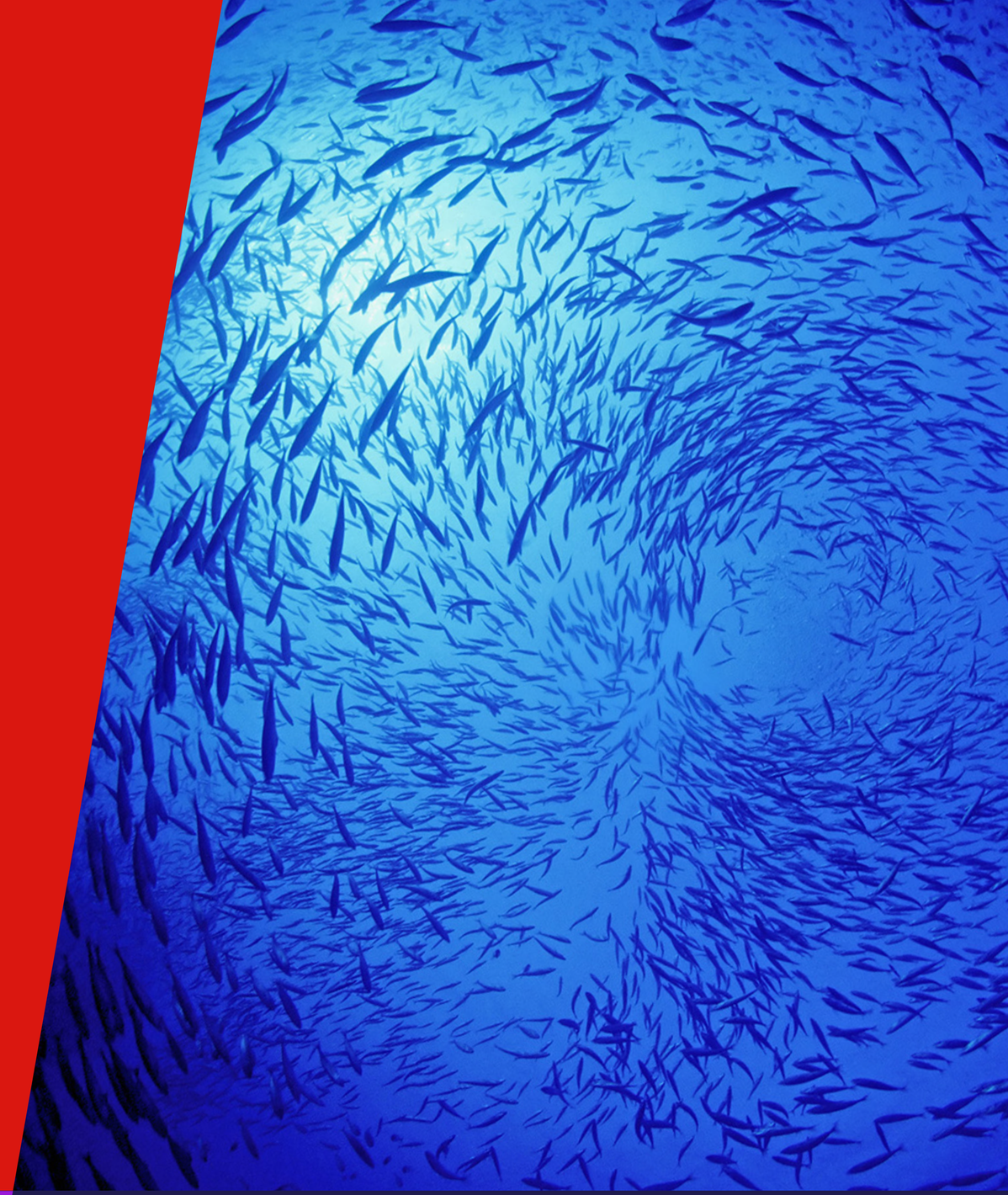
A SUSTAINABLE MARINE SECTOR

Why New Zealand needs to transition to a blue economy.

February 2025



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EXECUTIVE SUMMARY

The marine economy refers to activities within and across sub-sectors that use ocean resources. The term "blue economy" refers to the same activities but incorporates additional elements of sustainability and the potential of the ocean to support humanity in the future. To that end, the blue economy can be considered as a desired end state for the marine economy.

There are a range of organisations and initiatives in New Zealand that are partnering to deliver this end state. They include the Nature Conservancy, the Aotearoa Circle, the Sustainable Seas National Science Challenge (now no longer active), and Moananui. Westpac has prepared this report to better understand and share how the finance sector can support New Zealand's transition to a blue economy.

Marine activity contributes at least $10bn in value add to the New Zealand economy. That excludes difficult to measure non-market values. We think that by 2035, sector value add will rise to $14bn. The blue economy also has the potential to make a meaningful contribution to the government's goal of doubling exports.

There are plenty of areas where greater sustainability and regeneration is possible. Shipping, wild capture fishing, aquaculture, renewable energy and tourism are often cited examples. Extracting offshore minerals is a possibility, but only if it can be done in a way that does not adversely affect natural ecosystems. Any decisions in this area will need to be guided by Government and local communities.

Transitioning to a blue economy will not be easy. Among other things it requires an equitable partnership, between government, which sets the rules, businesses, local communities, Māori and iwi, all of whom have a unique relationship with, and potential to impact the ocean. Māori and iwi hold a unique position in this regard, being in both business and the community.

While the transition to a blue economy will require a large amount of investment, collaboration and coordination across a number of sectors, we are aware that global firms have shown interest in investing in a "just transition", and we note that domestic partners have already made much collaborative progress to date.

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DEFINITIONS

Defining the marine economy.

Stats NZ defines the marine economy as consisting of the following activities:

- **Shipping** – Ship/boat building and repair services, water freight and passenger transport, transport terminal operations.
- **Fisheries and aquaculture** – Seafood processing and wholesaling, excluding onshore aquaculture.
- **Marine services** – Other water transport services such as salvage, towing, and pilotage services.
- **Marine tourism and recreation** – Includes marine equipment retailing only. No other tourism and recreation classes.
- **Offshore minerals** – Oil extraction, natural and petroleum gas extraction and exploration, oil shale mining.
- **Government and defence** – Includes local government expenditure on marine safety.

We estimate sector value add is about $10bn, but this is likely to be an underestimate because of:

- **Identification challenges** – current estimates exclude difficult to accurately identify/separate marine from land-based activities, such as marine tourism, construction and manufacturing.
- **Value chain challenges** – current estimates also exclude downstream activities that rely on marine economy outputs, such as mineral refining; as well as upstream activities that provide inputs, such as marine construction and manufacturing.
- **Emerging challenges** – current estimates also exclude activities that at present are too small to quantify, but are expected to grow in the future, such as offshore renewable energy generation and biotechnology. Similarly, they do not recognise ecosystem services.

> These challenges suggest that current estimates of the value of the marine economy are likely to understate the potential contribution of the blue economy.

Defining the blue economy.

The marine economy refers to activities within and across sub-sectors that use ocean resources.

The term “blue economy” refers to the same activities, but in addition incorporates elements of sustainability and the potential of the ocean to support humanity in the future.

