



Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021

**Report No. 14, 57th Parliament
Health and Environment Committee
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Health and Environment Committee

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All web address references are current at the time of publishing.

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Abbreviations

ACFA	Australian Cane Farmers Association Limited
AgForce	AgForce Queensland
AIMS	Australian Institute of Marine Science
AMCS	Australian Marine Conservation Society
Amendment Act	<i>Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Act 2019</i>
Amendment Bill	Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019
Bill	Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021
BMP	Best Management Practice
CANEGROWERS	Queensland Cane Growers Organisation Ltd
committee	Health and Environment Committee
COTS	crown of thorns starfish
department	Department of Environment and Science
EDO	Environmental Defenders Office
environmental authority	permit
EPA	<i>Environmental Protection Act 1994</i>
ERA	environmentally relevant activity
ESA	Ecological Society of Australia Ltd
GBR	Great Barrier Reef
GBRMPA Report 2019	Great Barrier Reef Marine Park Authority Outlook Report 2019
Gecko	Gecko Environment Council
Green Shirt Movement	Green Shirt Movement Queensland
HRA	<i>Human Rights Act 2019</i>
ICCPR	<i>International Covenant on Civil and Political Rights</i>
ITDEC	Innovation, Tourism Development and Environment Committee

Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures)
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IUCN	International Union for Conservation of Nature
KCGO	Kalamia Cane Growers Association Ltd
NELA	National Environmental Law Association Ltd
Paddock to Reef program	Paddock to Reef Integrated Monitoring, Modelling and Reporting Program
PCGO	Pioneer Cane Growers Association Ltd
Permit	environmental authority
QFF	Queensland Farmers' Federation
QTIC	Queensland Tourism Industry Council
Reef 2050 Plan	Reef 2050 Water Quality Improvement Plan 2017-2022
Reef Protection Regulations	Regulations developed under the <i>Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Act 2019</i>
Reef Report Card 2019	2019 Reef Water Quality Report Card
2017 Scientific Consensus Statement	2017 Scientific Consensus Statement: Land Use Impacts on Great Barrier Reef Water Quality and Ecosystem Condition
Senate inquiry	Australian Senate's Rural and Regional Affairs and Transport References Committee into the identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier Reef
Taskforce	the Great Barrier Reef Water Science Taskforce
UNESCO	United Nations Educational, Scientific and Cultural Organisation
Wildlife Queensland	Wildlife Preservation Society of Queensland
WWF	WWF-Australia

Chair's foreword

This report presents a summary of the Health and Environment Committee's examination of the Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021.

The committee's task was to consider the policy to be achieved by the legislation and the application of fundamental legislative principles – that is, to consider whether the Bill has sufficient regard to the rights and liberties of individuals, and to the institution of Parliament. The committee also examined the Bill for compatibility with human rights in accordance with the *Human Rights Act 2019*.

I, like many others, have complete confidence in the scientific evidence used to inform the existing legislation protecting the Great Barrier Reef. Unfortunately, while many farmers are working hard to reduce their impact on the water quality of the Reef, recent monitoring and reporting shows that regulation is needed to help Queensland meet its commitments to reducing nutrient and sediment loads entering the Great Barrier Reef catchments by 2025. If this Bill was to be passed, the existing legislation would be weakened, putting at risk the health and resilience of one of Australia's most iconic natural wonders.

On behalf of the committee, I thank all those organisations and individuals who made written submissions on the Bill and appeared at the committee's public hearings. I also thank my fellow committee members and the Parliamentary Service staff for their contributions throughout.

I commend this report to the House.



Aaron Harper MP

Chair

Recommendations

Recommendation 1

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The committee recommends the Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021 not be passed.

1 Introduction

1.1 Role of the committee

The Health and Environment Committee (committee) is a portfolio committee of the Legislative Assembly, which commenced on 26 November 2020 under the *Parliament of Queensland Act 2001* and the Standing Rules and Orders of the Legislative Assembly.¹

The committee's primary areas of responsibility include:

- Health and Ambulance Services,
- Environment, Great Barrier Reef, Science and Youth Affairs.

The functions of a portfolio committee include the examination of bills in its portfolio area to consider:

- the policy to be given effect by the legislation
- the application of fundamental legislative principles
- matters arising under the *Human Rights Act 2019*.²

On Wednesday 21 April 2021, Mr Nick Dametto MP, Member for Hinchinbrook, introduced the Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021 (Bill). The Bill was referred to the committee for inquiry and report by Thursday 21 October 2021.

1.2 Inquiry process

On commencement of the inquiry, the committee invited stakeholders and subscribers to make written submissions on the Bill. Thirty-two submissions were received. A list of submitters is provided at **Appendix A**. A response to issues raised in submissions was received from the Member for Hinchinbrook and is published on the inquiry webpage.³

The committee received a briefing on the Bill from the Member for Hinchinbrook on 11 June 2021. The committee also heard from a range of stakeholders at public hearings conducted on 11 June 2021 and 3 September 2021 in Brisbane, including:

- the Department of Environment and Science and the Great Barrier Reef Marine Park Authority's Chief Scientist
- environmental stakeholders, including the Australian Marine Conservation Society, WWF-Australia, Australian Institute of Marine Science, National Environmental Law Association, Environmental Defenders Office and individual conservationists
- agricultural and livestock stakeholders, including AgForce Queensland (AgForce), bodies representing canegrowers, Green Shirts Movement Queensland, the Australian Banana Growers' Council and individual farmers
- representatives of the tourism sector, including the Queensland Tourism Industry Council and the Association of Marine Park Tourism Operators.

A list of witnesses is provided at **Appendix B**.

¹ *Parliament of Queensland Act 2001*, section 88 and Standing Order 194.

² *Parliament of Queensland Act 2001*, s 93; and *Human Rights Act 2019* (HRA), ss 39, 40, 41 and 57.

³ Health and Environment Committee, Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021, <https://www.parliament.qld.gov.au/Work-of-Committees/Committees/Committee-Details?cid=169&id=3086>

All inquiry documents, including submissions, transcripts, correspondence, answers to questions on notice and other documents are available on the inquiry web pages.⁴

1.3 Policy objectives of the Bill

In 2019, the *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Act 2019* (Amendment Act) was introduced to strengthen Great Barrier Reef (GBR) protection measures to improve the quality of water entering the GBR.⁵ Among other things, the Amendment Act applied reef protection regulations to a broader range of agricultural activities that released nutrient and sediments in GBR catchments, across a broader catchment area.⁶

The policy objective of this Bill—the Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021—is to repeal the amendments introduced by the Amendment Act to restore the regulatory framework that existed prior to its enactment.⁷ It also proposes a number of new measures.⁸

According to the explanatory notes, the Bill has been introduced in response to concerns raised by the agricultural industry.⁹ The Member for Hinchinbrook highlighted some of the key concerns in his Bill introductory speech:

Among the key concerns highlighted by industry regarding the act include its undermining of existing efforts by growers to improve water quality, imposing Big Brother style supervision over everyday farming decisions and effectively hobbling the industry's ability to expand without having to go through the regulatory burdens or red and green tape that will stop anyone from going through the process. Growers are forced to provide an environmental impact statement if they want to crop an existing part of their farm that they have cropped in the past and the government now has power to demand information from any advisor or company working with canefarmers.¹⁰

Specifically, the Bill proposes to:

- **Revert to the previous definition of an agricultural environmentally relevant activity**

The current definition of an agricultural environmentally relevant activity (ERA) includes cattle grazing, horticulture or the cultivation of another crop (e.g. bananas or sugarcane) carried out in the GBR catchment—which comprises the 6 reef catchments of Burdekin, Fitzroy, Burnett Mary, Mackay Whitsunday, Cape York and Wet Tropics (see **Appendix C** for a map of the Great Barrier Reef catchment and river basins).

