean literacy:** The lack of scientific evidence for decision-making hinders investment and leaves uncertainty. National databases, mapping systems, standards, and policy documents are needed. Strengthening ocean literacy, research, and data application is crucial for industry performance and reporting.



Global challenges

- **Overfishing and unsustainable fishing practices:** Many regions face issues of overfishing, illegal fishing, and destructive fishing practices, which deplete fish populations and harm marine ecosystems.
- **Pollution and marine debris:** The accumulation of plastic waste, chemical pollutants, and other forms of pollution in the oceans poses a significant threat to marine life and ecosystems.
- **Climate change and ocean acidification:** Rising temperatures, changing ocean currents, and increasing carbon dioxide emissions contribute to coral bleaching, sea-level rise, disruption of marine habitats, and the movement of marine species.
- **Loss of biodiversity and habitat destruction:** Destruction of coastal habitats, such as mangroves and coral reefs, as well as the loss of marine species, lead to a decline in biodiversity and ecological imbalance.
- **Unsustainable coastal development:** Poorly planned coastal infrastructure and urbanisation can damage coastal ecosystems, disrupt natural processes, and contribute to erosion.
- **Lack of effective governance and enforcement:** Weak regulations, inadequate monitoring, and enforcement mechanisms hinder the implementation of sustainable practices and conservation efforts.
- **Limited scientific knowledge and data gaps:** Incomplete understanding of marine ecosystems and limited data on various aspects of the ocean make it challenging to develop effective management strategies.

“
As a business operating in the ocean realm, we have a responsibility to care for it. Renewable energy has huge climate benefits and potential for nature-inclusive design. We’re excited to be partnering with the science, tech and conservation sectors to drive better outcomes.

*Erin Coldham,
Chief Development Officer,
Star of the South*

”

Vision for 2030

The Ocean Business Leaders' Summit used thought leadership and immersion sessions to develop a vision for how to deliver a thriving sustainable ocean economy for Australia by 2030.

Australia's business community emphasised the desire for ambition and action, and acknowledged the link between ocean health, human health, the prosperity of local communities, and the need to determine how to best share the ocean neighbourhood.

“

By 2030, Australia's ocean economy is sustainable (able to be maintained), resilient (able to recover quickly), and on the path to decarbonisation by the middle of the century. It is capable of long-term economic viability and productivity.

It respectfully elevates the traditional knowledge of our First Nations people, harnesses Australia's scientific expertise and evidence-based methodologies, and leverages the perspectives of local communities and existing and new industries for the benefit of all Australians.

New and established ocean industries enable Australia to deliver on its international commitments and position our nation as a global leader in achieving a sustainable ocean economy that uses the ocean's resources, without using them up, enabling productivity and prosperity for generations of people to come.

Through effective and connected governance, strategic investment and innovative partnerships and collaboration, Australia has thoughtfully gathered the potential of its shared ocean neighbourhood to create diverse and sought-after jobs, generate revenue, improve societal wellbeing, and spur global and regional innovation while protecting its unique biodiversity for future generations.

”

Guiding Principles for Australia's Ocean Economy

Seven core principles emerged throughout the Ocean Business Leaders' Summit as foundational to achieving the Vision for 2030 and ensuring Australia's ocean economy works for all Australians.

1

Sustainable

Conservation, restoration and sustainable use and management of marine ecosystems and biodiversity is fundamental to achieving a sustainable ocean economy.

The sustainable management of ocean resources and marine ecosystems for future generations should include safeguarding vulnerable habitats, restoring environments to yield increase flows of ecosystem services, reducing pollution and marine debris, preventing overfishing, and establishing marine protected areas (MPAs) to preserve critical ecosystems.

2

Inclusive

Australia's ocean estate, including its coastal zones and estuaries, is a shared neighbourhood, without fences. A sustainable ocean economy should consider all users of the neighbourhood, reflecting multiple perspectives, values, goals, knowledges, and priorities.

Decision-making should be inclusive and non-discriminatory, allowing all ocean users to take part and have their voices heard.

This includes local communities, First Nations Australians, young Australians and our regional neighbours. Consultation should strive to understand the context and perspectives of under-represented and/or under-engaged stakeholders and provide clear and transparent feedback on their input and concerns.

3

Collaborative

Realising the ambitious vision for Australia's ocean economy in 2030 will require genuine cross-sectoral partnerships and collaboration across public and private institutions.

While sectoral silos may be difficult to transcend on a day-to-day basis, the importance of connectivity and an openness to sharing and understanding different ways of knowing and valuing the ocean is critical.

A collaborative approach seeks to produce an outcome greater than the sum of its parts, moving beyond siloed approaches to shared ocean use and management. Efforts should go beyond the current approach, which is siloed, time-poor and at times mistrusting, generally a result of limited cross-sector knowledge and dialogue.

By prioritising alignment and respectful collaboration as well as shared learning, partnerships can improve efficiency, productivity, costs, profits, competition, impacts and outcomes. Through knowledge sharing and seeking common objectives we have the best chance of sharing the ocean neighbourhood, together.

“

There is no private ownership of oceans.

*Alison Rowe,
Managing Director, The Nature
Conservancy Australia*

”



4

Grounded and impactful

The ocean's economic and environmental landscape is complex. Goals and target setting must be based on sectoral, temporal and geographical suitability, and they must be practical, allowing for all ocean users to ultimately benefit.

Targets and priorities allow for accurate and considered measurement, monitoring and transparent reporting that incentivises contributions, enabling ethical and equitable decision-making. Impact driven strategy and planning enables participants to understand and evaluate a system's processes, decision-making and results.

5

Measurable

Effective decision-making and planning must be based on robust evidence and the best available knowledge.

The holistic and transparent measurement of changes in Australia's ocean economy over time requires collection, analysis and management. It should happen in a manner and format that enables participants to engage and support objectives and ensure accountability. Data should be organised so that it enables informed policy and investment into long-term ocean health and wealth.

Efforts should emphasise connecting existing datasets wherever possible, through permissioned data exchanges, minimising cost and maximising efficiency, for participants in a sustainable ocean economy to access the information and tools relevant to achieving their objectives.

This helps build trust between stakeholders, encourages consensus around shared desired outcomes, and agreement on strategies to address the growing volatility and uncertainty of today's economic, social and environmental landscape. Progress towards a sustainable ocean economy should be transparently accounted for using measures that complement economic production and employment, recognising the importance of social well-being, equity and the status of our natural ocean wealth.

6

Equitable

Ocean wealth should be equitably distributed, and the ocean economy should provide equality of opportunity for all Australians. Involving young people in ocean economy conversations now is imperative to enabling our next generation of leaders.

7

Adaptive

Industries in the global and Australian ocean economy are moving fast with new opportunities emerging rapidly and being adopted quickly. Australia will require coordinated and on-going dialogue and mutual accountability to ensure that the agreements of today can adapt over time.

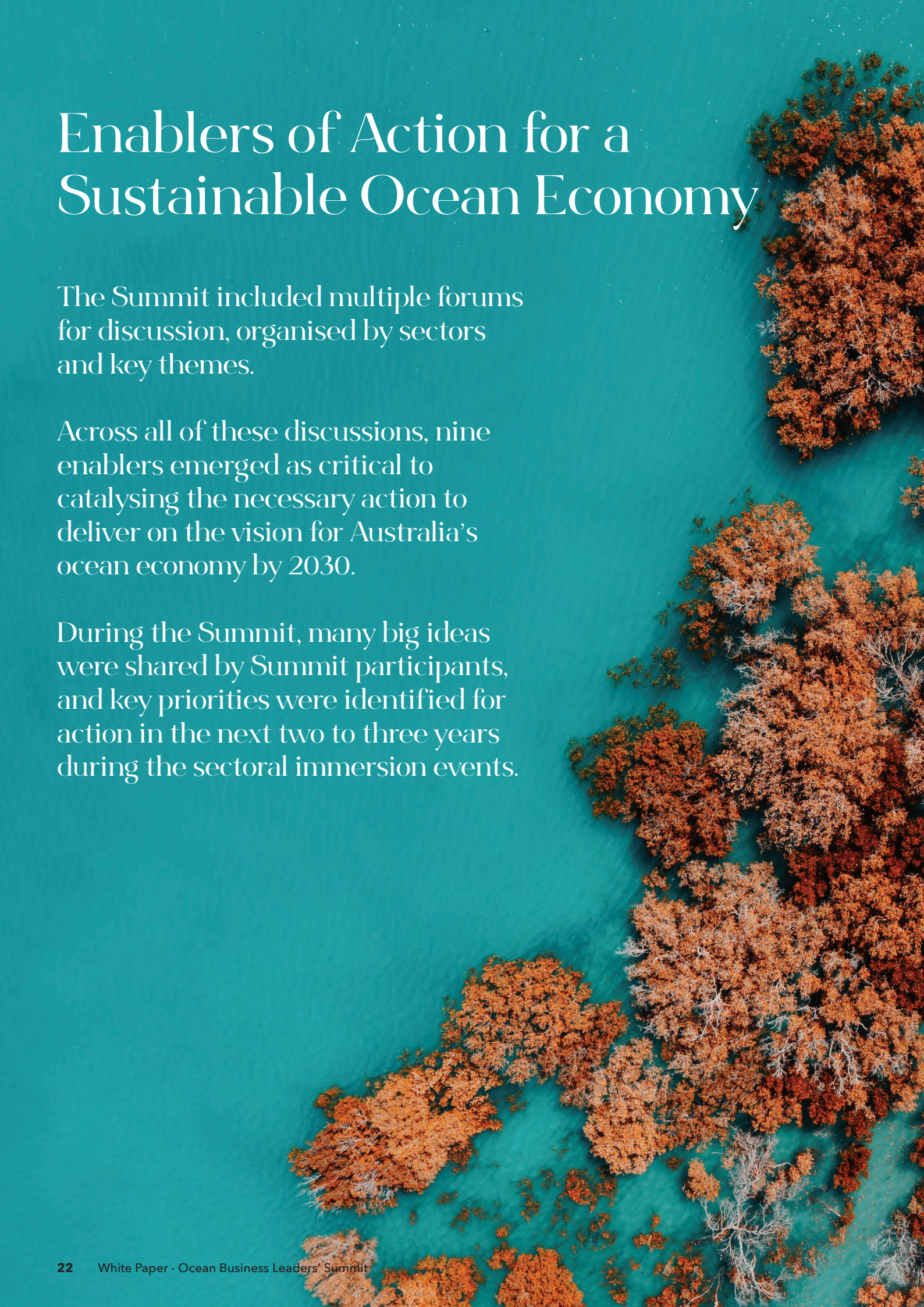
“

It's not simple, but be inclusive, be open and convene the different interest groups in an open way without prejudicing the outcome... focus on listening to those that don't necessarily have a voice.

