Marine Conservation Leadership: Does Australia Deserve a Spot on the Podium?

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Abstract
Australia's marine biodiversity is unmatched, and its conservation has been prominently championed over the past three decades by successive Federal and State governments, who have consistently portrayed the nation as a global leader in marine protection. Here, we question whether this reputation is justified. We highlight substantial—and in some cases catastrophic—declines in marine species and ecosystems, linked to failures in marine protected area placement and management, fisheries policy, climate change, and water quality regulation. We argue that Australia must strategically expand its network of marine protected areas, prioritising regions critical for biodiversity and ensuring effective management. This must be complemented by robust policies that promote the sustainable production and consumption of seafood and address the urgent challenges posed by climate change and pollution. Only through such comprehensive and coordinated action can Australia genuinely claim a leadership role in global marine conservation.

Introduction

Australia's marine environment is remarkable, spanning all five of the world's climate zones, from the coral rich tropics to the icy shores of Antarctica (Reeves et al., 2013). Six national marine areas have received UNESCO World Heritage status, the highest of any country. This includes the largest living structure - the Great Barrier Reef (GBR) - and the most intact sub-Antarctic marine ecosystems on the planet. With at least 33,000 marine species found within the nation's boundaries (Butler et al., 2010), Australia is not only the most biodiverse marine nation but contains the most endemic marine species (Roberson et al., 2021; Hoese et al., 2006; Derrick et al., 2020). Blessed with extraordinary marine biodiversity, Australia's approach to managing its marine ecosystems is clearly critical to global efforts aimed at achieving positive marine conservation outcomes.

For over three decades, successive Federal and State governments have claimed a global leadership role in ocean conservation (Figure 1). For instance, in 1998 Australia's then prime minister made this declaration with the release of the nation's Ocean Policy: "we again demonstrate our world leadership" (Beringen et al., 2022). It was then repeated by the New South Wales Environment Minister at the World's Park Congress in 2014, and again by the federal Environment Minister in 2021 with the Ocean Leadership Package, and most recently by the most recent federal Environment Minister at the 2024 Global Nature Positive Summit. All these declarations reflect pride in how well Australian government actions are doing to protect one of the most unique and biodiverse marine estates on the planet (Williams et al., 2017).

Australia's ocean conservation claims have largely gone unchallenged. In this perspective, we critically examine whether Australia warrants a position on the 'ocean conservation leadership' podium. We first summarise key contemporary changes in Australia's marine biodiversity that have occurred over the period in which these Federal and State Government claims have been made. We then examine a range of policies implemented by successive Australian governments that, in effect, commit the nation to continued biodiversity loss. Finally, we outline a selection of critical solutions that Australia can adopt to address these challenges and legitimately reclaim its position as a global leader in marine conservation.

The sorry state of Australia's marine biodiversity

Starting in 1996, The State of the Environment Report, Australia's first comprehensive assessment of the health of Australia's environment, identified the loss of biodiversity as "our most serious environmental problem", which specifically noted losses to coastal ecosystems (Figure 1). Since then, declines in marine biodiversity have been documented at all latitudes (Figure 2; F. Recher H., 1997). In the south, for example, at least 95% of Tasmania's kelp forests have been lost since the late 90s (Butler et al., 2020 ; Ling & Keane, 2024). Across the temperate east coast waters, 99% of natural oyster reefs are considered functionally extinct (Beck et al., 2011). In the north, half of the GBR's coral cover was lost between 1995-2017 (Dietzel et al., 2020), a period with only two (of five to date) mass bleaching events. The last three mass bleaching

events caused some of the GBR's biggest declines in 39 years (Hughes et al., 2017; Emslie et al., 2024; AIMS, 2024; Berkelmans et al., 2004 ; Henley et al., 2024).

Given broadscale ecosystem declines, it is no surprise that many marine species are in serious trouble. The most comprehensive assessment of Australia's marine species population trends to date found that 57% of reef species declined between 2011-2021, which included 1,057 vertebrates, invertebrates, and macroalgae (Edgar et al., 2023). Populations of 28% of these species declined by over 30%, including endemic species, which qualifies them to be listed under the IUCN Red List of Threatened Species. Notably, more than 30% of shallow invertebrate species in cool latitudes exhibit high extinction risk (Edgar et al., 2023). Another metric - Australia's Threatened Species Index - determined that marine bird populations declined by 37% between 2000-2022 (Bayraktarov et al., 2021). In 2020, the first marine fish in the world was classified as extinct by the IUCN Red List: the smooth handfish (Sympterichthys unipennis), a fish endemic to Australia. An unfortunate fate that the Maguean skate (Zearaja maugeana), also an Australian endemic, is facing primarily due to salmon farming practices in Macquarie Harbour (DCCEEW, 2023). Finally, with the Queensland Government's 2025 announcement to invest $88 million in expanding their shark control program (involves extensive network of nets and baited hooks to catch and kill sharks to minimise shark bites at popular beaches), threatened sharks and other non-target threatened species (e.g., turtles, whales, dugongs, etc) will continue to decline.

Why is this situation so bad?

Here we outline some of the reasons why the degradation of marine ecosystems and species are occurring when considering the actions undertaken by different governments in four major areas: marine protected areas, fisheries management, climate change, and water quality.

Ineffective marine protected areas

Marine protected areas (MPAs) are fundamental to any marine conservation strategy aimed at mitigating pressures from extractive activities such as overfishing and seabed mining, and in safeguarding marine biodiversity (Roberts et al., 2020a). In 2010, Australia committed to the Convention on Biological Diversity (CBD), which calls for an effectively managed network of MPAs that adequately represents marine biodiversity. At first glance, Australia appears to have fulfilled these commitments (Figure 2). Since the establishment of the National Representative System of MPAs in 2012, approximately 52% of Australia's marine and coastal areas are now designated as protected (UNEP-WCMC and IUCN, 2024). However, this headline figure is misleading (Davey & Watson, 2025). More than half of Australia's MPAs still permit extractive activities such as commercial fishing and oil and gas exploration, rendering many of them 'paper parks'—protected in name only (Grorud-Colvert et al., 2021; Pike et al., 2024; Roberts et al., 2024). Highly protective MPAs—those that restrict these activities—are often located in remote areas with minimal human activity, thereby avoiding economically valuable regions (Cockerell et al., 2020; Pike et al., 2024). As a result, critical habitats that underpin Australia's exceptional marine biodiversity remain under-protected (Devillers et al., 2015; Davey & Watson, 2025). A wide range of ecosystems essential for biodiversity conservation, including shallow coastal zones, submarine canyons, seamounts, and rocky reefs on the continental shelf, continue to be poorly represented in the MPA network (Cresswell et al., 2021; Barr & Possingham, 2013; Cockerell et al., 2020; Davey & Watson, 2025). Furthermore, the current network of MPAs lacks sufficient functional connectivity (REF), a key requirement for conserving non-migratory and range-restricted species, particularly in the face of accelerating climate change (Roberts et al., 2020b).