The Bill proposes to revert to the definition that an agricultural ERA comprises commercial sugar cane growing or cattle grazing carried out on an agricultural property of more than 2000ha; and carried out on an agricultural property in the 3 reef catchments of the Wet Tropics, Mackay-Whitsunday or Burdekin.

⁴ Health and Environment Committee, Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021, <https://www.parliament.qld.gov.au/Work-of-Committees/Committees/Committee-Details?cid=169&id=3086>

⁵ Department of Environment and Science, undated, *Briefing Note for the Innovation, Tourism Development and Environment Committee, Inquiry into the Environmental Protection (Great Barrier Reef Protection Measure) and Other Legislation Amendment Bill 2019*, p 1.

⁶ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 2.

⁷ Explanatory notes, p 1.

⁸ Explanatory notes, p 6.

⁹ Explanatory notes, p 1.

¹⁰ Queensland Parliament, Record of Proceedings, 21 April 2021, p 1039.

- **Reverse the consolidation of a single offence for failing to comply with an agricultural ERA standard**

The Bill proposes to reverse the consolidation of a single offence for failing to comply with an agricultural ERA standard and re-introduce 3 separate offences relating to fertiliser application, keeping primary documents and complying with a production requirement.

- **Establish an independent regulator**

The Bill proposes establishing an independent regulator to advise the Minister when making a new agricultural ERA standard and to oversee the administration of new provisions relating to the offence about fertiliser application.

- **Introduce changes to the operation of the offence about fertiliser application**

The amendments include the use of an enforceable undertaking (rather than a financial penalty) for a first contravention of the offence, and provides that a person does not commit the offence if their employee engaged in the contravening behaviour contrary to instructions.

- **Limit the required period that documents for an agricultural ERA record must be kept**

The Bill proposes requiring that relevant primary documents for an agricultural ERA be kept for 2 years after the last day of the financial year in which the record was made.

- **Transfer the power for making an ERA standard from the chief executive to the Minister**

In addition to transferring power to the Minister, the Bill proposes requiring the Minister to consult with the independent regulator and representatives from 2 or more relevant industry bodies before making a new ERA standard.

- **Publish new ERA standards and recommendations made by the independent regulator**

The Bill proposes mandating that the Minister must publish a copy of each new ERA standard on the Department of Environment and Science (the department) website and any recommendations made by the independent regulator relating to that standard.¹¹

1.4 Private Member consultation on the Bill

According to the explanatory notes, consultation around the principles contained in this Bill has been undertaken with representatives of the cane farming industry.

This has involved advice on what legislative amendments should be added to the Bill in order to largely return the *Environment Protection Act 1994* (EPA) and the *Chemical Usage (Agricultural and Veterinary) Control Act 1988* to what they were prior to introduction of the State Government's Amendment Act.¹²

At the public hearing, the Member for Hinchinbrook advised his consultation involved talking to 'local growers, talking to the people who live in my electorate, as well as growers across neighbouring electorates who have to work and deal with this legislation and these regulations moving forward'.¹³ The Member for Hinchinbrook advised that consultation on the Bill had also been undertaken with tourism operators and scientists in the field, however no stakeholder names were provided, except for that of Dr Peter Ridd.¹⁴

¹¹ Explanatory notes, pp 4-5.

¹² Explanatory notes, p 6.

¹³ Public hearing transcript, Brisbane, 11 June 2021, p 23.

¹⁴ Public hearing transcript, Brisbane, 11 June 2021, p 22.

1.5 Should the Bill be passed?

Standing Order 132(1) requires the committee to determine whether or not to recommend that the Bill be passed.

The committee recommends the Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021 not be passed.

Recommendation 1

The committee recommends the Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021 not be passed.

2 Background to the Bill

2.1 The Great Barrier Reef

The GBR is the world's largest coral reef ecosystem. It extends over 2,300 kilometres along Queensland's coastline from the Torres Strait in the north to Bundaberg in the south, covering an area of 350,000 square kilometres. It comprises more than 2,900 individual coral reefs, which represent about 10% of all the coral reef areas in the world.¹⁵

According to the Queensland Government, the GBR is home to a diversity of species, including '1,625 types of fish, 600 types of coral, 100 species of jellyfish, 3,000 varieties of molluscs, 30 species of whales and dolphins, and 133 varieties of sharks and rays'.¹⁶

In addition, the GBR has supported around '60,000 jobs and contributes approximately \$6 billion to the Australian and Queensland economies'.¹⁷

Aboriginal and Torres Strait Islander people consider the GBR to be of special significance and 'more than 70 Traditional Owner groups have long, continuing relationships with the GBR and its catchment, stretching back over 60,000 years'.¹⁸

2.2 Threats to the Great Barrier Reef

The GBR is under pressure from multiple, cumulative threats including:

- climate change
- poor water quality from land-based run-off
- impacts from coastal development
- direct human use such as illegal fishing and bycatch.¹⁹

While the greatest threat to the health of the GBR is climate change, deteriorating water quality has been identified as a key threat which needs to be addressed, particularly in relation to excess nutrients, fine sediments and pesticides from agricultural run-off and other industries.²⁰

Nutrients, notably nitrogen and phosphorus, which come from fertiliser used on land have been found to increase coral-eating crown of thorns starfish outbreaks, macroalgae abundance and algal blooms which can take over and reduce coral diversity, and reduce light available for corals and seagrasses. Excess nutrients can also increase coral bleaching susceptibility and coral disease.²¹

¹⁵ Queensland Government, About the Great Barrier Reef, 2021, <https://www.qld.gov.au/environment/coasts-waterways/reef/preserve-the-wonder/reef-protection>

¹⁶ Queensland Government, About the Great Barrier Reef, 2021, <https://www.qld.gov.au/environment/coasts-waterways/reef/preserve-the-wonder/reef-protection>

¹⁷ Queensland Government, About the Great Barrier Reef, 2021, <https://www.qld.gov.au/environment/coasts-waterways/reef/preserve-the-wonder/reef-protection>

¹⁸ Queensland Government, About the Great Barrier Reef, 2021, <https://www.qld.gov.au/environment/coasts-waterways/reef/preserve-the-wonder/reef-protection>

¹⁹ Queensland Government, About the Great Barrier Reef, 2021, <https://www.qld.gov.au/environment/coasts-waterways/reef/preserve-the-wonder/reef-protection>

²⁰ Queensland Government, Our Future State: Advancing Queensland's Priorities, p 14, <https://cabinet.qld.gov.au/documents/2018/Mar/OFSAQP/Attachments/Priorities.PDF>

²¹ Australian Government, Department of Environment, and Queensland Government, Reef 2050 Water Quality Improvement Plan, The biggest threats to the Great Barrier Reef, <https://www.reefplan.qld.gov.au/resources/explainers/biggest-threats-to-the-gbr>

Excess amounts of fine sediments washed into the sea from grazing activities or streambank erosion, have been found to increase turbidity and decrease water clarity, which in turn reduces the amount of light that reaches seagrasses and coral, stunting their growth. Once sediment settles, it can also have detrimental effects on the early life stages of corals – even smothering coral and seagrasses in more extreme conditions. Sediment can also carry nutrients into the GBR environment.²²

Pesticides, which are not generally found in the natural reef ecosystems, are carried in river run-off and have been detected in Great Barrier Reef ecosystems at concentrations high enough to affect organisms. They may take a months or even years to break down.²³

2.3 Management of the Great Barrier Reef

Both the Queensland and Australian Governments have committed to protecting the GBR. The Reef 2050 Long-Term Sustainability Plan is the Australian and Queensland Government’s overarching framework for protecting and managing the Great Barrier Reef to 2050. Both governments have committed more than \$2 billion over 10 years to protecting the GBR, with an ‘unprecedented level of investment into improving water quality’.²⁴

