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c/o Secretariat, *Independent Review of the Environment Protection and Biodiversity Conservation Act 1999*

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Submission to the Independent Review of the Environmental Protection and Biodiversity Conservation Act 1999

We thank you for the opportunity to make a submission to the Independent Review of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Australian Marine Sciences Association (AMSA) Inc. has been Australia's peak professional body for marine scientists for over 50 years. AMSA represents and promotes Australian marine science by providing current advice to government and the public, recognising marine scientists and technicians, leading outreach activities and communication products and hosting conferences and workshops that address marine science issues.

Australia has the third largest marine jurisdiction in the world, covering more than 70% of all Australian territory. Around 85% of all Australians live within 50 km of the coast, making the ocean – and the highly diverse communities of organisms that live within them - a familiar and precious part of most of our lives. Australia's marine ecosystems are incredibly diverse and include coral reefs, abyssal plains, kelp forests and submarine canyons, which support extremely high levels of biological diversity, including many species that are found nowhere else on earth.

Recent economic models suggest that by 2025, services provided by ocean and coastal ecosystems could be worth in excess of $25 billion p.a. However, this income, and the many intangible benefits so many Australians reap from living near the coast are contingent on the

maintenance of biological diversity in marine ecosystems. This diversity underpins the ecosystem services that Australian communities all rely on, directly or indirectly, for prosperity, health and in many cases, survival.

Since the inception of the Act in 1999, Australia has observed extensive losses of coral reefs (>50%), temperate seaweed forests (up to 95% declines in some species), seagrass ecosystems (ca. 300,000 ha), saltmarsh habitats (50-100% losses), and oyster reefs (90-99% declines). These habitats support tremendously diverse communities, which have also declined alarmingly in many places.

The EPBC Act has failed to arrest or even slow the overwhelming rates of decline of biodiversity in marine and other ecosystems throughout Australia since 1999 and has failed to meet a single one of the Aichi Biodiversity targets. Fundamental changes are needed – urgently – to increase the effectiveness of Australia's primary environmental legislation to slow and eventually reverse the loss of Australia's rich and highly valuable marine biological diversity.

It is AMSA's firm position that in order to effectively conserve and protect biological diversity, the causes of declines of biological diversity must first be addressed. In marine ecosystems these drivers include (but are not limited to) climate change, land use changes and associated run-off changes, overfishing, invasive species, coastal development, dredging and offshore resource extraction.

AMSA implores the reviewers to consider the urgency of these issues. The lack of measurable progress has delayed Australia's meaningful movement towards ecologically (and therefore economically and socially) sustainable development by more than two decades. Effective environmental legislation is the necessary foundation to protect what remains and restore much of what has been lost.

Contents

Question 1.

Some have argued that past changes to the EPBC Act to add new matters of national environmental significance did not go far enough. Others have argued it has extended the regulatory reach of the Commonwealth too far. What do you think?

We agree that past changes including additional Matters of National Environmental Significance (MNES) have not gone far enough to reduce biodiversity decline or reverse the downward trend of the State of the Environment (SoE 2016). There are multiple potential significant impacts to the environment that are not captured by the current MNES triggers. For example, ocean warming, and ocean acidification occur primarily as a result of the uptake of carbon from the atmosphere, and subsequently lead to substantial degradation of the marine environment. These are an indirect impact from industry producing greenhouse gases (or land clearing) that are not captured by the current MNES. The current MNES triggers leave critical gaps which have enabled significant environmental degradation to continue. The interconnectivity of marine and terrestrial ecosystems necessitates a more expansive list of MNES to incorporate the impacts that can occur indirectly (or as consequence of an action).

Protecting MNES has multiple benefits beyond biodiversity conservation, including:

- Limiting the potential for conflict of interest between State/Territory parties.
- Providing greater certainty to business for environmental risk management
- Providing further precaution where state and territory legislative protection has been compromised.

A fundamental issue regarding the protection of MNES is the requirement for proponents to refer and self-assess their action in the first instance. The non-compliance around this initial phase is reportedly high and has led to the continued loss of biodiversity without any Commonwealth assessment. Re-thinking the Commonwealth assessment process is necessary to avoid such avoidable losses.

A strategic approach to resource management is also necessary to guide assessments by providing a context for the impact and the value of natural resources. We propose additional MNES that better account for the protection of high value conservation areas, cumulative and indirect impacts and environmental connectivity across relevant spatial scales. These include:

- Significant greenhouse gas emissions
- Significant land-clearing activities
- National Reserve System (marine and terrestrial)
- Significant water resources
- Ecosystems of National Importance
- Wetlands and biodiversity areas of national importance
- Include vulnerable ecological communities within the Threatened Species and Ecological Communities MNES

We also believe that the Environment Minister should have the power to declare other MNES or actions that should be regulated by the Commonwealth to benefit the national environment.

Question 2.

How could the principle of Ecologically Sustainable Development (ESD) be better reflected in the EPBC Act? For example, could the consideration of environmental, social and economic factors, which are core components of ESD, be achieved through greater inclusion of cost benefit analysis in decision making?

AMSA recognises that environmental and ecological function, protection and management (including the protection and maintenance of biological diversity) is essential for any sustainable economic or social benefits on national and international platforms, on medium- to long-term scales. AMSA recognises the principles and objectives of ecologically sustainable development (ESD) are incorporated into the EPBC Act. The EPBC Act confers jurisdiction over actions that have a significant impact on MNES in Australia and ESD principles include goals to use resources in ways that enhance social and economic benefits for Australians today, without compromising ecological processes that are critical for the maintenance of incomes, health and life of Australians in the future. ESD also aims to reduce serious environmental impacts arising from our economic activity.