Dr Russell Reichelt AO FTSE, Australian Representative, Ocean Panel, Department of Climate Change, Energy, the Environment and Water and Chair, Marine Estate Management Authority, New South Wales

”

Enablers of Action for a Sustainable Ocean Economy



The Summit included multiple forums for discussion, organised by sectors and key themes.

Across all of these discussions, nine enablers emerged as critical to catalysing the necessary action to deliver on the vision for Australia's ocean economy by 2030.

During the Summit, many big ideas were shared by Summit participants, and key priorities were identified for action in the next two to three years during the sectoral immersion events.



1. Cohesive and Holistic Governance



Australian ocean businesses have a vision for the future, yet their ambition can only go so far in delivering a sustainable ocean economy for Australia. Government must play a critical and strategic role in helping reduce risk in innovation and creating an enabling environment fit for purpose. There are currently multiple regulatory barriers that will need to be transformed to enable greater private sector investment to spur Australia's sustainable ocean economy.

Foremost is the complexity and red-tape caused by the multiple regulatory frameworks governing different aspects of the ocean economy, including fisheries management, environmental protection, and coastal development. These frameworks can be complex and overlapping, making it difficult for businesses and stakeholders to navigate and comply with all the requirements.

There is currently no comprehensive marine spatial planning framework in Australia. This means that different uses of the ocean, such as fishing, shipping, resource extraction, and conservation, can come into conflict.

Without clear rules and guidelines, it can be difficult to balance economic activity with conservation and sustainability.

Summit participants emphasised that even when regulations exist to support a sustainable ocean economy, enforcement can be inadequate, leading to illegal and unsustainable practices that undermine the overall sustainability of the ocean economy. Participants urged an increase in monitoring and enforcement to ensure an even and fair playing field that Australian businesses can rely upon.

“

The traditional cultural practices and profound knowledge of First Nations people will play a fundamental role in safeguarding our oceans and ensuring they do not fall victim to artificially drawn lines. The time is right to learn from the mistakes made on land and work together to protect our oceans.

Joe Morrison, Group CEO, Indigenous Land and Sea Corporation (ILSC)

”

Priority conversations and actions identified		
	Policy, permeance, streamlining	See Ocean Energy p.40
	Identify enabling policy reforms	See Ocean Finance p.44
	Shifts in policies and practices could support both food provisioning and conservation goals	See Ocean Food p.48
	Standardised reporting frameworks	See Ocean Health p.52
	Enabling a continuing cross-sector dialogue	
ALL	A transparent, formal and mutually agreed framework and protocols to guide dialogue between industries and businesses utilising/depending on ocean estate and resources	

Big ideas

Ocean Leadership

establish a National Ocean Minister and national coordinating body with dedicated funding that includes private sector representatives and First Nations partnership, for example, an Ocean Agency.

Integrate Australia's sustainable ocean plan

with broader climate and biodiversity policy and develop clear commitments for the delivery of the Paris Agreement, the Kunming-Montreal Global Biodiversity Framework, the End Plastic Pollution treaty and other fishing, mining and energy policies to reduce duplication, improve efficiency and maximise funding and investment opportunities.

Undertake a systematic review of state and national jurisdictional responsibilities and planning systems, streamlining regulation for consistency and predictability, so that approval processes are efficient and drive greater investment in sustainable ocean businesses.

“

We need to pay for ecosystem resilience outcomes in the same way we pay for productivity outcomes - by building economic infrastructure.

Tony Goldner, Executive Director, Taskforce on Nature-related Financial Disclosures

”

2. Cultural Heritage & Sea Country Knowledge



Knowledge of marine ecosystems, animals and plants held by our First Nations peoples dates back far beyond Western science observations. Recognising Australia's unique cultural heritage as the home of the oldest continuous living culture on the planet and learning from ancient ecosystem/human interaction knowledge, can bring about equitable access to opportunities in the modern age.

First Nations Australians have managed Land and Sea Country for more than 65,000 years. First Nations knowledge is valuable, and we have an unparalleled opportunity to learn from and embrace it to deepen our understanding of how the planet influences us, and how our actions influence the planet.

First Nations participation in the ocean economy requires a commitment to ongoing, trusted partnership, collaboration, and respect for First Nations rights and traditions. Recognising and incorporating First Nations knowledge and practices into ocean-based and ocean-related business programs and projects can lead to more sustainable and effective outcomes.



Case study: Gamay Rangers

The Gamay Rangers care for both land and sea country on and around Gamay (Botany Bay).

They belong to the La Perouse Aboriginal Community and all have cultural ties to Gamay and undertake natural and cultural resource management activities, including patrolling the waters of Gamay, marine mammal monitoring and protection, cultural heritage protection, threatened species and community management, and scientific research and restoration partnerships.

The Rangers goal is to ensure the country the next generations inherit is healthy. As saltwater people, the marine environment is a key factor in cultural practices and sites, diet, and spiritual healing. The Rangers are working closely with environmental agencies, research institutions and corporations that operate on or around Gamay. As they build their network, it is anticipated businesses and industry will partner to work towards a healthier Sea Country for all people.

“

We strive to ensure we pass on healthy Sea Country to our next generations.

*Bryce Liddell,
Senior Ranger,
Gamay Rangers*

”

Priority conversations and actions identified		
	Collaborate and partner with First Nations communities to support current businesses, partnerships and jobs and growth for the future.	See Ocean Food p.48
	Work with First Nations Australians to understand legacy shifts in ocean health, beyond the more recent timeframes of non-First Nations data collection.	See Ocean Health p.52

Big ideas

Facilitate First Nations involvement in business

Prioritise and integrate traditional ecological knowledge and respect First Nations rights and ownership of lands and waters. Forge meaningful partnerships and collaborations between First Nations communities and emerging ocean industries, including ocean-sited and ocean-generated energy, fishing and aquaculture, seaweed farming, and wild harvest.

Invest in training, capacity-building programs, access to financing and capital, knowledge-sharing, mentorship, and First Nations-led research and development to enable First Nations partnership in these industries.

Understand First Nations Sea Country management practices

Increase investment in capacity building and training programs that empower First Nations communities to lead and participate in decision-making processes, as well as increase collaboration between First Nations communities and government agencies to develop culturally appropriate and inclusive management frameworks.

Ensure that the collection and documentation of traditional knowledge is led and held by First Nations communities, and that adequate funding and resources are provided to support these efforts.

Protect and Promote First Nations Knowledge and Culture

Establish a separate category of intellectual property law specifically for traditional knowledge and First Nations cultural expression, create mechanisms for community ownership and control, and implement First Nations traditional name origin labelling for ocean food.

Address issues of exploitation and misuse by providing informed consent and fair compensation.

Seek free, prior, and informed consent to support the development of new intellectual property laws, and work towards equitable partnerships and benefit sharing to foster the preservation and promotion of First Nations knowledge and culture.

“

The ocean, the sea and this land has been for millions of years before us, and it will be here for millions of years after us.

*Shane Phillips,
CEO, Tribal Warrior*

”

3. Nature Positive



The concept of being “nature positive” in the ocean economy refers to an approach of promoting the restoration and protection of coastal and marine environments, biodiversity, and ecosystem services, in addition to minimising the impacts of activities and industries. It was noted that an ocean economy must recognise the balance between conservation and restoration, and manage extractive industry practices to support a sustainable economy.

Natural capital refers to the world’s stock of natural assets and includes soil, freshwater systems, air and atmosphere, ocean and marine habitats, plants and animals. From these assets, which are often irreplaceable, we derive ecosystem services that interact and underpin health, livelihoods, and the economy. Nature’s contribution to the global economy is estimated to be USD\$125 trillion per year¹³, while over 50 percent of the world’s GDP (USD\$44 trillion) is moderately or highly dependent on nature and its services¹⁴.

For ocean businesses, this involves taking proactive steps to regenerate damaged ecosystems, manage resources sustainably, reduce waste and pollution, and to mitigate climate change throughout the value chain. Increasingly, these actions are seen as necessary for securing new business opportunities and market-share and developing a mind-set that moves from the concept of nature positivity to a commitment that is measurable, such as being ‘net-positive for biodiversity’.



Case study: Living Seawalls

Globally, the area of the seafloor impacted by built infrastructure is greater than the area of the world’s mangrove and seagrass forests. Structures such as seawalls, pilings, pontoons, and marinas are built for diverse purposes including shoreline protection, recreational activities and energy generation, but lack the complexity required for a biodiverse marine environment.

Researchers from the Sydney Institute of Marine Science (SIMS) and Alex Goad from Reef Design Lab have developed Living Seawalls, an initiative backed by two decades of research, to address this issue. By integrating ecologically friendly principles into marine construction, Living Seawalls significantly enhance the ecological value of artificial structures.

In Sydney Harbour, these Living Seawalls have been found to support at least 36% more species than unmodified structures within 1-2 years, with up to 115 species of invertebrates, seaweeds, and fish thriving on the panels.

The Living Seawalls offer habitat and food sources, attracting a greater number of fish compared to unmodified seawalls. This research highlights the potential of constructed marine environments to contribute positively to biodiversity conservation by transforming artificial structures into thriving ecosystems.

Priority conversations and actions identified		
	Early government investment in land-based infrastructure.	See Ocean Energy p.40
	Ensuring that new offshore wind construction has a net positive impact on biodiversity.	
	Establish significant community engagement and social license from day one.	
	Meeting and communicating ocean targets and commitments.	See Ocean Health p.52

Big ideas

New activity permits and licence approvals based on nature positive outcomes and net-positive for biodiversity frameworks that are measurable

Create a transparent and standardised process to evaluate whether new activities or projects are nature-positive.

Consult with local and First Nations communities, experts in marine ecology and conservation, business and industry, and other stakeholders to ensure fair and equitable outcomes.

Furthermore, establish government incentives for businesses to propose nature-positive/net-positive for biodiversity outcomes in their permit and license applications.

Embed nature positivity in Government procurement

Government procurement to include requirements to integrate nature-based solutions e.g. new ports and coastal infrastructure projects be required to simultaneously improve biodiversity or other ecosystem services while also meeting business objectives.

Work with businesses and industry to identify achievable targets and establish clearer guidelines, requirements and recommendations for how nature-based solutions can be integrated into new infrastructure projects such as ports, offshore renewable energy, and ocean energy.

Create financial incentives or penalties to encourage businesses to comply with these requirements, ensuring there are ongoing market-sounding processes for adaptation as required.

Certification schemes for “nature positive” action

Collaborate with existing certification schemes like B Corp, the Science Based Targets Network (SBTN)¹⁵, the Taskforce on Nature-related Financial Disclosures¹⁶ or the Infrastructure Sustainability Council’s IS rating tool¹⁷, to improve and expand their evaluation criteria to include nature-positive practices and outcomes.

Ensure the scheme is recognised and respected by businesses, governments, and consumers, and awarded based on a set of rigorous criteria.

Work towards reducing costs of certification processes so they are not prohibitive for small businesses.

