



EDOs of Australia

Inquiry into the impacts of climate change on marine fisheries and biodiversity

14 November 2016

EDOs of Australia (formerly ANEDO, the Australian Network of Environmental Defender's Offices) consists of eight independently constituted and managed community legal centres located across the States and Territories.

Each EDO is dedicated to protecting the environment in the public interest. EDOs:

- provide legal representation and advice,
- take an active role in environmental law reform and policy formulation, and
- offer a significant education program designed to facilitate public participation in environmental decision making.

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Introduction

Environmental Defenders Offices of Australia (**EDOA**) welcomes the opportunity to provide input to the Inquiry into the impacts of climate change on marine fisheries and biodiversity.

EDOA consists of eight independently constituted and managed community legal centres located across the States and Territories. Each EDO is dedicated to protecting the environment in the public interest. EDOs:

- provide legal representation and advice,
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- offer a significant education program designed to facilitate public participation in environmental decision making.

Given our specific expertise, our comments to this Inquiry focus on the regulatory framework for managing the impacts of climate change on marine fisheries and biodiversity. These comments are provided primarily in response to the following Term of Reference:

(g) the adequacy of current and proposed marine biodiversity protections given current and projected climate change impacts

This submission addresses:

1. Context
2. Assessing Climate Change Readiness
 - Legislative objectives and goals
 - Decision making and management tools
 - Reduction of non-climate change stressors
 - Establishment of a network of marine protected areas
 - Ecosystem-based management
 - Recognising and managing for uncertainty
 - Better integration of regulation across sectors and jurisdictions
3. Legislative frameworks for marine biodiversity
 - Environment Protection and Biodiversity Conservation Act 1999*
 - Great Barrier Reef Marine Park Authority Act 1975*
 - Fisheries Management Act 1991*
 - Offshore extractives legislation
 - Antarctic legislation

1. Context

Australia possesses some of the most biodiverse marine environments in the world, ranging from tropical coral reefs in the north to giant kelp forests in the cool waters of the south. Australia also has incredibly high levels of endemism (the percentage of species found nowhere else in the world) including 85% of fish species, 95% of molluscs and 62% of temperate seaweeds.¹ It is therefore unsurprising that a number of Australia's marine ecosystems are of international significance, with the Great Barrier Reef (Queensland), Shark Bay (Western Australia) and the Ningaloo Coast (Western Australia) classified as World Heritage areas.

Our unique marine biodiversity is, however, threatened by a range of factors including coastal development, pollution, over-exploitation of fisheries, and climate change. We refer the Committee to programs such as the CSIRO marine climate adaption program² and the National Climate Change Adaptation Research Facility³ for more information on the scientific evidence regarding current and future impacts of climate change on marine fisheries and biodiversity.

Despite the breadth of reliable data concerning actual and projected impacts of global warming on our unique marine life, Australia is only in the very early stages of adapting to climate change. Without detracting from the urgent need to drastically reduce greenhouse gas emissions at both an international and national level, this submission focusses on Commonwealth laws and their ability to facilitate adaptation of marine biodiversity to climate change.

Whilst this submission prioritises laws that are designed to protect marine biodiversity, some analysis of other key legislation that may impact upon marine biodiversity is included. This integration is necessary given the inherently dynamic nature of the marine environment requiring threats to be considered at multiple spatial and geographical scales. Although only briefly addressed here, it is equally important that state based legislation appropriately considers impacts of climate change on marine fisheries and biodiversity.

¹ Hobday, A.J., Okey, T.A., Poloczanska, E.S., Kunz, T.J. & Richardson, A.J. (eds) 2006. Impacts of climate change on Australian marine life: Part B. Technical Report. Report to the Australian Greenhouse Office, Canberra, Australia. September 2006.

² <http://www.csiro.au/en/Research/OandA/Areas/Assessing-our-climate/Climate-adaptation-research/Marine-climate-adaptation>.

³ <https://www.nccarf.edu.au/>.

2. Assessing Climate Change Readiness

Management of the marine environment in the face of climate change needs to maximise the environment's resistance, resilience and adaptability to climate change. Australia's laws need to facilitate the ability of marine fisheries and biodiversity to respond to climate change impacts.