Lacklustre fisheries management

The Commonwealth, states, and territories, share fisheries management responsibilities and there have been numerous plans generated for sustainable and healthy fisheries (Commonwealth of Australia, 2022). While at face value this spread of responsibility should be positive, there are now stark discrepancies in

management effectiveness among different fisheries (e.g., state versus Commonwealth) (Hill et al., 2023). In fact, a recent global assessment gave Australian fisheries an overall score of 'D' (Minderoo, 2021). An increasing number of Australian fish stocks are classified as overfished or subject to overfishing, with some remaining in this state for decades despite management plans (Butler et al., 2024). Fisheries-independent data point to excessive fishing as a major driver of declines (Edgar et al., 2018), especially for blue warehou *(Seriolella brama),* redfish (*Centroberyx affinis*) and school shark *(Galeorhinus galeus*), demonstrating that management interventions have repeatedly failed to meet rebuilding targets (Butler et al., 2024). The reality is that the situation is likely worse as 15-30% of Australia's commercial catch remains unassessed (FRDC, 2024 ; Minderoo, 2021) and considerable volumes of unassessed species are landed or discarded at sea (FRDC, 2024 ; Minderoo, 2021; Butler et al., 2024). Further, studies have indicated underperformance in important areas such as failure to: transition to ecosystem instead of single-species management, implement fishery-independent monitoring, manage bycatch and discards, provide transparent of stock assessment and decision-making processes, plan for climate change, and implement legitimately precautionary management (Edgar et al., 2018 ; Cope et al., 2023 ; Hill et al., 2023).

Australia's recreational fishing is also posing an increasing threat. An estimated 15-20% of Australians participate in recreational fishing (Arlinghaus et al., 2019), and for some stocks, recreational harvest likely exceeds commercial catch (Lyle & Tracey, 2016). Despite its scale, recreational fishing remains poorly monitored (Arlinghaus 2019; Lyle &Tracey 2016). In some states (e.g. South Australia, Queensland), recreational fishing licenses are not required. Recreational fishing has a strong political backing in Australia due to the influence of hunting, shooting, and recreational fishing-oriented political parties. The tension and competition between recreational and commercial fishing sectors is a major obstacle to improving their management, which, combined with the broader lack of political will to pursue innovative reforms in commercial fisheries, stalls efforts to address persistent and systemic problems (Edgar et al., 2018; Emery et al., 2017 ; McShane et al., 2021).

Inadequate climate change commitments

Climate change policy in Australia has been highly politicized for over two decades. There have been frequent changes in government, and different parties have taken very different approaches to climate action (Smith & McMaugh, 2023). This has led to inconsistent policy. For example, while there have been some efforts to address climate change under the current Labor government, previous conservative governments were criticized for their limited action and lack of strong commitments (Crowley, 2021).

The current Australian Government has a goal of achieving net zero emissions by 2050. As part of this, they have set an emissions reduction target of 43% below 2005 levels by 2030 (DCCEEW, 2022) and made renewable energy commitments, including Future Made in Australia Bill of 2024. However, the current emission reduction target is consistent with a 2°C warming pathway, which equates to the loss of 99% of the world's coral reefs, including The Great Barrier Reef (Dixon et al., 2022). This lack of action to reduce climate change has contributed to UNESCO proposing that The Great Barrier Reef World Heritage Area, the world's exemplar marine park, be classified as "in danger" - not once but twice (Guest, 2021 ; Henley et al., 2024).

Australia also has a history of making land management decisions that are inconsistent with their climate commitments. For example, Australia has one of the highest rates of land clearing in the world, accounting for up to 12% of the country's total emissions in some years (Pacheco et al., 2021 ; Greenhouse Office, 2000). Also, Australia is one of the world's biggest producers of coal (which, when burnt, is a primary driver of emissions), and continues to approve coal mines (IEA, 2024; DCCEEW, 2025a). In 2024, the

Environment Minister recommended a “greenfield” coal mine be approved in Queensland and approved the extension of three others (DCCEEW, 2025b ; ABC, 2024).

Water Quality Management

Australia’s first SOE Report (1996) stated: “The most serious issue affecting Australia’s marine and coastal environments is the decline in water quality caused by rising levels of nutrients and sediments.” The recognition of this issue prompted numerous national (e.g., National Environment Protection Council, National Water Quality Management Strategy) and catchment-level management initiatives directed at coastal water quality improvement in Australia (Graham & Schempp, 2011). However, the lack of long-term monitoring and inconsistent monitoring approaches for Australia’s coastal waterways makes it difficult to determine if there is any improvement in coastal water quality across most regions of Australia (Cresswell et al., 2021).

Water quality has been identified as one of the most significant threats to the GBR (MacNeil et al. 2019; Waterhouse et al. 2024). Despite significant investments in GBR water quality management, land management practices and catchment modifications continue to impair reef water quality. For instance, gully erosion accounts for about 50% of the total sediment export, yet only 5% of all funding for water quality management has been allocated to gully remediation. As noted in the 2024 Scientific Consensus Statement: “While several land management practices and remediation actions are proven to be cost-effective in improving water quality, translating these into more substantial pollutant reductions will require significant scaling up of the adoption of these actions [and] prioritisation of pollutant hotspots” (Waterhouse et al., 2024).

Water quality issues are not limited to the GBR. Australia has experienced several high-profile pollution events, including coral disease linked to dredging in Western Australia (Pollock et al., 2014), beach closures in Sydney due to suspected sewage contamination, and insufficient penalties for industrial oil spills. Heavy metal pollution is also a pressing issue in Australian coastal ecosystems. Median lead concentrations in Australia are up to five times higher than those in Europe and North America, while median copper levels are twice as high as those in North America (Huber et al., 2016). Regions such as New South Wales coastal waters and Moreton Bay (Queensland) have been subjected to elevated loads of lead, zinc, cadmium, and nickel. These pollutants stem from wastewater discharge, urban expansion, land development, and industrial activities (Jahan & Strezov, 2018; Morelli et al., 2012 ; Maxwell et al., 2020 ; Abal & Dennison, 1996 ; Saeck et al., 2019).

A key challenge in managing water quality in Australia is the non-binding nature of national guidelines. The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018) do not have legal status, leaving pollution regulation to individual states. This has resulted in inconsistent approaches across the country—South Australia, for example, has well-defined regulations and compliance mechanisms, whereas other states have limited legislation governing coastal and marine water quality.

How can Australia earn a leadership position in marine conservation?

We believe Australia’s current policies and commitments to mitigating the primary threats to its marine biodiversity – climate change, overfishing, and water quality - do not warrant a position on the podium for global marine conservation. Given the recent release of the Samuel Review - an independent review that assessed Australia’s primary environmental legislation (Samuel, 2020) as outdated and ineffective at protecting Australia’s biodiversity – this should not come as a surprise to those in government leadership positions. The marine leadership claims might be an exercise in smoke and mirrors, made to mask other decisions that are not consistent with marine conservation leadership (Figure 1). For example, in 2024 the Minister’s marine leadership claim was made less than two weeks after she approved the expansion of three

coal mines. Here, we outline actions Australia must take to earn a legitimate place on the global marine conservation podium, focusing on four key areas: marine protected areas, seafood production and consumption, climate change, and marine water quality.

Achieve an ecologically representative network of marine reserves in places that are good for biodiversity and abate threatening processes that cause biodiversity endangerment

To be a leader in marine conservation, Australia's MPA estate should be ecologically representative, protect areas of significant biodiversity, and mitigate the threatening processes driving species endangerment and ecosystem decline - planning concepts that has been foundational for decades (ANZECC, 1999; Cocks & Baird, 1989; Margules & Pressey, 2000; Watson et al., 2023). We argue that at least 30% of each of Australia's 41 provincial bioregions, depth ranges (especially coastal and shelf areas), biological features (e.g., seagrass), and all 21 types of seafloor features must be protected within a no-take marine reserve by 2030 (Parks Australia, 2024). Ideally Australia would undergo a scientific process to determine the exact amount needed for effective protection of each biological feature (Watson et al., 2023); but until then, broad, ambitious representation targets are the only way to address the current MPA network biases (Barr et al., 2013 ; Davey & Watson, 2025; Kuempel et al., 2016). Furthermore, zones vital for the functional connectivity of species and the persistence and recovery of threatened marine species need to be included in the design(Goetze et al., 2021). Only through targeted and adequately funded protection of ecologically significant areas will Australia realise meaningful biodiversity outcomes and fully deliver on the components of Target 3 under the Global Biodiversity Framework (Watson et al., 2023).