Coalition of Australian ocean businesses committing to net positive targets by 2030

Establish incentives for businesses to shift towards implementing circular economy practices and adopt sustainable production and consumption patterns to meet or exceed the 2030 targets.

4. Connected Data



Ocean data is critical to understanding and managing the health of the ocean, as well as informing policy decisions related to ocean conservation and management, siting of ocean industries and economic activities and investment.

Progress towards a sustainable ocean economy that engages all members of society, including the private sector, necessitates overcoming the current challenges related to a lack of ocean data including:

- Data fragmentation, for example where numerous organisations and agencies are involved in collecting and managing data related to the ocean, resulting in a fragmented system that can be challenging to navigate and access;
- Data access limitations, for example due to privacy, security and competition concerns; and
- Data standardisation, for example, developing practices for aligning the right data to answer questions in a focused way will capitalise on existing data collections while concurrently optimizing our data collection methodology.



Case study: Tangaroa Blue Foundation & the Australian Marine Debris Initiative

Tangaroa Blue Foundation (TBF) is an Australian charity with a mission to inspire action and empower individuals to remove and prevent waste from polluting the marine environment.

They introduced the Australian Marine Debris Initiative (AMD I) in 2004, which connects citizen scientists, government bodies, businesses, universities, and organisations to address marine debris and litter issues. TBF and its partners have achieved notable results through targeted investments in AMD I source reduction projects.

Some achievements include: a 71% reduction in cigarette butt litter at Queensland Country Bank Stadium through the Ditch the Flick program; repurposing fishing buoys to track ghost nets in the Great Barrier Reef; and, collaborating with Chemistry Australia to deliver the Operation Clean Sweep program, focusing on reducing plastic feedstock loss in the industry.

TBF's dedication and successful partnerships demonstrate their commitment to a cleaner marine environment, progress in combating marine debris, and inspiring positive change.

Priority conversations and actions identified		
	Quality, availability and/or understanding of data.	See Ocean Finance p.44
	Greater investment is needed to improve fisheries data collection and ensure easy access to both the data and the expertise required to transform it into valuable information.	See Ocean Food p.48
	Data driven decision-making.	See Ocean Health p.52
	Meeting and communicating ocean targets and commitments.	

Big ideas

Invest in autonomous monitoring for all ocean and coastal infrastructure

Enable real time data collection and make it publicly available in near real time, using indicators established in existing monitoring systems such as the Global Ocean Observing Systems Framework for Ocean Observing or the Framework for the Development of Environment Statistics (FDES).

Map Australia's national waters by 2030

Include data on climate risk, flooding and biodiversity and ensure detail and accuracy through improvements in satellite imagery and data collection technology. Increase funding for surveying and mapping, especially deep water and offshore regions. Increase capacity and trained personnel to conduct surveys and analyse data. Include knowledge and perspectives of First Nations communities.

Develop an Australian Ocean Data Dashboard

As part of the new Environment Information Australia (EIA) Office – Australia's first independent, national environmental data and information office, including from sources such as the Atlas of Living Australia¹⁸.

Collate and provide transparent and accessible data to multiple users. Utilise integrated reporting systems such as the Ocean Accounts Framework which provide a holistic structure that can be used to organise the information required for integrated reporting of social, economic and environmental conditions.

Align the data structure with required research for environmental permits.

Enable the uptake of supporting data structures that are aligned with the Statistical Data and Metadata exchange, an international initiative that aims at standardising and modernising the mechanisms and processes for the exchange of statistical data and metadata among international organisations and their member countries.

Embed a national ocean account into national policy decisions

Quantify and measure ocean health by region to inform siting, decision-making and investment. Ocean accounting can help to assign value to the ocean's resources and ecosystem services, allowing decision-makers to make informed choices that consider economic, social and environmental factors as well as tracking environmental changes and impacts over time.

Establish the ocean as an asset class

Develop investment strategies and products that focus on sustainable ocean-based and ocean-sited activities such as renewable energy, sustainable fisheries, aquaculture, carbon sequestration, and ocean conservation initiatives.

Collaborate with the finance sector, scientific community, and ocean stakeholders to develop standardised metrics for measuring and evaluating the environmental and financial performance of ocean investments.

5. Sustainable Finance



Biodiversity loss poses a major economic risk, while moving to nature-positive investments offers extensive opportunity. Nature is starting to be recognised as a form of infrastructure, a concept necessary to be internalised by the finance sector.

As such, a unique and timely opportunity arises for the ocean to be valued as natural capital, shaping a new 'currency'. This shift in perspective will lead to incorporating sustainable risk analysis within traditional investment evaluation processes.

Financing mechanisms are the driving force in transitioning to a sustainable ocean economy, therefore it is crucial to incentivise the development of innovative financial mechanisms. Investment capital in the forms of private, public, and 'blended' capital is globally available, however, the current low levels of expertise in understanding nature as capital leads to insufficient risk management discussion in turn leading to funding levels that are often too low to scale projects to demonstrate meaningful impact.

Many sustainable ocean economy initiatives require significant upfront investment, but access to finance can be limited, particularly for smaller businesses and start-ups. This can create a barrier to entry for these businesses and limit the growth of Australia's sustainable ocean economy and global leadership potential.

It is also important that we facilitate long-term investments that are consistent with nature, allowing time horizons of 20 - 50 years, rather than 3 - 10 years. Innovative financial mechanisms and proper risk assessment of natural capital can establish new economic opportunities, creating markets worth \$24 trillion globally.



Case study: Hullbot

Hullbot is a Sydney-based start-up specializing in underwater robotics. They design, develop, and deploy robots to improve the health of the oceans and their platform offers advanced underwater autonomy through computer vision, enabling a range of applications crucial to the global blue economy.

One primary application is the proactive cleaning of yacht and ferry hulls to maintain optimal condition and address biofouling, which reduces boat efficiency and increases fuel consumption. This technology aims to revolutionize vessel maintenance, moving away from environmentally harmful antifouling paint. By removing early-stage biofouling, Hullbot helps preserve marine ecosystems, mitigating the risks of invasive species transportation.

The company also has plans for applications such as seagrass meadow monitoring and mapping, as well as urchin barren intervention strategies for kelp restoration. Hullbot's goal is to contribute to a successful, profitable, and sustainable blue economy through scalable and capable underwater robotic technology.

Priority conversations and actions identified		
	Consider the nascent Offshore Renewables alongside investment in ocean energy (wave, tidal and thermal) to develop Australian capability and enable equitable access.	See Ocean Energy p.40
	Understand natural systems and consider the investment timelines suitable for nature-based technologies and services.	See Ocean Finance p.44
	Upscaling of production, leading to improved sustainable infrastructure, management, and control measures of sensitive ecosystems, for example, pH, harmful algal blooms.	See Ocean Food p.48
	Reduce financial flows into negative externalities and increase flows towards subsidies, demonstrating sustainable practices.	
	Funding for the development and deployment of more selective fishing gear.	
	Necessitate adequate funding to monitor and enforce already existing regulations in, for example, MPAs and over- / illegal fishing.	
	Channelling investments towards local community empowerment and capacity-building to manage marine resources.	
	Foster innovation, such as technologies that increase harvesting potential (sustainably), and utilise the potential of seaweed to be used as a protein alternative.	
	Foster a better understanding of the needs of communities operating in the fisheries and aquaculture sector.	
	Encourage the transition to a circular economy in fisheries and aquaculture sector to minimise waste and negative impact.	See Ocean Health p.52
	Establishment and maintenance of Marine Protected Areas	

Big ideas

Develop a long term national sustainable ocean finance plan/roadmap

that provides business, investors and regulators with clear guardrails in which to work and catalyse investment.

Development of a Global Ocean Risk Assessment Framework

for investors to better understand and manage risks in investment evaluation processes of underdeveloped markets.

Build a coalition of Australian industry

committed to providing \$1billion dollars annually in ocean ecosystem and biodiversity preservation and restoration.

Establishment of a Marine Biodiversity Offset Mechanism

to hold those damaging the marine environment responsible and incentivise them to minimise their impact.

Establish a robust and connected national funding scheme

linking ocean research, innovation and business development, utilising the National Reconstruction Fund¹⁹ including the following categories: renewables and low emissions technologies; transport; value-add in the agriculture, forestry and fisheries sectors; value-add in resources; enabling capabilities; and defence.

Decentralise finance in ocean conservation

including tokenisation of natural assets to increase transparency and accountability.

Increase scalability

of fundable projects through innovative blended financing mechanisms.

Develop a better understanding of innovative financing mechanisms already implemented, such as Blue Bonds, to avoid repeating mistakes.

Promoting cross-border Public-Private Partnerships

to promote investments in transnational marine protected areas and sustainable shipping corridors.

6. Incentives



There is a need for a realistic and comprehensive approach to ocean policies in Australia, bipartisan support and a long-term policy framework that provides certainty to businesses and finance, enabling them to invest and move swiftly. It is important to send the right investment signals to drive capital, innovation, and expertise into the renewable energy sector.

Ensuring an enabling environment that supports and incentivises Australian businesses to invest in ocean health and shift away from traditional practices will be a key catalyst in the transition to a sustainable ocean economy for Australia.

In the coming years, Government has a critical role to play in creating these incentives, and removing disincentives.



Case study: Star of the South

The Star of the South is Australia's leading offshore wind project. Proposed in Bass Strait waters off the Victorian coast, Star of the South would generate clean energy to power more than 1.2 million homes and reduce CO₂ emissions by an estimated 11 million tonnes per year.

In 2019 Star of the South embarked on a comprehensive Marine Ecology Survey Program to collect ecological data within the marine ecosystem. This program was designed with experts from leading universities including CSIRO, Blue Whale Study and Monash, Deakin and Curtin universities. Over 50,000 observations were recorded over 30 months, drawn from more than 13,000 hours of work.

This program has helped lay a robust foundation for the development of offshore wind in Australia and will contribute to improved scientific understanding of this previously little studied area. Building on this understanding of the local environment,

Star of the South is now building partnerships to explore nature solutions. In one example, Star of the South is providing data and funding for researchers from Monash University to develop an open-source Dynamic Seabird Atlas for marine waters off eastern Victoria. This will present a detailed understanding of seabirds by bringing together datasets and environmental variables to provide insight into species presence, abundance, and seasonal variability – something that is not readily accessible today.

The Atlas is expected to become a valuable resource to inform government policy and assessments, conservation efforts and sustainable blue economy developments.

Priority conversations and actions identified		
	Policy, permeance, streamlining	See Ocean Energy p.40
   	Ongoing Cross-Sector Dialogue: The Sustainable Development Goals and the United Nations Ocean Decade Framework presents an opportunity to foster ongoing dialogue across sectors. The Commonwealth Government establishment of a multi- and cross-sectoral National Decade Committee (NDC) will allow formal leverage of this framework, facilitating collaboration and knowledge-sharing among different sectors. Further, the benefits of establishing an NDC will include a light-touch, but ongoing commitment to bringing diverse sectors, stakeholders and knowledges together in an ongoing fashion, with clear terms of reference and accountability for Australia's contributions to the Ocean Decade 2021 – 2030.	