The ‘Reef 2050 Water Quality Improvement Plan 2017-2022’ (Reef 2050 Plan) is a part of this strategy. The Reef 2050 Plan, is a joint commitment of the Australian and Queensland Governments that seeks to improve the quality of water flowing from the catchments adjacent to the GBR.²⁵ The Reef 2050 Plan is underpinned by comprehensive, peer-reviewed research—the *2017 Scientific Consensus Statement: Land Use Impacts on Great Barrier Reef Water Quality and Ecosystem Condition* (2017 Scientific Consensus Statement)—and supported by a robust monitoring and evaluation program—the Paddock to Reef Integrated Monitoring, Modelling and Reporting program (Paddock to Reef program).²⁶

The 2017 Scientific Consensus Statement for the GBR is ‘a review of the significant advances in scientific knowledge of water quality issues in the GBR to arrive at a consensus on the current understanding of the system’.²⁷ Produced by a ‘multidisciplinary group of scientists, with oversight from the Reef Independent Science Panel’, the consensus statement ‘supports the development of

²² Australian Government, Department of Environment, and Queensland Government, Reef 2050 Water Quality Improvement Plan, The biggest threats to the Great Barrier Reef, <https://www.reefplan.qld.gov.au/resources/explainers/biggest-threats-to-the-ghr>

²³ Australian Government, Department of Environment, and Queensland Government, Reef 2050 Water Quality Improvement Plan, The biggest threats to the Great Barrier Reef, <https://www.reefplan.qld.gov.au/resources/explainers/biggest-threats-to-the-ghr>

²⁴ Australian Government and Queensland Government, *Reef 2050 Water Quality Improvement Plan*, 2020, p 3, https://www.reefplan.qld.gov.au/__data/assets/pdf_file/0017/46115/reef-2050-water-quality-improvement-plan-2017-22.pdf

²⁵ Australian Government and Queensland Government, *Reef 2050 Water Quality Improvement Plan*, 2020, <https://www.reefplan.qld.gov.au/>

²⁶ Australian Government and Queensland Government, *Reef 2050 Water Quality Improvement Plan*, 2020, <https://www.reefplan.qld.gov.au/>

²⁷ Jane Waterhouse, Britta Schaffelke, Rebecca Bartley, Rachel Eberhard, Jon Brodie, Megan Star, Peter Thorburn, John Rolfe, Mike Ronan, Bruce Taylor and Frederieke Kroon. *2017 Scientific Consensus Statement, Land Use Impacts on Great Barrier Reef water quality and ecosystem condition*, The State of Queensland 2017, p 7. https://www.reefplan.qld.gov.au/__data/assets/pdf_file/0029/45992/2017-scientific-consensus-statement-summary.pdf

the Reef 2050 Water Quality Improvement Plan 2017-2022'.²⁸ A copy of the 2017 Scientific Consensus Statement can be found in **Appendix D**.

The Reef 2050 Plan is also a key component of the Australian Government's response to the recommendations of the UNESCO World Heritage Committee.²⁹

The Reef 2050 Plan outlines the 6 natural resource management regions and 35 catchments which drain 424,000 square kilometres of coastal Queensland. These 6 natural resource management regions include:

- Cape York region
- Wet Tropics region
- Burdekin region
- Mackay Whitsunday region
- Fitzroy region
- Burnett Mary region.³⁰

The Paddock to Reef program provides the framework for evaluating and reporting progress towards Reef 2050 Plan targets through the Reef Reports Cards (the latest being the 2019 Reef Water Quality Report Card). The program is jointly funded by the Australian and Queensland governments and 'unites more than 20 industry bodies, government agencies, Natural Resource Management bodies, landholders and research organisations—working together to measure and report on water quality factors that impact Reef health'.³¹

Monitoring and modelling occurs across a number of scales, from paddock through to sub-catchment, catchment, regional and GBR-wide, evaluating management practice adoption and effectiveness, catchment condition, pollutant runoff and marine condition.³²

Together with the GBR Marine Park Authority, Queensland Parks and Wildlife Service manage the park through a joint field management program and through laws and zoning plans.³³ The Queensland Government works with farmers, industry and others to improve the quality of water flowing from the catchment to the GBR through the Queensland Reef Water Quality Program as well as the joint Australian and Queensland Reef 2050 Plan.³⁴

The Queensland Reef Water Quality Program funds 'a range of projects working with industry, agricultural producers and communities' with the majority of the funding allocated to 'on-ground water quality improvement projects that support landholders to make long-term transformational

²⁸ Waterhouse et al, *2017 Scientific Consensus Statement, Land Use Impacts on Great Barrier Reef water quality and ecosystem condition*, The State of Queensland 2017, p 7.

²⁹ Australia Government, *Managing and protecting the Great Barrier Reef*, <https://www.environment.gov.au/marine/gbr/protecting-the-reef>

³⁰ Australian Government and Queensland Government, *Reef 2050 Water Quality Improvement Plan*, 2020, <https://www.reefplan.qld.gov.au/reef-regions>

³¹ Australian Government and Queensland Government, *Reef 2050 Water Quality Improvement Plan*, 2020, <https://www.reefplan.qld.gov.au/tracking-progress/paddock-to-reef>

³² Australian Government and Queensland Government, *Reef 2050 Water Quality Improvement Plan*, 2020, <https://www.reefplan.qld.gov.au/tracking-progress/paddock-to-reef>

³³ Queensland Government, *About the Great Barrier Reef*, 2021, <https://www.qld.gov.au/environment/coasts-waterways/reef/preserve-the-wonder/reef-protection>

³⁴ Queensland Government, *About the Great Barrier Reef*, 2021, <https://www.qld.gov.au/environment/coasts-waterways/reef/preserve-the-wonder/reef-protection>

changes'.³⁵ The government has committed \$270.1 million over 5 years to 2025–2026 to continue the Queensland Reef Water Quality Program which funds a range of projects working with industry, agricultural producers and communities. The program was developed by the Queensland Government in response to the recommendations of the Great Barrier Reef Water Science Taskforce (Taskforce).³⁶

2.4 Protecting the Great Barrier Reef

The protection of the GBR is one of the Queensland Government's 6 priorities under 'Our Future State: Advancing Queensland's Priorities', with deteriorating water quality a key threat to be addressed.³⁷

Reef-wide targets for nutrient and sediment reduction were developed to reflect Queensland's commitments under the Reef 2050 Plan, including setting water quality targets for nutrient and sediment reduction by 2025, including:

- 60% reduction in anthropogenic end-of-catchment dissolved inorganic nitrogen loads
- 25% reduction in anthropogenic end-of-catchment sediment loads.³⁸

The Reef 2050 Plan also includes 'end-of-catchment load reductions for each of the 35 river basins, ranging from zero to 70% of existing anthropogenic loads depending on location, for what is required to achieve ecological health for the Reef'.³⁹

Poor water quality, primarily as a result of run-off from agricultural activities in GBR catchments, was confirmed in the 2017 Scientific Consensus Statement as a key contributor for the poor condition of GBR ecosystems.