Produce and consume sustainable seafood

To be a leader in marine conservation, Australia needs to have policies and practices that support both the sustainable production and consumption of seafood, goals core to Australia's Fisheries Policy, the United Nations 2030 Sustainable Development Goal, to which Australia subscribes, and GBF Target 16.

Australia's fisheries and environmental policies require coordination and consistency to ensure that seafood produced in Australia does not harm threatened marine species assessed by Australia's Threatened Species Scientific Committee (Dominguez-Martinez et al., 2024b). For example, the Committee assessed salmon farming in Macquarie Harbour (Tasmania) as 'catastrophic' to the endangered and endemic Maugean Skate – a finding that should trigger action. In another example, Australia allows commercial fishing of seven threatened species listed under the EPBC Act, including Blue Warehou, which was assessed as critically endangered. Stricter regulations on fisheries that target or incidentally catch threatened species should be required, in addition to investment in new, innovative fisheries management approaches (Roberson & Wilcox, 2022).

Australia must raise all its commercial and recreational fisheries—regardless of their size, value, and jurisdiction—to a level consistent with the best international management standards (Arlinghaus et al., 2019; Hilborn et al., 2020). Achieving these goals will require smart investment in streamlining, modernizing, and enforcing Australia's fisheries management measures. There are clear actions well within Australia's reach, such as building technical capacity to address the current shortage of analysts with the advanced skills necessary to support effective management (Cope et al., 2023 ; Edgar et al., 2018).

Even if all of the seafood produced in Australia was sustainable, the seafood consumed in Australia is not necessarily sustainable due to international trade. Roughly 70% of the seafood consumed in Australia is produced outside of Australia, mostly in countries that face substantial sustainability challenges, including high risk of illicit fishing practices that harm marine ecosystems and catch of endangered species (Dominguez-Martinez et al., 2024; Roberson et al., 2020). Existing regulations for the international trade of

seafood—including minimizing the prevalence of products from illegal, unreported, and unregulated fishing — requires reform (Roberson et al., 2025), which should include certification schemes, stricter labelling laws, improved traceability systems, and increased support for exporting countries to strengthen their fisheries management.

Generate robust climate policy that is consistent with global ambitions
Long-term leadership in marine biodiversity conservation is only possible if Australia also adopts a more robust climate policy. It is essential that the nation takes a leading role in delivering on the Paris Agreement—aiming to limit global warming to well below 2°C, and pursuing efforts to cap it at 1.5°C. Achieving this will require a comprehensive, multi-pronged approach, including raising Australia's emissions reduction targets, accelerating its net-zero commitment, reversing deforestation, decarbonizing the economy (e.g., by scaling up renewable energy), and incentivizing landowners to restore and protect carbon-absorbing ecosystems. Notably, as one of the world's largest coal producers, Australia cannot credibly claim climate or marine conservation leadership without a clear pathway to phasing out coal mining.

Improve coastal water quality
Despite significant investments in water quality improvement programs across Australia, including the GBR, these efforts remain insufficient to meet the scale of the challenge (Kroon et al., 2016 ; Brodie et al., 2019). Where water quality outcomes have improved in other regions globally, strong national regulatory frameworks have played a pivotal role. These frameworks typically mandate enforceable water quality standards, support multi-level governance structures, and ensure coordination among all relevant stakeholders (Thompson-Saud & Wenger, 2022). In contrast, Australia relies on non-binding national guidelines and delegates responsibility for managing pollution to individual states, resulting in inconsistent protections across jurisdictions. Australia should draw from international models, such as the U.S. Clean Water Act and the European Union's Water Framework Directive, to design a national-level program that sets minimum standards and supports state implementation.

The GBR's Scientific Consensus Statement provides a robust foundation for improving coastal water quality management more broadly across Australia. Among its key recommendations are the need to significantly scale up the adoption of proven land management practices, prioritize interventions in pollution hotspots, and improve understanding of the costs and co-benefits of different mitigation strategies (Waterhouse et al., 2024). Moreover, locally effective and collaborative approaches, particularly those that engage landholders, Indigenous communities, the broader public, scientists, and policymakers, are critical for accelerating uptake and securing long-term improvements.

A critical enabler of more effective water quality management is the availability of consistent, long-term monitoring data that is publicly accessible and comparable across regions. Currently, monitoring efforts in Australia are fragmented and inconsistent, making it difficult to assess trends, evaluate program effectiveness, or coordinate responses at the national scale. A national monitoring framework should be developed to harmonize methodologies, improve data interoperability, and ensure that results are transparently shared. This would support evidence-based decision-making, enable timely adaptive management, and foster accountability across all levels of government and sectors.

Although the GBR has seen the most sustained effort in water quality management, other coastal ecosystems across Australia face similar threats and deserve equal attention. The GBR's Scientific Consensus Statement and associated monitoring programs can serve as a template for evaluating water quality efforts nationwide. Applying this level of scrutiny and coordination to other regions would provide a sound basis for improving policy coherence and developing robust, enforceable national standards to protect all of Australia's coastal and marine environments.

Conclusions

The sheer number of plans and policies relevant to managing Australia's unique marine environment demonstrates that the Government has had good intentions. These intentions have led to some outstanding outcomes for marine biodiversity including: representative marine protected area networks in places like the GBR (Fernandes et al., 2007), recovery of marine mammals by 67% (Bayraktarov et al., 2021), delisting of Southern Bluefin Tuna as a threatened species in 2024 due to effective management, high sustainability standards for high-value export-oriented fisheries (Nilsson et al., 2019), bold fisheries management to phase out destructive high-bycatch fisheries in the GBR (Department of Primary Industries, 2025), and moderate progress on improving water quality in the GBR (Waterhouse et al., 2024). Without question, these outcomes reflect leadership by The Australian Government in marine conservation. However, given the mounting threats and declining state of marine biodiversity, Australia must do more. Australia has the capacity to lead the world in marine conservation and rightly earn a leadership position.

Consistent with our ineffective environmental legislation – The EPBC Act – Australia is overwhelmed with biodiversity, water quality, fisheries, and climate plans and strategies that are ineffective at managing threats to our unique biodiversity (e.g. National Biodiversity Strategy and Action Plan, Sustainable Ocean Plan)(Samuel, 2020). Although our management recommendations are not comprehensive, we believe that they are achievable and, if adopted, would put Australia on the forefront of marine conservation. They are tangible and achieve plans that any government can adopt. If Australia continues with their 'business as usual' approach to marine conservation, we are setting a dangerous precedent and risk other nations following our example (Pike et al., 2024).

