

Chapter 7

Conclusions and recommendations

7.1 Human induced climate change presents a grave threat to the environment and our way of life. For the sake of the planet and the future generations who will inhabit it, effective action at every level—globally, nationally and locally—is essential to stop the effects of climate change from worsening. The committee emphasises that Australia needs to substantially reduce our greenhouse gas emissions and push for meaningful international action to address climate change.

7.2 Much can be said about how the consequences of human induced climate change will be significant and disruptive for many parts of the environment and for human activity. This inquiry, however, has focused on a specific issue that, to date, the committee considers has received less attention: the consequences of climate change for marine fisheries and biodiversity. During this inquiry, compelling expert evidence was presented to the committee about the current and projected impacts of climate change on the marine environment. Rising ocean temperatures, changes to ocean currents, increasing sea levels and acidification of the surface ocean (from rising carbon dioxide levels in the atmosphere) have been observed or are projected.

7.3 The implications for Australia will be significant. The south-east region of Australia is already considered a 'hot spot' globally for warming, with sea surface temperatures in that area warming faster than 90 per cent of the world's oceans. Recent marine 'heat waves' and events such as coral bleaching in the World Heritage listed Great Barrier Reef and other reefs have already been observed.

7.4 Changes to the physical attributes of the ocean and other developments linked to climate change, such as increased intensity of extreme weather events, are expected to have implications for commercial fishing and aquaculture, recreational fishing, Indigenous fishing and other industries that rely on healthy oceans, such as tourism. Among other things, the distribution and stock abundance of fish stocks may change and there could be an increased variability of catch. This will have implications for the suitability of existing approaches to fisheries management and for the structure of, and employment in, the commercial fishing industry. The suitability of locations for aquaculture may also change; for example, warmer ocean temperatures could allow aquaculture of barramundi to extend south, however, salmon farming in Tasmania is approaching its thermal limit.

7.5 There is also concerning evidence of disease outbreaks and biosecurity risks linked to climate change. These events are already costing industry lost production and revenue and may ultimately threaten businesses, investment and employment. Governments will likely incur direct costs in response to outbreaks of marine pests and diseases.

7.6 Effective adaptation to the effects of climate change on the marine environment requires action by governments, industry and the community at large. While many actions can be identified, the committee has focused on recommendations that can be readily pursued by the Australian Government.

7.7 One area in which the Australian Government can make a significant difference is by supporting research, specifically, by providing adequate research funding and by ensuring industry can access and utilise scientific findings. There are gaps in scientific knowledge about how climate change will affect the physical attributes of the oceans and the implications this will have for marine fisheries and biodiversity. At present, significant developments are also likely to go unnoticed—in particular, the committee notes the evidence received that mangrove dieback in the Gulf of Carpentaria was only reported to experts five months after the event occurred. Evidence presented to the committee clearly indicates that well-resourced monitoring and further research to assess and understand changes on ecosystems and fisheries is required.

7.8 During this inquiry, the committee received evidence about private businesses committing to improving scientific understanding of the effects of climate change by funding research. The committee commends these efforts. Well-resourced government-backed research, however, remains vital. The committee urges the Australian Government to increase the funding available for such research and to ensure funding is provided on a stable, long-term basis. This is particularly important for long-term monitoring efforts such as the Integrated Marine Observing System (IMOS).

7.9 In addition to the need for the overall funding allocated to climate change research to be increased, the committee considers there are specific matters that require government attention. For example, the committee notes that the taxpayer funded RV *Investigator* is capable of spending 300 days at sea, yet it is only funded by the government for 180 days at sea. Evidence presented to the committee indicated that, in addition to the gap in government funding, there are practical issues with the process for obtaining use of the vessel, with researchers facing difficulties in ensuring the time granted for using the vessel suits their funding arrangements. The committee urges the government to increase the funding available for the use of this state-of-the-art vessel and to work with CSIRO to improve processes associated with researchers gaining access.

Recommendation 1

7.10 The committee recommends that the Australian Government review the funding provided for research into the effects of climate change on the marine environment and possible adaptation measures to ensure the funding is appropriate for facing the challenges of climate change.

7.11 The committee further recommends that the Australian Government commit to allocating long-term funding for climate monitoring, such as the Integrated Marine Observing System.

Recommendation 2

7.12 The committee recommends that the Australian Government review the funding provided to operate the RV *Investigator* with a view to:

- **increasing the long-term funding provided by the Government; and**
- **obtaining greater financial support from other parties, such as through industry research partnerships.**

7.13 The committee further recommends that the Australian Government review the processes associated with researchers gaining access to the RV *Investigator* with a view to increasing the number of days the vessel can be used for research.

7.14 There is also a pressing need for the Australian Government to support connections between researchers and industry so that research findings are used to the full extent possible. The committee welcomes existing efforts, such as CSIRO's collaboration with the aquaculture industry; however, far more work is required.

