



Australian Government
Great Barrier Reef
Marine Park Authority

Committee Secretary
Senate Standing Committees on Environment and Communications
Department of the Senate
PO Box 6100
Parliament House
CANBERRA ACT 2600

REF - 2016-0186

Dear Committee Secretary

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

The Great Barrier Reef Marine Park Authority welcomes the opportunity to provide this submission to the Senate Environment and Communications References Committee. The Great Barrier Reef is a natural icon that contributes to Australia's national identity and is known around the world for its beauty, value and vulnerability to climate change.

Under the *Great Barrier Reef Marine Park Act 1975* (the Act), the Authority is responsible for the long-term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region through the care and development of the Great Barrier Reef Marine Park.

The Act and associated regulations provide high levels of protection and strict rules about what activities can take place on the Reef. For example, activities such as mining, oil drilling and gas extraction are prohibited and allowable uses are managed through the Great Barrier Reef Marine Park Zoning Plan and other management tools.

The Reef encompasses a wide range of habitat types such as coral reefs, seagrass meadows, tidal wetlands, open waters and islands. Its amazing biodiversity, range of habitat types, and sheer size are key elements of what makes the Reef special.

The [Great Barrier Reef Outlook Report 2014](#) found the overall outlook for the Reef ecosystem is poor and worsening. As an agency tasked with managing and protecting the Reef for current and future generations, the Authority remains extremely concerned about the current and future impacts of climate change on the Great Barrier Reef Marine Park and World Heritage Area. We are keenly aware that climate change remains the most serious threat to the Great Barrier Reef.

The 2009 and 2014 Great Barrier Reef Outlook Reports and the [Great Barrier Reef Region Strategic Assessment](#) report highlight the urgent need to halt increasing concentrations of global greenhouse gases and restore them to levels that will support growth, recruitment and recovery processes of the Reef ecosystem. Even a two degree Celsius rise would be a very dangerous level of warming for coral reef ecosystems, including the Great Barrier Reef. Indeed, the latest science indicates a stronger guardrail of less than 1.5 degrees Celsius is needed to ensure the Reef remains a coral-dominated system (e.g. Frieler et al. 2013).

Water that is too warm for too long causes corals to first bleach and then, if the warmth continues, to die. The current global mass coral bleaching event has caused significant damage to the Great Barrier Reef and demonstrates the potential of climate change to cause harm that cannot be ameliorated through local management or adaptation.

The impacts of climate change on marine biodiversity also affect social, cultural and economic values derived from the Great Barrier Reef. For example, healthy Reef habitats and animal populations underpin activities such as fishing, traditional use, recreation and marine tourism.

Commercial fishing and aquaculture in and adjacent to the Reef generate about \$160 million per year, and recreational fishing continues to be one of the most popular pastimes of Reef users. Environmental limitation and variability of many fish stocks is expected to increase under climate change and ocean acidification, and several vulnerability assessments have identified high risks for Queensland fishery species and their habitats (Morison and Pears 2012, Munday et al. 2012, Welch et al. 2014). Insights into the climate change concerns of fishing industry sectors and ecosystem managers are presented in a range of documents (e.g. GBRMPA 2011, GBRMPA 2012, Morison and Pears 2012, Donnelly 2011, Donnelly 2013) and perspectives on the implications of climate change for recreational fishing are in publications such as Creighton et al. (2013).

To support commercial and recreational fisheries and the Reef's biodiversity into the future it is fundamentally important that appropriate management is in place to protect the resilience of target and non-target fisheries species and their habitats. For example, maintaining high stock levels can help buffer fish populations from extreme weather impacts (such as heat waves or habitat damage from floods and cyclones) and cumulative pressures from human activities (such as those that modify coastal ecosystems, result in poor water quality and pollution, or interrupt fish life cycles and movement).

The Great Barrier Reef Outlook Report 2014 (Chapter 7) presents an assessment of the effectiveness of existing protection and management of the Great Barrier Reef and its biodiversity values. Additional information is provided in the 2014 comprehensive strategic assessment [Program Report](#) and the more recent [Reef 2050 Annual Report and Implementation Plan 2016](#).

The Queensland Department of Agriculture and Fisheries is currently working on fisheries management reform for Queensland (Queensland Government 2016). The Authority strongly supports careful consideration of climate change implications as part of this and subsequent processes.

The Great Barrier Reef Marine Park Authority continues to implement activities to support the resilience of the Reef to climate change, particularly through efforts to reduce other impacts. This includes working with our many partners to:

- Continue to implement and police the Great Barrier Reef Zoning Plan 2003, as well as progress vessel monitoring systems with the fishing industry to further protect the integrity of 'no take' areas.
- Continue efforts to protect coral reef habitat at key tourism sites and high value conservation sites by culling crown-of-thorns starfish.
- Work with Aboriginal and Torres Strait Islanders that live adjacent to the Great Barrier Reef to understand their traditional environmental monitoring systems (such as seasonal calendars) and how these are changing with climate change and what communities can do to adapt.
- Raise awareness of what climate change means for the Reef and its users through the Reef HQ Great Barrier Reef Aquarium, the Reef Guardians program, cross-sectoral committees, and other engagement with industries, government and communities.
- Make more people aware of the importance of restoring and reconnecting coastal ecosystems, and provide tools that inform regional planning processes.
- Lead an integrated Reef-wide monitoring and reporting program which will underpin delivery of the Reef 2050 Long-term Sustainability Plan -- early detection of changes in the Reef's environment is critical for effective management and protection of the Reef.
- Learn from the experiences of our international colleagues, and share our world-class protected area management knowledge, through platforms such as the International Coral Reef Initiative.
- Run a two year project involving more than 4000 people to reduce marine debris sources and occurrence in the Marine Park.
- Implement the Raine Island Recovery Project to protect and restore the island's critical habitat and support the future of key marine species including green turtles and seabirds.
- Encourage science that can inform management by providing input into research funding processes and directly supporting key projects.
- Inform the public about the importance of herbivorous fish to the recovery of corals from disturbances and the need to voluntarily protect them, through no-take.
- Enact new policy that further protects coral from the impacts of dredging.

More information on these activities is available in the [Great Barrier Reef Marine Park Authority Annual Report 2015-16](#) and other documents.

Yours sincerely

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