2.1. Legislative objectives and goals

Commonwealth legislation, particularly conservation and natural resource management legislation, needs to be fundamentally re-oriented to focus on, and be ready for, a future affected by climate change. This will include re-focusing the objectives of legislation to address matters such as the need to promote ecosystem resilience and adaptive capacity; to recognise that ecosystems need to be the foundation of decision-making, planning and management; and to adopt risk and management frameworks that can respond to climate change. All relevant sectoral legislations must incorporate climate change considerations.

2.2. Decision making and management tools

As Feldman and Kahan (2007) have noted 'although it is known that climate change impacts will happen and studies have estimated and located vulnerabilities, the details of future scenarios, in terms of timing, scale and severity, cannot be known with certainty... however, even without precise knowledge of future events, proactive policy planning for climate change adaptation improves the overall preparedness by integrating adaptation considerations into the decision-making process'.⁴

To ensure the regulatory framework for marine biodiversity is 'climate ready', decision-making must be framed by robust and rigorous climate change mitigation and adaptation principles, with sufficient flexibility to implement actions that are appropriate and targeted to local conditions. Decision making powers within existing structures need to include mandatory requirements to consider the impacts of the decision on climate change and natural and anthropogenic features that may be affected by climate change, including future impacts. This decision making framework needs to be applied across all sectors, not just to legislation specifically directed to conservation.⁵ Climate change considerations for adaptation included in policy formulation, planning, program management, project design, and project implementation.⁶

⁴ Feldman I and Kahan J, 'Preparing for the Day after Tomorrow: Frameworks for Climate Change Adaptation' (2007) 8 *Sustainable Development Law and Policy*.

⁵ See for example a recent EDO NSW paper identifying ways to incorporate climate change considerations in planning legislation Planning for climate change: how the NSW planning system can better tackle greenhouse gas emissions, available at: http://www.edonsw.org.au/planning_for_climate_change.

⁶ Feldman I and Kahan J, 'Preparing for the Day after Tomorrow: Frameworks for Climate Change Adaptation' (2007) 8 *Sustainable Development Law and Policy*.

2.3. Reduction of non-climate change stressors

Reduction of non-climate related stressors is needed to restore the capacity of marine ecosystems to resist or adapt to climate change. Management activities such as ensuring fisheries are sustainable, improving coastal water quality, controlling invasive species, and managing freshwater inflows to estuaries⁷ should be prioritised. Management of coastal land also needs to take into account changes which will occur under climate change, including the future habitat needs of marine species and ecosystems. For example, where marine species use beaches or other coastal land for breeding and nesting (such as turtles and seabirds), management of both current and identified future sites and habitats may be critical.

2.4. Establishment of a network of marine protected areas

The establishment of a comprehensive, adequate and representative system of no-take marine protected areas (MPAs) is vital. EDOA refers the Committee to our previous comments on the existing marine bioregional planning and marine protected area processes.⁸ In a climate change context, appropriately placed MPAs should provide climate refugia,⁹ maximise functional connectivity between protected areas to enhance the potential for range shifts, protect areas in which key ecological processes occur e.g. feeding aggregations and breeding or spawning grounds,¹⁰ and be situated to allow for a range of species dispersal distances, which for some species, are predicted to change with increasing sea temperatures.¹¹

2.5. Ecosystem-based management

Ecosystem based management aims to “maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need”.¹² The goal of maintaining resilient ecosystems, means ecosystem-

⁷ Hobday, A. J., T. A. Okey, et al. (2006). Impacts of climate change on Australian marine life: Part A. Executive Summary. Report to the Australian Greenhouse Office. Canberra, Australia ; Cheung, W. W., V. W. Lam, et al. (2009). *Projecting global marine biodiversity impacts under climate change scenarios*. Fish and Fisheries 10: 235-251; Keller, B., D. Gleason, et al. (2009). *Climate change, coral reef ecosystems, and management options for marine protected areas*. Environmental Management 44(6); Nicholls, R. J., P. P. Wong, et al. (2007). *Coastal systems and low-lying areas*. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden and C. E. Hanson, Eds. Cambridge, Cambridge University Press.

⁸ Previous EDOA submissions in relation to Commonwealth marine bioregional planning and MPAs are available at: <http://www.edo.org.au/coastal1>.