To assist with meeting water quality targets to reduce nutrient and sediment pollution, the GBR Water Science Taskforce recommended the implementation of staged regulation throughout the reef regions.⁴⁰

The Taskforce recommended a re-invigorated regulatory approach, as part of a mix of tools, to accelerate progress toward meeting the targets, to help preserve the high values held for the GBR and increase the resilience of the GBR to other pressures, such as the impacts of climate change.⁴¹

2.5 Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019

In response to the water quality challenge and the recommendations of the Taskforce, the Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment

³⁵ Queensland Government, Queensland Reef Water Quality Program, 2021, <https://www.qld.gov.au/environment/coasts-waterways/reef/reef-program>

³⁶ Queensland Government, Queensland Reef Water Quality Program, 2021, <https://www.qld.gov.au/environment/coasts-waterways/reef/reef-program>

³⁷ Queensland Government, Our Future State: Advancing Queensland's Priorities, p 14, <https://cabinet.qld.gov.au/documents/2018/Mar/OFSAQP/Attachments/Priorities.PDF>

³⁸ Australian Government and Queensland Government, Reef 2050 Water Quality Improvement Plan 2017–2022, p 15, https://www.reefplan.qld.gov.au/__data/assets/pdf_file/0017/46115/reef-2050-water-quality-improvement-plan-2017-22.pdf

³⁹ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 1.

⁴⁰ The Taskforce was established in May 2015 to provide advice to the Queensland Government on how to help ensure that clean water flows from the rivers to the sea to protect the Reef for future generations. GBR Water Science Taskforce, *Final Report: Great Barrier Reef Water Science Taskforce*, 2016, p11. https://www.qld.gov.au/__data/assets/pdf_file/0027/109539/gbrwst-finalreport-2016.pdf

⁴¹ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 2.

Bill 2019 (Amendment Bill) was introduced in the 56th parliament to strengthen the GBR protection measures by improving the quality of water entering the GBR and address the cumulative impacts of multiple pollutant sources on GBR water quality.⁴² When introducing the Bill, the then-Minister for Environment and the Great Barrier Reef, Minister for Science and Minister for the Arts, the Hon Leanne Enoch, stated:

This bill tackles water quality head on, directly responding to the 2016 recommendations of the Great Barrier Reef Water Science Taskforce. It ticks off on all of the remaining required areas which the task force said needed to be tackled. Importantly, these changes are based on the best available science. The Australian Institute of Marine Science has shown that the Great Barrier Reef lost around 50 per cent of its coral cover between 1985 and 2012. There are two major causes: the first is the impact of poor water quality, which has a serious impact on reef health; the second is climate change, which poses the biggest threat to ongoing reef health...

...

We can dramatically improve water quality and concurrently improve the health of the reef overall, making it more resilient to other types of change. Excess nutrients cause algal blooms, which can be toxic to coral and are linked to outbreaks of the devastating crown-of-thorns starfish. Sediment smothers ocean habitats, including seagrasses which are food for turtles and dugongs, and estuarine habitats which are the breeding grounds for fish, including popular species like coral trout. The bill focuses on reducing run-off from agriculture as well as direct sources of pollution from intensive land uses such as sewage treatment plants, aquaculture and mining.⁴³

2.5.1 Inquiry into the Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019

As part of the legislative process, the Amendment Bill, which became the Amendment Act, was considered by the former Innovation, Tourism Development and Environment Committee (ITDEC) in March 2019. The inquiry generated significant interest with some 230 submissions and over 1,500 form submissions being received. ITDEC received written and oral briefings from the department and held public hearings in Brisbane, Cairns, Townsville, Mackay and Bundaberg.

General support for the Bill was provided by environmental groups including the Australian Marine Conservation Society (AMCS), WWF-Australia (WWF), the Environmental Defenders Office (EDO), and the EDO of Northern Queensland.⁴⁴ In addition, a number of stakeholders from outside of Australia supported the Bill and over 1,500 people provided form type submissions in support of the Bill.⁴⁵

ITDEC tabled its report with one recommendation: that the Bill be passed. The report addressed a range of issues, including: government consultation; scientific evidence to support the Bill; targets for nutrient and sediment contaminant load; suspension/cancellation of accreditation programs; responsibility of advisors, data collection and reporting; water quality offsets; enforcement and compliance.⁴⁶

⁴² Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 1.

⁴³ Queensland Parliament, Record of Proceedings, 27 February 2019, pp 437-438.

⁴⁴ ITDEC, Report No. 16: Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, p 17.

<https://documents.parliament.qld.gov.au/TableOffice/TabledPapers/2019/5619T573.pdf>

⁴⁵ ITDEC, Report No. 16: Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, p 17.

⁴⁶ ITDEC, Report No. 16: Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019.

Some of the issues raised regarding the Amendment Bill included whether there was sufficient evidence linking agricultural land use with adverse effects to water quality; the impact of proposed ERA standards; the adequacy of consultation; and the significant increase in maximum penalties.⁴⁷

In its consideration of the Amendment Bill, the former committee canvassed the evidence underpinning the current regulatory framework for agricultural activities. This included the broad range of scientific evidence and literature available, such as the 2017 Science Consensus Statement, which reported that poor water quality is having adverse impacts on the GBR, and drew connection between agricultural land use and reduced water quality in GBR catchment areas.⁴⁸ The explanatory notes to the Amendment Bill stated:

The latest science provides an unprecedented level of certainty that the main cause of poor Reef water quality is cumulative contributions from agricultural run-off in the Reef catchments, with locally significant contributions from industrial land uses. Despite significant government and industry investment, particularly in agriculture, voluntary approaches have failed to facilitate sufficient uptake of improved practices and at the present trajectory, the Reef water quality targets will not be met.⁴⁹

The 2017 Scientific Consensus Statement found that the decline of marine water quality associated with land-based run-off from the adjacent catchments is a major cause of the current poor state of many of the GBR coastal and marine ecosystems.⁵⁰ It also reported that overall water quality of the GBR remained poor, and that the 'main source of excess nutrients, fine sediments and pesticides from Reef catchments is diffuse source pollution from agriculture'.⁵¹

In terms of efforts to meet the Reef 2050 Plan targets, the monitoring and modelling reported in the Paddock to Reef program's Reef Report Cards for 2017 and 2018, which the department also relied on when preparing the Amendment Bill, showed that improving the quality of water flowing to the GBR is critical to reducing additional pressures and building the GBR's health and resilience. The results showed that while many landholders had improved their land management practices, significant change and faster uptake was still required to meet the water quality targets.⁵²

The former committee reported it was satisfied with this evidence, and did not accept stakeholder arguments that there was insufficient evidence to make this connection.⁵³ For a detailed discussion of

⁴⁷ ITDEC, Report No. 16: Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019.

⁴⁸ ITDEC, Report No. 16: Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019.

⁴⁹ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 10.

⁵⁰ Waterhouse et al, *2017 Scientific Consensus Statement, Land Use Impacts on Great Barrier Reef water quality and ecosystem condition*, The State of Queensland 2017, p 9.

⁵¹ Waterhouse et al, *2017 Scientific Consensus Statement, Land Use Impacts on Great Barrier Reef water quality and ecosystem condition*, The State of Queensland 2017, p 9.

⁵² Australian Government and Queensland Government, Report Card 2017 and 2018, <https://www.reefplan.qld.gov.au/tracking-progress/reef-report-card/2017-2018>

⁵³ ITDEC, Report No. 16, 56th Parliament, Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, April 2019, pp 21-22.

The former committee received a submission from the ARC Centre of Excellence for Coral Reef Studies comprising representatives from the James Cook University, The Australian National University, University of Queensland, University of Western Australia, in partnership with the Australian Institute of Marine Science, the GBRMPA, UNESCO, Stanford University, and other international collaborators. The ARC Centre of Excellence highlighted the need for water quality management, citing numerous literature and scientific publications including the 2017 Scientific Consensus Statement, publications by the GBRMPA, and recent academic journals from numerous authors.

the scientific evidence see ITDEC, *Report No. 16: Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019*.⁵⁴

The Amendment Act received assent in September 2019.

2.5.2 Key amendments made under the Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Act 2019

Key amendments made by the Amendment Act to address the quality of water flowing into the GBR lagoon from land-based activities were to the EPA and the *Chemical Usage (Agricultural and Veterinary) Control Act 1988*.⁵⁵ These amendments are summarised in the following sections.