- The World Bank defines the blue economy as “the sustainable use of ocean resources to promote economic growth, social inclusion, and the preservation or improvement of livelihoods, while at the same time ensuring environmental sustainability of the oceans and coastal areas”.
- The Sustainable Seas National Science Challenge in New Zealand defined the blue economy as “marine activities that generate economic value and contribute positively to social, cultural and ecological well-being”.

To that end, we define the blue economy as a desired end state or long-term strategic goal for the marine economy.

Achieving this end state is important, given increased consumer demands for sustainable marine products, population growth, and an acknowledgement that the degradation of natural resources will increasingly impact society and economies.

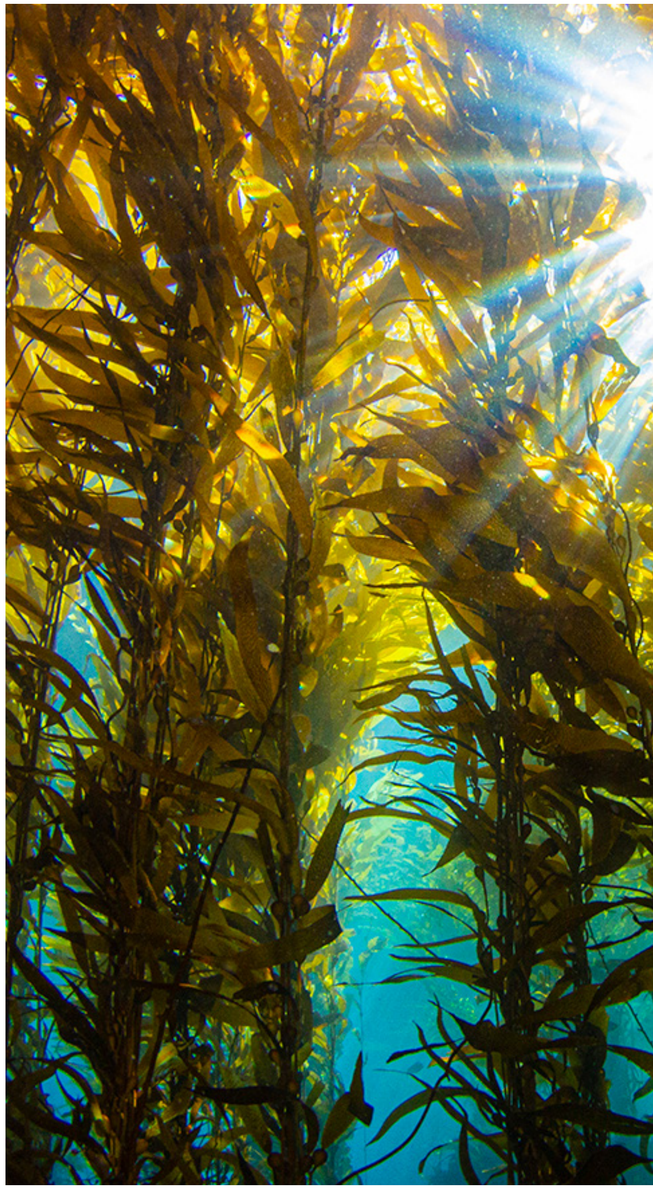
> **The blue economy aims to move beyond business as usual and to consider economic development and ocean health as compatible propositions.**

Dimensions of sustainability.

The sustainable use of ocean resources not only delivers benefits to the environment, but also communities (society) and the economy (business).

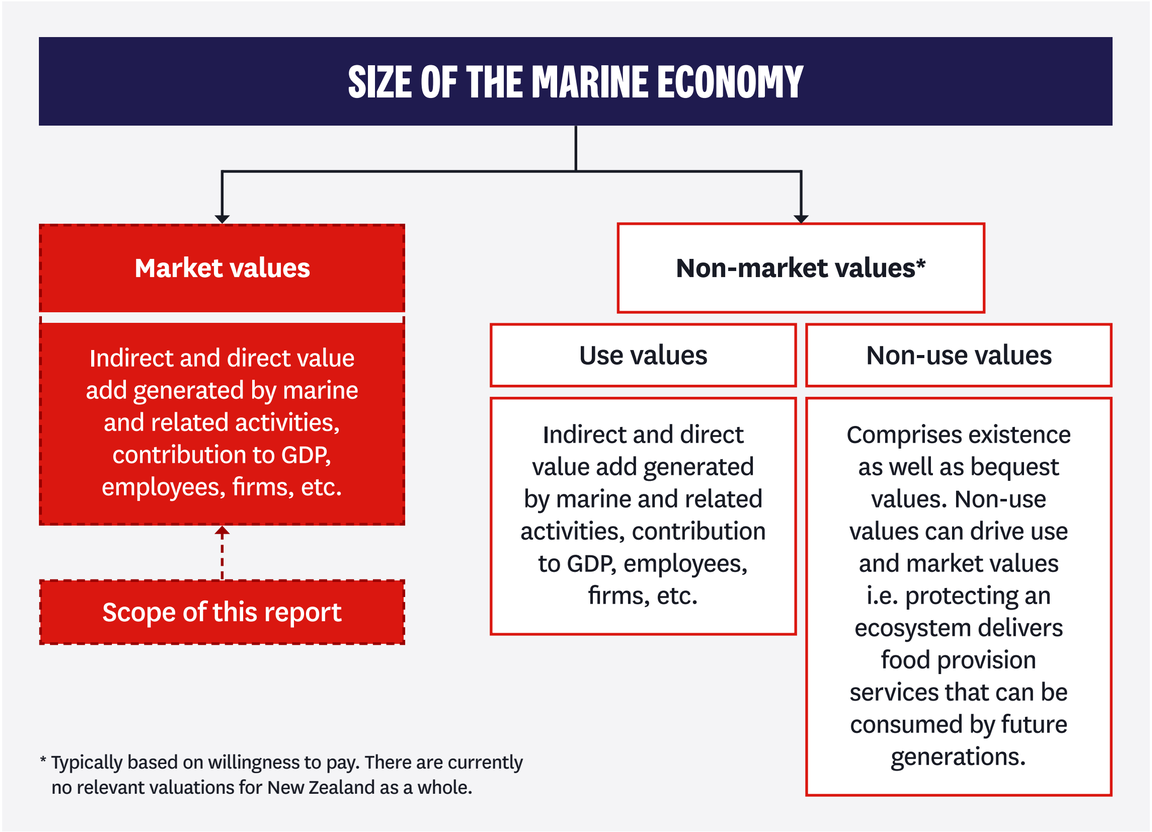
CURRENT STATE Low sustainability	FUTURE STATE High sustainability
Declining levels of wellbeing	Improving levels of wellbeing
Declining returns and prosperity	Stronger economic growth
Deteriorating environmental ecosystems	Regenerating environmental ecosystems

Source: Westpac



SIZE OF THE MARINE ECONOMY

Considerations when measuring the marine economy.



Source: Westpac, M.E Consulting

Indirect and direct contributions.

- According to Stats NZ, the marine economy that can be measured, directly contributed just over $4.2bn to the New Zealand economy in 2022.
- That excludes indirect value added; i.e. the value added by upstream sectors that provide services and goods to the marine economy; which contributed $2.8bn to the economy.
- Stats NZ's definition of marine tourism and recreation refers to the retail of marine equipment – it doesn't include tourism.
- M.E Consulting's 2019 report titled "Measuring New Zealand's Blue Economy" calculated that marine tourism directly added $3bn in 2017.
- Rating that forward using Tourism Satellite Account data, we estimate a figure of $2.1bn in 2022. That excludes an indirect value add from marine tourism of $1.3bn.
- In total, we estimate the marine economy contributed value add of about $10.3bn to the New Zealand economy in 2022.