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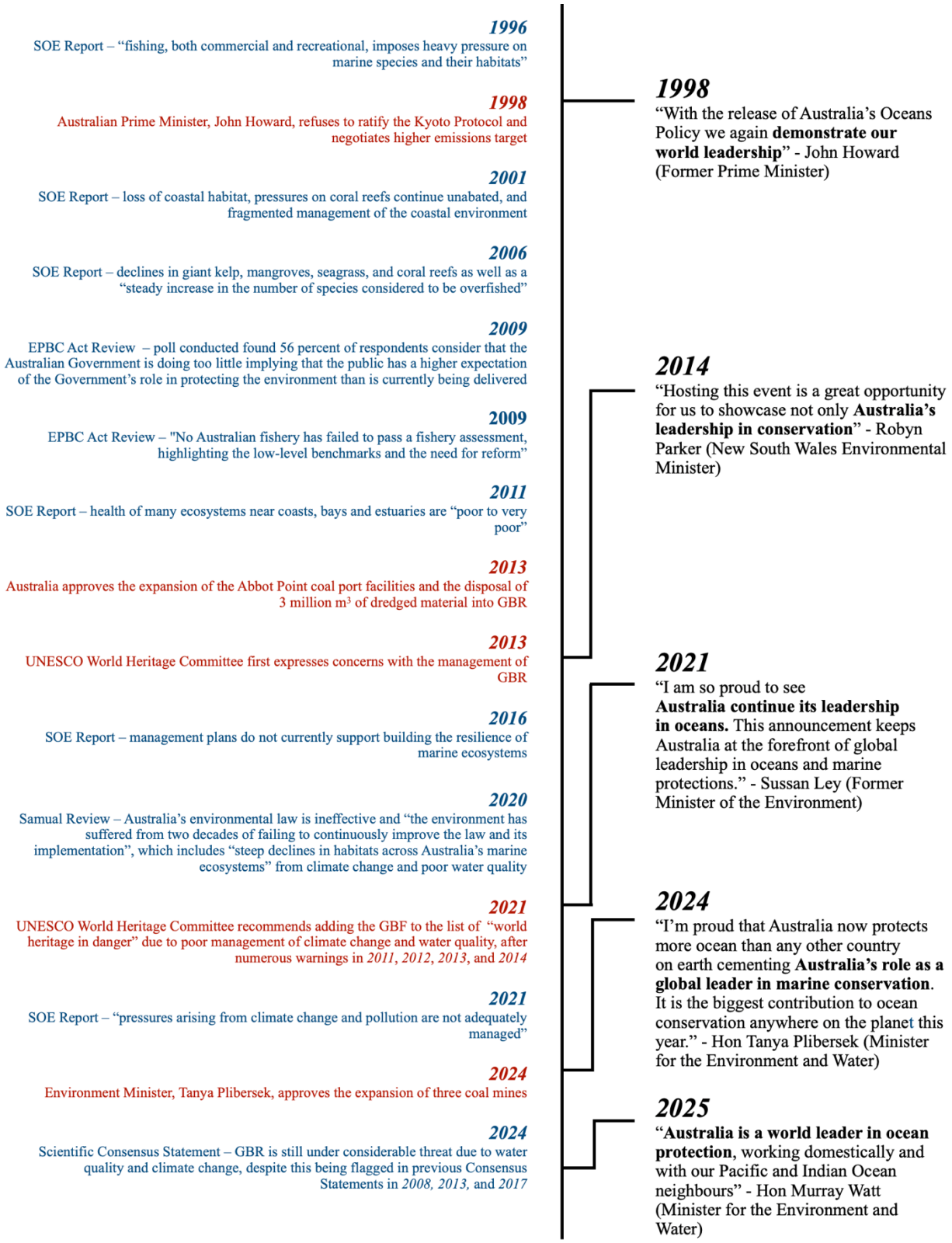

Figure 1. A timeline of marine leadership claims (right) despite contrary policy decisions and evidence from comprehensive assessments of Australia's environment (left), including Australia State of Environment (SOE) Reports. A selection of policy decisions and excerpts from environmental assessments are shown.

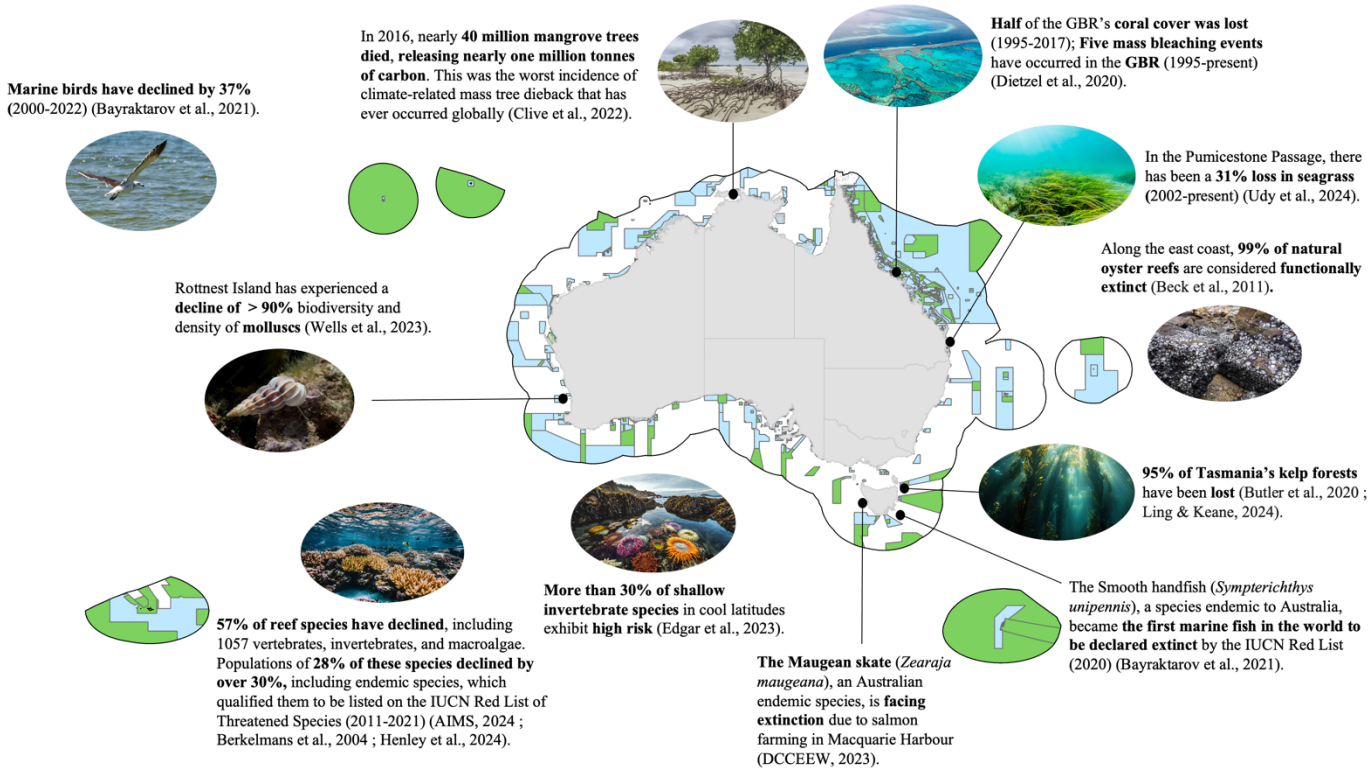

Figure 2. Marine species and ecosystems are in decline across Australia (examples shown), despite an extensive network of marine protected areas (no-take reserves are green, remaining MPAs are blue). Images are from Adobe Stock, acquired through a Creative Cloud Educational License. Data sources: Collaborative Australian Protected Areas Database (2024), Geoscience Australia (2025), Department of Biodiversity Conservation and Attractions (2024).

