

Great Barrier Reef 2050 Partnership Program

Senate Environment and Communications References Committee Inquiry David Arthur Submission

The Terms of Reference for this Inquiry (https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/GBRPartnershipProgram/Terms_of_Reference) invite comment on the 2018–19 Budget Measure *Great Barrier Reef 2050 Partnership Program*, with particular reference to:

- A. the delivery of the Reef 2050 Plan, including through the Great Barrier Reef 2050 Partnership Program and through other avenues;
- B. the proficiency of the Great Barrier Reef Foundation and its capacity to deliver components of the Reef 2050 Plan;
- C. the proficiency of other organisations and their capacity to deliver components of the Reef 2050 Plan;
- D. the process of granting funding to the Great Barrier Reef Foundation for the Great Barrier Reef 2050 Partnership Program, the terms of agreement for funding, and the ongoing administration of funding;
- E. the prior activities and operations of the Great Barrier Reef Foundation, including research, public-policy advocacy and fund-raising;
- F. the establishment, governance and membership of the Great Barrier Reef Foundation, including the management of conflicts of interest and commercial interests; and
- G. any other related matters.

Rather than comment on whether employing a non-government organisation - the Great Barrier Reef Foundation (GBRF) - to meet the Commonwealth's responsibility to protect and maintain the Great Barrier Reef as a World Heritage property is appropriate, my comment relates to the inadequacy of limiting research and conservation activities to the waters of the Great Barrier Reef only. That is, my submission addresses only "related matters".

It is this author's recommendation that, in order to meet its World Heritage obligations, that the proposal for a Greater Great Barrier Reef Management Area as put forward by Jon Brodie and Richard Pearson in **Ecosystem health of the Great Barrier Reef: Time for effective management action based on evidence**. *Estuarine, Coastal and Shelf Science*. 10.1016/j.ecss.2016.05.008, (<https://www.sciencedirect.com/science/article/pii/S0272771416301469>) be adopted.

Brodie & Pearson's proposed Greater GBR Management Area is shown in the following map. Their 19 May 2016 article published online from which this map is taken is reproduced as an Appendix to this Submission.



Proposed boundaries of the Greater GBR Management Area. The area inside the red line is the GBR World Heritage Area and the shaded area is the proposed Greater GBR management area, including the GBR catchment, the GBRWHA, Torres Strait and Hervey Bay.

The Great Barrier Reef Foundation (GBRF) is a non-government organisation with which the Commonwealth Government has entrusted the Government's responsibility for maintaining the Great Barrier Reef as a World Heritage property.

GBRF is governed by a Board with 14 Directors (<https://www.barrierreef.org/the-foundation/our-governance>) with a range of expertise from marine science to engineering to finance and law, and professional careers in major institutions in academia, mining, finance and law.

What the GBRF Board lacks is expertise or experience with the greatest single threat to the Great Barrier Reef, namely the poor quality of water flowing to the GBR from Queensland rivers.

This poor quality is a consequence of historic and ongoing poor land management practices in farming, forestry and coastal development industries in terrestrial Queensland; the absence of expertise related to Queensland land use on the Board of the GBRF is noteworthy.

Poor water quality has been the subject of extensive work by James Cook University's Jon Brodie, including the 2016 paper Brodie co-authored with Richard Pearson, **Ecosystem health of the Great Barrier Reef: Time for effective management action based on evidence.** *Estuarine, Coastal and Shelf Science*. 10.1016/j.ecss.2016.05.008, the Abstract of which is reproduced here:

"The Great Barrier Reef (GBR) is a World Heritage site off the north-eastern coast of Australia. The GBR is worth A\$ 15-20 billion/year to the Australian economy and provides approximately 64,000 full time jobs.

"Many of the species and ecosystems of the GBR are in poor condition and continue to decline.

"The principal causes of the decline are catchment pollutant runoff associated with agricultural and urban land uses, climate change impacts and the effects of fishing.

"Many important ecosystems of the GBR region are not included inside the boundaries of the World Heritage Area. The current management regime for catchment pollutant runoff and climate change is clearly inadequate to prevent further decline. We propose a refocus of management on a "Greater GBR" (containing not only the major ecosystems and species of the GBR, but also its catchment) and on a set of management actions to halt the decline of the GBR. Proposed actions include:

- (1) Strengthen management in the areas of the Greater GBR where ecosystems are in good condition, with Torres Strait, northern Cape York and Hervey Bay being the systems with highest current integrity;
- (2) Investigate methods of cross-boundary management to achieve simultaneous cost-effective terrestrial, freshwater and marine ecosystem protection in the Greater GBR;
- (3) Develop a detailed, comprehensive, costed water quality management plan for the Greater GBR;

- (4) Use the Great Barrier Reef Marine Park Act and the Environment Protection and Biodiversity Conservation Act to regulate catchment activities that lead to damage to the Greater GBR, in conjunction with the relevant Queensland legislation;
- (5) Fund catchment and coastal management to the required level to solve pollution issues for the Greater GBR by 2025, before climate change impacts on Greater GBR ecosystems become overwhelming;
- (6) Continue enforcement of the zoning plan;
- (7) Australia to show commitment to protecting the Greater GBR through greenhouse gas emissions control, at a scale relevant to protecting the GBR, by 2025.”