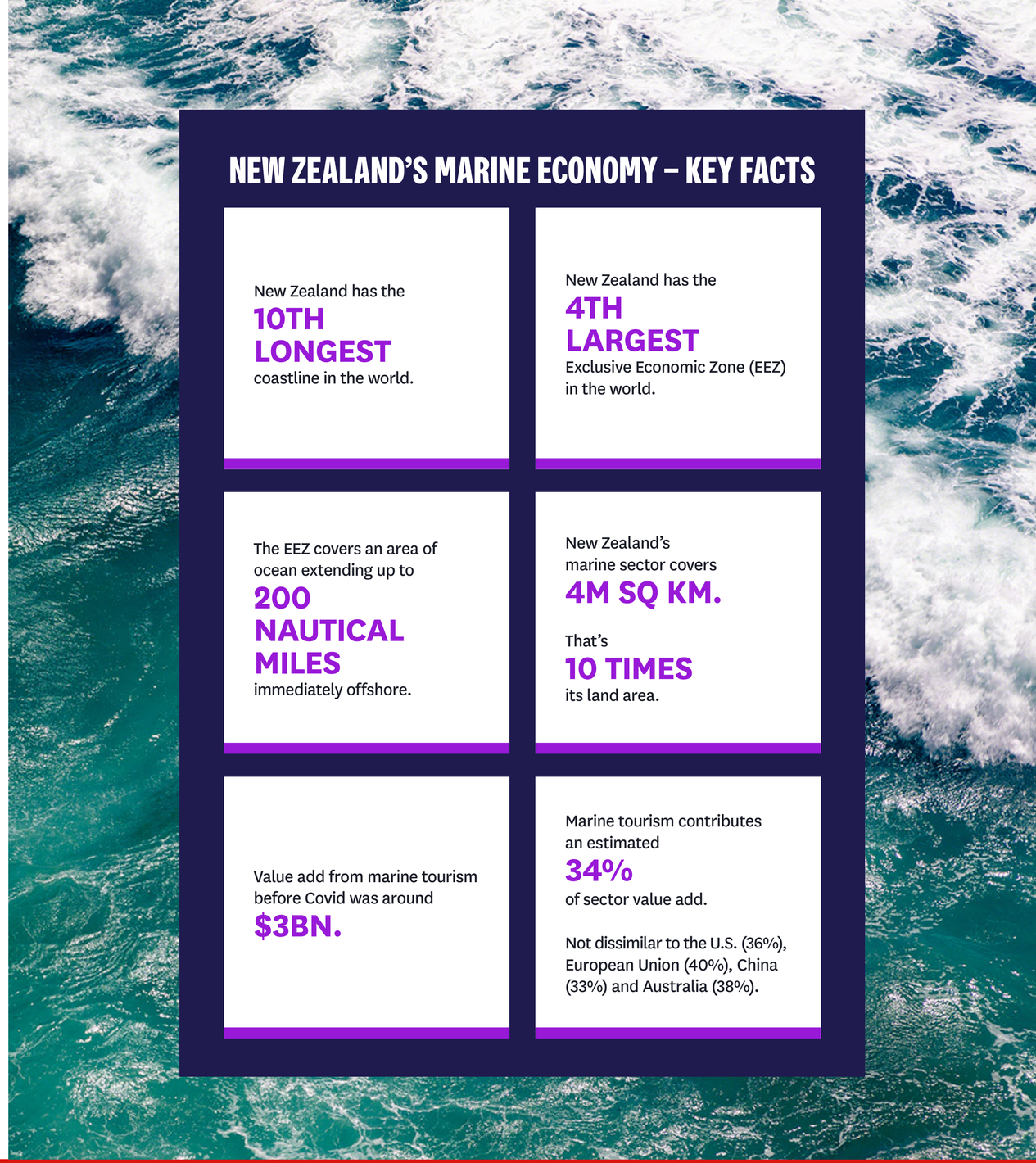
The marine economy as defined contributes about 3.9% to New Zealand's GDP.

Sizing New Zealand's marine economy.

	Value Add			
Sub-sector	**Direct ($bn)**	**Indirect**** **($bn)**	**% of GDP**	**Employment***
Shipping	2.1	1.0	1.1	19,788
Marine tourism and recreation**	2.1	1.4***	1.2	41,149
Fisheries and aquaculture	1.0	1.0	1.0	14,754
Offshore minerals*****	0.7	0.5	0.4	1,029
Marine services	0.3	0.1	0.1	1,470
Government and defence	0.1	0.1	0.1	N/A
Total	$6.3bn	$4.0bn	3.9%	

Source: Stats NZ: Marine economy account 2007 to 2022; **M.E Consulting report: Measuring New Zealand's Blue Economy**

* Employment estimates refers to those employed directly and indirectly along the marine economy value chain.
** Stats NZ does not publish a figure that fully covers marine tourism and recreation. We have used GVA estimates from the M.E. Consulting report and extended them forward using data from Stats NZ tourism satellite account.
*** Indirect value add from marine tourism was based on the relative share of indirect to direct value added generated by tourism as a whole as reflected in the Stats NZ tourism satellite account.
**** Indirect value add refers to the component of value add generated in supplier industries attributed to the marine economy.
***** Refers primarily to production of oil and gas off the coast of Taranaki. Although part of the marine economy, some argue that the extraction of finite offshore minerals is not sustainable and so cannot form part of the blue economy.



NEW ZEALAND'S MARINE ECONOMY – KEY FACTS

New Zealand has the **10TH LONGEST** coastline in the world.

New Zealand has the **4TH LARGEST** Exclusive Economic Zone (EEZ) in the world.

The EEZ covers an area of ocean extending up to **200 NAUTICAL MILES** immediately offshore.

New Zealand's marine sector covers **4M SQ KM.** That's **10 TIMES** its land area.

Value add from marine tourism before Covid was around **$3BN.**

Marine tourism contributes an estimated **34%** of sector value add.

Not dissimilar to the U.S. (36%), European Union (40%), China (33%) and Australia (38%).