References

Abal, E. G., & Dennison, W. C. (1996). Seagrass depth range and water quality in southern Moreton Bay, Queensland, Australia. *Marine and Freshwater Research*, *47*(6), 763–771. https://doi.org/10.1071/MF9960763

ABC. (2024). Tanya Plibersek says no new coal mine approvals this year after approving extensions - ABC News. Retrieved May 21, 2025, from https://www.abc.net.au/news/2024-12-19/tanya-plibersek-says-no-new-coal-mine-approvals-under-albanese/104748400?utm_campaign=abc_news_web&utm_content=link&utm_medium=content_shared&utm_source=abc_news_web

ANZECC. (1999). Australian and New Zealand Environment and Conservation Council (ANZECC) Task Force on Marine Protected Areas 1999, Strategic Plan of Action for the National Representative System of Marine Protected Areas: A Guide for Action by Australian Governments. Environment Australia, Canberra.

ANZG. (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra, ACT, Australia. Viewed May 27, 2025, https://www.waterquality.gov.au/anz-guidelines/about/how-to-use

Australian Institute of Marine Science (AIMS). (2024). Long Term Monitoring Program Annual Summary Report of Coral Reef Condition 2023/24. Townsville, Australia. CC BY 4.

Arlinghaus, R., Abbott, J. K., Fenichel, E. P., Carpenter, S. R., Hunt, L. M., Alós, J., Klefoth, T., Cooke, S. J., Hilborn, R., Jensen, O. P., Wilberg, M. J., Post, J. R., & Manfredo, M. J. (2019). Governing the recreational dimension of global fisheries. *Proceedings of the National Academy of Sciences of the United States of America*, *116*(12), 5209–5213. https://doi.org/10.1073/PNAS.1902796116/ASSET/59934DDF-7386-4DC9-879C-3094B3E039B5/ASSETS/GRAPHIC/PNAS.1902796116FIG03.JPEG

Barr, L. M., & Possingham, H. P. (2013). Are outcomes matching policy commitments in Australian marine conservation planning? *Marine Policy*, *42*, 39–48. https://doi.org/10.1016/J.MARPOL.2013.01.012

Bayraktarov, E., Ehmke, G., Tulloch, A. I. T., Chauvenet, A. L., Avery-Gomm, S., McRae, L., Wintle, B. A., O'Connor, J., Driessen, J., Watmuff, J., Nguyen, H. A., Garnett, S. T., Woinarski, J., Barnes, M., Morgain, R., Guru, S., & Possingham, H. P. (2021). A threatened species index for Australian birds. *Conservation Science and Practice*, *3*(2), e322. https://doi.org/10.1111/CSP2.322

Beck, M. W., Brumbaugh, R. D., Airoldi, L., Carranza, A., Coen, L. D., Crawford, C., Defeo, O., Edgar, G. J., Hancock, B., Kay, M. C., Lenihan, H. S., Luckenbach, M. W., Toropova, C. L., Zhang, G., & Guo, X. (2011). Oyster reefs at risk and recommendations for conservation, restoration, and management. *BioScience*, *61*(2), 107–116. https://doi.org/10.1525/bio.2011.61.2.5

Beringen, Ethan; Liu, Nengye; and Lim, Michelle Mei Ling. Is Australia really a global leader in marine protected area practice?. (2022). Australian Environment Review. 36, (9/10), 213-218.

Berkelmans, R., De'ath, G., Kininmonth, S., & Skirving, W. J. (2004). A comparison of the 1998 and 2002 coral bleaching events on the Great Barrier Reef: Spatial correlation, patterns, and predictions. In *Coral Reefs* (Vol. 23, Issue 1, pp. 74–83). https://doi.org/10.1007/s00338-003-0353-y

Brodie, J., Grech, A., Pressey, B., Day, J. W., Dale, A. P., Morrison, T., & Wenger, A. (2019). The Future of the Great Barrier Reef: The Water Quality Imperative. *Coasts and Estuaries: The Future*, 477–499. https://doi.org/10.1016/B978-0-12-814003-1.00028-9

Burch, P., Sutton, C., Cannard, T., Briton, F., & Sporcic, M. (2021). An investigation of the bycatch of rebuilding species and other selected species in the Southern and Eastern Scalefish and Shark Fishery. December 2021, CSIRO, Australia

Butler, A. J., Rees, T., Beesley, P., & Bax, N. J. (2010). Marine biodiversity in the Australian region. In *PLoS ONE* (Vol. 5, Issue 8). https://doi.org/10.1371/journal.pone.0011831

Butler, C. L., Lucieer, V. L., Wotherspoon, S. J., & Johnson, C. R. (2020). Multi-decadal decline in cover of giant kelp Macrocystis pyrifera at the southern limit of its Australian range. *Marine Ecology Progress Series*, *653*, 1–18. https://doi.org/10.3354/meps13510

Butler, I., Patterson, H., Bromhead, D., Galeano, D., Timmiss, T., Woodhams, J., & Curtotti, R. (2024), Fishery status reports 2024, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra, DOI: https://doi.org/10.25814/bfnc-9160 CC BY 4.0

Clive, N., Id, D., Mackenzie Id, J. R., Canning, A. D., Hutley, L. B., Bourke, A. J., Kovacsid, J. M., Cormierid, R., Staben, G., Lymburner, L., & Aiid, E. (2022). ENSO-driven extreme oscillations in mean sea level destabilise critical shoreline mangroves—An emerging threat. *PLOS Climate*, *1*(8), e0000037. https://doi.org/10.1371/JOURNAL.PCLM.0000037

Cockerell, B., Pressey, R. L., Grech, A., Álvarez-Romero, J. G., Ward, T., & Devillers, R. (2020). Representation does not necessarily reduce threats to biodiversity: Australia's Commonwealth marine protected area system, 2012–2018. *Biological Conservation*, *252*. https://doi.org/10.1016/j.biocon.2020.108813

Cocks, K. D., & Baird, I. A. (1989). Using mathematical programming to address the multiple reserve selection problem: An example from the Eyre Peninsula, South Australia. *Biological Conservation*, *49*(2), 113–130. https://doi.org/10.1016/0006-3207(89)90083-9

Collaborative Australian Protected Areas Database (CAPAD) - (2024) from Commonwealth, state and territory governments, non-government organisations, Indigenous and other protected area managers. Australian Coastline and State Borders 1:100,000 (2004)

Commonwealth of Australia (2022). *National Fisheries Plan*, Department of Agriculture, Water and the Environment, Canberra. CC BY 4.0

Cope, J. M., Dowling, N. A., Hesp, S. A., Omori, K. L., Bessell-Browne, P., Castello, L., Chick, R., Dougherty, D., Holmes, S. J., McGarvey, R., Ovando, D., Nowlis, J., & Prince, J. (2023), The stock assessment theory of relativity: deconstructing the term 'data-limited' fisheries into components and guiding principles to support the science of fisheries management. *Reviews in Fish Biology and Fisheries, 33*, 241-263. https://doi.org/10.1007/s11160-022-09748-1

Cresswell I. D., Janke T. & Johnston E. L. (2021). Australia state of the environment 2021: overview, independent report to the Australian Government Minister for the Environment, Commonwealth of Australia, Canberra. DOI: 10.26194/f1rh-7r05.