Big ideas

Establish a Taskforce for Ocean Impact Disclosure

Incentivise investment decisions beyond greenhouse gas emissions.

Make plastic a commodity

Raise the cost of petro-chemically derived polymer.

For bio-plastics, support the responsible sourcing of feedstocks, identify the most suitable applications for their use, and establish proper management for their end-of-life

Introduce regulations that require businesses to report on their use of plastics and their recycling efforts, set targets for increased recycling rates.

Support initiatives to reduce the overall use of plastics.

Require Environmental, Social, and Governance reporting (ESG)

Introduce mandatory ESG reporting legislation for large corporations, following global examples such as the EU Non-Financial Reporting Directive.

Require companies to disclose their sustainability-related risks and opportunities, as well as their impacts on the environment, society, and governance, enabling investors and other stakeholders to make more informed decisions about their investments and operations.

Utilise established guidance such as the Task Force on Climate-related Financial Disclosures (TCFD), the Task Force on Nature-related Financial Disclosures (TNFD) or the International Organization of Securities Commissions (IOSCO) consultation report on sustainability-related disclosures, which includes guidance on how to improve the consistency, comparability, and reliability of ESG disclosures.

“

In Australia we have the experience, coverage and expertise to become a world leader in the way we bring people together to invest in nature, including the oceans.

*Zoe Whitton,
Managing Director, Pollination*

”

7. Innovation



Australia has a proud history of innovation, and it plays a crucial role in Australia's sustainable ocean economy by driving the development of new technologies, processes, and products that enable sustainable and profitable use of ocean resources.

Summit participants emphasised the desire to position Australia as a global and regional leader in innovation, creating jobs in Australia but also allowing for the export of new technologies and skills to the region and world. Participants urged that greater investment was required now to create new opportunities for future generations of Australians and ensure a first mover advantage in new industries and technologies.

Examples of innovation from Australian business and exported regionally and globally included:

1. **Offshore renewable energy:** Innovative technologies such as floating wind platforms, tidal energy and wave energy converters are being developed to harness the power of the ocean and generate clean energy.
2. **Sustainable seafood production:** Innovations in aquaculture technology and practices are helping to increase the efficiency and sustainability of seafood production, reducing the environmental impact of fishing and meeting growing demand for seafood.
3. **Ocean exploration and mapping:** Advances in underwater robotics, imaging technologies, and data analysis are making it possible to explore and map the ocean in greater detail, providing valuable insights into ocean ecosystems and resources.
4. **Marine biotechnology:** Biotechnology is being used to develop new medicines, cosmetics, bio-materials and other products from marine organisms, offering new economic opportunities while promoting conservation of marine biodiversity.
5. **Australian Ocean Data Dashboard:** see also Connected Data, p. 30.



Case study: Piping Hot Australia investment in materials research for the ocean

Australian surf brand Piping Hot has partnered with climate scientists at the University of Technology Sydney (UTS) to develop a textile fibre made from algae. Piping Hot Australia has commissioned this innovative biomaterial research as a vital private investment in its wider company mission for clean oceans.

UTS climate scientists will build a prototype fibre developed to meet Piping Hot's strategy to create innovative scalable solutions that protect oceans. The biobased solution will sequester carbon from the ocean and reduce the environmental impact of synthetic fibres. This Australian innovation could transform the global polyester industry.

Piping Hot has redefined its purpose around sustainability and is on a journey to transform its business. It has eliminated virgin polyester from its supply chain and redesigned all products to be made from low impact materials (cutting any lines that couldn't meet a sustainability attribute). In doing so, it has saved more than 259 million litres of water and diverted more than 673 tonnes of materials from waste. By incorporating algae-based biomaterial into its footwear range, it has also contributed to cleaning more than 1.7 million litres of water and 1.2 million cubic metres of air.

These initiatives have reduced Piping Hot's carbon footprint by ~17%. Piping Hot is also committed to ensuring its supply chains are transparent and comply with ethical standards. It remains an affordable brand with a \$10-69 price point, to make sustainable products accessible for Australian families.

Priority conversations and actions identified

	Support the Australian project pipeline, create volume, demand and long-term opportunity for domestic manufacture of components for the energy sector.	See Ocean Energy p.40
	Ongoing innovation, adoption and scaling of emerging technology.	
	Supply chain transparency - Technology adoption enhances supply chain transparency by improving sustainability, traceability, and compliance from 'ship to shelf'.	See Ocean Food p.48
	Research excellence - Establish Australia as a global leader in fisheries science and investment in blue economy technologies, with a focus on export potential.	
	Provide support to enhance climate change resilience by establishing enabling measures for the transition towards decarbonisation including the adoption of alternative energy sources.	

Big ideas

Ocean Innovation Accelerator Fund

A fund to support Australian start-ups reach scale quickly, such as the European Union Innovation Fund or NOAA's Small Business Innovation Research (SBIR) program.

Consider how the National Reconstruction Fund, philanthropy, and international interest and investment might co-invest in the fund.

Expand Carbon Markets

Continue to include Ocean Carbon Methodologies beyond the 2022 Blue Carbon method, that account for carbon sequestration and storage in coastal and marine ecosystems.

Create a market for carbon credits generated by ocean conservation and restoration efforts, allowing companies to buy and sell permits that allow them to emit a certain amount of carbon dioxide or other greenhouse gases in exchange for protecting and restoring coastal and marine ecosystems.

Co-locate sustainable ocean industries to promote synergies

In time, offshore energy infrastructure (primarily wind) will dominate Australian waters. There is an opportunity to consider sharing infrastructure, manufacturing, supply chain and community engagement for wave, tidal and thermal energy, that will form part of the energy mix.

Further, there are existing projects where the co-location of offshore wind farms and artificial reefs or mariculture provide excellent practice cases for, including the Norway Institute of Marine Research (IMR) offshore low-trophic aquaculture in multi-use scenario realisation (OLAMUR) and the Wier&Wind project in the North Sea.

National Science Priorities

Explicitly list ocean science and technology amongst Australia's science priorities, signaling to the academic and research communities the opportunity to be part of Australia's sustainable ocean economy.

Identify jobs of the future

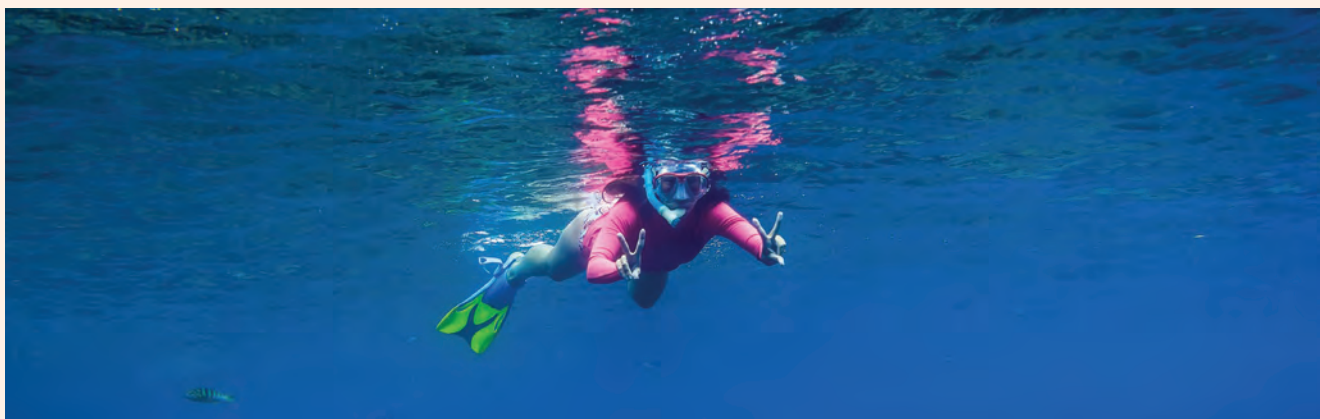
Dedicated national strategy and associated dialogues to identify sustainable ocean economy jobs for the future and implement employment transition pathways from traditional to new sectors, including mining of oil and gas to large-scale offshore renewables, and agrifinance to ocean-finance expertise.

Build Australia's brand

Attract international investment and interest through a dedicated Australian Ocean Economy campaign using the Australian and State trade offices around the world.

Demonstrate global leadership and best practice in sustainable fishing, bio-marine products, ocean energy including wave and tidal, and export expertise regionally and globally.

8. Involve Young People



As an island nation recognised for having some of the most diverse marine habitats on the planet, Australia is well placed to ensure our young people are ocean literate, and able to take advantage of the myriad opportunities a thriving sustainable ocean economy will offer in years to come.

Young people are key drivers for change, and rank climate change as the most vital issue of our time²⁰. Improving ocean literacy from an early age and engaging young people in the implementation of Sustainable Development Goal 14 - Life Below Water, presents an unparalleled opportunity for inclusive and intergenerational knowledge exchange for businesses and industries to harness new perspectives, approaches and energy.

It is incumbent upon current leaders to support young people to build skills, experience and exposure to the systems that they already influence as consumers and users, and that they will inherit. Further to this, including young people in cultural and social discourse, and financial, geopolitical and business decision-making and trends will prepare them to work, live and make decisions in an increasingly complex, competitive and contested world.

“
The best time to act was decades ago. But the next best time to act is now. Today...
We don't have another decade to negotiate and debate.

*Kal Glanznig,
Young Changemaker*

”

Big ideas

Establish – as regular practice – a Youth Advisory Council

(or similar) within organisations and businesses to develop two-way dialogue, including greater understanding of the dynamics of business decision-making, an opportunity to understand the perspectives and demands of young people, and a pathway for career opportunities.

9. Ocean Literacy

Priority conversations and actions identified	
   	Ongoing Cross-Sector Dialogue: The United Nations Ocean Decade Framework presents an opportunity to foster ongoing dialogue across sectors. Establishing a multi and cross-sectoral National Decade Committee will allow formal leverage of this framework and facilitate collaboration and knowledge-sharing among different sectors.

All Australians benefit from a healthy, safe and clean ocean, but many of us do not fully understand or appreciate the role of the ocean in our lives, nor how essential it is to the long-term protection of the planet on which we live.

Ocean literacy is an understanding of the ocean’s influence on you, and your influence on the ocean. UNESCO considers an ‘ocean-literate person’ as someone who understands the importance of the ocean to humankind; can communicate about the ocean in a meaningful way; and is able to make informed and responsible decisions regarding the ocean and its resources.’

In response to growing recognition that the health of the ocean is declining, and use of the ocean continues to be unsustainable, the United Nations (UN) declared in 2017 that 2021-2030 was to be The Decade of Ocean Science for Sustainable Development (the Ocean Decade) with a vision to ‘deliver the science we need for the ocean we want’.