⁹ The identification and inclusion in MPAs of climate refugia or resilient areas has not been done in Australia, though it has been identified as a research priority in the Great Barrier Reef Marine Park. See for example Marshall, P. A. and J. E. Johnson (2007). *The Great Barrier Reef and climate change: vulnerability and management implications*. In: J. E. Johnson and P. A. Marshall, ed. Climate change and the Great Barrier Reef. Australia, Great Barrier Reef Marine Park Authority and Australian Greenhouse Office.

¹⁰ Keller, B. and B. Causey (2005). *Linkages between the Florida Keys National Marine Sanctuary and the South Florida Ecosystem Restoration Initiative*. Ocean & Coastal Management 48: 869-900, McLeod, E., R. Salm, et al. (2009). *Designing marine protected area networks to address the impacts of climate change*. Frontiers in Ecology and the Environment 7: 362-370.

¹¹ Munday, P., J. Leis, et al. (2009). *Climate change and coral reef connectivity*. Coral Reefs 28(2): 379-395.

¹² McLeod, K. L., J. Lubchenko, et al. (2005). Scientific consensus statement on marine ecosystem-based management. Signed by 221 academic scientists and policy experts with relevant expertise, Communication Partnership for Science and the Sea. At <http://compassonline.org/?q=EBM> accessed 5/11/10.

based management will assist in maximising the preparedness of the marine ecosystem for climate change.¹³ In the absence of a complete understanding of each ecosystem's processes, maximising diversity in an ecosystem maximises adaptability.¹⁴

2.6. Recognising and managing for uncertainty

Uncertainty regarding the precise scale and location of impacts under future climate change scenarios means that precautionary management approaches including flexible, adaptive management will be critical. For example, establishing MPAs in a variety of temperature regimes protects against the uncertainty regarding changes in ocean temperature.¹⁵ Managers need to recognise that unexpected changes will occur and implement a management regime that can accommodate a variety of change outcomes.

2.7. Better integration of regulation across sectors and jurisdictions

Neither climate change nor marine species and habitats recognise jurisdictional boundaries and the impacts of climate change on marine fisheries and biodiversity will not be limited by them. As such, effective responses to climate change must include strong, integrated regulation across sectors and jurisdictions. Sectoral legislation is currently oriented around 'activities' and non-ecosystem based delineations. For example, fisheries management is generally structured around species or catch techniques or jurisdiction (Commonwealth/ State), rather than ecosystems. Such distinctions limit the ability to respond to marine ecosystem changes. It can also result in inconsistent protection measures for individual species in different jurisdiction.

A brief review of state-based legislation shows that NSW and South Australia are the only States to recognise climate change in relevant marine legislation and even these references fall far short of what is required to properly integrate climate change and climate change adaptation into decision making. Victoria is currently considering the introduction of a new Marine and Coastal Act that may address climate change impacts. Queensland, while making no legislative reference to climate change has since 2013, developed the *Reef 2050: Long-Term Sustainability Plan (Reef 2050 Plan)*¹⁶ that focuses on water contamination due to land use and climate change. To effectively address the challenges that climate change pose will require a much stronger, integrated focus on climate change readiness.

¹³ Hobday, A. J., B. Mapstone, et al. (2009). Chapter 2: Enhancing species adaptation to climate change Report card of marine climate change for Australia; detailed scientific assessment, NCCARF Publication 05/09.

¹⁴ Levin, S. and J. Lubencho (2008). *Resilience, robustness, and marine ecosystem-based management*. Bioscience 58(1).

¹⁵ McLeod, E., R. Salm, et al. (2009). *Designing marine protected area networks to address the impacts of climate change*. *Frontiers in Ecology and the Environment* 7: 362-370.

¹⁶ Full report available at: <http://www.environment.gov.au/marine/gbr/publications/reef-2050-long-term-sustainability-plan>

3. Legislative frameworks for marine biodiversity

This part considers how existing Commonwealth legislation works to protect marine biodiversity and facilitate marine fisheries and biodiversity adaptation to climate change, in light of the climate change readiness factors discussed above.