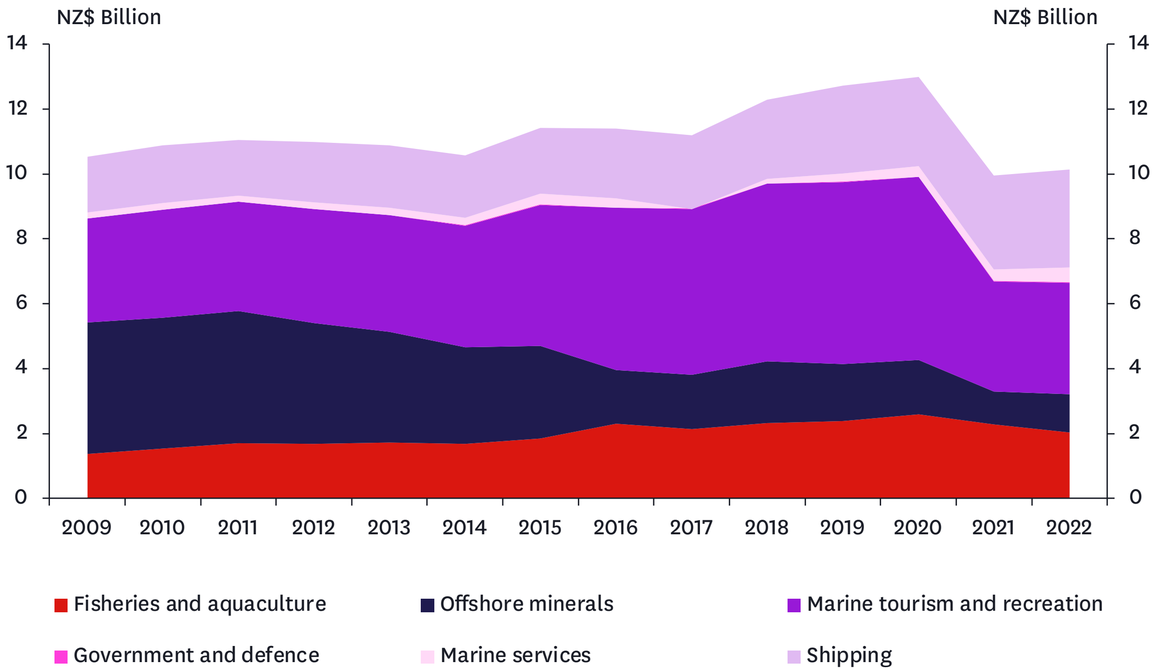
Comparing our marine economy with peer countries.

- Sector value add expressed in nominal terms is positively correlated to the size of the economy.
- However, the same does not hold true when assessing sector contributions to GDP. That largely reflects unique national characteristics, including the structural make up of individual economies.
- The contribution that the marine sector makes to the New Zealand economy is significant, even when compared to peers. That significance increases when non-renewable sectors, such as offshore minerals, are excluded. Based on market values, we estimate that the marine economy would still contribute 3.5% to New Zealand's GDP (as compared to the UK and Australia, at 3.1% and 3.3%, respectively).

	Sector value add		Sub-sector value add – % of GDP							
	Direct ($bn)	% of GDP	Marine tourism	Shipping	Fisheries and aquaculture	Offshore minerals	Marine services	Government and defence	Renewable energy	Marine constr
New Zealand	10	3.9	1.2	1.1	1.0	0.4	0.1	0.1	-	-
Ireland	9	1.1	0.3	0.3	0.2	0.2	0.1	-	0.0	0.0
US	800	1.6	0.6	0.1	0.1	0.2	0.0	0.6	0.0	0.0
UK	260	7.3	1.2	0.9	0.3	4.2	0.4	0.1	0.1	0.1
Australia	120	6.5	1.2	0.4	0.2	3.2	0.8	0.7	-	-

Source: Australian Institute of Marine Science: **The AIMS Index of Marine Industry 2023**, Irish Marine Institute: **Community List**, United Kingdom Marine Monitoring & Assessment Strategy: **Uses of the marine environment**, ScienceDirect: **The marine economy of the United Kingdom**, US Bureau of Economic Analysis: **Marine Economy Satellite Account, 2022**.

Contributions to New Zealand's marine economy.



Source: Stats NZ, M.E Consulting

The marine economy is as large as it is complex.

- According to the UN, the marine economy currently contributes an estimated US $2.3trn in value add to the global economy (roughly equivalent to the German economy) and that is expected to rise to US $3trn by 2030.
- Assuming a similar growth trajectory in New Zealand, our marine sector is likely to increase its value add from $10bn currently to between NZ$13bn to NZ$15bn by 2030.
- The dip in marine sector value add in 2020/21 reflects the impact of Covid. Most affected were shipping services, undone by severe disruptions to supply chains, and marine tourism (and recreation), curtailed by the closure of New Zealand's borders and slowness to re-open them.
- Fisheries and aquaculture were affected by a drop in seafood exports, and the impact of lockdowns which closed restaurants/cafes. It could have been a lot worse had grocery stores not been able to operate (albeit under restriction) during the period.
- More recent estimates of value add for marine related sectors have yet to be published. However, data for seafood exports and the overall trend in international visitor arrivals suggests that the marine economy is likely to have partially recovered in 2023.
- However, the same cannot be said for the extraction of offshore minerals, which reflects the long-term decline in offshore gas and oil production off the coast of Taranaki.

For many observers, sub-sectors that extract non-renewable resources are not sustainable and have no place in a blue economy.

Which marine economy sub-sectors offer potential for growth.

- The Government has set a target to double the value of New Zealand exports over the next 10 years. That is likely to be challenging given that goods exports as a % of GDP have fallen from about 22% in 2014 to 18% in 2024.
- The marine economy has an important contribution to make towards this goal. Indeed, given the potential for various sub-sectors, we think the marine economy could generate $14bn in services and goods exports by 2035.

	Potential to grow*		
Sub-sector activities	**H, M, L**	**NZ$**	**Comment**
Shipping	M	Exports of NZ$1.4bn by 2030 from NZ$0.8bn in 2023.	Exports of freight and passenger services to grow as trade and tourism continues to expand. Shipping to get an added boost from New Zealand's enviable reputation for excellence in boatbuilding and marine engineering.
Fisheries (wild capture)	L	Exports of NZ$1.9bn by 2028 from NZ$1.6bn in 2023.	Restricted by biological limits to growth in existing habitats, limits imposed by the Quota Management System (QMS), and public disquiet re: environmental damage. Export revenue to grow but only because of demand pushing up prices.
Aquaculture	H	Exports of NZ$3bn by 2035, from $NZ0.6bn in 2023.	Produces high-value products such as mussels, salmon, oysters and paua for the export market. A third of the world's seafood is produced by aquaculture, and that is expected to continue as wild fisheries are increasingly unable to meet growing demand for protein.
Marine services	L	Turnover of NZ$1.7bn in 2030 from NZ$1.6bn in 2023.	Growth potential supported by increased external trade volumes, but increased competition between ports could limit revenue growth.
Marine tourism and recreation	M	Exports of NZ$3.2 bn in 2030 from NZ$2.1bn in 2023.	Reflects post-Covid recovery in visitor arrivals, particularly from China and other Asian countries. Future growth to reflect improved global economic conditions and available capacity. Hospitality and transportation are not directly related but are important for the marine tourist experience.
Offshore minerals	H	NZ$500bn estimated potential of untapped resource. Exports of NZ$2bn in 2035 from NZ$1bn in 2023.	New technologies allow access to untapped seafloor mineral deposits, such as phosphates, sulphide deposits, polymetallic modules and cobalt-rich crusts. New Zealand's EEZ contains large untapped mineral, oil, and gas resources, but feasibility needs to be established, including political and social acceptance.

H = High, M = Medium, L = Low

* The potential to grow refers to the size of the gap between current and future export revenues. In the case of offshore minerals it refers to the size of the untapped resource base.