2.5.2.1 Amendments to the Environmental Protection Act 1994

Amendments to the EPA included provisions:

- enabling objectives for reduced nutrient and sediment contaminant loads to be set for catchments flowing into the GBR by
 - requiring the Minister to set objectives for reduced nutrient and sediment contaminant loads in an environmental protection policy to improve the quality of water entering the GBR
 - amending the Environmental Protection (Water) Policy 2009 to prescribe the objectives for contaminant load reduction, and
 - requiring the Minister to review the objectives within 5 years after the objectives are set and then within each subsequent 5-year period⁵⁶
- enabling minimum practice standards to be improved and set, targeting nutrient and sediment pollution from key agricultural industries that may affect GBR water quality by
 - providing the ability to create agricultural ERAs standards by regulation, thereby broadening the definition of an agricultural ERA from commercial sugarcane growing and cattle grazing (carried out on an agricultural property of more than 2,000 hectares), to an activity carried out on a commercial basis for any of the following:
 - cattle grazing
 - horticulture, such as the cultivation of bananas, corn, macadamias and tomatoes
 - and the cultivation of other crops, including sugarcane and grains.⁵⁷
 - expanding the catchments within the Wet Tropics, Burdekin and Mackay Whitsunday regions to include all GBR catchments, including those within the Cape York, Fitzroy and the Burnett Mary regions
 - providing for the potential to specify commodity-specific minimum practice standards and farm design standards

⁵⁴ <https://documents.parliament.qld.gov.au/TableOffice/TabledPapers/2019/5619T573.pdf>

⁵⁵ The Bill also contained amendments to give effect to the Common Assessment Method for Threatened Species, and amends wildlife classes to be consistent with the method through amendments to the *Biodiscovery Act 2004*, *Fisheries Act 1994*, *Nature Conservation Act 1992*, and the *Vegetation Management Act 1999*.

⁵⁶ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 2.

⁵⁷ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 15.

- replacing Environmental Risk Management Plan provisions with agricultural ERA standards to reduce the regulatory burden, particularly for farmers already operating at best practice⁵⁸
- expanding the current regulation-making power so that a regulation may require a person involved in the production, manufacture, distribution, supply or use of an agricultural ERA product, fertiliser product or agricultural chemical to keep records or returns⁵⁹
- providing producers with an alternative pathway for meeting regulatory requirements through accreditation against a recognised best management practice (BMP) program or like program⁶⁰
- requiring advisers to provide advice that is not false or misleading related to an agricultural ERA standard, and keep and produce records of the advice provided⁶¹
- providing a regulation-making power to mandate the provision of data to assist in determining where over-application of fertiliser, and therefore high rates of nutrient run-off, may be occurring⁶²
- instituting measures to achieve a ‘no net decline’ to GBR water quality from new development, including:
 - new cropping development being required to apply for an environmental authority, with the activity conditioned to meet higher standards through farm design standards, and also required to meet minimum practice standards
 - new prescribed ERAs and resource activities (e.g. sewage treatment, waste disposal, certain mining activities, and land-based aquaculture) being required to meet a ‘no net decline’ standard regarding nutrient and sediment releases
 - provisions to apply GBR water quality offsets through the existing legislative framework for an environmental authority⁶³
- consolidating a number of previous offences relating to carrying out an agricultural ERA (sections 78, 84, 85 and 86 of the EPA) into a single offence for failing to comply with an agricultural ERA standard, with the maximum penalty to increase from 100 penalty units for each offence to 1,665 penalty units for wilful non-compliance, or otherwise 600 penalty units for an offence of contravening an agricultural ERA standard to ensure that penalties accurately reflect the seriousness of the offences and are comparable to similar offences.⁶⁴

⁵⁸ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 4.

⁵⁹ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 20.

⁶⁰ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 4.

⁶¹ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 5.

⁶² Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 5.

⁶³ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, pp 5-6.

⁶⁴ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, Explanatory notes, pp 10, 18.

2.5.2.2 Amendments to the Chemical Usage (Agricultural and Veterinary) Control Act 1988

The *Chemical Usage (Agricultural and Veterinary) Control Act 1988* regulates the way a person carrying out an agricultural ERA prepares, uses and stores an agricultural chemical product. The Amendment Act broadened the ‘regulatory net’ of the *Chemical Usage (Agricultural and Veterinary) Control Act 1988* to align with the new definition of an agricultural ERA.⁶⁵

2.5.2.3 Amendments to the Biodiscovery Act 2004, the Fisheries Act 1994, the Nature Conservation Act 1992, and the Vegetation Management Act 1999

The Amendment Act also contained amendments to give effect to the Common Assessment Method for Threatened Species, and amended wildlife classes to be consistent with the method through amendments to the *Biodiscovery Act 2004*, the *Fisheries Act 1994*, the *Nature Conservation Act 1992*, and the *Vegetation Management Act 1999*.⁶⁶ However these provisions were not the subject of the current Bill so will not be further discussed in this report.

2.5.3 Reef Protection Regulations

As mentioned above, the Amendment Act allowed for regulations to protect the GBR (Reef Protection Regulations) to a broader range of agricultural activities and other land uses (e.g. sewage treatment, waste disposal, mining activities and land-based aquaculture) that release nutrient and sediments in GBR catchments, across a broader area incorporating all 6 GBR catchment areas—Cape York, Wet Tropics, Burdekin, Mackay Whitsunday, Fitzroy and Burnett Mary.⁶⁷

The Reef Protection Regulations set pollution load limits for each GBR catchment to:

- target water quality responses
- set minimum agricultural practice standards to limit sediment and nutrient run-off being lost off farm
- set standards for the provision of advice to regulated producers
- establish a framework to recognise industry best management practice farmers
- regulate new cropping and horticultural activities on land without a cropping history via an environmental authority or permit
- set higher stands for new resource or prescribed environmentally relevant activities, such as aquaculture development, to ensure new development does not worsen the GBR water quality problem.⁶⁸

These regulations commenced on 1 December 2019 and are being rolled out over 3 years in different regions based on water quality management priorities.⁶⁹ To ensure continuous improvement, the Reef Protection Regulations require the Minister to review the extent to which the regulations have been

⁶⁵ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 2.

⁶⁶ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 2.

⁶⁷ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, Explanatory notes, p 2.

⁶⁸ Public hearing transcript, Brisbane, 11 June 2021, p 1.

⁶⁹ Public hearing transcript, Brisbane, 11 June 2021, p 1.

effective in reducing nutrient and sediment loads in the GBR catchment. The first review must commence by December 2022 and be completed within a year.⁷⁰

2.5.3.1 Minimum Practice Standards

Minimum practice standards have been set for sugar cane, cattle grazing and banana production with a proposal to also have standards in place for grains and horticulture by December 2022. According to the department:

The standards require farmers to implement fertiliser application and erosion control practices that have lower water quality pollution risks. They align with industry's accepted practices and have been shown to maintain or improve productivity and profitability in on-farm trials. The standards do not impose any new requirements for the application of pesticides or herbicides other than the keeping of records. The requirements for pesticide and herbicide applications are outlined in the Chemical Usage (Agricultural and Veterinary) Control Regulation 2017.⁷¹

The Queensland Government has committed to making no changes to the minimum practice standards for 5 years. The standards apply to all GBR regions with the exception of Cape York, as the water quality targets have been reported as being met in the most recent reef water quality report cards.⁷²

2.5.3.2 Permits for new commercial cropping and horticultural activities

As mentioned earlier, the Reef Protection Regulations introduced the requirement for an environmental authority, or a permit, for new commercial cropping and horticultural activities. According to the department:

This allows for growth in agriculture while not undoing the progress made to date towards achieving the water quality targets. The permit will condition new farms to meet design standards that minimise nutrient and sediment run-off into receiving waters that flow to the reef. This requirement commenced on 1 June 2021.⁷³

The department advised that extensive consultation occurred on the ERA standard and the application document, which allows activities occurring on less than 100 hectares or relocating banana plantations due to Panama disease to make a standard application.⁷⁴ The department considered this resulted in 'a faster and cheaper process'.⁷⁵ The environmental assessment for site-specific applications for activities over 100 hectares is limited to consideration of nitrogen and sediment impacts only, as opposed to the normal assessment process under the EPA, which is a broad assessment process.⁷⁶ Considerations such as air and noise are not taken into account.⁷⁷

The new requirements under the Reef Protection Regulations are outlined in the table below.