3.1. *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**) is the key environmental legislation at the Commonwealth level, and generally is directed to protecting 'matters of national environmental significance' (**MNES**). Many of these matters are the subject of an international convention or treaty to which Australia is a party, for example, those addressing World Heritage Areas,¹⁷ Ramsar wetlands,¹⁸ and migratory species.¹⁹ MNES also include nationally-listed threatened species and ecological communities and Commonwealth marine areas.²⁰

Objects and Scope

The objects of the EPBC Act²¹ which guide decision-making processes, include providing for the protection of the environment, especially those aspects of the environment that are MNES; promoting ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and promoting the conservation of biodiversity. In order to assist species to adapt under future climate change scenarios, the EPBC Act should incorporate a new object specifically referring to strengthening ecosystem resilience and adaptive capacity of ecosystems, and facilitating adaptation.

One of the key ways the EPBC Act operates to protect biodiversity is by requiring the approval of the Minister for 'controlled actions': activities likely to have a significant impact on MNES. A key gap in the climate readiness of the EPBC Act is the lack of a 'greenhouse trigger' that requires referral to the Commonwealth of proposals that are likely to be a significant contributor to climate change. A greenhouse gas trigger was one recommendation from the 10-year independent review of the EPBC Act (the Hawke Review).²²

Another recommendation of the Hawke Review was the introduction of a new MNES, 'ecosystems of national significance', which would allow, amongst other things, the ability to protect significant climate refugia. This would enhance the effectiveness of site scale assessments in the context of climate change, as it

¹⁷ Convention concerning the Protection of the World Cultural and Natural Heritage (1972).

¹⁸ The Convention on Wetlands of International Importance (1971).

¹⁹ The Convention on the Conservation of Migratory Species of Wild Animals (1979).

²⁰ Commonwealth marine areas include any waters within the exclusive economic zone and any waters over the continental shelf, except waters that have been vested in a State or the Northern Territory.

Commonwealth marine areas also include the airspace and seabed above and below such waters: s24

²¹ *Environment Protection and Biodiversity Conservation Act 1999* s.3

²² Hawke, A. (2009) *The Australian Environment Act: Report of the Independent review of the Environment Protection and Biodiversity Conservation Act 1999*. Available at:

<https://www.environment.gov.au/resource/australian-environment-act-report-independent-review-environment-protection-and>.

would provide for greater scope for the holistic impacts on important ecosystems to be considered; an important focus for building resilient and well-functioning, diverse ecosystems.

Environmental Approvals and Impact Assessment (site scale assessment)

While an important consideration, the focus of EPBC Act assessment on individual MNES from a single development, makes it difficult for a decision maker to take into account holistic, ecosystem-based impacts, or cumulative impacts, all of which will be exacerbated by climate change. To ensure site scale assessment processes can work to meet the challenges posed by climate change in the marine environment, the EPBC Act should mandate that decision makers are required to consider the future impacts of climate change. The Hawke Review recommended that the Minister should be required to consider the reasonably foreseeable impacts of decisions on the ability of a protected matter to adapt to current and emerging threats (which would include climate change). Given the effects of climate change are already being seen in Australia,²³ climate change impacts should be mandatory considerations in the various decision-making processes under the EPBC Act, and incorporated throughout assessments and management plans. This should include marine bioregional planning, critical habitat listings, and threat abatement planning.

Landscape scale (strategic) assessment

Part 10 of the EPBC Act enables the carrying out of strategic assessments which are focused on protecting biodiversity at a landscape scale.²⁴ EDO NSW has expressed serious concerns about the use of strategic assessments to date, but recognises that when done well, they have the potential to facilitate an ecosystem-based assessment approach better suited to assessing and responding to climate change impacts. However, as the EPBC Act currently stands, there are inadequate criteria to guide strategic assessments, particularly in the context of climate change. To address this, strategic assessment provisions should be amended to require the mandatory assessment of possible future climate change scenarios and identify adaptation measures in the strategic assessment process in accordance with an overall 'improve and maintain' test for ecological functions. This would also extend to requiring the Minister to consider those climate change scenarios when determining whether or not to approve a policy, plan or program. In order to promote responsiveness and adaptive management, strategic assessments should also be subject to regular review, especially for activities like fisheries that have the potential to collapse or change dramatically in response to climatic conditions.

Threatened ecological communities and critical habitat

A significant problem for marine biodiversity is the lack of marine species and ecosystems on these lists; for example only two of 80 listed ecological

²³ For more information see: <http://www.csiro.au/en/Research/OandA/Areas/Oceans-and-climate/Climate-change-information>.