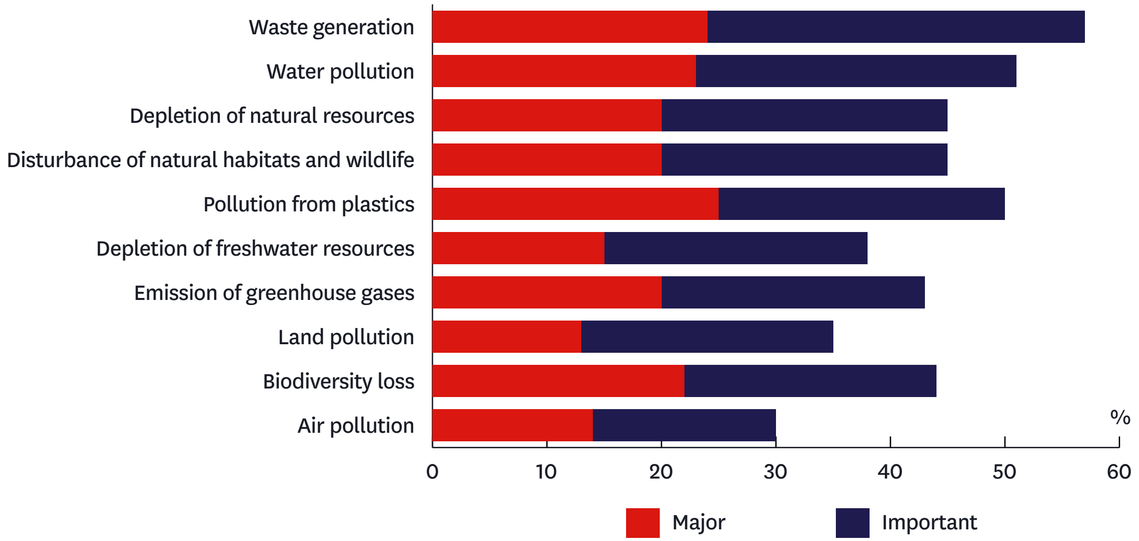
Source: Ministry of Business Innovation and Employment, Ministry of Primary Industries, IBISWorld, Radio New Zealand, Newsroom.

DRIVERS FOR GROWING THE BLUE ECONOMY

Problem statement – Marine ecosystems are at risk.

Survey of OECD countries on the impact of human activity on the marine environment.

"WHAT ENVIRONMENTAL IMPACTS DO MARINE ECONOMY ACTIVITIES GENERATE IN YOUR CITY/REGION?"



Source: OECD Survey (2024)

What is the problem?

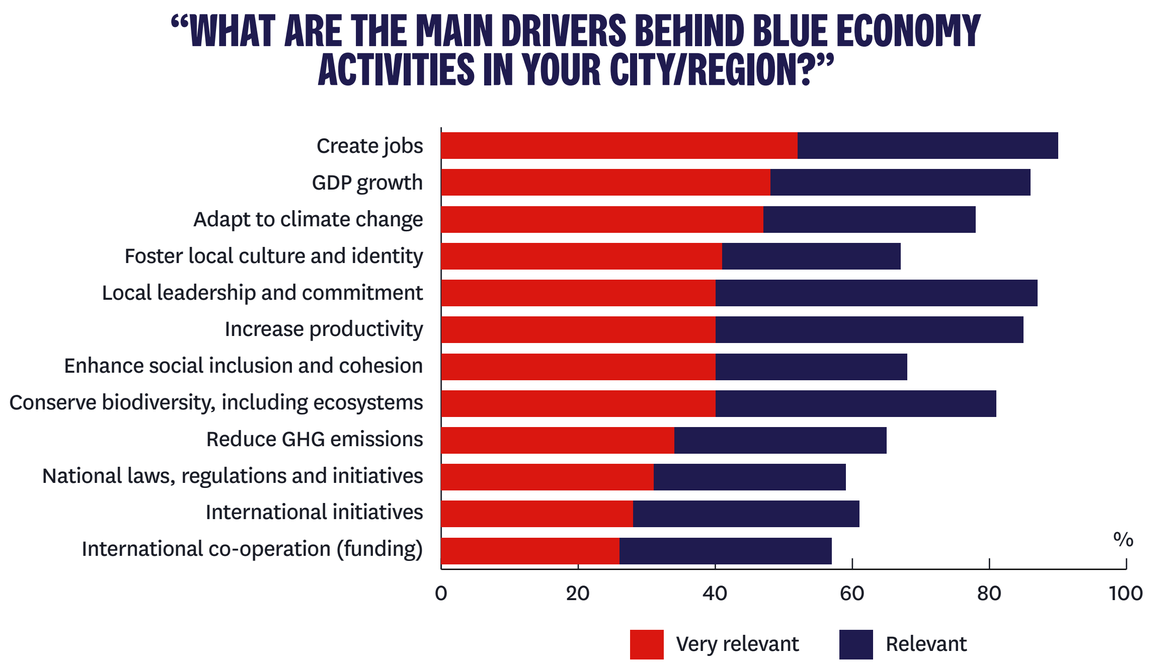
- Human activity – both land and water based – has delivered substantive economic gains.
- But it has also led to a deterioration in the health and stability of marine ecosystems.[1] To that end, concerns have been raised about Government's proposal to fast-track activities, some of which could adversely impact ocean health.
- Negative externalities such as overfishing, sedimentation, rural runoff, habitat degradation, reducing biodiversity, climate change, unfair trade, etc., may reflect market failures that are best addressed through government policy.
- A resulting decline in stream of services from natural capital poses a risk to economic growth, livelihoods and food security. According to the World Bank,[2] the global economy could lose $US 2.7trn by 2030 (compared to business as usual) if certain ecosystem services collapse.
- While coastal communities are mostly at risk, particularly those that are marginalised, impacts will affect all sectors of society.
- The shift towards a sustainable " blue economy" seeks to reverse that situation and actively regenerate the marine environment.

> If we are to achieve a blue economy where economic growth is sustainable, the natural environment has to be healthy.

1 Ministry for the Environment (2019)
2 Open Knowledge Repository

Catalysts for transitioning.

Survey of OECD countries on the impact of blue economy activities by relevance.



Source: OECD Survey (2024)

Transition factors – drivers of change.

- Providing food to a growing global population.
- Climate change mitigation.
- Rising incomes and growing consumer demand for sustainable marine products and services.
- A growing acceptance that the degradation of natural capital assets limits future economic growth potential, with adverse implications for employment, social and cultural wellbeing.
- High-level international/national/regional/local policy agreements and regulations aimed at supporting marine health. New Zealand has a complex legal and regulatory marine management regime with at least 20 pieces of relevant legislation (and that is in addition to international treaties/commitments).
- Increasing pressure from government, regulators, shareholders, investors, and other stakeholders to adopt and report on practices that support marine health. Offshore markets are increasingly regulating for sustainability from source markets - for example, more than 80% of New Zealand's exports by value are now going to countries with mandatory climate reporting regimes.
- Increasing acceptance by firms that operate in the marine economy or rely on those that do, that transitioning to a blue economy delivers opportunities for growth and supports a continued social licence to operate.
- Advances in clean digital technology that support the sustainable use of marine capital assets, help to minimise waste and underpin the adoption of circular economy principles.

> **The ideal model of a blue economy is built around "triple bottom line" decision making, integrating economic, social and environmental needs for optimal benefits all round.**

Underpinning principles for transitioning.

Characteristics of a blue economy transition.

The Sustainable Seas National Science Challenge proposed that any transition to a blue economy should be:

- **Inclusive** – joint decision-making and equitable sharing of benefits with affected communities.
- **Treaty-led** – close alignment with Māori and iwi rights, perspectives and aspirations.
- **Intergenerational** – deliver long-term cultural, environmental and economic benefits by taking a multi-generational approach to investment decision.
- **Prosperous** – encourage the productive, sustainable and resilient resource use that enhances the ocean/ocean-dependent livelihoods.
- **Accountable** – transparent, evidence-based tracking of progress towards an end state.
- **Restorative** – shift away from minimising harms to regenerating or redress of harms to the marine environment.