Table 1: Reef Protection Regulations

Requirement	Description	Date regulations apply
Record keeping	Records need to be kept to demonstrate activities are being undertaken on the property in	From 1 December 2019, all graziers, sugarcane and banana producers in the Wet Tropics,

⁷⁰ Public hearing transcript, Brisbane, 11 June 2021, p 3.

⁷¹ Public hearing transcript, Brisbane, 11 June 2021, p 2.

⁷² Public hearing transcript, Brisbane, 11 June 2021, p 2.

⁷³ Public hearing transcript, Brisbane, 11 June 2021, p 2.

⁷⁴ Public hearing transcript, Brisbane, 11 June 2021, p 2.

⁷⁵ Public hearing transcript, Brisbane, 11 June 2021, p 2.

⁷⁶ Public hearing transcript, Brisbane, 11 June 2021, p 2.

⁷⁷ Public hearing transcript, Brisbane, 11 June 2021, p 2.

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	<p>accordance with the minimum agricultural practice standards.</p> <p>For producers: Any agricultural producer undertaking commercial beef cattle grazing, sugarcane or banana cultivation in Wet Tropics, Burdekin, Mackay Whitsunday, Fitzroy and Burnett Mary regions will need to keep records.</p> <p>Under the new regulations, there are three types of records that need to be kept by producers:</p> <ol style="list-style-type: none"> 1. general records 2. minimum standard records (including farm nitrogen and phosphorus budget records for sugarcane growers) 3. primary documents. <p>For advisers: Agricultural advisers, such as fertiliser sellers and agronomists, operating in GBR regions need to keep records of any tailored advice provided to agricultural producers or to people seeking advice on their behalf (such as farm contractors) about meeting minimum practice agricultural standards and the requirements of a farm nitrogen phosphorus budget (sugarcane only).</p>	<p>Burdekin, Mackay Whitsunday, Fitzroy and Burnett Mary regions must keep records.</p> <p>From 1 December 2019, Agricultural advisers must also keep records.</p> <p>From 1 December 2022, all grains and horticulture producers must keep records.</p>
Minimum practice agricultural standards	<p>The minimum practice agricultural standards are tailored to each industry. They have been developed for sugarcane, grazing and bananas with grains and horticulture to come.</p> <p>For some industries, like sugarcane and bananas, the minimum practice agricultural standards outline specific methodologies for undertaking certain activities.</p>	<p>Primary producers in the Wet Tropics, Burdekin, Mackay Whitsunday, Fitzroy and Burnett Mary regions will need to comply with industry-specific minimum practice agricultural standards as these are applied to each region over 3 years</p>
Farm nitrogen and phosphorus budget (cane only)	<p>The initial farm nitrogen and phosphorus budget must be prepared by an appropriate person, such as an agronomist, and must then be reviewed every five years by an appropriate person. Sugarcane producers can prepare their own farm nitrogen and phosphorus budget if they have the relevant experience and qualifications through a recognised program.</p>	<p>From 1 December 2021, all sugarcane producers in the Wet Tropics, Burdekin and Mackay Whitsunday regions must have a farm nitrogen and phosphorus budget</p> <p>From 1 December 2022, all sugarcane producers in the Fitzroy and Burnett Mary regions must have a farm nitrogen and phosphorus budget.</p>
New or expanding cropping and horticulture activities	<p>All new or expanding commercial cropping and horticulture activities in any GBR region on five hectares or more of land that does not have a cropping history will require an environmental authority (permit) before the activity or any work takes place.</p>	<p>From 1 June 2021</p>
New, expanded or intensified	<p>All regulated industrial land use activities in any GBR region must meet new discharge standards to</p>	<p>From 1 June 2021</p>

industrial development	ensure there is no increase in nutrient or sediment pollutant loads.	
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Source: information compiled using Queensland Government, 'Queensland Reef Water Quality Program: Reef Protection Regulations in the Great Barrier Reef regions', p 1, https://www.qld.gov.au/__data/assets/pdf_file/0020/113483/factsheet-general.pdf

According to the Queensland Government, most of the new requirements do not apply to existing producers in the Cape York region as the region has met its water quality targets. However, from 1 June 2021, any new or expanding commercial cropping and horticulture activities in the Cape York region on 5 hectares or more of land that does not have a cropping history will require a permit before the activity or any work takes place.⁷⁸

Non-agricultural industries, new, expanded or intensified regulated industrial land use activities such as sewage and water treatment plants, land-based aquaculture or mining that release nutrients and sediment will be required to meet new discharge standards from 1 June 2021. These activities are already regulated under the EPA.⁷⁹

2.5.4 Developments subsequent to the passing of the Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019

Since the introduction of the Amendment Bill a number of reports have been published and developments have occurred which provide further information about the water quality issues and their effect on the GBR. These include:

- Great Barrier Reef Marine Park Authority Outlook Report 2019 (GBRMPA Report 2019)⁸⁰
- 2019 Reef Water Quality Report Card⁸¹ (Reef Report Card 2019)
- the 2021 World Heritage Committee decision not to place the Reef on the on the 'List of World Heritage in Danger'.⁸²

The GBRMPA Report 2019 considered that of the very high risk threats to the GBR 'most relate to climate change or land-based run-off (water quality) affecting values on a Region-wide scale'.⁸³ It stated:

Given the current state of the Region's values, actions to reduce the highest risks have never been more time-critical. Without additional local, national and global action on the greatest threats, the overall outlook for the Great Barrier Reef's ecosystem will remain very poor, with continuing consequences for its heritage values also. The window of opportunity to improve the Reef's long-term future is now. Strong

⁷⁸ Queensland Government, 'Queensland Reef Water Quality Program: Reef protection regulations in the Great Barrier Reef regions', p 1, https://www.qld.gov.au/__data/assets/pdf_file/0020/113483/factsheet-general.pdf

⁷⁹ Queensland Government, 'Queensland Reef Water Quality Program: Reef protection regulations in the Great Barrier Reef regions', p 1.

⁸⁰ Great Barrier Reef Marine Park Authority 2019, *Great Barrier Reef Outlook Report 2019*, GBRMPA, <https://elibrary.gbrmpa.gov.au/jspui/handle/11017/3474>

⁸¹ Australian Government and Queensland Government, Reef Water Quality Report Card 2019, <https://www.reefplan.qld.gov.au/tracking-progress/reef-report-card/2019>

⁸² IUCN, *IUCN's call for action on fast-deteriorating Great Barrier Reef backed, despite no danger listing*, 23 July 2021, <https://www.iucn.org/news/secretariat/202107/iucns-call-action-fast-deteriorating-great-barrier-reef-backed-despite-no-danger-listing>

⁸³ Great Barrier Reef Marine Park Authority 2019, *Great Barrier Reef Outlook Report 2019*, GBRMPA, p vi <https://elibrary.gbrmpa.gov.au/jspui/handle/11017/3474>

and effective management actions are urgent at global, regional and local scales. The Reef is core to Australia's identity and improving its outlook is critical.⁸⁴

In February 2021, the Reef Report Card 2019 was published. The Reef Report Card 2019 outlines the progress towards the Reef 2050 Water Quality Improvement Plan targets up to June 2019. The Reef Report Card 2019 acknowledged that 'while climate change remains the greatest threat to reefs globally and efforts to reduce greenhouse gas emissions are underway, one of the most manageable impacts on the Reef is improving the quality of water flowing from the land to the sea'.⁸⁵ A copy of the Reef Report Card 2019 can be found in **Appendix E**.