AMSA supports the inclusion of cost-benefit analysis (CBA) in decision making processes under the EPBC Act, particularly, as ESD gives equal weighting to extant and future impacts, benefits and costs. Economic and valuation modelling can help make environmental costs and benefits more visible, it is also able to ensure that those costs and benefits are integrated into the economy, through effective regulation and/or market-based incentives.

Furthermore, one of the core objectives of ESD is to protect biological diversity and maintain essential ecological processes and life-support systems, which is central to the EPBC Act's function. A CBA would allow biodiversity values that are often considered to be intangible to be evaluated within a framework that seeks to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places. One of the guiding principles of ESD is that decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations. Recognising and equitably valuing the longer-term social and economic impacts of environmental damage resulting from development is crucial in the decision-making process when the shorter-term economic benefits are clear and attractive.

During the last decade, our economic activities (nationally and globally) ***have*** had severe impacts on coastal and marine environments around Australia, including some of the MNES (e.g. migratory species [marine fish, reptiles and mammals], the Great Barrier Reef Marine Park [extensive, unprecedented bleaching], Commonwealth marine areas, wetlands and threatened ecological communities and species [e.g. saltmarsh, Giant Kelp forests, *Posidonia australis* ecological communities]). Whilst the economic benefits of some of these developments might have benefited Australians in the short-term, the costs of environmental damage to future Australians will be irreconcilable.

The Australian coastline and marine estate are vast and much of it is yet to be properly explored or have its biodiversity documented in any systematic way. Marine ecosystems are also inherently challenging to access compared to terrestrial ecosystems, making traditional

monitoring of ecosystems and biological diversity difficult. Thus, the loss of biological diversity from Australia's marine estate is likely to be much greater than what has been presented in peer-reviewed scientific publications.

AMSA strongly recommends that directing principles, including the precautionary principle and the prevention (of harm) principle, along with others which appear complicit within the ESD goals, be applied in future decision-making relating to developments with direct or indirect impacts on biological diversity in marine ecosystems. In particular, as Australia's peak body for marine science, we implore future decision-making processes to better integrate the ESD guiding principle that: where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation, including rejection of development proposals.

Question 3.

Should the objects of the EPBC Act be more specific?

The Act should include a primary object similar to what was identified in the Hawke (2009) review: The primary aim of this Act is to conserve and protect Australia's environment, its natural heritage and biological diversity including genes, species and ecosystems, its land and waters, and the life-supporting functions they provide (Hawke 2009).

This identifies the environment as the primary object of the Act ensuring that biodiversity and ecological integrity are fundamental considerations in decision-making. Social, economic and equitable issues will continue to be considered in decision-making as integrated but secondary considerations, and consistently with the principles of Ecologically Sustainable Development (which should be redefined in the Act).

The Act should include secondary objects which regard the protection of biodiversity and ecological integrity, these could include:

(a) To achieve ESD through strong national leadership and a partnership approach;
(b) To prevent the extinction or further decline of Australia's flora and fauna and their habitats;
(c) Increase the resilience of native species and ecosystems to key threatening processes;
(d) To provide for early and ongoing community participation in decisions with improved public transparency and access;
(e) To recognise and value Indigenous peoples' knowledge and stewardship of Country; support the involvement of Indigenous peoples in land and sea management through application of their knowledge systems;
(e) To fulfil Australia's international environmental obligations and responsibilities; and
(f) To value the intrinsic importance of the environment and recognise the benefit of ecosystem services to society's health and wellbeing.

Question 4.

Should the matters of national environmental significance within the EPBC Act be changed? How?

Refer to Q1

Question 5.

Which elements of the EPBC Act should be priorities for reform? For example, should future reforms focus on assessment and approval processes or on biodiversity conservation? Should the Act have proactive mechanisms to enable landholders to protect matters of national environmental significance and biodiversity, removing the need for regulation in the right circumstances?

A new or reformed Environment Act for Australia should address contemporary challenges of natural resource management, land use, human settlements, systems of production and consumption, climate change and biodiversity protection. In many ways, the assessment and approval process has the potential to reduce many of the drivers affecting biodiversity i.e. better regulation of land-clearing, greenhouse gas emissions, fisheries, extraction of natural resources. These approaches are interrelated, though differ in their function through space and time. Biodiversity conservation is one of many aims in an assessment and approval process and is necessary beyond the scope of assessment and approval. The assessment and approval process should be regarded as one of many ways to achieve biodiversity conservation outcomes. An outcome-focused approach such as biodiversity conservation will require a logic map of causal links which can then be managed within a legal framework.

An updated Environment Act must be supported by strong national leadership, robust science, community engagement, including indigenous representation, and high levels of environmental protection.

Without details on what the proactive mechanisms available to landholders could be, we cannot provide an informed response, this is not a priority for a reformed Act.

Question 6.

What high level concerns should the review focus on? For example, should there be greater focus on better guidance on the EPBC Act, including clear environmental standards? How effective has the EPBC Act been in achieving its statutory objectives to protect the environment and promote ecologically sustainable development and biodiversity conservation? What have been the economic costs associated with the operation and administration of the EPBC Act?