We would add the following to this list:

- **Undue costs** – financial and non-financial costs of transition should not unduly threaten the viability of firms.
- **Least disruptive** – the transformation required should be orderly and manageable and should take into account the capability of existing and future technologies.
- **Adds value** – delivers measurable value to New Zealand.

These principles provide a guide for:

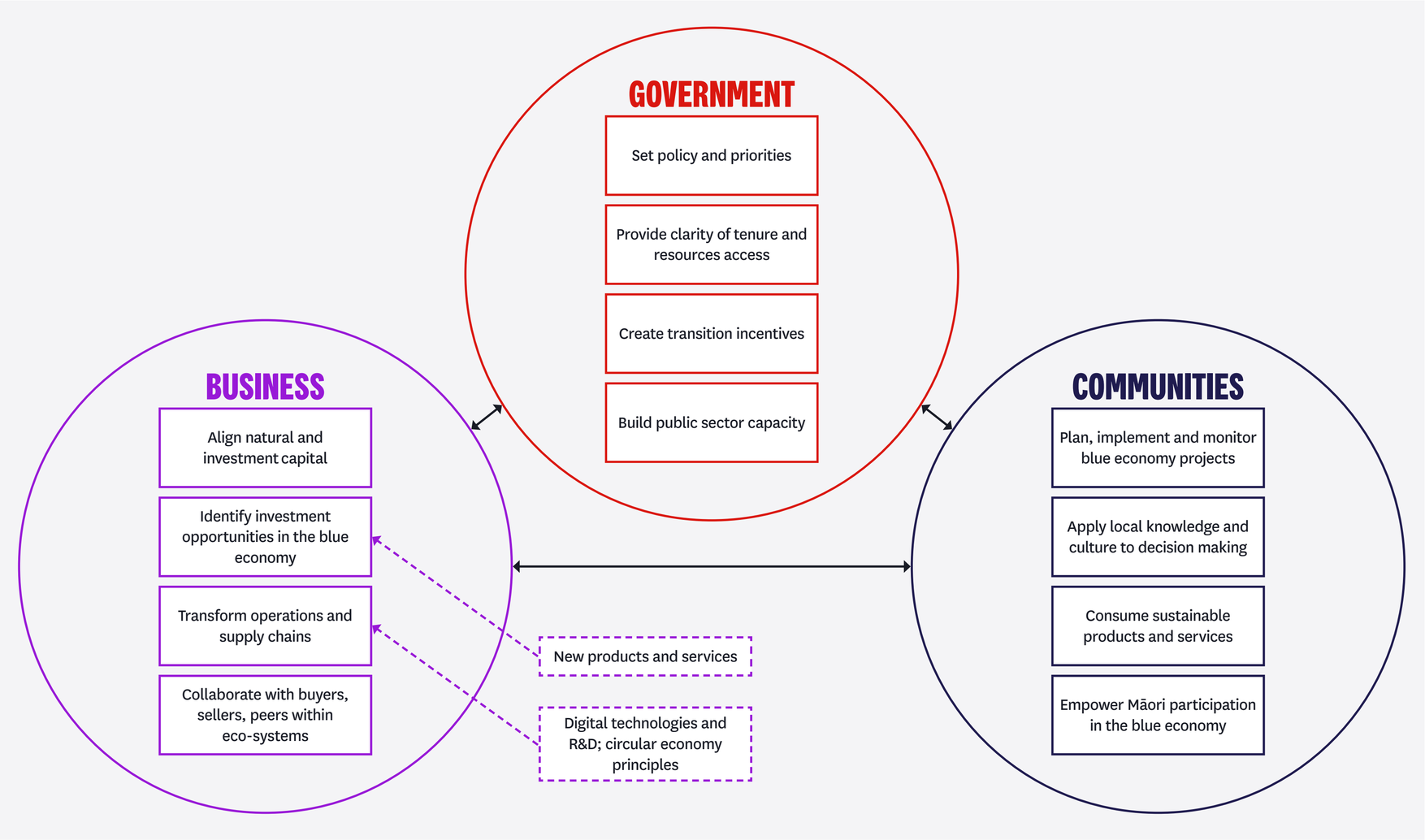
- Effective policy making and priority settings by government.
- Stimulating collective value propositions in regional development strategies.
- Developing supportive planning and consenting in environmental management regimes.
- Firms to develop new business/operating models that leverage off new digital technologies to minimise waste and encourage circularity.

These principles will highlight the importance of:

- Investment, management and regulatory decision-making frameworks.
- Place-based approaches.
- A marine economy that attracts investment because it offers investors and entrepreneurs the opportunity to secure market access and market advantage.
- Aligning diverse values and interests, shaping policy settings and fostering collective objectives and solutions that accord with national and regional economic objectives as well as community concerns.

When applied, these principles will help to effect a “just transition” to a blue economy and support it to become a new normal.”

Transitioning roles.



Source: Westpac

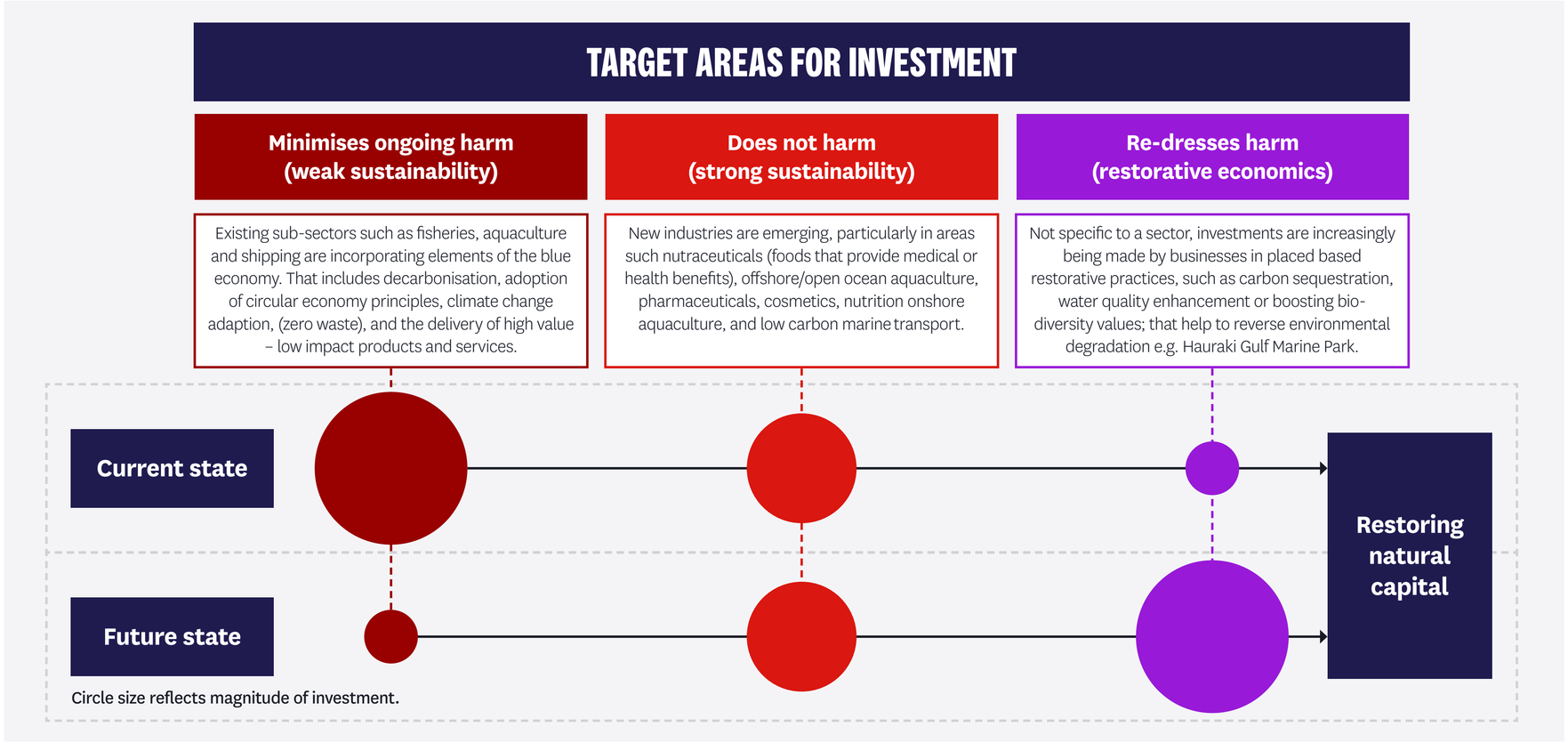
Transitioning to the blue economy requires careful setting of policy and priorities, investment in activities that yield a suitable returns and informed decision making on products and services to be consumed. This requires a different mindset about what value is and how to generate it from marine resources.

