



Reef 2050 Plan

The Hon Tanya Plibersek MP
Minister for the Environment and Water

The Hon Leanne Linard MP
Minister for the Environment and the Great Barrier Reef, Minister for Science and Minister for Multicultural Affairs

Dear Ministers,

On 24 October 2022, Minister Plibersek wrote to the Independent Expert Panel (the Panel) to seek advice on the impacts of climate change across the Great Barrier Reef (GBR) and to identify ways to inform future decisions.

On 19 January 2023, I set out the Panel's intended approach, and indicated that a review of the latest knowledge would be required to support the Panel's advice. This approach led to three Roundtable discussions organised by the Australian Academy of Science and the final report has been delivered.

The Panel met (1 to 2 June 2023) to review the Roundtable outputs and to plan its response to the Minister's request. Members of the Reef Advisory Committee were invited to participate in the Panel's deliberation.

This response to Minister Plibersek's request is about the future. It considers the impact of climate change and identifies some of what we need to know, and to do, to support the complex ecosystem of the GBR in the face of unremitting global warming. The response identifies some of the key elements in the design and implementation of a future workplan. It is not, and was never intended to be, a review of existing policies and programs.

The Panel is aware that there are reports (e.g. Science Consensus Statement, Outlook Report) being developed in other parts of the portfolios, although it is not aware of the content. Clearly the case for oversight to ensure policy coherence is strong.

While the Panel has regularly advised that climate change is the greatest threat to the GBR and its complex ecosystem, the rapidity of that change in recent years requires a reassessment of the management of the GBR as it copes with the consequences of an unpredictable level of warming.

The key climate messages are:

- Planetary warming and consequential climate change is still the primary threat to the GBR – and getting worse as global greenhouse gas emissions continue to rise.
- The pace of change is without precedent in more than 800,000 years.
- In 2022 the atmospheric concentration Carbon Dioxide (CO₂), a long-lasting greenhouse gas if not the most potent, was 421ppm (parts per million). During the previous 800,000 years, it only once got as high as 300ppm 325,000 years ago until it got there again in 1910; it took longer than a thousand years to get from trough to each peak during that extended period.
- It is now different. The CO₂ concentration was 300ppm in 1910, 315ppm in 1955 when 6 billion tonnes of CO₂ were emitted. It topped 400ppm for the first time in more than 800,000 years in 2013, and by 2022, it was 421ppm when 37.1 billion tonnes were emitted.
- The impact is obvious. There have been six mass bleaching events of the GBR since 1998 – four in the past seven years – primarily attributable to elevated ocean temperature. None were observed on the GBR in the 3 to 4 decades of vessel-based scientific studies prior to 1998.
- The 'climate lag' of approximately 40 years means that the impacts of present (and still increasing) levels of greenhouse gases will not be felt for decades.
- Effective policies to eliminate greenhouse gas emissions are good policies for the planet, and for the GBR.

Conclusion

The GBR is in a transition driven by greenhouse gases emitted to levels unprecedented in 800,000 years. The planet continues to warm and greenhouse gas emissions continue to grow.

Management of the GBR will need to change; it cannot be business as usual; it cannot be the priorities and investments outlined today; it cannot be spending money because that is where it is spent today.

Decision-making for conservation and sustainable use of the GBR will need to be more selective and questions need to be asked, such as: which region/s should be the focus of attention - which reefs, which corals, which species, which ecosystems? Are particular human communities more vulnerable than others? Is there a selective impact on the biodiversity of the Reef? How and where to intervene? How to engage with the global, national and local communities affected by the change? How to invest in comprehensive and cohesive policies that allow all communities the dignity of informed decision making?

There is an opportunity to influence the trajectory of change by managing key drivers within our control – for example, water quality, fisheries, coastal development and resource use are all manageable with purposeful policies and their implementation.

Policies will need to be adaptable, and programs of work must be at scale, coherent and responsive. Policies therefore need to adjust quickly as new evidence that stands the scrutiny of peers informs the need for change. There are presently at least 58 programs supporting the GBR so alignment and coherence are critical. It is important to refine, improve and adapt the existing architecture to make it clearly fit for purpose in the context of the growing threats.

Recommended actions.

The present suite of policies for GBR management has served its purpose, yielding generally positive outcomes albeit with some weaknesses. The Panel has taken the view, however, that the current policy framework, and funding to support new knowledge and ultimately its translation is not flexible enough to cope with the rapidity of global warming, which shows no signs of slowing let alone stopping.

This is no time to wait for ‘perfect’ knowledge - risks to the GBR of various actions, and costs of inaction, both need to be assessed responsively as better data become available.

Management plans must be flexible to enable decision-makers to respond quickly as the ecological, social, economic and cultural values of the GBR are affected by global warming. In return, actions and investments should be evaluated and changed as necessary.

To adjust to a new and still unpredictable future for the GBR, questions include:

1. **Is there an appropriate and comprehensive level of regional planning in current management?** No, and there should be - forming the base on which appropriately selective policies, actions and foci are developed.

The GBR is no more a homogeneous entity than are the multiple communities that live and work near or on the Reef, the broader Australian community, and the global community. Each of these communities will ascribe cultural, social and economic values to the GBR, and they will not all be the same. The rich but fragile biodiversity of the GBR adds complexity.