Recognition of the dependence of society on the ocean, the opportunities that the ocean provides to future economies, and the need to ensure that current threats are reduced, future threats are mitigated and the ongoing use of the ocean is sustainable, has also been recognised through the commitments of 17 countries, including Australia, through the High-Level Panel for a Sustainable Ocean Economy.

The Summit brought together people from many sectors and industries with varying levels of understanding and types of knowledge about the ocean. It is the appreciation of ocean knowledge - in all its forms - and our ability to wisely use that knowledge to make informed and evidence-based decisions about how to use the ocean, together, that will ultimately test our level of ocean literacy.

Big ideas

Education

Consider how ‘ocean’ can be included in the Australian Curriculum, noting the expectation that during the United Nations Decade of Ocean Science for Sustainable Development 2021–30 (Ocean Decade) that “By 2025, Ocean Literacy is integrated into the curriculum and education policies of formal education systems around the world, with 70% of countries possessing an approved National Ocean Literacy Strategy” (UNESCO, 2020).

National Science Priorities

Explicitly list ocean science and technology amongst Australia’s science priorities, signalling to the academic and research communities the opportunity to be part of Australia’s sustainable ocean economy.

“

92% of the excess heat that the planet has received has been absorbed by the ocean.

”

Prof Trevor McDougall, AC, Scientia Professor of Ocean Physics and 2022 recipient of the Prime Minister’s Prize for Science



Ocean Energy & Offshore Renewables²¹



Australia has the ability to emerge as a frontrunner in offshore renewables and ocean energy.

In reflecting on the challenges of achieving a global energy transition, it must be recognised that there are increasing pressures on energy demand due to population growth, the accompanying rise in consumerism and the consumption of energy by computers, data centres, networks, and increasingly, artificial intelligence and machine learning. Utilising the ocean's potential as a source of renewable energy will be crucial to global progress towards the goals of the Paris Agreement, and many countries are rapidly scaling their domestic industries to take advantage of this potential and establish the necessary domestic manufacturing and technical capacities.

Ocean energy and offshore renewables refers to forms of renewable energy derived from the ocean or situated offshore. This includes offshore renewable energy such as wind (both fixed and floating) and the three main types of emerging ocean energy technology: wave, tidal and ocean thermal²⁸.

Australia could emerge as a frontrunner in offshore renewables and ocean energy. Being an island nation, Australia is enveloped by vast oceans and boasts an abundance of exceptional wave and tidal resources, among the finest in the world.

Australia already has a large and mature energy sector operating in the ocean. The offshore oil and gas industry commenced in the 1960s in Bass Strait and currently has around 60 offshore facilities and extensive subsea infrastructure in multiple basins around Australia. However, the transition away from extracting oil and gas to a net-zero ocean energy system offers major new opportunities, including synergies for ocean food production and biodiversity restoration.

Australia's extensive coastline spanning 25,780 kilometres presents an immense opportunity to tap into hundreds of terawatts of untapped energy potential derived from wind, waves and tides. While offshore wind and ocean energy are often grouped together, they possess distinct differences in their value propositions and target markets, serving as key economic drivers for each sector.

Offshore renewables are mature industries in many parts of the world, but in Australia it is still in the gestation phase. In 2022, 14 countries added approximately 8 GW of offshore wind capacity (largest being China, UK, Netherlands, France)²⁹. The United Kingdom has installed 14 GW of new offshore wind capacity since 2000, with offshore wind now comprising 13% of electricity generation, and 50% (97 GW) of forecast new capacity by 2050, with a UK Government target for 50 GW offshore wind by 2030. Offshore wind primarily operates on a large scale, generating substantial volumes of electricity suitable for integration into the grid. Typically situated in deep offshore waters, offshore wind farms contribute to utility-scale electricity production.

Ocean energy, encompassing wave and tidal sources, yields comparatively smaller volumes of energy. However, it offers a direct energy supply to coastal-based businesses, communities, and industries. Additionally, ocean energy can act as a supplementary energy source for end-users, complementing grid-supplied energy, or seamlessly integrate with other renewable sources to establish microgrids.



82%

As part of Australia's path to achieve net zero emissions by 2050, the nation will need to significantly raise the proportion of low-carbon electricity generation, aiming for 82% to be sourced from renewable energy by 2030, a substantial increase from the current 27%.²²



11%

Initial evaluations indicate that wave energy in Australia has the potential to contribute up to 11% of the country's energy requirements by 2050, which is equivalent to supplying electricity to a city the size of Melbourne.²⁴



\$8.81B

By providing grant funding of \$1.96 billion, the Australian Renewable Energy Agency (ARENA) has actively supported 632 projects, which in turn has facilitated a substantial investment of nearly \$8.81 billion in the country's renewable energy sector.²⁶



5000GW

Through a combination of fixed and floating infrastructure, Australia could generate up to 5,000 gigawatts (GW) of electricity from offshore wind, a capacity that surpasses the combined installed capacity of the nation's two largest electricity networks by a factor of 100.²³



14,380

Estimations suggest that constructing 1,500MW of wave energy power stations would create around 3,210 jobs in Australia, and further expansion to a total of 12,000MW by 2050 could potentially generate approximately 14,380 job opportunities.²⁵



BENEFITS

Australia can benefit from integrating offshore renewable energy and sustainable aquaculture practices, as well as exploring new ocean industries through the use of by-products to decrease ocean pollution. The announcement of Australia's first offshore wind development zone in 2022 is a step towards these initiatives.²⁷



By integrating ocean energy devices with solar and/or wind systems within an integrated framework, often referred to as a “microgrid,” perpetual energy production from the ocean energy component compensates for intermittency gaps and boosts overall energy generation. However, when considering an integrated ocean energy system as a decarbonisation solution, it is crucial to recognise that there is no one-size-fits-all approach. Each solution necessitates site-specific planning, aligning the unique requirements of end-users (such as operational needs and variations in electricity consumption) with the available resources and appropriate technologies.

To date in Australia’s energy transition, offshore wind has not been economic compared to onshore wind and solar. But the economics are changing, due to the continuing reductions in the cost of technology, driven in part by continuing increases in the size of each turbine; the quality of offshore wind resources and their complementarity to onshore wind; the proximity of potential offshore renewable energy zones to strong parts of the national grid (Gippsland, Hunter Illawarra) requiring less new transmission; and increasing social licence challenges for onshore energy and transmission projects.

Following the relatively recent Commonwealth Offshore Electricity Infrastructure Act 2021³⁰ and

declaration of a 15,000 km² area off Gippsland as suitable for offshore wind, numerous projects are in the feasibility application stage, demonstrating significant private sector interest in scaling this aspect of Australia’s renewable energy sector. Offshore Hunter in NSW is the next area now open for extensive public consultation by the Commonwealth.

Summit participants recognised that increasing ocean-sited and ocean-generated renewable energy was a necessary pathway towards a sustainable ocean economy, yet noted the significant investment needed to be made in the coming years to realise the potential, or ambition, of a mature industry by 2050.

Projections from the Net Zero Australia³¹ estimate that offshore wind has the potential to generate 41 GW of power by 2040, which would require a capital investment of around \$188 billion and 3,500 turbines over the next decade.

To meet this potential, significant action is required over the next five to ten years to ensure the enabling environment is fit for purpose. Current global progress can provide valuable insights for the development of an ocean-based renewable energy sector in Australia. In particular, the development of Australian ports that are capable of supporting offshore wind development will be critical.

Summit contributors noted that existing ports will need to be expanded or significantly re-purposed to facilitate the construction of proposed offshore wind farms, with many limited on the basis of their physical requirements, including deep berths and access channels for offshore wind support vessels, and the amount of space and load bearing capacity required for components to be laid out in close proximity to an offshore site.

In March 2023 the Victorian Government released its Offshore Wind Implementation Statement³², confirming the Port of Hastings as the most suitable port to support offshore wind construction. While subject to environmental and planning approvals, an extensive consultation process is underway. It is worth noting that with centralised planning and government support for targeted private investments, the right supply chain investments can be made with minimal duplication of effort across developers.

Emerging ocean-generated renewable energy technologies, including wave and tidal power were also explored, including the opportunities they present for manufacturing, technology and R&D transfer and for export to the Asia-Pacific region. The Australian Wave Energy Atlas found that wave action could provide 11% of energy use in Australia.

⚡ Priority conversations and actions identified

Early government investment in land-based infrastructure	Early investment by the government in land-based infrastructure is crucial for the development of offshore wind projects. Australia currently lacks the necessary port infrastructure, manufacturing capabilities, and technical skills required for importing, integrating, and constructing offshore wind components on a large scale. In the short term, Australian ports in designated areas have the opportunity to form partnerships, similar to those seen in Europe, to support the offshore wind industry.
Net positive biodiversity impact	Ensuring a net positive impact on biodiversity during offshore wind construction is essential to mitigate potential negative effects and gain social acceptance for new projects. Europe has demonstrated the importance of robust ecological data, including marine roadmaps, comprehensive impact assessments with community input, industry standards and policies, adaptive management, and compensation net gain. It is crucial to view climate objectives and nature objectives as complementary rather than conflicting, as progress on both fronts requires a balanced approach. Due to the nascent nature of the offshore wind industry in Australia, we will scale, learn, adapt and improve over time.
Community engagement and social license from day one	From the inception of offshore energy projects, community engagement and social license are vital. Significant investments should be made across regions and local communities to foster a sense of co-ownership and pride in these projects. Transparency and consistency, accompanied by a best practice approach, will facilitate better understanding of the economic opportunities and benefits that can be shared with local communities including hiring locals and supporting local businesses Communication should emphasise local skills development, diverse and attractive job opportunities, and the opportunity to contribute to Australia's decarbonisation efforts and global goals, building long-term security for communities.
Policy, permeance, streamlining	Clear guidelines for project approval and siting are essential for the offshore wind industry. These guidelines should encompass all national waters and prioritise biodiversity conservation, fisheries management, and other ocean users. Existing legislation is a starting point, but further coordination across sectors and inclusive management practices are necessary across Australia's national waters to improve efficiency and build investor confidence. Collaboration and documentation of cumulative impacts in designated areas will provide valuable information and guide priority research and investigations. International examples, including the Bureau of Ocean Energy Management in the U.S. are a 'one-stop shop' authority, responsible for stewardship of energy and mineral resources and 'protecting the environment that the development of those resources may impact'.
Ongoing innovation, adoption and scaling of emerging technology	Continued innovation, adoption, and scaling of emerging technologies are crucial for the success of the offshore wind industry. Collaboration between different energy technologies and solutions, including wind, wave, tidal technologies, and integrated renewable energy systems, can drive competitiveness and achieve scale. Co-location of facilities and shared value chains can further enhance efficiency and effectiveness.
Manufacturing	In the long term, there is significant potential for domestic manufacturing of offshore wind components in Australia, similar to the manufacturing of onshore wind towers. Investment in upgrading steel plate manufacturing facilities to accommodate larger offshore wind components can create new jobs, develop green steel capabilities, and support the Asia Pacific region. However, industry confidence and certainty require a pipeline of approved projects and sufficient funding to attract investment.
Building strong, multi-sectoral and long-lasting partnerships	Addressing the complex challenges of the ocean necessitates collaboration across sectors. No single actor or sector can achieve significant outcomes alone. Promoting and supporting multi-sectoral partnerships at all levels, involving the private sector, financial institutions, philanthropies, NGOs, and others, is crucial. Such partnerships can inform and drive the ocean action agenda, leading to a sustainable ocean economy with maximum impact. Bridging the gap between the ocean-sited and ocean-generated energy, fishing, and aquaculture sectors is essential for adopting new solutions. Integrated ocean energy and aquaculture systems can ensure sustainable marine space usage, conserve coastal environments, adapt to climate change, and promote business sustainability.