This transition will also require increased collaboration and trust between businesses, communities, Māori and iwi and government, as well as investment in institutions and organisations to drive change. Māori and iwi have a unique position in this regard, being part of both business and the community.

OPPORTUNITIES FOR TRANSITION TO A BLUE ECONOMY

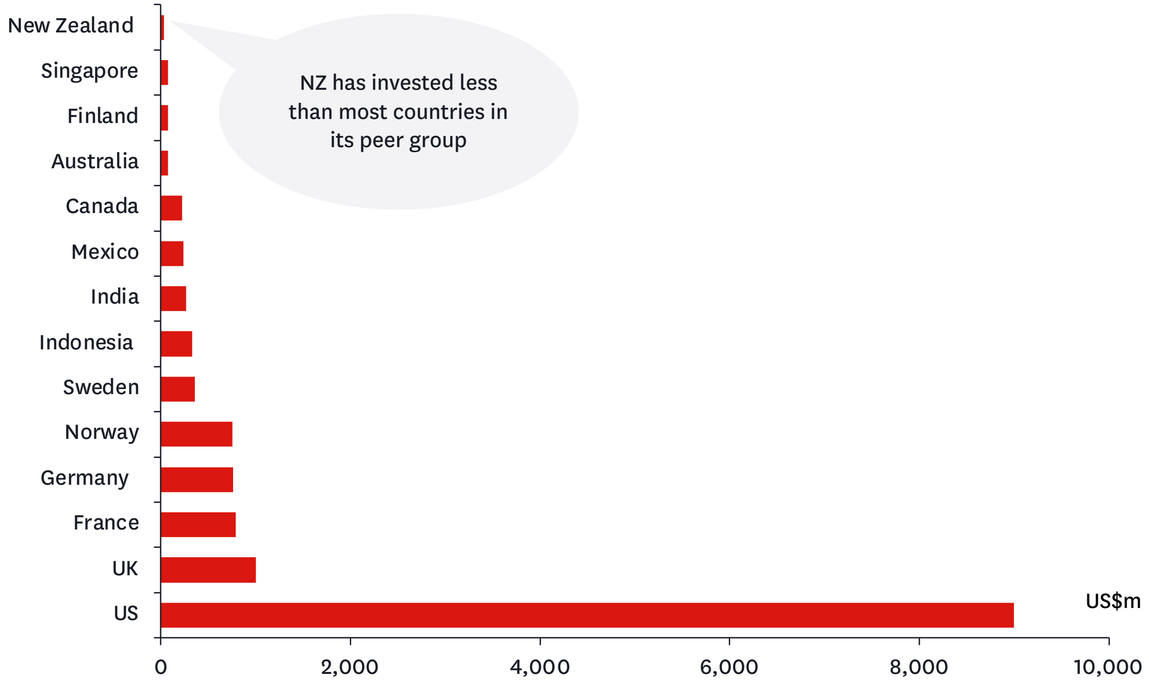
Transitioning to a blue economy – Investment.

Conducive environment supports investment in natural capital.



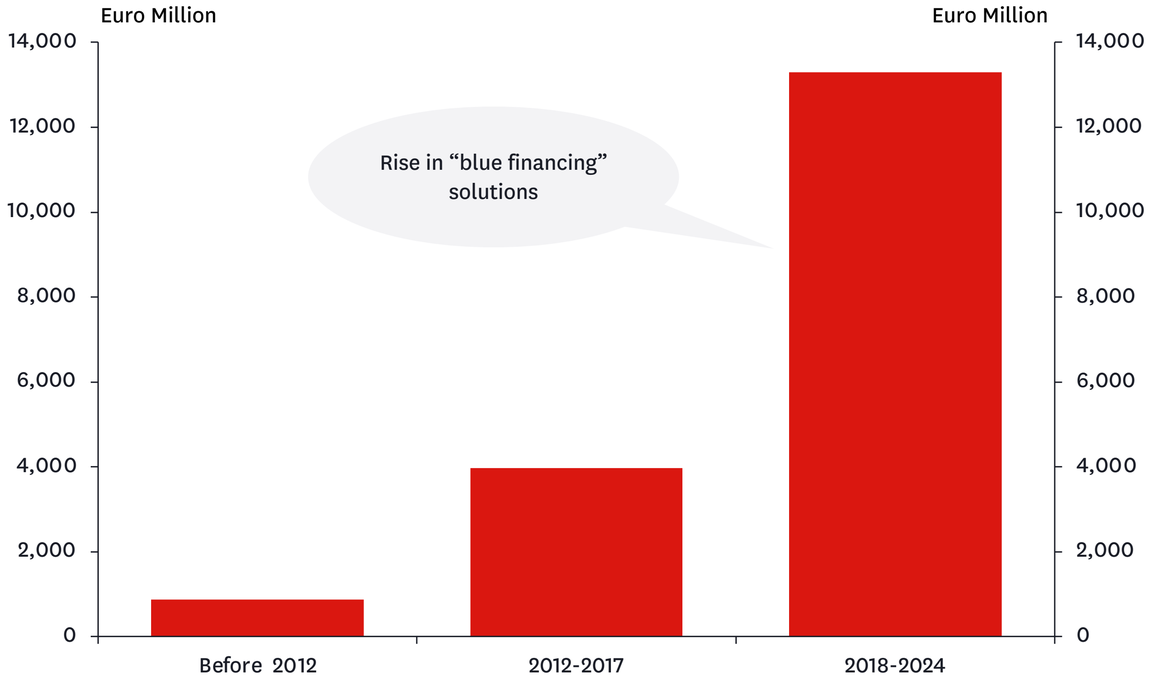
Source: EnviroStrat

Venture capital investment in the blue economy by country (2016 – 2023).



