

LAND	USE
FUTURES	

GLOBAL FOOD AND LAND USE TRANSITIONS



Securing a healthy and productive ocean

GLOBAL FOOD AND LAND USE TRANSITIONS |

Wild-caught seafood and aquaculture today make up about 17 per cent of global animal protein supplies¹. Some countries rely more heavily on seafood, with over three billion people consuming fish for almost 20 per cent of their protein supply², and many relying on oceans as an important source of income³. If done in a sustainable way, increasing the share of protein supplied by fisheries and aquaculture can relieve pressure on the land, delivering environmental benefits while improving human health and food security.

However, presently many of the world's fisheries are fully exploited, over-exploited or depleted. Pressure on fishery resources is compounded by plastic and nutrient pollution, illegal, unreported and unregulated fishing, and degradation of coastal ecosystems that are essential for ocean health. Climate change is exacerbating these pressures on marine ecosystems and reducing the productivity of fisheries⁴.

Increasing ocean-based protein supplies requires reform of both wild fisheries and aquaculture to address unsustainable practices, alongside restoration of essential fish nursery habitats, including estuaries, wetlands, mangroves, seagrass beds and coral reefs.

THE AUSTRALIAN CONTEXT

Australian aquaculture and fisheries are significant regional industries

- Australia's maritime zone is one of the largest in the world, covering around 14 million square kilometres: about double the area of Australia's landmass⁵.
- Wild-catch fisheries are a \$1.79 billion industry, employing 11,000 people⁶. Fishing in Western Australia, South Australia and Commonwealth waters make up more than half of this value⁷.
- Australian aquaculture is valued at \$1.4 billion and growing, employing 6,000 people⁸ and based largely in regional Australia⁹. A third of the aquaculture industry is based in Tasmania (mostly salmon), followed by WA (mostly pearl oysters), SA (largely tuna and other finfish) and Queensland (mostly farmed prawns)¹⁰.
- Australia accounts for just 0.2 per cent of the global wild fish catch¹¹, but it plays a significant role in the export of particular species, such as rock lobsters, abalone and bluefin tuna¹². The value of exports jumped 10 per cent in 2017-18 due to growth in high value exports to Asia such as rock lobster and salmonids¹³, although exports are predicted to shrink as a result of COVID-19¹⁴. Domestically, Australia consumes more seafood than it produces, with 65 per cent of Australia's seafood requirements imported¹⁵.

- Recreational fishing also creates economic and social benefits. An estimated 3.4 million people participate in recreational fishing every year¹⁶, and there is also high participation in Indigenous customary fishing¹⁷ and emerging Indigenous fisheries and aquaculture businesses¹⁸.

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Despite overall improvements in management, some wild-catch fisheries and aquaculture face sustainability challenges

- Over the past decade, the number of Australian fisheries assessed as ‘sustainable’ has increased to cover 85 per cent of fish stocks¹⁹. However, in that time Australian commercial fish catches have declined by over a third²⁰ and many fisheries stocks are still depleted²¹.
- Aquaculture is tightly regulated in Australia²², but issues still arise as a result of inputs of solids and nutrients, the escape of non-native species and disease outbreaks into wild populations, control of predatory species²³, and increased demand for wild-caught fish as feed²⁴.

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Pressure is increasing on Australia’s essential marine ecosystems, and some ecosystems are suffering significant declines

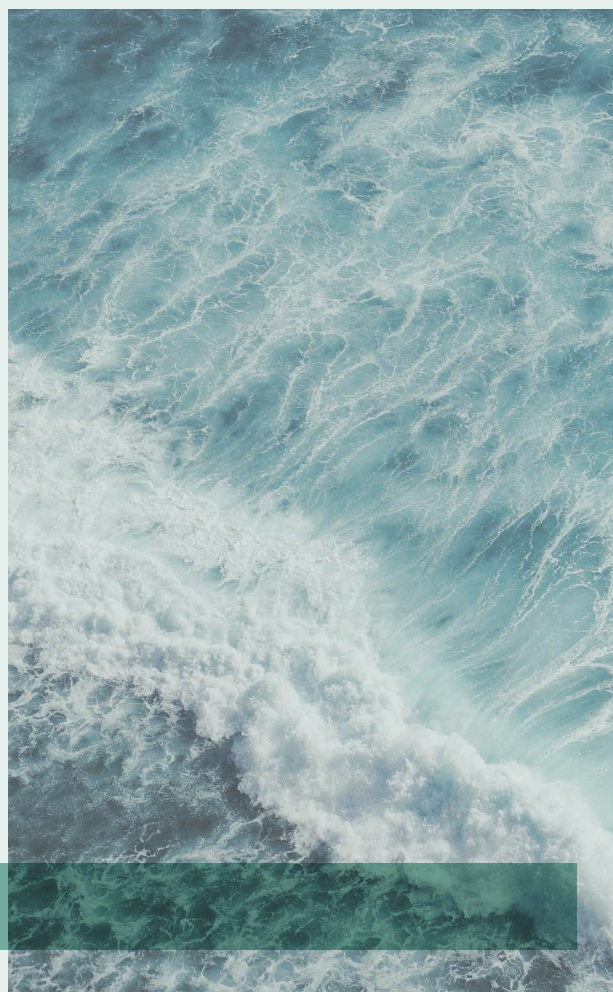
- In addition to providing the ecosystem services that underpin fisheries, Australia’s marine ecosystems are extremely biodiverse, and estimated to hold about 10 per cent of the world’s blue carbon²⁵.
- The status of Australia’s marine ecosystems is mixed. Overall, marine biodiversity is reported to be stable, in part due to large areas with low density of human habitation. However, marine pollution remains a major problem (mainly from urban litter and stormwater, agricultural runoff and industrial pollution), and a number of marine ecosystems have shown significant deterioration in health and sensitivity to climate change impacts²⁶. Coral reefs, seagrass beds, kelp forests and mangroves have been identified as particularly affected ecosystems²⁷.
- The 2016 Federal Government State of the Environment Report repeatedly points to a widespread lack of adequate data and information to enable adequate monitoring of marine ecosystem health²⁸.