Ocean Finance



The financial sector
is critical for the
Australian Ocean
Economy to become
more sustainable.

Australia has an extensive coastline and diverse marine ecosystems that offer immense potential for fisheries and aquaculture. Australia's ocean economy contributes significantly to the country's GDP, employment and exports. Australia's marine industry has experienced steady growth, contributing 5.2% of total GDP from 2020 to 2021.

Despite the sector's growth potential, Australia faces pressing challenges arising from climate change and biodiversity loss. Therefore, the financial sector is critical for the Australian Ocean Economy to become more sustainable. Public and private investments can catalyse changes in policy, regulation and business practices across territorial and coastal waters and the high seas.

The development of the market-led, science-based TNFD framework seeks to enable companies and financial institutions to integrate nature into decision-making, creating the potential for many projects that would currently be considered 'impact-only' to be transformed into variable options for mainstream investors.

Further, Australia's investment in the TNFD and the recently announced Nature Repair Market provide a significant and timely opportunity for the scientific and research community to work with the finance sector, developing a common language to account for marine and ocean ecosystems.



\$174B

An estimated USD \$174.52 billion per year is required globally to address ocean health.³³



\$118 BILLION

The marine industry in Australia experienced significant growth from 2020 to 2021, with a total output of A\$118.5 billion. This was an increase of \$37.3 billion in size, which can be attributed to the addition of four new sub-sectors that contributed \$31.4 billion in output.³⁴



5.2%

Australia's marine industry's GDP contribution rose from 3.7% in 2017–18 to 3.8% in 2020–21, excluding the new four subsectors and increased to 5.2%, including the four additional subsectors.³⁴



462K

The marine industry in Australia employed 462,000 full-time equivalent workers, including direct and indirect jobs, in 2020.³⁵



3%

The value of ocean-based goods and services traded annually is estimated at at least \$2.5 trillion, equivalent to approximately 3% of the global GDP for the year 2020. This is based on the total value of the ocean's assets, which includes the direct output from marine fisheries and coastal ecosystems, marine trade and transport, as well as adjacent assets such as tourism and carbon absorption.³⁶



\$24 TRILLION

There are economic opportunities in the ocean that have not been explored yet, such as marine ecosystem services, and they are valued to be worth at least \$24 trillion globally.³⁶



\$322B

The yearly expense of climate impacts on oceans can reach up to USD \$322 billion in additional costs.³⁷

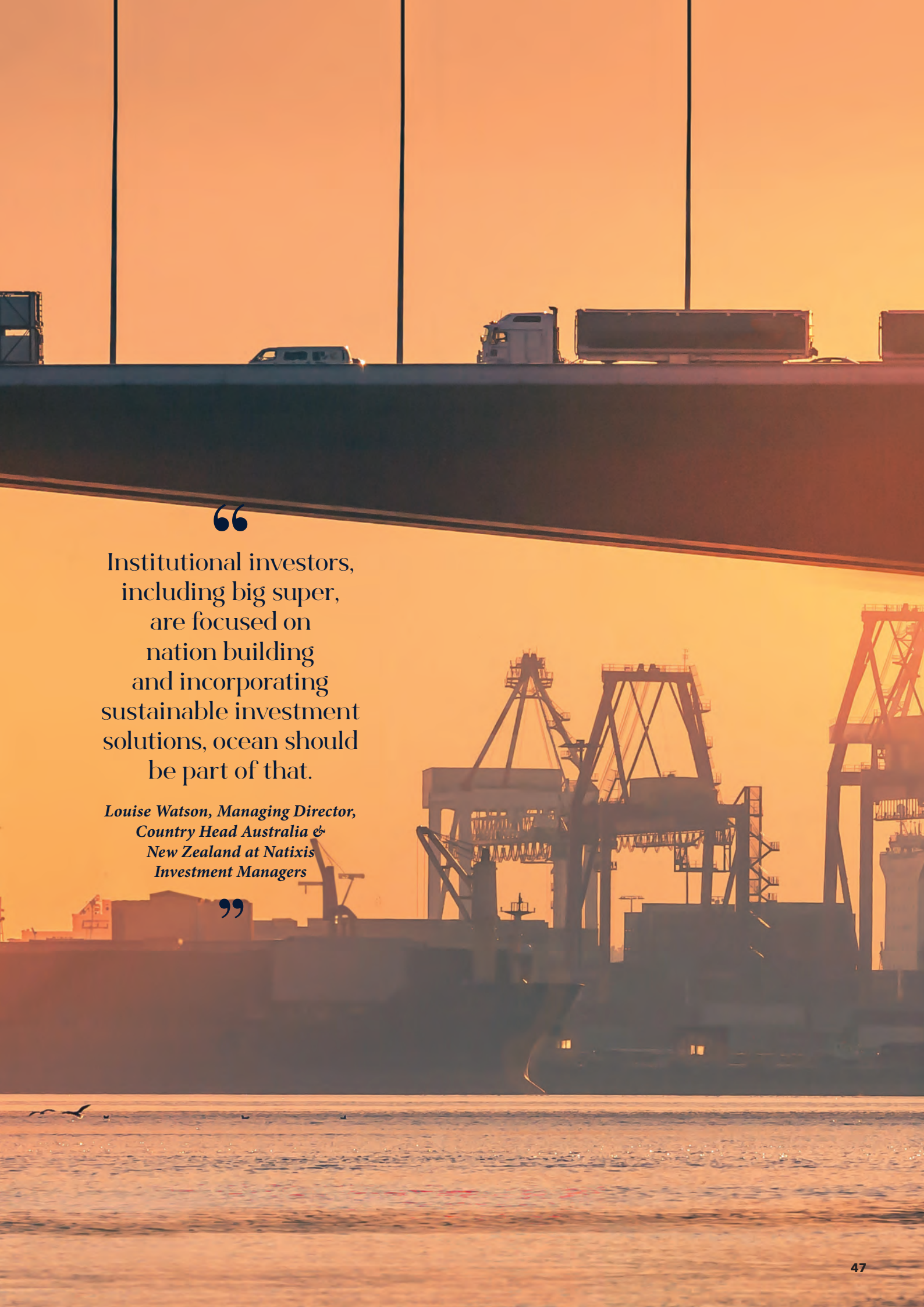


15-20 YEARS

Time frames for ocean market transformation are typically 15 to 20 years to remove barriers, implement policy and catalyse investments.³⁸

Priority conversations and actions identified

Ocean literacy	The marine environment offers an extensive range of ecosystem services that are often hidden from view. Therefore, addressing the knowledge gap surrounding the ocean's fundamental role in maintaining planetary health and regulating the climate is imperative. Increasing ocean literacy within the financial sector will enhance comprehension of the direct financial risks associated with the ocean and incorporate the indirect cross-sectional risks stemming from it. This, in turn, will facilitate sustainable investment opportunities while exerting pressure on financial institutions to incorporate ESG principles into their investment strategies. Ultimately, this will positively influence their clients and customers as well.
Quality data and knowledge	The availability of high-quality natural systems data is often unavailable, or the analysis of it requires expertise not often found in the financial sector. This poses a challenge for financial institutions. Quality data organised through robust accounting systems can aid and encourage sustainable ocean finance by providing valuable insights into success stories (including measures), alongside structured product types that can be applied to achieve ocean-based outcomes.
Establish guiding principles for Ocean Finance - quickly	Creating an Ocean Finance Industry roadmap and sustainable finance taxonomy is crucial for establishing standards and guidelines across sectors. This ensures that investment decisions are accountable and sustainable practices are viable in the long run. Establishing guiding principles will help identify and mitigate financial risks and enable investors and financial institutions to make informed decisions. Through informed decision-making, potential financial losses can be reduced and increase the attractiveness of investments.
Leverage existing financial tools and adapt for the ocean	By adapting conventional investment vehicles, risk assessment models, and valuation methods, it becomes possible to direct capital towards initiatives with the greatest potential for environmental and social impact. Leveraging pre-existing financial tools that have established risk management concepts simplifies this process. Additionally, integrating ocean-related activities into mainstream financial markets will attract a wider range of investors. Enhanced market integration will promote the growth of secondary markets, thereby increasing the flow of capital towards ocean conservation efforts.
Foster Sustainable Ocean Economy Investment Pipeline	Fostering an investment pipeline in the sustainable ocean economy financing sector improves the visibility of priority sectors with significant growth potential, creates awareness and market recognition amongst investors and supports Australia's international commitments. A vibrant investment market for sustainable oceans will draw attention from the public and the demonstration of success stories will serve to inspire and motivate other stakeholders to consider ocean-based investment.
Identify enabling policy reforms	A supportive regulatory environment can be created by identifying enabling policy reforms. Such policy reforms include environmental impact assessments, environmental information collection, sustainable resource management, and increased transparency and disclosure requirements. New capital flows can be incentivised by removing investment barriers from existing policies. Policy reforms can be a major influencing factor in adopting innovative technologies and, at times, hinder investments. By adopting new policies private sector engagement can be stimulated.



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Institutional investors,
including big super,
are focused on
nation building
and incorporating
sustainable investment
solutions, ocean should
be part of that.

*Louise Watson, Managing Director,
Country Head Australia &
New Zealand at Natixis
Investment Managers*

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Ocean Food



There is an increasing interest in opening new markets and trade for Australia's fish industry.

The growing demand for food poses a significant environmental threat. However, by examining the contributions from the ocean more closely, we can find a key solution to address this challenge. It is projected that food demand will increase by over 50% by 2050, with a nearly 70% increase in the demand for animal-based foods. While land-based expansion is possible, it carries the risk of exacerbating climate change, biodiversity loss, and compromising the delivery of ecosystem services.

Seafood plays a crucial role in providing approximately 20% of the daily intake of animal protein and essential nutrients for 3.1 billion people, including some of the world's poorest. Both wild-caught and farmed seafood (aquaculture) have a lower climate impact compared to land-based agriculture. Moreover, many types of aquatic foods from the ocean have lower greenhouse gas footprints than land-based animal-source foods.