A national (and global) trajectory of decline in marine biodiversity has been systematically documented (i.e. GBRMPA Outlook Report, CSIRO Outlook report, State of the Environment Report, Senate enquiry into faunal extinctions) during the last decade and since European settlement in Australia. There is a need for clearer environmental standards and clarification around terms such as a *significant impact*. Western Australia and the Northern Territory

Environment Protection Authorities have developed a series of guideline documents to assist in navigating proponents through the Environmental Impact Assessment (EIA) process and provide information on the assessment of environmental factors. Similar documents should be provided by the Commonwealth to proponents to benchmark standards expected in EIA to ensure relevant actions are assessed.

The Act has not effectively delivered on its statutory objectives. For example, the Act makes no mention of climate change, the most significant threat to the environment which led to the recent extinction of the Bramble Cay *Melomys*. This case also illustrates the failing of monitoring without threshold values and adequate resources. Unregulated land-clearing, particularly in QLD has been demonstrated to have had a significant impact on biodiversity values. The National Reserve System (NRS) is considered inadequate and not representative and some of the most exceptional and protected natural values are at risk i.e. Ramsar wetlands and the Great Barrier Reef Marine Park.

The Act and processes associated with it to protect the environment are not accessible to most people and particularly those who live in remote areas or have English as a second language. There is a clear need for the Act to made accessible to the Australian public so they can actively participate in Australia's biodiversity conservation.

An updated Environment Act needs urgently to address causes of declines in biological diversity, which in marine ecosystems include (though not limited to): climate change, land use changes and associated run-off changes, overfishing, invasive species, coastal development, dredging and offshore resource extraction. Indirect and lag impacts of climate change need to be better quantified and considered in the context of future losses of biological diversity and broader environmental health and functioning.

Question 7.

What additional future trends or supporting evidence should be drawn on to inform the review?

AMSA implores the review process to consider the urgency of these issues. The lack of measurable progress or achievement in reaching any of the Aichi Biodiversity targets has delayed Australia's meaningful movement towards ecologically (and therefore economically and socially) sustainable development by more than two decades.

The Australian coastline and marine estate is vast and much of it is yet to be properly explored or have its biodiversity documented in any systematic way. Despite this, there is much evidence of extensive declines and redistribution of biological diversity in Australia's marine estate and future projections of further losses are alarming.

For example, Australia's Great Barrier Reef has experienced a loss of over 50% coral cover over the last three decades (De'ath et al. 2012), a trend that has substantially worsened in the last 10 years due to unprecedented frequency, extension and severity of coral bleaching (Hughes et al. 2017). The entire GBR and the Coral Sea Marine Park is currently experiencing another widespread bleaching event, affecting reefs from the very north to the very south of this

vast ecosystem. Whilst local stressors (e.g. sedimentation, nutrient run-off and Crown of Thorns predatory starfish outbreaks) have been linked to reduced resilience of coral reefs, the extensive bleaching observed in the recent decade is the result of anomalously high-water temperatures caused by global warming. As well as the potential loss of coral species diversity, coral reefs provide a key habitat for some of the most diverse biological communities in the world, which are already showing cascading impacts derived from bleaching (Stuart-Smith et al. 2018).

Extensive loss of habitat-forming organisms is also occurring outside of the tropics, along the coastlines that line the southern half of the Australian continent (Bennett et al. 2018). These shores are home to the highest diversity of seaweeds in the world and include a very high level of endemism, so many of these species occur nowhere else on earth. The past decade has seen the decline of many the key, forest-forming species of seaweeds from temperate coastlines, including a loss of 95% of the giant kelp forests of Tasmania (listed as an Endangered Ecological community; Johnson et al. 2011) as well as marked declines of the golden kelp *Ecklonia radiata* along both the eastern and western sides of Australia (Wernberg et al. 2019). The loss of seaweed forests in Australia have been linked to local (e.g. pollution, coastal development) and continental/global (e.g. ocean warming, marine heat waves, tropicalization, changes in marine food webs [e.g. leading to enhanced herbivore abundance]) stressors. Distribution models predict that 13 of the 15 most dominant habitat-forming seaweeds in temperate Australia will suffer major poleward shifts by 2100, losing an average of 78% (range: 36-100%) of their current distributional range under RCP 2.6, with several key habitat-forming species disappearing altogether (Martinez et al. 2018).

Furthermore, we have lost nearly 300,000 hectares of seagrass meadows in Australia since the 1930s, including several large-scale declines in the Shark Bay World Heritage area (McLeod et al. 2018). In eastern Australia, the *Posidonia australis* ecological community was listed as endangered in the Manning-Hawkesbury region after documenting losses of up to 60%. However, losses have continued and even accelerated in many estuaries since protection, and losses of over 10% / year have been documented in some instances in recent years, exceeding global rates of seagrass decline (Evans et al. 2018).

Australian saltmarsh habitats have also greatly declined. For example, losses of 50% of saltmarsh have been recorded in Moreton Bay, Queensland (Duke et al., 2003), and Port Phillip Bay, Victoria (Sinclair & Boon 2012), and it is estimated that 85% of the original saltmarsh area has been lost from Sydney Harbour (Mayer-Pinto et al. 2015). Australian oyster reefs have declined even more dramatically, with less than 1% of Australian flat oyster reef systems and 8% of Pacific oyster reefs remaining in Australia (Gillies et al. 2018).

These foundation marine habitats are essential for the economic and social wellbeing of Australians because they underpin marine biodiversity and enable ecosystem services that support Australian communities and societies. Conservation efforts to slow down or prevent the loss of these coastal ecosystems have mostly been ineffective, as many of the drivers behind biodiversity declines (e.g. climate change, coastal developments, boat mooring activities, etc.) have generally not been adequately managed.