7.15 In addition, the committee is concerned by the evidence received from the fishing industry regarding the need for greater sharing of expertise and coordination on biodiversity issues between different parts of the industry. Lessons learnt from addressing challenges encountered in one part of the industry or that arise in one particular geographic area may be of relevance to others. The committee considers there would be benefit in the Australian Government establishing a taskforce to consider how to facilitate greater coordination and knowledge sharing on biosecurity matters within the fisheries and aquaculture industries.

Recommendation 3

7.16 The committee recommends that the Australian Government take a national leadership role in funding and supporting connections between the fishing and aquaculture industry and research organisations to help industry understand and adjust to the effects of climate change.

Recommendation 4

7.17 The committee recommends that the Australian Government direct the Department of Agriculture and Water Resources to engage with industry representatives to consider how information about responding to biosecurity challenges can be shared more effectively within the fisheries industry.

7.18 The Australian Government can also provide further support to efforts by organisations and Traditional Owners working to ensure Australia's marine environment is healthy and productive and is used sustainably. Examples include OceanWatch Australia (the marine NRM organisation) and the Indigenous Protected Areas program.

Recommendation 5

7.19 The committee recommends that, as part of the National Landcare Program, greater emphasis be placed on marine natural resource management and projects be supported that will improve marine biodiversity and deliver sustainable fisheries and aquaculture outcomes in the face of climate change.

Recommendation 6

7.20 The committee recommends that the Australian Government investigate options to formalise and enhance engagement between Traditional Owners involved in Indigenous Protected Areas, universities and relevant Commonwealth departments and agencies regarding the effects of climate change on the marine environment, including appropriate local management responses to changes and emerging threats.

7.21 The Australian Government also needs to ensure that regulatory and administrative arrangements are up-to-date and as effective as possible for responding to the challenges presented by climate change. The committee accepts the evidence provided by a range of government agencies that Australia's fisheries management framework is responsive and well placed to adapt to climate change. The committee also notes the evidence received that the offshore constitutional settlement agreements for fisheries, which set out jurisdictional arrangements for fisheries, are in the process of being updated. The committee supports this work and urges the Australian Government to pursue this as a matter of urgency.

Recommendation 7

7.22 The committee recommends that the Australian Government expedite work to update offshore constitutional settlement agreements regarding the jurisdictional boundaries between fisheries.

7.23 During this inquiry, gaps in knowledge available to regulators involved in fisheries management were brought to the committee's attention. One such gap is in relation to recreational fishing. The committee was advised that recreational fishers take more catch than commercial fishers for some key fish stocks, yet the data about recreational fishing effort currently available for informing fishery stock assessments and ecosystem risk assessments appears to be inadequate.

7.24 To enhance data collection arrangements for recreational fishing, the committee considers that consistent licensing arrangements should be in place in all state/Northern territory jurisdictions. In making the recommendation, the committee notes the Productivity Commission recently made a recommendation that, within the next three years, all jurisdictions should require recreational fishers to obtain licences for marine fishing activities. Although this is a matter for the states and the Northern Territory, this recommendation was supported by the Australian Government and is supported by the committee.

7.25 Noting the evidence received during this inquiry regarding how recreational fishing boats can be tracked and how citizen science projects such as the Redmap program have been effective, the committee considers that the state and Northern Territory governments should also consider how technology could be used more effectively to support how recreational fishing activity is accounted for in fisheries management.

Recommendation 8

7.26 The committee recommends that state and Northern Territory governments give effect to recommendation 4.1 of the Productivity Commission's report *Marine fisheries and aquaculture* relating to licence arrangements for recreational fishers.

Recommendation 9

7.27 The committee recommends that state and Northern Territory governments explore innovative methods to capture recreational fishing data.

7.28 More generally, the committee considers there is a need to ensure that consideration of climate change is a mandatory requirement as part of decision-making under Commonwealth, state and territory environmental and resource management legislation.¹ In particular, the *Environment Protection and Biodiversity Conservation Act 1999* should be amended to establish a greenhouse trigger that ensures Commonwealth oversight of proposed actions that will have, or are likely to have, a significant impact on greenhouse emissions.

7.29 Incorporating the need to mitigate and adapt to climate change in decision-making frameworks would complement and reinforce well-understood principles, such as inter-generational equity, and is appropriate given the seriousness of Australia's exposure to climate change related threats. Decision-makers should have the impacts of climate change at the forefront of their mind when assessing proposals under environmental and resource management legislation.

Recommendation 10

7.30 The committee recommends that the Australian, state and territory governments review all environmental and resource management legislation to ensure that adequate consideration of the effects of climate change is expressly required as part of assessment and decision-making processes.

7.31 In particular, the committee recommends that establishing a greenhouse trigger be included in the upcoming independent review of the *Environment Protection and Biodiversity Conservation Act 1999*.

1 Examples of Commonwealth legislation include the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act); *Fisheries Management Act 1991* and the *Great Barrier Reef Marine Park Act 1975*.

7.32 The committee has also considered a proposal for the creation of a National Oceans Commission to coordinate existing Commonwealth and state agencies activities and set a direction for future innovation and activities that support enhanced resilience of the marine environment. The proposal was raised at the second public hearing and it became apparent during the remaining stages of the inquiry that key stakeholders have not considered it. Consequently, the committee is not in a position to endorse or reject the proposal based on the evidence received during this inquiry.