The term "ocean food" broadly encompasses both wild-caught and farmed fish. In Australia, these industries are well-established and known internationally for their high quality. There is increasing interest in opening new markets and trade for Australia's fish industry. Fisheries continue to play a significant role in Australia's primary production, and the Commonwealth-managed fisheries in Australia are recognised as some of the most sustainable protein sources in the world.



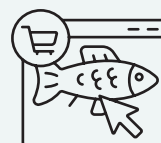
The ocean food supply chain involves various stakeholders, including fishers, producers, packagers, distributors, buyers and consumers. Effective management of the ocean food sector requires integrated partnerships across the supply chain, fostering collective enterprise and innovation to enhance sustainable practices. It is important to recognise that effective ocean food management is not solely a conservation issue; it is also an economic imperative crucial for businesses, investment, food security, and the long-term stability and continuity of ocean sustainability and supply.

The fishing and aquaculture sectors provide employment and income opportunities for millions of people worldwide, particularly in coastal communities and developing countries. By engaging in these activities, individuals and communities can secure their livelihoods and improve their socio-economic well-being.



\$3.09B

Gross value of production (GVP) of Australian fishery and aquaculture is valued at \$3.09 billion (ABARES 2022).



**356K
TONNES**

Australians consumed around 356,000 tonnes of seafood in 2020–21, equivalent to 13.9 kilograms per person. Imports made up 62% of this total, declining from 69% in 2013–14.



17,000

17,000 Australians are employed in fisheries and aquaculture.³⁹



10%

Australian seafood accounts for 10% of Australia's national agricultural production.⁴⁰

Priority conversations and actions identified

Consumer awareness	Enhancing communication regarding the point of origin and food provenance through standardised packaging and marketing information will help consumers understand best practices in Australian food production. Additionally, promoting diversified food choices can increase the variety of marine species available to consumers, reducing dependence on higher risk species.
Recruitment to the industry	Developing mechanisms to attract and retain talented individuals to the fishing industry will make it more appealing as an employer for younger generations. Coordinated industry engagement with young Australians can increase awareness and interest in the sector, creating jobs and supporting local and rural businesses and communities.
First Nations partnership and leadership	Collaboration and partnerships with First Nations communities can support existing businesses, partnerships and jobs. Supporting First Nations-led enterprises will further integrate principles of sustainability and inclusivity. Australia can leverage First Nations knowledge of fishing practices to diversify local species in the supply chain, positioning itself uniquely in the international market.
Fisheries data collection	Increased investment is necessary to improve fisheries data collection and ensure easy access to the data and expertise needed to transform it into valuable information. This will provide essential insights for stakeholders and facilitate ESG and TNFD reporting in ocean food supply chains, reducing risk and attracting additional financial investment opportunities.
Policy and regulation reforms	Policy and practice shifts can support both food provisioning and conservation goals. Robust consultation and understanding of wild catch fishing as an extractive but well-managed industry is necessary. Consideration should be given to establishing a single fisheries management entity for Australia with unified legislation and leadership for the ocean economy's food sector, employment market and training programs.
Supply chain transparency	Adopting new technology can improve supply-chain transparency, sustainability, traceability, and compliance from "ship to shelf." Electronic monitoring technologies play a crucial role in tracking transshipment and ensuring compliance with import regulations, boosting consumer confidence and demand for sustainable products.
Research excellence	Australia can be positioned as a global leader in fisheries science and blue economy technologies by increasing government funding for research in collaboration with the industry and focussing on addressing the complex implications of expanding seafood production. By prioritising these areas, Australia can lead in scientific advancements and technological innovations in the blue economy sector while capitalising on international trade opportunities.
Innovation	Decarbonisation and the adoption of alternative energy sources by ocean food producers will enhance the climate change resilience of the sector. Market incentives can further encourage producers to embrace sustainable practices and reduce their carbon footprint, including the elimination of single-use plastics. By combining supportive measures and market-driven initiatives, Australia can foster a resilient, trusted, and sustainable ocean-based food sector.



Case study: OpenSC

The importance of transparency within seafood supply chains is becoming increasingly acknowledged as a key lever to ensure responsible marine management, reducing negative environmental and social impacts of seafood production. Furthermore, with the challenges that seafood companies are facing, the importance of understanding what is occurring in their supply chain and being able to utilise supply chain data to create efficiencies will become even more critical.

OpenSC is a supply chain transparency platform, co-founded by WWF and the Boston Consulting Group. The OpenSC platform is a verification, traceability and reporting engine that uses existing supply chain data to monitor fishing practices, in real time in support of sustainable, legal and ethical production.

OpenSC's technology has been proven 'at scale' in two Australian fisheries, enabling automated and real-time verification of fishing activities and blockchain traceability from vessel to market. It is also being proven in the Pacific, helping to support Pacific tuna nations to grow the value of their tuna resources through improved management of fish stocks, and reduced illegal, unreported, unregulated (IUU) fishing, facilitating market access. It will require support from producers, regulators, retailers and the public to continue to drive this important work forward, building supply chain transparency within the seafood industry.





Ocean Health

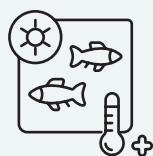


The ocean is indispensable for climate regulation, human well-being, and economic prosperity.

The ocean is not only essential for business operations, social functioning, and economic well-being, but it also plays a crucial role in maintaining the health of the human population. Covering over 70% of the planet and containing 97% of its water, the ocean provides more oxygen than even the Amazon rainforest.

It is a vital resource that sustains life, fosters connections, and supports all species on Earth. Recognising the inseparable link between human health and ocean health, it is imperative that we prioritise the preservation of the ocean's well-being.

The ocean is crucial for climate regulation, human well-being, and economic prosperity. Unfortunately, humanity often views the ocean as separate from us due to its vastness and largely unexplored nature. This limited understanding has resulted in chronic underfunding from governments and industries, a lack of comprehensive policies, and fragmented initiatives across different sectors.



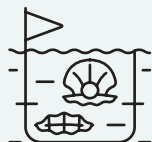
14%

Continuing ocean acidification and rising ocean temperatures are threatening marine species and negatively affecting marine ecosystem services. Between 2009 and 2018, the world lost about 14 percent of coral reefs.⁴¹



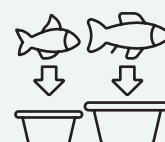
17M TONNES

In 2021, more than 17 million metric tonnes of plastic entered the world's ocean, making up 85 percent of marine litter. The volume of plastic pollution entering the ocean each year is expected to double or triple by 2040.⁴¹



8%

The global coverage of marine protected areas stood at 8 percent of global coastal waters and oceans in 2021.⁴¹

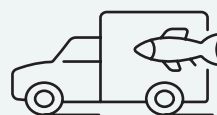


35.4%

More than a third (35.4 per cent) of global fish stocks were overfished in 2019, up from 34.2 per cent in 2017 and 10 per cent in 1974. However, the rate of decline has recently slowed.⁴¹

With the third largest marine area (exclusive economic zone) in the world, Australia already benefits from a thriving “blue economy” that contributes over \$81 billion to the nation's economy. Just like land-based agriculture, there is growing pressure to utilise ocean resources sustainably to drive economic growth, produce food, and generate energy, all while conserving the fragile marine ecosystem.

The viability of industry sectors, such as energy, food and finance, depend on the health and sustainability of the ocean. Therefore, an economically sustainable ocean economy must prioritise the well-being of the ocean. Achieving this balance necessitates a robust understanding of ocean health and its pivotal role in fostering positive and productive partnerships that effectively balance resource conservation and utilisation.



1/2 BILLION

Almost half a billion people depend at least partially on small-scale fisheries, which account for 90 per cent of employment in fisheries worldwide.⁴¹

♥ Priority conversations and actions identified

Translating and Communicating Data	To ensure effective stakeholder engagement, transparency, and collaboration, it is crucial to focus on providing understandable, reliable, and usable data. This can be achieved by establishing an Ocean Information Dashboard that collectively shares data with all stakeholders. Drawing lessons from the Agriculture/Agribusiness sector, it is important to increase the involvement of ocean experts in both the public and private sectors. Their expertise in translating data and providing solutions will contribute to informed decision-making and the sustainable management of the ocean.
Standardised Reporting Frameworks	To understand the limits of regulatory approvals and avoid cumulative impacts on the health of the oceans, it is necessary to establish scientifically evidenced frameworks and thresholds. Currently, ocean-based business proposals are assessed individually, without considering their cumulative effects on the sustainability of the oceans. These frameworks should account for both current and future conditions, including climate change and biodiversity shifts, which significantly affect businesses and communities.
Enabling Cross-Sector Dialogue	The United Nations Ocean Decade Framework presents an opportunity to foster ongoing dialogue across sectors. Establishing a multi-sectoral National Decade Committee will allow for formal leverage of this framework and facilitate collaboration and knowledge-sharing among different sectors, ensuring Australia's active participation and contribution to the Decade's goals.
Data-Driven Decision-Making	Implementing national marine spatial planning, supported by state-based capabilities, is essential for balancing multiple uses and maintaining ocean health. By utilising data and scientific insights, marine spatial planning can guide informed decision-making, ensuring sustainable and responsible management of ocean resources.
Meeting Ocean Targets	Australia's international commitments regarding the ocean, biodiversity, and climate require consistent metrics that can be measured across all sectors. Leveraging existing metrics, indicators, and data points, particularly those developed through initiatives like the Ocean Decade and the TNFD provides a strong starting point. It is crucial to engage the private sector in fulfilling these commitments, while also disseminating accurate information to the public and civil society to enhance understanding of complex ocean-related issues and combat misinformation.





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We have the ideas,
we have the capacity,
and the ability to
lead by example to
preserve our oceans
forever. This is that
generation. The
oceans will not last
the way we are going
now. We have to
take this action. But
the great news is –
we can.

*Dr Andrew Forrest,
Chairman of Fortescue &
Minderoo Foundation*

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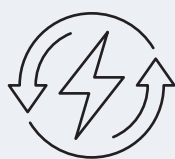
Australia, the Region and the World

The development and implementation of Australia's ocean economy cannot happen in isolation. The vision articulated through the Summit provides guidance on the significant opportunities available for Australia to strengthen and deepen relationships within our region, including Pacific partners, and to seize global economic opportunities.

Advancing a collaborative approach offers significant benefits – after all, the ocean and its inhabitants know no fences. A regional approach to ocean management includes national security benefits, helping to protect Australia's marine resources, ensure maritime security, adapt to the impacts of climate change, and manage natural disasters. These benefits are critical to Australia's and our neighbours' national security and highlight the importance of regional cooperation in ocean management.

Opportunities for Regional Cooperation

Promoting Ocean-Based Renewable Energy Technologies



Investing in emerging ocean-based renewable energy technologies, such as tidal and wave energy, holds great potential for the Pacific region. With a significant portion of Pacific Island countries' GDP allocated to diesel fuel for energy generation, these islands are particularly vulnerable to the impacts of climate change.