There is increasing recognition that reducing human impacts is no longer sufficient for protection of biodiversity. In addition to managing the causes of declines, there is growing demand and interest for restoration or rehabilitation of lost habitats, a management approach that can also create jobs and produce substantial economic benefits.

Question 8.

Should the EPBC Act regulate environmental and heritage outcomes instead of managing prescriptive processes?

The EPBC Act must consider environmental and heritage outcomes, either in addition to or instead of managing prescriptive processes. Without quantification or evaluation of environmental and heritage outcomes, the Act will likely continue to be ineffective and have no accountability framework in place to recognise or address these failings.

Question 9. and 10.

Should the EPBC Act position the Commonwealth to take a stronger role in delivering environmental and heritage outcomes in our federated system? Who should articulate outcomes? Who should provide oversight of the outcomes? How do we know if outcomes are being achieved?
Should there be a greater role for national environmental standards in achieving the outcomes the EPBC Act seeks to achieve?
In our federated system should they be prescribed through:
Non-binding policy and strategies?
Expansion of targeted standards, similar to the approach to site contamination under the National Environment Protection Council, or water quality in the Great Barrier Reef catchments?
The development of broad environmental standards with the Commonwealth taking a monitoring and assurance role? Does the information exist to do this?
The National EPA should have greater oversight and management. An independent advisory panel including scientific experts should be considered to assist with oversight. The approach will need to be adaptive as new scientific evidence emerges and new management approaches become available.

AMSA does not support a one-size-fits-all approach whereby national standards might be implemented that do not reflect the unique responses of individual marine species and communities to the varied causes of biodiversity decline. Tools such as water quality guidelines in the Great Barrier Reef catchments are useful for guidance, but they should be continuously assessed and refined as new scientific evidence becomes available. This is particularly important given that there are more than 11,600 chemicals registered in Australia for pesticide and veterinary use and a significant number of new chemicals registered for use each year (APVMA, 2019) and the still poor understanding of how multiple stressors might interact to increase the severity of impacts (O'Brien et al 2019).

Question 11.

How can environmental protection and environmental restoration be best achieved together?

- **Should the EPBC Act have a greater focus on restoration?**
- **Should the Act include incentives for proactive environmental protection?**
- **How will we know if we're successful?**
- **How should Indigenous land management practices be incorporated?**

The overarching object of the Act should be changed to reflect the importance of restoration. The current language used for the Act's objectives is too passive. The objectives should be clear and outcome-focused i.e "The Act aims to protect, conserve and restore Australia's environment, heritage and biological diversity including the life-supporting functions they provide". A guiding object and design principle for the Act should be to achieve strong environmental outcomes, especially for biodiversity. Strong biodiversity outcomes will only be possible with a much greater emphasis on front-end goal setting and coordinated backend information, monitoring and reporting systems.

Furthermore, restoration should be incentivised, e.g. by enabling new funding opportunities, streamlining permitting processes to ensure best-practice procedures and developing fit-for-purpose policy for restoration projects. Incentives and sanctions must ensure leading practice across the jurisdictions. Interstate competition and industry should be driven by progressive innovation to meet national standards.

Restoration has the potential to not only be a useful tool for managing Australia's valuable coastal habitats, but to also provide coastal jobs and economic development opportunities.

Importantly, restoration should not be considered only as an offset requirement. Restoration does not need to be undertaken sequentially or separately from other management activities such as mitigating stressors. Instead, restoration can be done at the same time as threat removal or habitat protection (e.g. marine reserves), as multiple management actions are likely to complement each other and result in positive feedback loops.

When considering management actions, habitat-modifying interventions such as restoration are sometimes considered as a risk, which should clearly be taken into account. However, the risk of inaction should also be considered. In particular, given that most coastal habitats (coral reefs, seagrass meadows, saltmarsh beds, kelp forests) continue to decline at very high rates, the risk of not taking any restorative actions should be given due consideration.

A national environmental data and monitoring program that links federal, state and territory data on biodiversity, strategic planning and environmental impact assessment (underpinned by a National Ecosystems Assessment) is needed to measure outcomes and trends. Similarly, an online monitoring and reporting hub for comparative reporting with public and professional access to documents on public registers; licensing, compliance and enforcement data; bioregional plans, strategic assessments, and associated performance audits; periodic and annual reports (including the State of the Environment Report and National Sustainability Outcomes Report) should be developed.

To deliver outcomes under the Act, monitoring is necessary to evaluate effectiveness. The establishment of long-term biodiversity goals, standards, indicators and reporting to inform policy and decision-making like those developed for the Great Barrier Reef should be implemented. These monitoring and reporting tools must be fully integrated with policy development, plan making, impact assessment and decision-making under the Act. We believe the current monitoring framework is primarily aimed at population monitoring for threatened species and ecosystems. A more comprehensive monitoring framework which observes the ecological health of all MNES will better serve the purpose of improving environmental protection, and ensuring outcomes are being delivered. Mandatory transparent monitoring is crucial because the scientific community, assessors, developers and the general public require access to consistent and continuous long-term monitoring data of MNES to better determine cumulative impacts and outcomes of recovery activities.

Question 12.

Are heritage management plans and associated incentives sensible mechanisms to improve? How can the EPBC Act adequately represent Indigenous culturally important places? Should protection and management be place-based instead of values based?

Please see response to Question 19

Question 13.

Should the EPBC Act require the use of strategic assessments to replace case-by-case assessments? Who should lead or participate in strategic assessments?