The Reef Report Card 2019 findings included:

- Results show progress in some areas, particularly at a regional and catchment level with improved practices leading to pollutant reductions. However, faster uptake of improved land management practices is required to meet the water quality targets.⁸⁶
- Modelling showed there was very good progress towards the dissolved inorganic nitrogen target across the Great Barrier Reef catchment with an annual reduction of 4.3%. The greatest reductions were in the Wet Tropics (7.4%) and Burdekin (4.5%) regions. The Herbert catchment (Wet Tropics region) had the greatest annual reduction (9.4%).⁸⁷
- Overall inshore marine condition remained poor in 2018-2019, with coral and seagrass in poor condition and water quality rated moderate. The Wet Tropics and Burnett Mary regions were in moderate condition overall and the Cape York, Burdekin, Mackay Whitsunday and Fitzroy regions were in poor condition overall.⁸⁸

The Reef Report Card 2019 is available on the department's website.⁸⁹

Australia (as a party to the United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Convention), is required to conserve not only the World Heritage sites situated on its territory, but also to protect its national heritage.⁹⁰ Under the convention, parties are obligated 'to report regularly to the World Heritage Committee on the state of conservation of their World Heritage properties'.⁹¹ These reports, which UNESCO considers 'crucial to the work of the Committee' enable the World Heritage Committee 'to assess the conditions of the sites, decide on specific programme needs and resolve recurrent problems'.⁹²

⁸⁴ Great Barrier Reef Marine Park Authority 2019, *Great Barrier Reef Outlook Report 2019*, GBRMPA, p vi, <https://elibrary.gbrmpa.gov.au/jspui/handle/11017/3474>

⁸⁵ Australian Government and Queensland Government, Reef Water Quality Report Card 2019, <https://www.reefplan.qld.gov.au/tracking-progress/reef-report-card/2019>

⁸⁶ Australian Government and Queensland Government, Reef Water Quality Report Card 2019, <https://reportcard.reefplan.qld.gov.au/>

⁸⁷ Australian Government and Queensland Government, Reef Water Quality Report Card 2019, <https://www.reefplan.qld.gov.au/tracking-progress/reef-report-card/2019>

⁸⁸ Australian Government and Queensland Government, Reef Water Quality Report Card 2019, <https://www.reefplan.qld.gov.au/tracking-progress/reef-report-card/2019>

⁸⁹ Australian Government and Queensland Government, *Reef 2050 Water Quality Improvement Plan, 2020*, <https://www.reefplan.qld.gov.au/tracking-progress/reef-report-card/2019>

⁹⁰ UNESCO WHC website, *The World Heritage Convention, 2021*, <https://whc.unesco.org/en/convention/>

⁹¹ UNESCO WHC website, *The World Heritage Convention, 2021*, <https://whc.unesco.org/en/convention/>

⁹² UNESCO WHC website, *The World Heritage Convention, 2021*, <https://whc.unesco.org/en/convention/>

The GBR was listed as a world heritage site in 1981⁹³ and Australia regularly reports on the state of conservation of the GBR to the World Heritage Committee.⁹⁴ The World Heritage Committee has requested that the Australian Government undertake a range of measures to ensure that the 'Outstanding Universal Value of the Great Barrier Reef' is not compromised.⁹⁵

In June 2021, a draft decision was published by the World Heritage Committee for the GBR to be included on the 'List of World Heritage in Danger'.⁹⁶ This recommendation was based on conclusions of the GBRMPA Report 2019 that:

the long-term outlook for the ecosystem of the property has further deteriorated from poor to very poor, that the deterioration of the ecological processes underpinning the outstanding universal value of the property has been more rapid and widespread than was previously evident, and that the property has suffered significantly from mass coral bleaching events in 2016, 2017 and 2020.⁹⁷

It also noted that despite many positive achievements, progress has been largely insufficient in meeting key targets of the Reef 2050 Plan, in particular the water quality and land management targets, as evidenced by the conclusions of the 2017-2018 and 2019 Report Cards.⁹⁸

However, in July 2021, the World Heritage Committee decided not to adopt the draft decision. Instead, it requested that it host a joint UNESCO/International Union for Conservation of Nature (IUCN) monitoring mission to the GBR and provide an updated report by February 2022. According to the IUCN, the mission will aim to ensure that Australia's revised Reef 2050 Plan delivers the action needed on all the threats to the GBR, particularly climate change and water quality. Its findings and recommendations will be reviewed at the next session of the World Heritage Committee in 2022.⁹⁹

In relation to the World Heritage Committee decision on the GBR, the Department of Agriculture Water and Environment states:

Australia welcomed the support of an overwhelming majority of nations at the 44th session of the World Heritage Committee which has backed Australia's concerns over the UNESCO assessment process for the Great Barrier Reef. Australia's concern was always process focussed, in that UNESCO had sought an immediate 'In Danger Listing' without appropriate consultation, without a site visit and without all the latest information.

...

The Australian Government does not consider that the Great Barrier Reef World Heritage Area warrants inclusion on the List of World Heritage in Danger.¹⁰⁰

⁹³ UNESCO WHC website, *State of Conservation, Great Barrier Reef (Australia)*, <https://whc.unesco.org/en/soc/4141>

⁹⁴ Australian Government, Department of Agriculture, Water and Environment, *World Heritage Committee – State Party Reports*, <https://www.environment.gov.au/marine/gbr/world-heritage>

⁹⁵ Australian Government, Department of Agriculture, Water and Environment, *World Heritage Committee – About the World Heritage Committee*, <https://www.environment.gov.au/marine/gbr/world-heritage>

⁹⁶ UNESCO WHC website, *State of Conservation, Great Barrier Reef (Australia)*, <https://whc.unesco.org/en/soc/4141>

⁹⁷ UNESCO WHC website, *State of Conservation, Great Barrier Reef (Australia)*

⁹⁸ UNESCO WHC website, *State of Conservation, Great Barrier Reef (Australia)*

⁹⁹ IUCN, *IUCN's call for action on fast-deteriorating Great Barrier Reef backed, despite no danger listing*, 23 July 2021, <https://www.iucn.org/news/secretariat/202107/iucns-call-action-fast-deteriorating-great-barrier-reef-backed-despite-no-danger-listing>

¹⁰⁰ Australian Government, Department of Agriculture, Water and Environment, *World Heritage Committee – World Heritage Committee decision on the Great Barrier Reef*, <https://www.environment.gov.au/marine/gbr/world-heritage>

3 Examination of the Bill

The primary objective of the Bill is to repeal all amendments made to the EPA and *Chemical Usage (Agricultural and Veterinary) Control Act 1988* by the State Government in their Amendment Act.