Crowley, K. (2021). Fighting the future: The politics of climate policy failure in Australia (2015–2020). *Wiley Interdisciplinary Reviews: Climate Change*, *12*(5), e725. https://doi.org/10.1002/WCC.725

Davey, M., & Watson, J. E. M. (2025). Australia's inadequate marine protection. *Science (New York, N.Y.)*, *387*(6734), 586–587. https://doi.org/10.1126/SCIENCE.ADT7848

DCCEEW. (2025). *Project Decision,* EPBC Act Public Portal. Retrieved from https://epbcpublicportal.environment.gov.au/all-notices/project-decision/?id=71052a5c-f1ef-ef11-9341-000d3ad02bfb

DCCEEW. (2025). EPBC Act Public Portal. Retrieved from https://epbcpublicportal.environment.gov.au/all-referrals/

DCCEEW. (2023). Conservation Advice for Zearaja maugeana (Maugean skate), Department of Climate Change, Energy, the Environment and Water, Canberra. CC BY 4.0

DCCEEW. (2022). Nature Positive Plan: better for the environment, better for business, Department of Climate Change, Energy, the Environment and Water, Canberra, December. CC BY 4.0

Department of Biodiversity Conservation and Attractions, WA (DBCA) South Coast Marine Park. (2024). Available under a relative Commons Attribution License http://creativecommons.org/licenses/by/4.0/

Department of Primary Industries. (2025). *About the Future Fishing structural adjustment | Department of Primary Industries, Queensland*. (2025, February 17). https://www.daf.qld.gov.au/business-priorities/fisheries/manage/industry/future-fishing/about

Devillers, R., Pressey, R. L., Grech, A., Kittinger, J. N., Edgar, G. J., Ward, T., & Watson, R. (2015). Reinventing residual reserves in the sea: are we favouring ease of establishment over need for protection? *Aquatic Conservation: Marine and Freshwater Ecosystems*, *25*(4), 480–504. https://doi.org/10.1002/AQC.2445

Dietzel, A., Bode, M., Connolly, S. R., & Hughes, T. P. (2020). Long-term shifts in the colony size structure of coral populations along the Great Barrier Reef: Demographic change in Australia's corals. *Proceedings of the Royal Society B: Biological Sciences*, *287*(1936). https://doi.org/10.1098/rspb.2020.1432

Dixon, A. M., Forster, P. M., Heron, S. F., Stoner, A. M. K., & Beger, M. (2022). Future loss of local-scale thermal refugia in coral reef ecosystems. *PLOS Climate*, *1*(2), e0000004. https://doi.org/10.1371/journal.pclm.0000004

Dominguez-Martinez, R. M., Klein, C. J., Roberson, L. A., Farmery, A., Kuempel, C. D., Spillias, S., Blanchard, J. L., & Cottrell, R. S. (2024). *Seafood Sustainability Challenges for Import-Dependent Nations*. https://doi.org/10.20944/preprints202411.0215.v1

Dominguez-Martinez, R. M., Roberson, L., Gephart, J., Wilcox, C., Sant, G., & Klein, C. (2024). Environmental law reform needed to manage trade of Australia's threatened marine species. *Npj Ocean Sustainability 2024 3:1*, *3*(1), 1–4. https://doi.org/10.1038/s44183-024-00085-3

Edgar, G. J., Stuart-Smith, R. D., Heather, F. J., Barrett, N. S., Turak, E., Sweatman, H., Emslie, M. J., Brock, D. J., Hicks, J., French, B., Baker, S. C., Howe, S. A., Jordan, A., Knott, N. A., Mooney, P., Cooper, A. T., Oh, E. S., Soler, G. A., Mellin, C., … Bates, A. E. (2023). Continent-wide declines in shallow reef life over a decade of ocean warming. *Nature*, *615*(7954), 858–865. https://doi.org/10.1038/s41586-023-05833-y

Edgar, G. J., Ward, T. J., & Stuart-Smith, R. D. (2018). Rapid declines across Australian fishery stocks indicate global sustainability targets will not be achieved without an expanded network of 'no-fishing' reserves. *Aquatic Conservation: Marine and Freshwater Ecosystems*, *28*(6), 1337–1350. https://doi.org/10.1002/aqc.2934

Emery, T. J., Gardner, C., Hartmann, K., & Cartwright, I. (2017). Incorporating economics into fisheries management frameworks in Australia. *Marine Policy*, *77*, 136–143. https://doi.org/10.1016/J.MARPOL.2016.12.018

Emslie, M. J., Logan, M., Bray, P., Ceccarelli, D. M., Cheal, A. J., Hughes, T. P., Johns, K. A., Jonker, M. J., Kennedy, E. v., Kerry, J. T., Mellin, C., Miller, I. R., Osborne, K., Puotinen, M., Sinclair-Taylor, T., & Sweatman, H. (2024). Increasing disturbance frequency undermines coral reef recovery. *Ecological Monographs*, *94*(3), e1619. https://doi.org/10.1002/ECM.1619

FRDC. (2024). *Fisheries Research and Development Corporation Annual Report, 2023–24*, Canberra, October 2024. CC BY 3.0

F. Recher H. (1997) State of Australia's environment. *Pacific Conservation Biology* **3**, 1-1. https://doi.org/10.1071/PC970001

Geoscience Australia. (2025). Australian Marine Parks © Commonwealth of Australia, Australian Government Department of Climate Change, Energy, the Environment and Water, 2025

Goetze, J. S., Wilson, S., Radford, B., Fisher, R., Langlois, T. J., Monk, J., Knott, N. A., Malcolm, H., Currey-Randall, L. M., Ierodiaconou, D., Harasti, D., Barrett, N., Babcock, R. C., Bosch, N. E., Brock, D., Claudet, J., Clough, J., Fairclough, D. v., Heupel, M. R., … Harvey, E. S. (2021). Increased connectivity and depth improve the effectiveness of marine reserves. *Global Change Biology*, *27*(15), 3432–3447. https://doi.org/10.1111/GCB.15635

Graham, Susan & Schempp, Adam & Troell, Jessica. (2011). Regulating Nonpoint Source Water Pollution in a Federal Government: Four Case Studies. International Journal of Water Resources Development - INT J WATER RESOUR DEV. 27. 53-69. 10.1080/07900627.2010.531378.

Greenhouse Office, A. (2000). *Land Clearing: A Social History Australian Greenhouse Office*. Retrieved May 28, 2025, from http://www.greenhouse.gov.au

Grorud-Colvert, K., Sullivan-Stack, J., Roberts, C., Constant, V., Horta E Costa, B., Pike, E. P., Kingston, N., Laffoley, D., Sala, E., Claudet, J., Friedlander, A. M., Gill, D. A., Lester, S. E., Day, J. C., Gonçalves, E. J., Ahmadia, G. N., Rand, M., Villagomez, A., Ban, N. C., … Lubchenco, J. (2021). The MPA guide: A framework to achieve global goals for the ocean. In *Science* (Vol. 373, Issue 6560). American Association for the Advancement of Science. https://doi.org/10.1126/science.abf0861

Guest, J. (2021). The Great Barrier Reef: How repeated marine heat waves are reshaping an iconic marine ecosystem. *Current Biology*, *31*(23), R1530–R1532. https://doi.org/10.1016/J.CUB.2021.10.066

Hawke et al. (2009). The Australian Environment Act – Report of the Independent Review of the Environment Protection and Biodiversity Conservation Act 1999, Commonwealth Government, Canberra 2009.