Greater adoption of regional planning with supporting collation, analysis and interpretation of supporting knowledge at appropriate scales would include guidance on which activities undermine GBR outcomes, and which would be suitable for more intensive use.

Recommendations:

- Region-specific actions based on local characteristics, including their biodiversity, should be designed with local communities.
- Regional planning and regulation should include an assessment of any likely impact on the GBR – and include consideration of the unique characteristics and comparative benefits to the Reef in each region.
- Appoint cross-sectoral, culturally appropriate extension officers to assist communities understand the reality of climate impacts, the risk of not intervening and the opportunities for intervention.

2. **Is sustaining the GBR just about the marine environment?** No. It must include the impact of land use and resource development on the marine environment.

The land, sea and atmosphere of the GBR and its catchments are connected ecologically and culturally and the management of the GBR should recognise that connectedness. For example, there is no obvious value in allowing land clearing in the catchments and then spending money trying to clean up the resulting poor water quality before it adversely affects the GBR.

The Roundtables heard that current legislation is not always applied due to political pressure. Whether or not that is borne out by analysis, policies and accompanying rules and regulations should be clear practical instruments – with limits on discretionary use.

Recommendations:

- Nominate ‘Regional Management Zones’ that include an area from the catchments to the deep water offshore – i.e. hinterland, coast, inshore and offshore.
- Investigate opportunities to encourage and increase co-benefits of multiple actions (e.g. water quality, productivity, biodiversity, carbon, community value) to spread value.
- Develop cohesive policies, rules and regulations to manage the Zones – accommodating differences between regions and coordination across jurisdictions and local communities.
- If discretion is permitted in regulations, there should be transparency in its use, and clarity regarding who is using it, why and when.
- Relevant agencies operating in the GBR should be able to provide free, frank and open assessments of GBR ‘health’ without interference.

Riparian vegetation repair represents a ‘no-regrets’ activity that will have multiple biophysical and cultural benefits within the Management Zones.

- Accelerate the identification and prioritisation of work in catchment areas to improve coastal and catchment ecosystems.

3. **How embedded is community engagement?** Not enough. It is neither consistent nor comprehensive.

The social, cultural and economic values communities enjoy from the GBR will change with warming. Understanding these values and how they change will provide an opportunity to manage for future values rather than being limited to what we identify with now.

To achieve the behavioural changes necessary to ‘manage the GBR’, deep, meaningful, respectful and consistent engagement with each community is essential. And it must be tailored to their specific characteristics – honest engagement, true partnerships and real empowerment.

It is particularly true for Indigenous communities where the inseparable natural and cultural values of the GBR to their nations, their lore and their customs has been emphasised. There is broadly under-utilised opportunity for a two-way flow of ideas and knowledge exchange with non-indigenous and indigenous communities whose understanding of the Reef extends back prior to its contemporary form emerging after the last ice-age.

The Panel notes that some mechanisms for driving further community engagement could be developed through existing networks (e.g. The Great Barrier Reef Marine Park Authority’s Reef Guardian Schools’, annual fora with GBR Council Mayors, Traditional Use Marine Resource Agreements); others will be new.

Recommendations

- Engage formally and regularly with local and regional communities for improved management of the GBR are developed.
- Develop stronger strategic links to build knowledge sharing and deliberative opportunities with local (regional) indigenous communities.
- Build an engagement framework that allows all communities the dignity of informed choices when offered the opportunity to select future actions.
- Improve communication of the supporting evidence and development of coherent and coordinated key messages among science and delivery agencies.

- Build expertise so that effective engagement dominates and is better targeted.

4. **Did the Roundtables identify any key knowledge gaps?** Yes. In particular the sensitivity of different species and human communities to warming is not well understood.

There is a substantial amount of excellent work in multiple areas applied to the GBR and much has been learnt about the complexity of the GBR and the sensitivities of its ecological function.

Coral illustrates the point. Maintenance of coral health is important to ecosystem function – but which of the ~1300 species of coral will survive different marine temperatures (or heat waves), and will there be a differential decline or recovery? If so, how will the ecosystem change? What will be (or will there be) the impact on the ecosystem function of some differential impact on seagrasses, or fish, or any of the other species that give the GBR its World Heritage value? How will the social and cultural value of the GBR change, to local communities broadly and to indigenous people specifically?

Without better knowledge of the susceptibility of different species to warming and the implications for key GBR processes, the relevant thresholds for ecosystem functioning and tailored interventions remain unknown.

Recommendation

- Establish a scheme to fill in the knowledge that is needed to support the future management decisions for the GBR and its catchment, including improved understanding of the sensitivity of species and human communities to warming, weather patterns and ocean chemistry.

Policy design should be informed by evidence that stands the scrutiny of peers, otherwise it's opinion. The Roundtables heard that while there were a lot of data accumulated, it was not all useable by policy makers nor useful to landholders and other stakeholders in the system.

Data should meet agreed acceptable standards and be shareable – the good the bad, the positive and the negative.

Recommendation

- Design and adopt standards for data, its acquisition, storage and use that both support and challenge our understanding of the GBR and its response to warming and impact of policy interventions.

Members of the Panel look forward to working with you and your officials to prepare policies and programs that will position the GBR to continue to be of outstanding value to communities and biosystems even in the face of unremitting climate change.

Yours sincerely,



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