Source: Dealroom.co

Level of investment in the blue economy - EU.



Source: CB Insights, PWC

Novel financing models.

Includes new debt instruments such as blue bonds, e.g. NIB’s Nordic-Baltic Blue Bond, and sustainability linked loans, new approaches to insurance for sustainable ocean activities and new sources of revenue linked to sustainability, such as carbon credits.

Source: OECD

Bond principles.

There are internationally agreed blue bond principles to support a sustainable bond, with several case studies showing blue bonds have a role to play.

Numerous opportunities for moving to a blue economy.

Specific opportunities in existing sub-sectors as well as emerging areas:

Aquaculture.

Open ocean aquaculture which relies on mobile production systems that require minimal human input as well as the integrated multi-trophic aquaculture (ITMA) that includes new farming structures, novel compatible species, and harvesting and culture techniques for multispecies systems. ITMA delivers financial benefits through product diversification, shorter production cycles and price premiums.

Seaweed farming.

Sustainable forms of aquaculture that incorporate the development of cultures, hatcheries, and niche downstream products, from foods and health supplements/ medicines to toothpaste cosmetics and biofuels. Seaweed also is highly efficient at sequestering carbon dioxide from the oceans. Asparagopsis seaweed can also be grown and incorporated into a seaweed-based feed supplement to reduce methane emissions from livestock. Trials by NZ company CH4 have shown this feed can reduce methane produced by cows by up to 90%.

Biotechnology.

That refers to the use of marine living organisms such as algae, for industrial and other purposes, such as the synthesis of novel chemical compounds or exploitation of pharmacological properties. An increasing number of marine compounds are being transformed by blue biotechnology to develop a range of foods and dietary supplements, nutraceuticals; animal feed; cosmetics; fertilisers and biostimulants; biomaterials; bioremediation mechanisms; biofuels or biopharmaceuticals.

Carbon neutral and zero waste sub-sectors.

That includes minimising of waste from commercial marine activities and the use of waste to develop new viable products. Examples include mussel and oyster shell recycling, fishing by-products such as fish skin, and using materials derived from shells in health and beauty products.

Climate change adaptation through coastal wetland and ecosystem preservation.

That includes protection from storms and sea level rise, prevention of shoreline erosion, regulation of coastal water quality, provision of habitat for commercially important fisheries and endangered marine species, and food security for many coastal communities. These ecosystems sequester and store significant amounts of coastal blue carbon from the atmosphere and ocean and are recognised for their role in mitigating climate change.

Offshore renewable energy.

That includes offshore wind (fixed and increasingly floating) and solar power, as well as emerging ocean energy technologies that can harness tidal, wave, and ocean thermal energy conversion. These technologies not only advance the ability of oceans to generate energy, but also provide real-world solutions for decarbonisation and a tangible pathway to net-zero emissions.

Low carbon shipping and water transport.

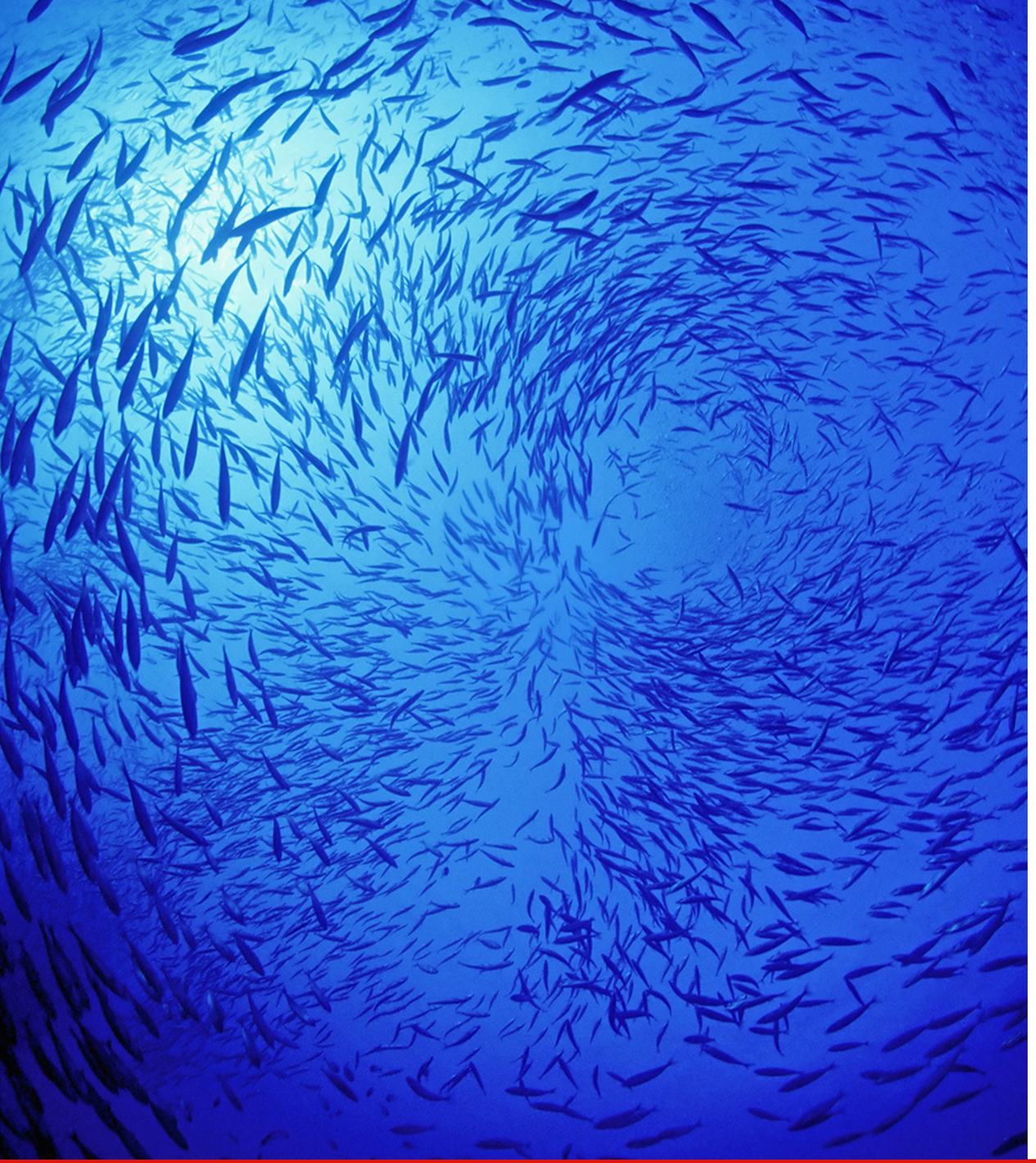
That includes use of electric and/or hybrid power for commuter ferries and/or short transit vehicles, the use of biofuels for longer distance maritime transport as well as the adoption of new propulsion technologies, such as wind assistance to help lower emissions and extend the fuel efficiency of vessels.

Low carbon marine services.

Port infrastructure needs to be in place to support low emissions water transport, while also reducing their own emissions and pollution. Opportunities include port electrification, installing renewable energy microgrids and providing port side charging infrastructure.

Sustainable fishing (wild capture).

That includes introducing new fishing gear to minimise bycatch and introducing full supply chain traceability to mitigate against harmful fishing practices.



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