Henley, B. J., McGregor, H. v., King, A. D., Hoegh-Guldberg, O., Arzey, A. K., Karoly, D. J., Lough, J. M., DeCarlo, T. M., & Linsley, B. K. (2024). Highest ocean heat in four centuries places Great Barrier Reef in danger. *Nature 2024 632:8024*, *632*(8024), 320–326. https://doi.org/10.1038/s41586-024-07672-x

Hilborn, R., Amoroso, R. O., Anderson, C. M., Baum, J. K., Branch, T. A., Costello, C., de Moor, C. L., Faraj, A., Hively, D., Jensen, O. P., Kurota, H., Little, L. R., Mace, P., McClanahan, T., Melnychuk, M. C., Minto, C., Osio, G. C., Parma, A. M., Pons, M., … Ye, Y. (2020). Effective fisheries management instrumental in improving fish stock status. *Proceedings of the National Academy of Sciences of the United States of America*, *117*(4), 2218–2224. https://doi.org/10.1073/PNAS.1909726116/SUPPL_FILE/PNAS.1909726116.SAPP.PDF

Hill, N. J., Haddon, M., Hartmann, K., Little, L. R., Lyle, J. M., Moore, B. R., & Nicol, S. (2023). Prevalence of effective fisheries management in a developed nation and its link to stock sustainability. *Marine Policy*, *151*, 105596. https://doi.org/10.1016/J.MARPOL.2023.105596

Hoese, D.F., Bray, D.J., Paxton, J.R. & G.R. Allen. (2006). Fishes. In Beesley, P.L. & A. Wells. (eds) Zoological Catalogue of Australia. Volume 35. ABRS & CSIRO Publishing: Australia. parts 1-3, pages 1-2178.

Huber, M., Welker, A., & Helmreich, B. (2016). Critical review of heavy metal pollution of traffic area runoff: Occurrence, influencing factors, and partitioning. *Science of The Total Environment*, *541*, 895–919. https://doi.org/10.1016/J.SCITOTENV.2015.09.033

Hughes, T., Kerry, J., Álvarez-Noriega, M. *et al.* (2017). Global warming and recurrent mass bleaching of corals. *Nature* 543, 373–377 https://doi.org/10.1038/nature21707

IEA. (2024). *Coal 2024.* IEA, Paris https://www.iea.org/reports/coal-2024, Licence: CC BY 4.0

Jahan, S., & Strezov, V. (2018). Comparison of pollution indices for the assessment of heavy metals in the sediments of seaports of NSW, Australia. *Marine Pollution Bulletin*, *128*, 295–306. https://doi.org/10.1016/J.MARPOLBUL.2018.01.036

Jones, K. R., Klein, C. J., Grantham, H. S., Possingham, H. P., Halpern, B. S., Burgess, N. D., Butchart, S. H. M., Robinson, J. G., Kingston, N., Bhola, N., & Watson, J. E. M. (2020). Area Requirements to Safeguard Earth's Marine Species. *One Earth*, *2*(2), 188–196. https://doi.org/10.1016/j.oneear.2020.01.010

Kroon, F. J., Thorburn, P., Schaffelke, B., & Whitten, S. (2016). Towards protecting the Great Barrier Reef from land-based pollution. *Global Change Biology*, *22*(6), 1985–2002. https://doi.org/10.1111/GCB.13262

Kuempel, C. D., Chauvenet, A. L. M., & Possingham, H. P. (2016). Equitable Representation of Ecoregions is Slowly Improving Despite Strategic Planning Shortfalls. *Conservation Letters*, *9*(6), 422–428. https://doi.org/10.1111/CONL.12298

Ling, S. D., & Keane, J. P. (2024). Climate-driven invasion and incipient warnings of kelp ecosystem collapse. *Nature Communications 2024 15:1*, *15*(1), 1–9. https://doi.org/10.1038/s41467-023-44543-x

Lyle, J. M., & Tracey, S. R. (2016). Catch, effort and fishing practices in a recreational gillnet fishery: Assessing the impacts and response to management change. *Fisheries Research*, *177*, 50–58. https://doi.org/10.1016/J.FISHRES.2016.01.021

MacNeil, M. A., Mellin, C., Matthews, S., Wolff, N. H., McClanahan, T. R., Devlin, M., Drovandi, C., Mengersen, K., & Graham, N. A. J. (2019). Water quality mediates resilience on the Great Barrier Reef. *Nature Ecology & Evolution 2019 3:4*, *3*(4), 620–627. https://doi.org/10.1038/s41559-019-0832-3

Margules, C. R., & Pressey, R. L. (2000). Systematic conservation planning. *Nature 2000 405:6783*, *405*(6783), 243–253. https://doi.org/10.1038/35012251

Maxwell, S. L., Cazalis, V., Dudley, N., Hoffmann, M., Rodrigues, A. S. L., Stolton, S., Visconti, P., Woodley, S., Kingston, N., Lewis, E., Maron, M., Strassburg, B. B. N., Wenger, A., Jonas, H. D., Venter, O., & Watson, J. E. M. (2020). Area-based conservation in the twenty-first century. *Nature 2020 586:7828*, *586*(7828), 217–227. https://doi.org/10.1038/s41586-020-2773-z

McShane, P., Knuckey, I., & Sen, S. (2021). Access and allocation in fisheries: The Australian experience. *Marine Policy*, *132*, 104702. https://doi.org/10.1016/J.MARPOL.2021.104702

Miloslavich, P., Klein, E., Díaz, J. M., Hernández, C. E., Bigatti, G., Campos, L., Artigas, F., Castillo, J., Penchaszadeh, P. E., Neill, P. E., Carranza, A., Retana, M. v., Díaz de Astarloa, J. M., Lewis, M., Yorio, P., Piriz, M. L., Rodríguez, D., Valentin, Y. Y., Gamboa, L., & Martín, A. (2011). Marine biodiversity in the Atlantic and Pacific coasts of South America: Knowledge and gaps. In *PLoS ONE* (Vol. 6, Issue 1). Public Library of Science. https://doi.org/10.1371/journal.pone.0014631

Minderoo Foundation. (2021). The Global Fishing Index: Assessing the sustainability of the world's marine fisheries. Perth, Western Australia, 60pp.

Moore, C. H., Radford, B. T., Possingham, H. P., Heyward, A. J., Stewart, R. R., Watts, M. E., Prescott, J., Newman, S. J., Harvey, E. S., Fisher, R., Bryce, C. W., Lowe, R. J., Berry, O., Espinosa-Gayosso, A., Sporer, E., & Saunders, T. (2016). Improving spatial prioritisation for remote marine regions: optimising biodiversity conservation and sustainable development trade-offs. *Scientific Reports 2016 6:1*, *6*(1), 1–12. https://doi.org/10.1038/srep32029

Morelli, G., Gasparon, M., Fierro, D., Hu, W. P., & Zawadzki, A. (2012). Historical trends in trace metal and sediment accumulation in intertidal sediments of Moreton Bay, southeast Queensland, Australia. *Chemical Geology*, *300–301*, 152–164. https://doi.org/10.1016/J.CHEMGEO.2012.01.023

Nilsson, J. A., Johnson, C. R., Fulton, E. A., Haward, M., & Prellezo, R. (2019). Fisheries sustainability relies on biological understanding, evidence-based management, and conducive industry conditions. *ICES Journal of Marine Science*, *76*(6), 1436–1452. https://doi.org/10.1093/ICESJMS/FSZ065

Pacheco, P., Mo, K., Dudley, N., Shapiro, A., Aguilar-Amuchastegui, N., Ling, P.Y., Anderson, C. and Marx, A. (2021). Deforestation fronts: Drivers and responses in a changing world. WWF, Gland, Switzerland.