On the basis that activities in terrestrial Queensland have major impacts on the GBR (including, for example, elevated nutrient content in riverine discharge due to land-clearing and farming practices to the GBR greatly aids crown-of-thorns larval growth, which is why there were no major crown-of-thorns outbreaks before 1962) Brodie and Pearson propose the establishment of a Greater GBR Management Area, which would include the full extent of coral reefs from Torres Strait in the North to the Great Sandy Strait in the south, and adjacent river catchments.

Appendix: 19 May 2016 'The Conversation' article by Jon Brodie and Richard Pearson

<https://theconversation.com/this-election-is-our-last-chance-to-save-the-great-barrier-reef-59381>

The Great Barrier Reef has been in the spotlight thanks to [severe coral bleaching](#) since March, leaving only 7% of the reef untouched. The bleaching, driven by record-breaking sea temperatures, has been [linked to human-caused climate change](#).

Apart from bleaching, the reef is in serious trouble thanks to [a variety of threats](#). [Many species and ecosystems](#) of the Great Barrier Reef are in [serious decline](#). It is now overwhelmingly clear that we need to fix these problems to give the reef the best chance in a warming world. In fact, the upcoming election is arguably our last chance to put in place a plan that will save the reef.

In a [recent paper](#), we estimate that we need to spend A\$10 billion over the next ten years - about five times as much as [current state and federal governments are spending](#) – to fix up reef water quality before climate change impacts overwhelm it.

Stop water pollution

Poor water quality is one of the major threats to the Great Barrier Reef. Sediment and nutrients (such as nitrogen) washed by rivers onto the reef cause waters to become turbid, [shutting out light for corals and seagrass](#). It can also encourage algal growth and outbreaks of coral-eating [crown-of-thorns starfish](#).

The Queensland and Australian governments have made [plans with targets to improve water quality](#), but the main plan - the [Reef 2050 Long Term Sustainability Plan](#) – is completely inadequate according to the [Australian Academy of Science](#). Its targets are [unlikely to be met](#). And [others](#) have suggested [ways to improve water quality](#) on the Great Barrier Reef.

To provide resilience for the Great Barrier Reef against the current and rapidly increasing climate impacts, water quality management needs to be greatly improved by 2025 to meet the targets and [guidelines](#). 2025 is important as it's likely that climate change effects will be overwhelming after that date. It is also the target date for the Reef 2050 Long Term Sustainability Plan.

What needs to be done

In our [recent article](#), we analysed what we need to do to respond to the current crisis, especially for water quality.

1. Refocus management to the “Greater Great Barrier Reef (GBR)” – that is, include management of Torres Strait, Hervey Bay and river catchments that run into the reef as priorities along with the world heritage area. This area is shown in figure above.
2. Prioritise management for ecosystems in relatively good condition, such Torres Strait, northern Cape York and Hervey Bay which have the highest current integrity. These areas should still be prioritised despite the recent severe bleaching in the northern Great Barrier Reef.

3. Investigate methods of cross-boundary management to achieve simultaneous cost-effective terrestrial, freshwater and marine ecosystem protection in the Greater GBR.
4. Develop a detailed, comprehensive, costed water quality management plan for the Greater GBR. In the period 2009-16, more than A\$500 million was spent on water quality management (with some success) without a robust comprehensive plan to ensure the most effective use of the funding.
5. Use existing federal legislation (the Great Barrier Reef Marine Park Act and the Environment Protection and Biodiversity Conservation Act) to regulate catchment activities that lead to damage to the Greater GBR, together with the relevant Queensland legislation. These rules were established long ago and are immediately available to tackle terrestrial pollutant discharge.
6. Fund catchment and coastal management to the required level to largely solve the pollution issues for the Greater GBR by 2025, to provide resilience for the system in the face of accelerating climate change impacts. The funding required is large – of the order of A\$1 billion per year over the next ten years but small by comparison to the worth of the Great Barrier Reef – estimated to be of the order of [A\\$20 billion per year](#).
7. Continue enforcement of the [zoning plan](#).
8. Show commitment to protecting the Greater GBR through greenhouse gas emissions control, of a scale to be relevant to protecting the reef (for example those proposed by the [Climate Change Authority](#)), by 2025.

Unless immediate action is taken to improve water quality, the onset of accelerating climate change impacts mean there is little chance the current decline in reef health can be prevented.