Strategic assessments should be used more readily to objectively assess multiple future activities or projects accredited to meet Commonwealth standards.

Strategic assessment and accreditation will be underpinned by rigorous, objective and transparent requirements set out in the new Act and regulations. These would include criteria for Commission accreditation, consultative policy design processes, requirements on responsible parties to demonstrate strong biodiversity and environmental outcomes from accredited laws and programs, and transparent compliance monitoring against Commonwealth standards by the National EPA. The new Act will embed leading-practice strategic assessment by specifying:

- strong legislated standards, decision-making criteria and science-based methods, including a ‘maintain or improve’ environmental outcomes test (such as for biodiversity, water quality, vegetation, carbon storage) and requirements to be consistent with recovery plans and threat abatement plans;
- cumulative impact assessment requirements, taking account of past, present and likely (approved) future activities at the relevant scale;
- guidelines to support integration of federal strategic assessment with state and local planning processes at the earliest possible stage;

- comprehensive and accurate mapping and baseline environmental data; mandating transparency and public participation at all phases of the process, including to verify post-approval compliance, to ensure community confidence and acceptable outcomes;
- requiring alternative scenarios to be considered, including for climate change adaptation, to enable long-term planning for realistic worst-case scenarios;
- ground-truthing of landscape-scale assessment via local studies; and
- adaptive management and review.

Strategic assessment may complement site-level assessment where appropriate, not necessarily replace it.

Under current law, strategic assessments 'switch off' federal project-level approvals by relying on the accredited process. However, EPBC Act strategic assessments have involved a range of inadequacies. For example: the poorly accredited, limited transparency, oversight and environmental criteria of the National Offshore Petroleum Safety and Environmental Management Authority. The new Act would retain and improve specific strategic assessment process to regulate fisheries. Consistent with other reforms, the National EPA (instead of the Environment Minister) would be responsible for approving Commonwealth and export fisheries for their ecological sustainability and providing strategic oversight.

Question 14.

Should the matters of national significance be refined to remove duplication of responsibilities between different levels of government? Should states be delegated to deliver EPBC Act outcomes subject to national standards?

It is essential that Australian Government oversight is maintained for the following key reasons:

- State and local governments are intrinsically conflicted in making approval decisions.
- Accreditation of state or territory laws as a substitute for federal law would represent an abdication of federal government constitutional responsibility to manage external affairs, putting at risk MNES, potentially breaching Australia's international obligations.
- Legal enforcement powers and tools under state and territory processes are not equivalent to those available under the EPBC Act.

States should not be delegated to deliver EPBC outcomes unless the case is exceptional and low risk. The Act provides an additional environmental assessment where the State may be politically motivated to make a decision which undermines important environmental values. This level of assessment and protection should not be removed by delegations to the State.

Question 15.

Should low-risk projects receive automatic approval or be exempt in some way? How could data help support this approach? Should a national environmental database be developed? Should all data from environmental impact assessments be made publicly available?

We advocate a system of expedited approval rather than exemption or automatic approval. Such a system could take the form of an online checklist and will reduce bureaucratic time and effort, while still allowing a broad assessment of environmental impact.

For example, multibeam echosounders (MBES) are widely used to produce continuous high-resolution maps of the seabed. The high-frequency sound produced from MBES is sometimes grouped into the broader topic of noise impacts in the marine environment, including lower-frequency noise from ships and air guns. However, unlike ship and air gun noise, there is no evidence to suggest that high-frequency sound from MBES negatively impacts the marine environment during normal operations. However, there are still some unknowns about the effects on cetaceans at close distances, and so we recommend that mapping activities using MBES be considered for expedited approval to ensure the proponent still follows the normal operating procedures of halting operations when listed cetaceans are sighted in the vicinity of the vessel.

Data from all environmental impact assessments should be made public and a national database should be developed where it can be used as a reference library for future assessments. Western Australia has led the way on this with the development of the Index of Marine Surveys for Assessments by WAMSI in which hundreds of millions of dollars' worth of government and industry survey information will be made publicly available. Improving data quality and improving the long-term understanding of ecosystem function should be a priority. Having all impact assessment data within one database would allow for a better understanding of cumulative impacts and therefore facilitate improved management. The accumulated data would allow for more powerful analysis of change in the environment and would reduce duplication of commercial studies and provide for outcome-focused management. Knowledge gaps could more readily be identified allowing technical studies to be prescribed within project Terms of Reference for a progressive knowledge base. Such an approach would also align with strategic assessments where multiple spatial scales of data are required.

Question 16.

Should the Commonwealth's regulatory role under the EPBC Act focus on habitat management at a landscape-scale rather than species-specific protections?

Landscape-scale and species-specific approaches to biodiversity conservation are necessary in Australia and one is unlikely to succeed without the other. The Commonwealth should adopt a dual focus on resilient species and healthy ecosystems to avoid further extinctions and facilitate regional and multi-species recovery plans (applied across all relevant jurisdictions).

Project assessments are a common application of the Act with the potential to manage significant impacts to biodiversity. This process remains instrumental in addressing local impacts on national values and reducing the combined impacts of activities. Landscape-scale approaches plan for whole of ecosystem health, resilience, connectivity and climate change readiness. For this approach to function under the Act, Ecosystems of National Importance (whether they are threatened or not) must be identified and protected, such as climate refugia, Key Biodiversity Areas, sites within the NRS and High Conservation Value Vegetation. This approach can be implemented by using bioregional planning, and strategic environmental assessments.

Question 17.

Should the EPBC Act be amended to enable broader accreditation of state and territory, local and other processes?