²⁴ *Environment Protection and Biodiversity Conservation Act 1999* Part 10.

communities are of the marine environment. This clearly limits the effectiveness of other tools under the EPBC Act, which may only be triggered where listed threatened species and ecological communities are involved. Climate change resilience and adaptive capacity will rely on protecting and supporting diverse and functional ecosystems. An assessment of ecological communities and species at risk from climate change is urgently required. This could be included, for example, in a comprehensive national ecosystems assessment for Australia.²⁵

Similarly, enhanced use of tools such as the identification and protection of 'critical habitat' will be required. Critical habitat, such as areas used for feeding, breeding and resting, are important for building resilience for species and ecosystems. Yet critical habitat protections only cover Commonwealth (not state) land and waters; they are not mandatory for all listed species; and the current Register contains critical habitat for just five species.²⁶ Recognising its importance, the 2009 Hawke Review of the Act proposed an amendment to require that critical habitat be identified at the time of listing a threatened species (recommendation 12(1)). This should be supported. Further, there is a need to improve identification of critical habitat for species *already listed* as threatened. An increased use of this tool, including enabling buffer zones of critical habitat to be identified and protected, should be undertaken. However, it will also be necessary to consider how these areas will change under climate change, e.g. feeding grounds for particular species that have a large range such as whales could vary from year to year depending on changing oceanic conditions. Creating flexible regulatory provisions to ensure that future habitat, including climate refugia, can be identified and protected will also be required.

Key threatening process and threat abatement planning

Greater use of threat abatement planning would be consistent with the key principles of marine biodiversity adaptation, being the need to reduce human threats and stressors, to build resilient and well-functioning ecosystems and to focus on ecosystem or landscape scale management. However, given the limited use of these processes to date, changes will need to be made to the provisions for key threatening processes and threat abatement planning to drive their use. The Hawke Review recommended that the EPBC Act be amended to allow greater flexibility in the development of recovery and threat abatement plans, particularly to allow for their development at regional scales. While re-iterating our previous concerns about a lack of focus on species recovery,²⁷ if applied appropriately, such an approach could be appropriate for marine regions and ecosystems.

Marine bioregional planning and MPAs

EDOA and individual EDOs have made extensive comments about the current marine bioregional planning processes, including the development of marine

²⁵ See, for example, the UK National Ecosystems Assessment and follow-ups: <http://uknea.unep-wcmc.org/>.

²⁶ (For example, albatross habitat on remote islands off Tasmania. See <https://www.environment.gov.au/cgi-bin/sprat/public/publicregisterofcriticalhabitat.pl>.)

²⁷ Previous EDOs of Australia submissions on the EPBC Act review (2008-09) are available at: <http://www.edo.org.au/biodiversity1>.

protected areas, and the need for stronger protection of the marine environment.²⁸ Marine bioregional plans could be an extremely effective management approach to marine biodiversity under climate change, as they approach planning and management of the marine environment on an ecosystem basis, and have the capacity to consider a wide range of values and objectives. However, the enabling provisions in the EPBC Act should be expanded to include a mandatory requirement that climate change impacts be considered in the planning process, including consideration of uncertainty about climate impacts, and the need for scientifically based adaptive management. These amendments would enable bioregional planning to be an overarching tool to address climate change in the marine environment, because it would integrate consideration of a range of objectives and activities at a landscape (or seascape) scale, as well as incorporating appropriate complementary tools to remove stressors and enhance the adaptive capacity of the subject region.

As noted, MPAs have also been identified as a key factor for consideration in climate change planning. Current proposals for the MPA network are well below those recommended to provide 'comprehensive, adequate and representative' reserve system.²⁹ As previously discussed, there is a general need to expand MPAs, particularly no-take or sanctuary zones, to include larger areas covering a greater range of habitats. A comprehensive, adequate and representative system of sanctuary zones will significantly reduce other stressors on marine ecosystems, and thereby increasing the resilience of these ecosystems. Over time, new MPAs will also need to be identified in areas that may become vulnerable under climate change or important for species as they migrate and change in range.