CURRENT STATE OF PLAY

Key action areasⁱ for securing a healthy and productive ocean include:

- **REFORM WILD FISHERIES**
to ensure adequate monitoring of fish stocks and impacts of fishing on marine environments, address overfishing of certain species, improve monitoring and certification to ensure supply chain transparency and compliance, and remove perverse subsidiesⁱⁱ.
- **REFORM AQUACULTURE**
to establish the regulatory foundations needed to enable growth, increase investment, boost demand, and address key sustainability issues relating to feeds (often wild-caught fish), waste stream pollution, habitat disturbance and escape of invasive species.
- **RESTORE ESSENTIAL ECOSYSTEMS**, including estuaries, wetlands, mangroves, seagrass beds and coral reefs.



ⁱ Based on the Growing Better report.
ⁱⁱ Perverse subsidies are those that have detrimental environmental outcomes.

KEY ACTION AREA	PROGRESS TO DATE
REFORM WILD FISHERIES	<ul style="list-style-type: none"> ● Despite some improvements, CSIRO has flagged that there is inadequate investment in monitoring the effect of climate change on fish species and on independent estimates of stocks²⁹. ● Technology and gear improvements are being adopted to help vessels avoid sensitive habitats and reduce bycatch³⁰, but this could be accelerated. ● Improved tracking and verification technology, combined with independent certification programs such as Marine Stewardship Council, is being implemented to improve transparency of supply chains, often in partnership with food retailers³¹. WWF is calling for accelerated adoption of Marine Stewardship Council certification, and an independent observer program to ensure compliance³². ● Most of Australia’s fishery subsidies are considered to have negative or uncertain impact on natural capital³³ and Australia has not signed up to a UN roadmap to end unsustainable fishing subsidies³⁴. ● The National Fishing and Aquaculture Research Development and Extension Strategy, implemented by the Fisheries RDC, identifies sustainability of fishing and aquaculture as a priority³⁵. ● Australia is an active participant in the regulation of international fisheries via regional fisheries management organisations³⁶. ● The Australian Government is developing a National Fisheries Plan, due to be completed in late 2021.
REFORM AQUACULTURE	<ul style="list-style-type: none"> ● The 2017 National Aquaculture Strategy aims to double the value of Australian aquaculture to \$2 billion per year by 2027, and identifies improving environmental sustainability as one outcome area³⁷. ● The Blue Economy CRC has been established to support the commercialisation of offshore integrated aquaculture and renewable energy operations, including investigating sustainability of these solutions³⁸.
RESTORE ESSENTIAL ECOSYSTEMS	<ul style="list-style-type: none"> ● A range of catchment management and water quality improvement measures have been implemented at state and territory level, such as the Great Barrier Reef Water Quality Improvement Plan³⁹. ● Marine protected areas exceed the 10 per cent Aichi protection target, however only 40 per cent of these are subject to strict ‘no-take’ protection⁴⁰. These have also been criticised as not protecting a representative range of marine ecosystems, or areas with activities that are particularly detrimental to biodiversity (e.g. the continental shelf)⁴¹. Overall, protection falls well short of the proposed 30 per cent protection target in the draft text of the proposed new Convention on Biological Diversity⁴². ● Oceanwatch (Australia’s national marine NRM organisation) has called for a coordinated national investment in estuarine rehabilitation⁴³. ● The National Marine Science Plan (NMSP) provides a range of recommendations that would enable science, knowledge, technology and innovation to grow a sustainable blue economy⁴⁴.



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FOR MORE INFORMATION

The Land Use Futures program is working to adapt the global transitions to reflect Australia's unique national and regional circumstances, and identify key actions to accelerate the transition. This paper is the first step in that process.

Find out more about Land Use Futures by visiting our website: www.climateworksaustralia.org/project/land-use-futures

The Land Use Futures program is led by ClimateWorks Australia (working within the Monash Sustainable Development Institute), Deakin University and CSIRO.

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