AMSA suggests that any amendments to the EPBC Act should enhance its clarity and accessibility. Adding layers of complexity will only detract further from the Act's effectiveness and make regulation more difficult. AMSA suggests a clear, simple, overarching, national set of guidelines, restrictions and objectives for the Act to maximise its effectiveness. Enhanced clarity will also increase the government's ability to ensure appropriate conduct of stakeholders and hold them accountable for any inappropriate conduct.

However, as per our response to Question 10, AMSA does not support a one-size-fits-all approach whereby national standards might be implemented that do not reflect the unique responses of individual marine species and communities to the varied causes of biodiversity decline. Tools such as water quality guidelines in the Great Barrier Reef catchments are useful for guidance, but they should be continuously assessed and refined as new scientific evidence becomes available. This is particularly important given that there are more than 11,600 chemicals registered in Australia for pesticide and veterinary use and a significant number of new chemicals registered for use each year (APVMA, 2019) and the still poor understanding of how multiple stressors might interact to increase the severity of impacts (O'Brien et al 2019).

Amendments should consider medium- and long-term costs and benefits, at least as equally as shorter-term costs and benefits.

Question 18.

Are there adequate incentives to give the community confidence in self-regulation?

The EPBC Act regulations have been poorly enforced and the objects of the Act have not been addressed, which gives the community little confidence in the implementation of the Act. Any incentives for self-regulation are not clear and are unlikely to be supported with confidence. The new Act should allow greater access for community participation at all key stages of the Act, from strategic planning to project assessment and compliance monitoring, reporting and enforcement.

Question 19.

How should the EPBC Act support the engagement of Indigenous Australians in environment and heritage management?
How can we best engage with Indigenous Australians to best understand their needs and potential contributions?

Actively involving Indigenous Peoples is important for encouraging self-determination and providing a platform for both-ways learning where information on ecosystem state and management can be shared for mutual benefit (Reyes-Garcia et al. 2019).

What mechanisms should be added to the Act to support the role of Indigenous Australians?

The livelihoods, health and cultural connectivity of many Indigenous Australians is intrinsically bound to a functional, intact and biodiverse environment. In addition to other National and State/ Territory laws, the EPBC Act legally recognises this relationship to Country, though is limited in how it protects such values. Opportunities for indigenous peoples to access and engage in processes that relate to the maintenance and protection of biodiversity are limited by many factors. Access, and in some cases interpretation of information is critical for Indigenous peoples to engage in a meaningful way. Improving access to information should be made a priority, particularly where impacts to Indigenous values may occur.

The development of IPAs has reaped benefits beyond conservation outcomes and include tangible benefits to indigenous communities. One of the most frequently reported challenges by Indigenous peoples is the limited protection of Country and mechanisms to improve protection and management. IPAs have been instrumental in leveraging many conservation and community benefits. Arguably, it is the lack of legal protection and exclusive tenure that provides a non-threatening platform for well-funded programs, positive engagement from government and industry stakeholders, enabling the ongoing negotiation of resource management. However, the legal protection of culturally significant values to Traditional Owners remains elusive without Native Title or other legal mechanisms.

We recommend IPAs, as part of the NRS, are included as MNES. This will allow a greater assessment of the values within the IPAs and recognition of their improved management. Perpetual funding to support the management of these areas is necessary and should not be lessened when greater protection is afforded. Joint management structures around Commonwealth reserves should be improved to ensure equitable decision-making processes with Traditional Owner groups. Additionally, the requirement for free, prior and informed consent for Indigenous Australians should be mandatory and clearly articulated throughout any assessment or guideline document that is likely to impact on the values of Indigenous Australians.

Question 20.

How should community involvement in decision-making under the EPBC Act be improved? For example, should community representation in environmental advisory and decision-making bodies be increased?

Transparency and improved communication of process would likely increase community engagement. Information should be accessible to all Australians not just interest groups. Providing information on key decision points that align with the Act would improve public confidence in the process.

Strong and positive leadership on environmental matters from the Commonwealth would create an enabling platform for broader community engagement.

Question 21.

What is the priority for reform to governance arrangements? The decision-making structures or the transparency of decisions? Should the decision makers under the EPBC Act be supported by different governance arrangements?

Public trust in government's capacity and integrity to implement best-practice biodiversity laws requires five elements:
1. Duties on decision-makers: Enforceable duties on decision-makers to use their powers to achieve the Act's objects.
2. Clear decision-making criteria and accountability for key stages of decision-making
3. Independent, trusted institutions:
4. National environmental goals, plans and standards (including discrete thresholds or triggers where available)
5. Adequate resourcing.

AMSA believe a renewed Act should be supported by different governance. For example, a new National Sustainability Commission – to coordinate national plans and actions, set national environmental standards, provide high-level oversight and give strategic advice and oversight to Ministers, agencies and the wider community.

A new national Environment Protection Authority – to assess, approve/refuse projects, monitor project-level compliance and take enforcement action. Better resourcing and strategic planning for agencies, conservation programs and natural resource management, including multi-sector investment in ecosystem services, databases and new tools.

Greater emphasis on Indigenous leadership and rights (including free prior informed consent requirements), land management and biodiversity stewardship, including formal recognition of Indigenous Protected Areas.