7.33 The committee considers that whether a National Oceans Commission should be created is a question that requires further dedicated consideration and consultation. Moreover, the committee notes that the aims of a National Oceans Commission could potentially be achieved by other means. As an alternative, the committee considers the addition of a dedicated oceans outcome to the Department of the Environment and Energy's responsibilities should also be considered. The committee recommends that the Australian Government commence a process for examining these proposals in detail.

Recommendation 11

7.34 The committee recommends that the Australian Government commission a feasibility study into the creation of a National Oceans Commission or consider establishing a dedicated oceans outcome as part of the Department of the Environment and Energy's responsibilities.

7.35 Finally, the committee comments on marine parks. Marine parks provide a means to actively protect species and habitats in the marine environment, resulting in healthier ecosystems that are more resilient to the effects of climate change. Effective networks of marine parks are particularly important as they ensure that species can move between protected areas and allow for the benefits of marine parks to be maximised. Given the changing climate and the other cumulative pressures the oceans face due to human activity, the committee regards a large and well-managed network of marine protected areas as being essential for conserving marine ecosystems and biodiversity. Accordingly, the committee recommends that the network of marine parks established by the Labor Government in 2012 be maintained. Additions to the national network should also be made if developments since 2012 mean that greater conservation efforts in particular areas are required.

7.36 On the Great Barrier Reef Marine Park, the committee has carefully considered the evidence received during this inquiry about the content and operation of the *Reef 2050 Long-Term Sustainability Plan*. Despite being described as the overarching framework for protecting and managing the Reef until 2050, the plan inadequately addresses climate change, which the Great Barrier Reef Marine Park Authority (GBRMPA) acknowledges is the most serious threat to the Great Barrier Reef.

7.37 The committee considers that the Australian and Queensland Governments need to take further action urgently to protect the Great Barrier Reef. The committee has already emphasised the need to substantially reduce Australia's greenhouse gas

emissions and for the Australian Government to push for meaningful international action to address climate change. These actions are essential to protect the Reef for future generations.

7.38 Other specific actions can also be taken. The committee notes that in May 2017, the Reef 2050 Independent Expert Panel called for the Reef 2050 Plan to be amended to:

- include climate change adaptation and mitigation actions;
- provide a focus on a sustainable, functional Reef in the face of emerging cumulative impacts; and
- provide a greater emphasis on empowering local people and communities to deliver on-ground action that will benefit the Reef.

7.39 At a minimum, these changes to the Reef 2050 Plan that were recommended by the Independent Expert Panel should be made.

7.40 In addition, a straightforward action the Australian Government can take is to increase funding for the GBRMPA to ensure it is resourced appropriately for addressing the various pressures the Reef is under. The committee notes that additional funding was recently provided to GBRMPA, nevertheless, the recent review of the governance of the Great Barrier Reef Marine Park Authority undertaken by Dr Wendy Craik AM noted a decline in staffing numbers over time as departmental funds for core staffing decreased in real terms.²

Recommendation 12

7.41 The committee recommends that the network of marine parks established in 2012 by the Gillard Government be maintained and that additions to the network be made if developments since 2012 mean that greater conservation efforts in particular areas are required.

Recommendation 13

7.42 The committee recommends that the Australian and Queensland Governments amend the *Reef 2050 Long-Term Sustainability Plan* so that the plan:

- **includes climate change adaptation and mitigation actions;**
- **has a focus on a sustainable, functional Reef in the face of emerging cumulative impacts; and**
- **provides greater emphasis on empowering local people and communities to deliver on-ground action that will benefit the Reef.**

2 W Craik, *Review of Governance of the Great Barrier Reef Marine Park Authority*, July 2017, www.environment.gov.au/system/files/resources/6a038c9a-34dd-42cb-a0b4-a688bd284658/files/final-report-review-governance-gbrmpa.pdf (accessed 29 November 2017), p. 26.

Recommendation 14

7.43 In light of climate change pressures, the committee recommends that the Australian Government review the funding provided to the Great Barrier Reef Marine Park Authority to ensure it is adequately resourced to meet its functions under the *Great Barrier Reef Marine Park Act 1975*.

7.44 This inquiry has provided a valuable and timely opportunity to focus on the health of the oceans and the consequences of climate change. The oceans cover more than 70 per cent of the Earth and the health of the global ocean is vital for life on this planet. However, in the committee's view, discussion of the consequences of climate change for the oceans has not received the attention it deserves. Likewise, the actions taken to date to mitigate the harm caused by climate change, and the other pressures oceans are under due to human activity, have not been sufficient.

7.45 The committee reiterates its comments made at the start of this report thanking the individuals and organisations that contributed to this important inquiry. The committee urges the Australian and state governments to act on the committee's recommendations and to take whatever additional actions are necessary to support healthy oceans.

Senator Peter Whish-Wilson
Chair