3.2. Great Barrier Reef Marine Park Authority Act 1975 (Cth)

The *Great Barrier Reef Marine Park Act 1975 (GBRMP Act)* governs the use and management of the Great Barrier Reef, to provide for the long term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region.³⁰ The GBRMP Act does not specifically refer to the need to promote climate change adaptation, either as part of the principles and objectives that guide the GBRMP Act, nor in terms of the functions of the Great Barrier Reef Marine Park Authority (**GBRMPA**). While the GBRMP Act and associated regulations attempt to provide an integrated approach to managing the Great Barrier Reef Marine Park, and scope to utilise the various tools under the EPBC Act, the GBRMP Act does not specifically facilitate the inclusion of climate change concerns within zoning plans and plans of management. This could be improved to ensure that the GBRMP Act is 're-oriented' to prepare for climate change.

²⁸ EDOA submissions on the <http://www.edo.org.au/coastal1>.

²⁹ Our recent submission on the Reports of the independent Commonwealth Marine Reserves Review - 31 October 2016, is available at: https://d3n8a8pro7vhmx.cloudfront.net/edonsw/pages/1960/attachments/original/1478146515/Marine_Reserves_Review_Reports_EDOs_of_Australia_Submission_October_2016.pdf?1478146515.

³⁰ *Great Barrier Reef Marine Park Authority Act 1975* s. 2A(1).

The Reef 2050 Plan, which was developed to respond to the World Heritage Committee's recommendation that Australia develop a long-term plan for sustainable development to protect the Outstanding Universal Value (OUV) of the Reef, makes a number of references to climate change, listing it as one of the top four main pressures affecting the reef. This follows the GBRMPA's *Great Barrier Reef Climate Change Action Plan 2007–2012* and its *Great Barrier Reef Climate Change Adaptation Strategy and Action Plan 2012-2017*. However, the Reef 2050 Plan makes only modest commitments to specific actions concerning climate change, which is incommensurate to the threat it poses.

As discussed in the EDOA submission to the draft Reef 2050 Plan,³¹ EDOA remains concerned that the Reef 2050 Plan will not meet its objectives, in part as it fails to outline action to improve current laws that weaken protection of the Reef's OUV. Instead, the Plan expresses current, non-binding policy direction, and is inconsistent with state laws that permit significant carbon pollution.³² Despite the *Great Barrier Reef Intergovernmental Agreement 2015* objective "to ensure an integrated and collaborative approach by the Commonwealth and Queensland to the management of marine and land environments within and adjacent to the Great Barrier Reef World Heritage Area",³³ stronger commitments from the Queensland and Commonwealth Governments to amend the various laws which ultimately regulate impacts are required. In addition, making the Reef 2050 Plan enforceable by implementing it in legislation would be an effective means of giving long-term certainty.

3.3. Fisheries Management Act 1991 (Cth)

Ensuring sustainable fishing in Commonwealth waters through the *Fisheries Management Act 1991 (FM Act)* is critical given the importance of removing external stressors to maintain marine ecosystem resilience. EDOA's recent submission to the *Productivity Commission - Marine Fisheries and Aquaculture Inquiry: Draft Report*³⁴ highlighted the need for stronger integration between customary, commercial and recreational fisheries impacts and the need for stronger integration between State/Territory and Commonwealth jurisdictions.

As the Hawke Review noted, 'more needs to be done to ensure that Australian fisheries remain viable in the long term. This is particularly important in light of the mounting pressures on fisheries including the yet unquantifiable impact of climate change on fisheries and the marine ecosystem, public concern about the sustainability of commercial fish species, the interaction of fisheries with threatened marine species and ecological communities and the decline in some fish stocks in Australia and around the world'.

³¹ Full submission available at: <http://www.edo.org.au/coastal1>.

³² The Australian Academy of Science has also identified the need for climate change mitigation to avoid degradation of the Great Barrier Reef: <https://www.science.org.au/supporting-science/science-policy/position-statements/reef-2050-long-term>

³³ The Intergovernmental Agreement is available at: <http://www.environment.gov.au/marine/gbr/protecting-the-reef/intergovernmental-agreement>.

³⁴ Full submission available at: <http://www.edo.org.au/coastal1>.

On the whole, the focus of the FM Act is on managing species rather than ecosystems. Healthy ecosystems, supporting sustainable fishing opportunities, must become the new focus. The Australian Fisheries Management Authority (**AFMA**) should be given robust obligations to consider climate change in performing its duties under the FM Act. This could include requirements to develop strategies and scenarios through modelling of future impacts and changes in location of fish habitats, and for accommodating adaptive management strategies into plans of management. Consideration should also be given to explicit powers to make emergency declarations or management decisions based on climate change impacts, for example to prevent fishing in a particular area if oceanic conditions change and it becomes a critical breeding area. AFMA requires the tools to allow it to react quickly and efficiently as climate change impacts are realised.