Improved national standards should be developed to drive leading- practice including:

- Clear accreditation of assessment processes that meet strict national standards with retention of Commonwealth approval powers,
- Clear guidance on assessment requirements to improve certainty (refer to WA and NT EPA for examples)
- Clear objective decision-making criteria set out in legislation,
- Strengthened strategic assessment and bioregional planning provisions,
- Independently appointed and accredited consultants to improve assessment quality and information.
- A national environmental data and monitoring program that links federal, state and territory data on biodiversity, strategic planning and environmental impact assessment (underpinned by a National Ecosystems Assessment). This is needed to measure outcomes and trends.
- Improved regulatory culture and outreach, and resource effective compliance and enforcement.

Question 22.

What innovative approaches could the review consider that could efficiently and effectively deliver the intended outcomes of the EPBC Act? What safeguards would be needed?

Sustained investment in biodiversity conservation yields significant benefits by safeguarding and enhancing ecosystem services that healthy biological systems provide to humans. In order to achieve desired outcomes, legislation will still need to establish some process requirements, transparency and accountability safeguards and mechanisms. For example, if referral criteria are made clearer, legislation would be an important safeguard should the Act not be adequately addressing and emerging environmental issue.

Question 23.

Should the Commonwealth establish new environmental markets? Should the Commonwealth implement a trust fund for environmental outcomes?

Any environmental market must be based on clear scientific principles and limits or they may have the unintended consequence of increasing the degradation of biodiversity values. Such opportunities would be operating in an increasingly volatile market as significant environmental regime shifts continue to occur. This necessitates robust monitoring and evaluation so that adaptive management can be implemented. Being reliant on a stable environment is now high risk and requires multiple ongoing checks to ensure suitable practice is implemented in a dynamic manner.

Trust funds for environmental outcomes have many benefits including the ability to deliver strategically planned environmental outcomes, rather than ad-hoc protection. These benefits are reliant on strong governance and accountability arrangements that ensure a clear definition and purpose of the trust is identified. Recommendations on appropriate environmental works should be made by independent experts with specialist expertise in the relevant disciplines. Public scrutiny of decisions, including publication of information where decisions have been made that are contrary to scientific recommendations should be accessible to the public. Mechanisms must also be implemented to ensure that accumulated funds are not used to undertake works that are the existing responsibility and core business of Government and are not used to fund corporate environmental obligations required under other legislation.

Question 24.

What do you see are the key opportunities to improve the current system of environmental offsetting under the EPBC Act?

Expansion of industrial development into the coastal and marine environment is placing increasing pressure on marine biodiversity, and the well-being and security of the vast number of people it supports. Environmental conservation is now widely recognised as fundamental to long-term sustainability. Governments and lenders increasingly require developers to achieve more stringent biodiversity outcomes through application of the mitigation hierarchy. Biodiversity

offsets may be needed to address unavoidable residual impacts to areas of high biodiversity significance.

Relatively few marine offsets have been implemented in Australia and these have been mainly in coastal rather than offshore environments, i.e. Gladstone Harbour, Barrow Island, Darwin Harbour. Marine offsets are thus still viewed as novel, and as particularly challenging. However, the principles and methods of offset design and implementation are the same whether on land or sea, and similar challenges apply. Lessons learnt from terrestrial offset application are therefore likely to apply equally to the marine environment.

Differences between marine and terrestrial systems exist, including in ecology, the availability of biodiversity information to understand impacts and the governance of natural resources. The connective nature of marine systems can make it difficult to disentangle project- and non-project related impacts. Effective mitigation, including offsets, therefore requires a good understanding of the wider oceanographic and ecological baseline, as well as other human influences, typically across much broader spatial and temporal scales than on land.

As with remote areas on land, the lack of reliable biodiversity data can also be an issue for design and implementation of marine offsets. Ocean sampling, particularly further offshore and in deeper waters, is inherently challenging and expensive. Much of the available information is based on modelled predictions from only a limited number of sampling sites. Robust biodiversity information is necessary to understand feasibility and effectiveness of offsets. Marine offsets may thus need more resources for baseline and monitoring data collection than equivalents on land

Despite the differences, approaches to marine offsets are similar to those on land: restoration actions to remediate past (non-project) damage; or averted loss actions to prevent anticipated damage in future. Policy-based offsets, aimed at changing policy and practice within a sector or industry, have seen little application on land but are particularly suited to some marine situations The high connectivity in marine environments may also promote ecosystem recovery. For example, restoration within highly dynamic systems such as estuaries and intertidal wetlands is greatly facilitated by the connectivity of the environment. Depleted fish stocks can also recover rapidly where their habitats are secured. Restoration of ecologically complex systems such as coral reefs is, however, significantly more challenging as such systems are unlikely to recover within any reasonable timeframe. Averted loss offsets have significant potential for addressing marine impacts, given the high threats to marine biodiversity and lack of effective protection. Many sites important for marine biodiversity conservation (such as Marine Parks) have already been identified, are typically unprotected and in need of management, and may be suitable as offset sites. Moreover, marine protected area networks are relatively underdeveloped: just over 5% of the world's oceans are under some form of protection (compared to 15% on land), far below global conservation targets.

There is significant potential for business to work with governments (and, where relevant, local communities) to develop offsets that align with conservation goals under existing national policies and plans. Such offsets are likely to be lasting, receive high stakeholder support, and offer potential for sustainable implementation and management partnerships. The high seas, beyond areas of national jurisdiction, comprise 64% of the ocean surface and nearly 95% of its

volume. Implementation of offsets here is complicated by the lack of clear and effective ocean governance. The most effective approach may be supporting policy changes, such as through interventions that aim to address by-catch impacts from industrial fisheries.