Embracing decarbonisation and renewable energy sources is crucial for these nations. Islands like Union, Mauritius, Tahiti, and New Caledonia possess abundant wave resources but lack sufficient land for onshore energy generation.

Wave technology, as a complement to wind or as a standalone solution, can play a vital role in providing clean energy for island nations, remote Australian communities, and beyond. Moreover, integrating ocean-based renewable energy with aquaculture, ports, and desalination plants facilitates a shift towards distributed renewable energy systems, leveraging the value chain established by the offshore wind sector.

By tapping into the Pacific region's vast renewable energy resources—wind, waves, and tides—ocean-based renewable energy development can unlock economic opportunities, foster local industries, create new jobs, and reduce dependence on imported fossil fuels.

Development of Alternative Fuels for Maritime Transport



To support regional efforts in decarbonising maritime transport and establish a green shipping corridor between Australia and Singapore, it is crucial to invest in the development of alternative fuels, harnessing Australia's abundant renewable energy resources.

Wind and solar power make Australia well-suited for producing hydrogen, making it an ideal candidate for fast-tracking the National Hydrogen Strategy. Aligning with global ambitions for zero-emission fuels and vessels to be commercially available by 2030, Australia can become a pioneering force in the region. By utilising renewable energy to produce alternative fuels, Australia can export these clean energy solutions to the Pacific region, contributing to their decarbonisation goals while bolstering economic growth and sustainability.



Regional Cooperation for Fisheries Management



To combat illegal, unreported, and unregulated (IUU) fishing, regional cooperation is essential. Strengthening the Western and Central Pacific Fisheries Commission (WCPFC) and the South Pacific Regional Fisheries Management Organisation (SPRFMO) is vital for effective fisheries management.

These organisations should collaborate in conducting surveillance and enforcement activities within their respective waters. Ensuring region-wide access to technology-based solutions, including satellite tracking of fishing vessels, electronic monitoring systems, and data analysis tools, can significantly enhance monitoring and control efforts.

By combating IUU fishing collectively, the Pacific nations can protect their marine resources, preserve biodiversity, and promote sustainable fisheries, thereby safeguarding the livelihoods of local communities.

Summit participants emphasised the importance of Australia delivering on its international commitments in relation to the ocean, biodiversity and climate. There was a strong desire to see Australia represented on the global and regional stage providing leadership on joint challenges and using its deep technical expertise and capacity to support others.

A sustainable ocean economy offers the potential for Australia to be an exporter of innovation and sustainable technology to the region and world and a first mover in sustainable industries of the future. To seize this opportunity, Australia must act quickly and bravely.

The role of the Australian government is critical - strong, consistent and enduring policy signals, targeted investment in research, innovation and entrepreneurship, and aligned incentives will enable this transition.

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The custodians of the Pacific are looking after an area that is 98% water and only 2% land, covers a third of the planet, contains 30% of the world's exclusive economic zones, and Pacific culture has the ocean at its centre.

*Dr Stuart Minchin, Director General,
The Pacific Community (SPC)*

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Marine biotechnology



Marine biotechnology presents a wealth of opportunities for scientific advancements, economic growth and sustainable development. With the vast biodiversity found in aquatic ecosystems, our oceans and coastal

habitats hold immense potential for the discovery and development of novel compounds, biomaterials, and bioactive substances.

These resources can be harnessed for a wide range of applications, including pharmaceuticals, cosmetics, agriculture, and environmental remediation. Examples of existing support and partnerships include the Blue Economy CRC, Marine Bioproducts CRC, and the Fisheries Research and Development Corporation who are actively supporting research-industry partnerships with the support of government funding to drive innovation.

Marine biotechnology can contribute to the conservation and sustainable use of marine resources by providing alternative methods for food production, such as mariculture and aquaculture, reducing the pressure on wild fish stocks.

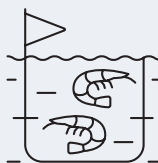
Furthermore, the growth of the marine biotechnology sector can stimulate local economies, create jobs in coastal communities, and foster research collaborations between academia, industry and government.

One of the key areas of Australia's leadership in marine biotechnology is in the development of seaweed-based products. Seaweed is a sustainable and abundant resource that can be used to create a wide range of products, including food, animal feed, bio-materials and biofuels.

Australian researchers and companies are actively developing new seaweed-based products and solutions, including bio-plastics, fertilisers, and medicines but this needs to be scaled to an industrial level.

By embracing the opportunities offered by marine biotechnology, there is the potential to drive scientific discoveries, and promote sustainable practices for a healthier and more prosperous future in the region.

Aquaculture and mariculture



Through the coordinated activity of regional organisations and initiatives, Australia supports the development and implementation of sustainable fisheries practices, including responsible harvesting, processing and marketing of seafood. This support aims to enhance the economic benefits derived from fisheries while ensuring the long-term sustainability of fish stocks and the well-being of fishing communities.

Fishing and local aquaculture production can enhance food access and affordability, particularly in coastal regions and areas with limited alternative food sources. Investing in research and development is essential to improve the breeding, growing and harvesting of bivalves in a sustainable and profitable way. This includes developing new strains of bivalves that are resistant to diseases and environmental stresses, improving feeding and growing techniques, and finding innovative ways to improve the efficiency and sustainability of the industry.

New applications for seaweeds and their use in a range of food, products and materials has the potential to increase regional mariculture opportunities and support sustainable practices. Algae production should be expanded in a manner that considers the ocean's dynamic and diverse ecosystems and communities they sustain. Appropriate regulation and policies are essential for the development of a sustainable and profitable mariculture industry. The government should develop clear guidelines and regulations to ensure that the industry operates in a sustainable and responsible way, and that the rights of First Nations people and traditional owners are respected.

Ocean monitoring and management



Australia collaborates with Pacific Island countries on research and scientific initiatives related to the sustainable ocean management, including joint research projects, data sharing and scientific capacity building to improve understanding of marine ecosystems, climate change impacts and sustainable resource management.

Australia has established one of the world's largest networks of marine parks, covering more than 3 million square kilometres of ocean. As countries globally are beginning to implement the 30x30 target in the Kunming-Montreal Biodiversity Framework, Australia is well positioned to be a global thought leader in the future of marine park management.



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Definitions

Blue or Ocean Economy

The ocean economy, or blue economy, has different definitions depending on the interests, needs, capacities, perspectives and context of a country. The World Bank⁴² defines the blue economy as the “sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ocean ecosystem”.

ESG

Environmental, social, and governance (ESG) refers to a set of criteria that are used to evaluate a company's performance and impact in the areas of the environment, society, and corporate governance. ESG factors are used by investors, analysts, and stakeholders to assess the sustainability and ethical practices of a company, and to determine its potential long-term financial performance.

ISSB

International Sustainability Standards Board (ISSB) is a proposed global standard-setting board that aims to develop and establish sustainability reporting standards for companies and financial institutions. It is part of the broader efforts to enhance transparency and accountability in sustainability reporting, similar to the role of the International Financial Reporting Standards (IFRS) for financial reporting.

Natural Capital

Natural capital refers to the Earth's natural resources and ecosystems that provide valuable goods and services to human beings and other living organisms. It encompasses elements such as air, water, soil, minerals, forests, wetlands, biodiversity and the overall functioning of ecosystems.

Nature Investing

Refers to the practice of investing in nature-based solutions and projects that aim to protect, conserve and restore natural ecosystems while generating financial returns. It involves directing financial resources towards activities that support biodiversity conservation, ecosystem restoration, sustainable land use and other nature-related initiatives.

Nature Repair Market

The Commonwealth Government of Australia is creating a new nature repair market to reward landholders for restoring and protecting nature. The market will also provide options for businesses to invest in nature repair.

SDGs

The Sustainable Development Goals (SDGs), also known as the Global Goals, are a set of 17 interconnected goals established by the United Nations (UN) in 2015. These goals aim to address the world's most pressing economic, social, and environmental challenges, with the ultimate objective of achieving sustainable development by 2030.

The SDGs build upon the Millennium Development Goals (MDGs) but have a broader scope and incorporate a wider range of issues. The goals cover various dimensions of sustainable development, including poverty eradication, health and well-being, education, gender equality, clean water and sanitation, renewable energy, economic growth, sustainable cities and communities, climate action, and more.

The SDGs provide a comprehensive framework for governments, businesses, civil society organisations, and individuals to collaborate and work towards a sustainable future that balances social progress, economic prosperity, and environmental protection.

TCFD

Task Force on Climate-related Financial Disclosures (TCFD) is an initiative established to develop a framework for companies to disclose climate-related financial information to investors, lenders, insurers and other stakeholders. The TCFD was launched in 2015 by the Financial Stability Board (FSB), an international body that monitors and makes recommendations about the global financial system.

TNFD

Task Force on Nature-related Financial Disclosures (TNFD) is an initiative that aims to develop a global framework for disclosing and reporting on the financial risks and opportunities related to nature and biodiversity. The TNFD is modelled on the Task Force on Climate-related Financial Disclosures (TCFD) and seeks to bring similar transparency and standardisation to the disclosure of nature-related information.

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Volunteers

- Chris Angwin
- Caleb Connor
- Lisa Danzey
- Gabrielle Duani
- Kristl Mauropoulos
- Rachael Scott

About the Authors

Ocean Decade Australia

In 2021, Ocean Decade Australia (ODA) was established with a vision of achieving a sustainable ocean future for all Australian stakeholders. Our five core principles include: focusing on one client - the ocean; building trust with Australian ocean stakeholders; amplifying efforts; being independent; and adding value to the United Nations Decade of Ocean Science 2021-2030.

Connecting Australia's abundant ocean stakeholders through information and resources, networking, knowledge and learning, ODA aims to enable cross sectoral dialogue and activity. By supporting increased national dialogue it has allowed Australia's ocean stakeholders to discuss what success looks like and how it might be measured for a sustainable ocean future.

oceandecadeaustralia.org

Ernst & Young, Australia (EY Australia)

Governments and organisations around the world are increasingly focusing on the environmental, social and economic impacts of climate change and the drive for sustainability.

Your business may face new regulatory requirements and rising stakeholder concerns. There may be opportunities for cost reduction and revenue generation. Embedding a sustainable approach into core business activities could be a complex transformation to create long-term shareholder value. The industry and countries in which you operate as well as your extended business relationships introduce specific challenges, responsibilities and opportunities.

Our global, multidisciplinary team combines our experience in assurance, consulting, strategy, tax and transaction services with climate change and sustainability knowledge and experience in your industry. You'll receive tailored service supported by global methodologies to address issues relating to your specific needs. Wherever you are in the world, EY can provide the right professionals to support you in reaching your sustainability goals.

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Oceans are used now more than ever.
Ensuring that use is sustainable
and equitable means the oceans can
be the source of solutions now and
into the future, not the site of the
next round of challenges.

*Dr Beth Fulton,
Domain Leader,
Integrated Ocean Stewardship,
CSIRO*

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