Parks Australia. (2007). Goals and principles for the establishment of the National Representative System of Marine Protected Areas in Commonwealth waters. Australian Marine Parks. Parks Australia. Retrieved June 2, 2025, from https://australianmarineparks.gov.au/science/scientific-publications/goals-and-principles-establishment-national-representative-system-marine-protected-areas-commonwealth-waters/

Pike, E. P., MacCarthy, J. M. C., Hameed, S. O., Harasta, N., Grorud-Colvert, K., Sullivan-Stack, J., Claudet, J., Horta e Costa, B., Gonçalves, E. J., Villagomez, A., & Morgan, L. (2024). Ocean protection quality is lagging behind quantity: Applying a scientific framework to assess real marine protected area progress against the 30 by 30 target. *Conservation Letters*, *17*(3), e13020. https://doi.org/10.1111/CONL.13020

Pollock, F. J., Lamb, J. B., Field, S. N., Heron, S. F., Schaffelke, B., Shedrawi, G., Bourne, D. G., & Willis, B. L. (2014). Sediment and turbidity associated with offshore dredging increase coral disease prevalence on nearby reefs. *PLoS ONE*, *9*(7). https://doi.org/10.1371/JOURNAL.PONE.0102498

Pressey, R. L., Whish, G. L., Barrett, T. W., & Watts, M. E. (2002). Effectiveness of protected areas in north-eastern New South Wales: recent trends in six measures. *Biological Conservation*, *106*(1), 57–69. https://doi.org/10.1016/S0006-3207(01)00229-4

Reeves, J. M., Barrows, T. T., Cohen, T. J., Kiem, A. S., Bostock, H. C., Fitzsimmons, K. E., Jansen, J. D., Kemp, J., Krause, C., Petherick, L., Phipps, S. J., Armand, L. K., Ayliffe, L. K., Curran, M., de Deckker, P., Devriendt, L. S., Dodson, J., Dosseto, A., Dunbar, G. B., … Woodward,

C. (2013). Climate variability over the last 35,000 years recorded in marine and terrestrial archives in the Australian region: an OZ-INTIMATE compilation. *Quaternary Science Reviews*, *74*, 21–34. https://doi.org/10.1016/J.QUASCIREV.2013.01.001

Roberson, L., Hosch, G., Wilcox, C., Domiguez-Martinez, R. M., Sant, G., & Klein, C. (2025). A New Seafood Import Policy for Nations to Combat Illegal Fishing. *Conservation Letters*, *18*(1), e13091. https://doi.org/10.1111/CONL.13091

Roberson, L. A., & Wilcox, C. (2022). Bycatch rates in fisheries largely driven by variation in individual vessel behaviour. *Nature Sustainability 2022*, 1–9. https://doi.org/10.1038/s41893-022-00865-0

Roberson, L. A., Beyer, H. L., O'Hara, C., Watson, J. E. M., Dunn, D. C., Halpern, B. S., Klein, C. J., Frazier, M. R., Kuempel, C. D., Williams, B., Grantham, H. S., Montgomery, J. C., Kark, S., & Runting, R. K. (2021). Multinational coordination required for conservation of over 90% of marine species. *Global Change Biology*, *27*(23), 6206–6216. https://doi.org/10.1111/GCB.15844

Roberson, L. A., Watson, R. A., & Klein, C. J. (2020). Over 90 endangered fish and invertebrates are caught in industrial fisheries. *Nature Communications 2020 11:1*, *11*(1), 1–8. https://doi.org/10.1038/s41467-020-18505-6

Roberts, C., Béné, C., Bennett, N., Boon, J. S., Cheung, W. W. L., Cury, P., Defeo, O., De, G., Cleyndert, J., Froese, R., Gascuel, D., Golden, C. D., Hawkins, J., Hobday, A. J., Jacquet, J., Kemp, P., Lam, M. E., le Manach, F., Meeuwig, J. J., … O'leary, C. (2024). *npj | ocean sustainability Rethinking sustainability of marine fisheries for a fast-changing planet Check for updates*. https://doi.org/10.1038/s44183-024-00078-2

Roberts, K. E., Cook, C. N., Beher, J., Treml, E. A., & Barrera, G. (2020). Assessing the current state of ecological connectivity in a large marine protected area system 700 Assessing connectivity. *Conservation Biology*, *35*(2), 699–710. https://doi.org/10.1111/cobi.13580

Roberts, K. E., Hill, O., & Cook, C. N. (2020). Evaluating perceptions of marine protection in Australia: Does policy match public expectation? *Marine Policy*, *112*. https://doi.org/10.1016/j.marpol.2019.103766

Saeck E, Udy J, Maxwell P, Grinham A, Moffatt D, Senthikumar S, Udy D, Weber T. (2019). Water quality in moreton Bay and its major estuaries: Change over two decades (2000-2018). In: Tibbetts IR, P.; Neil, D.; Homburg, T.; Brewer, D.; Arthington, A. . (Ed.) Moreton Bay quandamooka & catchment: Past, present, and future. The Moreton Bay Foundation, Birsbane, Australia https://moretonBayfoundation.org/

Samuel, G. (2020). Independent Review of the EPBC Act – Final Report, Department of Agriculture, Water and the Environment, Canberra, October. CC BY 4.0

Smith, E., & McMaugh, S. (2023). *Australia's climate change policy to 2021: a chronology*, Research Paper Series, 2022–23, Parliament of Australia, 15 May 2023

Thompson-Saud, G., & Wenger, A. S. (2022). Common characteristics of successful water quality improvement through point source pollution management. *Marine Pollution Bulletin*, *185*, 114281. https://doi.org/10.1016/J.MARPOLBUL.2022.114281

Udy, J., Udy, J., Penna, R., Dehaudt, B., Venables, B. (2024). Seagrass Distribution Within Moreton Bay Marine Park: Seagrass Response to the 2022 Flooding. Report prepared for The Department of Environment, Science and Innovation. Science Under Sail Australia.

UNEP-WCMC and IUCN (2024). Protected Planet Report 2024. UNEP-WCMC and IUCN: Cambridge, United Kingdom; Gland, Switzerland.

Waterhouse J, Pineda M-C, Sambrook K, Newlands M, McKenzie L, Davis A, Pearson R, Fabricius K, Lewis S, Uthicke S, Bainbridge Z, Collier C, Adame F, Prosser I, Wilkinson S, Bartley R, Brooks A, Robson B, Diaz-Pulido G, Reyes C, Caballes C, Burford M, Thorburn P, Weber T, Waltham N, Star M, Negri A, Warne M St J, Templeman S, Silburn M, Chariton A, Coggan A, Murray-Prior R, Schultz T, Espinoza T, Burns C, Gordon I, Devlin M. (2024). 2022 Scientific Consensus Statement: Conclusions. In Waterhouse J, Pineda M-C, Sambrook K (Eds) 2022 Scientific Consensus Statement on land-based impacts on Great Barrier Reef water quality and ecosystem condition. Commonwealth of Australia and Queensland Government.

Watson, J. E. M., Venegas-Li, R., Grantham, H., Dudley, N., Stolton, S., Rao, M., Woodley, S., Hockings, M., Burkart, K., Simmonds, J. S., Sonter, L. J., Sreekar, R., Possingham, H. P., & Ward, M. (2023). Priorities for protected area expansion so nations can meet their Kunming-Montreal Global Biodiversity Framework commitments. *Integrative Conservation*, *2*(3), 140–155. https://doi.org/10.1002/INC3.24

Wells, F. E., Keesing, J. K., Gagnon, M. M., Bessey, C., Spilsbury, F., & Irvine, T. R. (2023). Responses of intertidal invertebrates to rising sea surface temperatures in the southeastern Indian Ocean. *Frontiers in Marine Science*, *10*, 1075228. https://doi.org/10.3389/FMARS.2023.1075228/BIBTEX

Williams A, Bax N & Gowlett-Holmes K. (2017). The living ocean. In: Mapstone B (ed), Oceans: science and solutions for Australia, CSIRO Publishing, Melbourne, 25–38.