Offsets are likely to see continued and wider application within the marine environment as business expand their operations into sensitive coastal and offshore environments, and as an increasing number of lenders and governments implement more rigorous mitigation standards that require the use of offsets. State and Territory governments have or are developing policies specifically around marine offsets, and existing legislation often recognises impacts on coastal and marine environments. Offsets should remain a last resort, rather than a matter of course. Offsets generally have high uncertainty and significant costs, particularly in marine environments. Early screening of biodiversity risks and exploration of alternatives for infrastructure siting and design can help businesses avoid these risks. Recognition of the potential costs and difficulty of offsets can often help motivate project redesign and lead to innovative solutions that save costs and improve the reputational standing of businesses. Some examples of marine offsets might include:

Averted loss: Supporting the establishment and management of marine protected areas; supporting local communities to improve fisheries management and reduce impacts to threatened fish species; Implementing upstream pollution and sedimentation controls to improve water quality for coastal ecosystems; Compensatory mitigation measures, such as addressing impacts to seabirds from fisheries by-catch by controlling invasive rodents on islands with important seabird colonies; Removing invasive species from reefs to reduce predation of native species.
Restoration: Active restoration: transplanting mangrove, seagrass and coral stock from healthy to degraded ecosystems; Passive restoration: creation of suitable hard substrates for resettlement of corals as was undertaken for the Dampier port upgrade in WA.
Policy-based: Supporting uptake of turtle excluder devices in net fisheries to reduce marine turtle bycatch; Changing longline fishing practices to reduce by-catch of sharks and dolphins (e.g. changing/modifying gear type, night setting, temporary closures etc.); Establishing and enforcing seasonal ‘no take’ zones.

Question 25.

How could private sector and philanthropic investment in the environment be best supported by the EPBC Act?

- **Could public sector financing be used to increase these investments?**
- **What are the benefits, costs or risks with the Commonwealth developing a public investment vehicle to coordinate EPBC Act offset funds?**

Philanthropic support of marine environmental research and restoration is a new but emerging form of funding for marine scientists and marine environmental managers. Enhanced opportunities to leverage philanthropic support with support via the EPBC Act could enhance opportunities to research both the drivers of marine biodiversity loss and solutions for its protection or assisted return (e.g. through restoration activities). Such support would increase

both the attractiveness of philanthropic and private sector investment in the environment and the scope, depth and breadth of projects aimed at conserving or where that has failed then restoring environments and ecosystems.

Question 26.

Do you have suggested improvements to the above principles? How should they be applied during the review and in future reform?

In addition to the principles of ESD, AMSA suggests the following principles:

Effective Protection of Australia's environment
Protecting Australia's unique environment and heritage through effective, clear and focussed protections for the benefit of current and future generations.

Indigenous knowledge and experience
Ensuring the role of Indigenous Australians' knowledge and experience in managing Australia's environment and heritage.

Improving inclusion, trust and transparency
Improving inclusion, trust and transparency through better access to information and decision making, and improved governance and accountability arrangements.

Supporting partnerships
Support partnerships to deliver for the environment, supporting investment and creating new jobs.

Integrating planning
Streamlining and integrating planning to support ecologically sustainable development.

AMSA supports the intent of these as guiding principles for legislative design, noting that they are not legal principles, and the detail for how they are implemented must be provided for in both legislation and regulatory practice.

Question 27. – Question 30.

Is the EPBC Act delivering what was intended in an efficient and effective manner?
How well is the EPBC Act being administered?
Is the EPBC Act sufficient to address future challenges? Why?
What are the priority areas for reform?

AMSA considers that the EPBC Act has not delivered any measurable progress or achievement in reaching any of the Aichi Biodiversity targets. Since the Act was established, biological diversity in Australia (and globally) has declined with alarming rapidity suggesting that administration of the Act has been ineffective.

As challenges continue to become more complex and more serious, it is highly unlikely that the EPBC Act will be sufficient to address future challenges.

In summary AMSA suggests:

- Address the causes of declines in biological diversity and arrest them - with extreme urgency and incentivise restoration actions
- Consideration of longer time periods in decision making processes (including cost-benefit analyses)
- Clearer rules and objectives with reduced regulatory burden at all levels
- Accountability for inappropriate conduct that undermines the Act, clear incentives to uphold and adhere to the Act at all levels of business, government and society.
- Better economic models that include ecosystem services and the cost of restoring, replacing or synthesising them in cost-benefit analyses.

Question 31.

What changes are needed to the EPBC Act? Why?

Several changes to the Act are identified in our response. To summarise the changes we propose an update of the EPBC Act to include:

A new object for the EPBC Act as there is a lack of an overarching policy to establish a clear vision for the protection and sustainable management of Australia's environment.

Improved collaboration and coordination of policies, decisions and management arrangements across sectors and between managers (public and private)

Connectivity between policy and actions

A focus on data requirements that can be applied to long-term monitoring, this will enable the development of effective policy and management and establish adequate early warning of threats.

Sufficient resources for environmental management and restoration

Improved understanding and capacity to identify and measure cumulative impacts, which reduces the potential for coordinated approaches to their management.

Question 32.

Is there anything else of importance to you that you would like the review to consider?

AMSA implores the review process to consider the urgency of these issues. The lack of measurable progress or achievement in reaching any of the Aichi targets has delayed Australia's meaningful movement towards ecologically (and therefore economically and socially) sustainable development by more than a decade. Marine and coastal biodiversity have sharply

declined in the past decade and the preceding century. More effective action needs to be taken - urgently - to protect what remains and restore as much of what has been lost, as possible.

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