3.4. Offshore extractive industries legislation

Offshore extractives industries are can be both a major contributor to climate change and a stressor in the marine environment. EDOA has commented elsewhere on the interaction between the EPBC Act and offshore extractive industries legislation³⁵ and our concerns in relation to the weakening of environmental assessment. These concerns are exacerbated when considered in light of the risks posed by climate change to the marine environment. This risk is two fold.

First, offshore extractive industries legislation focuses on minimising damage through environmental plans and licence conditions, and eventual remediating rather than on comprehensive consideration prior to the granting of licences of whether an extractive activity is appropriate in the context of climate change and the cumulative impact of approving extraction of new fossil fuels. For example, the *Offshore Minerals Act 1994* (Minerals Act) does not provide for any environmental assessment before a licence is granted, nor does it specifically provide that environmental matters must be taken into account when deciding to grant a licence. The *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* require an 'environmental plan' to carry out an activity under the Minerals Act. The regulator must approve the plan where there are reasonable grounds for believing that the plan, amongst other things, demonstrates that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable and the impacts and risks will be of an acceptable level. There is no explicit climate change trigger or consideration for decision-makers when forming a view on whether the environmental impacts will be acceptable.

Second, offshore extractive industries have the potential to act as significant stressors on the marine environment. Environmental assessments for extractive industry proposals should consider immediate and long term potential impacts on MNES. In the case of the *Offshore Petroleum and Greenhouse Gas Storage Act*

³⁵ See for example *ANEDO submission on streamlining of environmental approvals for offshore petroleum* December 2013 and *Consultation and Transparency Requirements for Offshore Petroleum Activities in Commonwealth Waters* April 2016, available at <http://www.edo.org.au/submissions>.

2006 this would include the exploration for and recovery of petroleum; the construction and operation of infrastructure facilities and pipelines relating to petroleum or greenhouse gas substances; the exploration for potential greenhouse gas storage formations, and the injection and storage of greenhouse gas substances. In the case of the *Offshore Minerals Act 1994* this would include the grant of exploration licences, retention licences, mining licences, works licences, and special purpose consents.³⁶

3.5. Antarctic Legislation

Australia has a number of legislative instruments through which it manages the 5.9 million square kilometres of Australian Antarctic Territory. These instruments include:

- *Antarctic Treaty (Environment Protection) Act 1980 (ATEP Act)*;
- *Antarctic Marine Living Resources Conservation Act 1981*;
- *Antarctic Treaty (Environmental Protection) (Environmental Impact Assessment) Regulations 1993*;
- *Antarctic Treaty (Environmental Protection) (Waste Management) Regulations 1994*; and
- *Antarctic Treaty (Environment Protection) Proclamation 2007 (ATEP Proclamation)*.

The ATEP Act (s 3) specifies that the Minister must act in a manner that is consistent with the 'basic environmental principles' set out in Article 3 of the Madrid protocol.³⁷ These principles include a requirement that activities in the Antarctic Treaty area 'will be planned and conducted so as to avoid adverse effects on climate or weather patterns'. The ATEP Proclamation recognises the importance of Antarctic environment in understanding the impacts arising from climate change. This limited recognition of climate change is insufficient to ensure appropriate consideration of impacts on marine fisheries and biodiversity. Antarctica legislation should be strengthened to explicitly recognise the threat to marine biodiversity posed by climate change and require consideration of these threats in decision making.

In summary, these key pieces of legislation need to be amended as described to ensure our unique marine biodiversity is adequately protected and managed in the context of the very real and serious impacts of climate change.

³⁶ *Offshore Minerals Act 1994*, s. 17.

³⁷ The Madrid Protocol designates Antarctica as a 'natural reserve, devoted to peace and science'; establishes environmental principles for the conduct of all activities; prohibits mining; subjects all activities to prior assessment of their environmental impacts; provides for the establishment of a Committee for Environmental Protection, to advise the ATCM; requires the development of contingency plans to respond to environmental emergencies; and provides for the elaboration of rules relating to liability for environmental damage. For more information see: <http://www.antarctica.gov.au/law-and-treaty/the-madrid-protocol>.