As mentioned in the introduction, specific amendments proposed by the Bill include:

- reverting to the previous definition of an agricultural ERA.
- reversing the consolidation of a single offence for failing to comply with an agricultural ERA standard and re-introducing 3 separate offences relating to fertiliser application, keeping primary documents and complying with a production requirement.¹⁰¹
- establishing an independent regulator to advise the Minister when making a new ERA standard and to oversee the administration of new provisions relating to the offence about fertiliser application.
- introducing changes to the operation of the offence about fertiliser application including the use of an enforceable undertaking (rather than a financial penalty) for a first contravention of the offence, and providing that a person does not commit the offence if their employee engaged in the contravening behaviour contrary to instructions.
- limiting the required period that documents for an agricultural ERA record must be kept to 2 years (currently 5 years) after the last day of the financial year in which the record was made.
- transferring the power for making an ERA standard from the chief executive to the Minister and require the Minister to consult with the independent regulator and representatives from 2 or more relevant industry bodies before making a new ERA standard.
- mandating that the Minister must publish a copy of each new ERA standard on the department's website and any recommendations made by the independent regulator relating to that standard.¹⁰²

The following section outlines the Member for Hinchinbrook's key arguments for reversing the amendments made by the Amendment Bill and stakeholders' responses to these arguments. The amendments listed above are then discussed in further detail in the following sections.

3.1 Reversal of all amendments made in 2019

The Bill was introduced to address concerns raised by some agricultural stakeholders regarding the regulatory requirements provided for in the Amendment Act. Two primary themes form the overarching rationale for the reversal of the measures—the regulatory requirements and related efforts by the agricultural sector to improve water quality, and disagreement with the scientific consensus.

3.1.1 Regulatory requirements and industry-led efforts to improve water quality

The Member for Hinchinbrook called for balance between agricultural, tourism and environmental interests when legislating to protect the GBR and advised that farmers do not want to destroy the GBR:

Not one person who will speak to this bill today wants to destroy the reef. In fact, the agricultural organisations that will appear before the committee represent the reef's greatest protectors: growers, farmers and people who own the land. They know what to do; they know how to manage their land. Farmers want to farm sustainably, just as we want them to. It is in their best interests to do so. We already did this prior to the introduction of the government's reef legislation in 2019. Moreover, the lifestyle these

¹⁰¹ Explanatory notes, p 4.

¹⁰² Explanatory notes, pp 4-5.

communities enjoy is centred on the reef, whether these farmers, growers and property owners are fishing, indulging in water sports like jetskiing or motorboating, swimming or spearfishing.¹⁰³

To support his argument for the need to reverse the amendments made in 2019, the Member for Hinchinbrook described some of the challenges that agricultural stakeholders have reported to him about the regulatory changes:

... the unanimous feedback we got from those people who will have to run their businesses off the back of this current legislation is that they were not happy with the previous regulation—the legislation they were working under—but at least they could work with it. They were still able to afford to undertake their farming practices to a point where it was still profitable. I have to draw your attention to some of our more broadacre growers—the big guys out there—who are just surviving while they are trying to implement some of this BMP [Smartcane BMP program] stuff. It is expensive for even the bigger growers.

It might be great to have different input costs and prove that, yes, you can yield a certain amount from a certain amount of nutrients, but the fact is that we have another contributing factor here when it comes to sustainability and the sugar industry: the world sugar price. What might be very sustainable this year off the current world sugar price may not be in five years' time.¹⁰⁴

Other issues raised with the Member for Hinchinbrook included:

One of the things that people are calling for the reversal of is oversight. They do not want the onerous ERA standards. They also say that they should not have to go through the process of getting a new cropping standard for new agricultural land. Another thing that is not being supported by the industry is the ability to go in and check on our own growers and talk to third parties about what they are doing on their property. It is about working with industry—holding each other's hand while walking down the street, not walking behind them with a stick.¹⁰⁵

The Member for Hinchinbrook also stated that growers were not privy to the regulations or what the regulatory impact on their interests would be until after the legislation was passed, and expressed concern that the regulatory changes, including a reduction of nitrogen and phosphorous, and costs for growers will affect the viability of their farming operation and 'send some of these smaller growers to the wall' and have a flow-on effect on the industry and local economy.¹⁰⁶

3.1.1.1 Stakeholder views in support of the Bill

A number of agricultural groups expressed their support for the Bill as a means of reducing the regulatory requirements of farmers while still focusing on improving water quality on the GBR.¹⁰⁷ For example, the Kalamia Cane Growers Association Ltd (KCGO) submitted the Bill 'demonstrates that it is possible to achieve a greater balance between the interests of agriculture and the environment, without imposing claustrophobic red tape and prescriptive legislation'.¹⁰⁸

Similarly, the QFF stated:

The Queensland Government's main justification for increasing the regulations on agriculture in 2019 Act is that voluntary approaches have failed to facilitate enough take up of improved practices and at the present trajectory, the Reef water quality targets under the Reef 2050 Water Quality Improvement Plan 2017-2022 (WQIP) will not be met. The Bill before the committee provides a way forward for the agricultural industry to continue to implement industry best management practice standards which are also being advanced by international and trade requirements.¹⁰⁹

¹⁰³ Public hearing transcript, Brisbane, 11 June 2021, p 21.

¹⁰⁴ Public hearing transcript, Brisbane, 11 June 2021, p 22.

¹⁰⁵ Public hearing transcript, Brisbane, 11 June 2021, p 23.

¹⁰⁶ Public hearing transcript, Brisbane, 11 June 2021, pp 21, 24, 27.

¹⁰⁷ See, for example, submissions 17, 23, 24, 28 and 31.

¹⁰⁸ Submission 17, p 4.

¹⁰⁹ Submission 31, p2.

A number of agricultural stakeholders commented on the regulatory requirements of the current legislation, arguing there is a lack of scientific evidence to support the regulations.¹¹⁰ For example, AgForce described the impact of current Reef Protection Regulations for individuals and small enterprises as ‘the consequent brutal and potentially unnecessary imposts’.¹¹¹

Criticisms of the current legislation by stakeholders included:

- the administrative burden, including imposition of onerous record-keeping and regulated minimum practice standards on commercial farmers¹¹²
- prescriptive and inflexible regulations requiring changes to farming practices that are unsustainable, and a lack of provisions for factors that are beyond the control of the landholder, such as prolonged periods of drought, flood and rain events, and issues of pasture dieback¹¹³
- lack of consideration for the cumulative effect of other concurrent policies and potential conflicts with other legislation, and the cumulative impacts of drought, flood and other climate impacts, as well as COVID-19 disruptions¹¹⁴
- resultant significant compliance and production costs with an unacceptable risk of loss of productivity, income and viability.¹¹⁵

Some stakeholders argued that a voluntary, industry-led approach would be more appropriate than the current regulatory framework, claiming it is more likely to foster innovation.¹¹⁶ For example, the QFF submitted:

We consider regulation is a high cost, simplistic instrument that supports minimum standards of compliance, and does not encourage or foster a culture of long-lasting practice change. By contrast, voluntary industry-led farm management systems (such as BMP programs) and other water quality improvement projects have proven to be enablers of such cultural changes.¹¹⁷

Bundaberg CANEGROWERS Ltd referred to a lack of recognition of the high level of innovation and adoption of practices by growers in the Burnett Mary region to minimise runoff, outlining the following current practices:

- Over 70 percent of all farm runoff goes through at least one tail water dam before entering a waterway. The majority of these dams were built before 2004.
- Six Easy Steps and nutrient management workshops were developed in Bundaberg to assist growers in understanding their soil tests
- The Bundaberg region has been the leader in irrigation program development. Watersense was developed with the assistance of the Bundaberg region. The network of soil moisture probes and weather stations with central access via a central website and available to all growers was developed by and is still maintained in Bundaberg. These soil moisture monitoring probes are used to assist growers in determining when to irrigate to minimise runoff and deep drainage. The weather stations

¹¹⁰ See, for example, submissions 13, 17, 28, 31 and 32.

¹¹¹ Public hearing transcript, Brisbane, 11 June 2021, p 29.

¹¹² See, for example, submission 31; Mr Michael Guerin, AgForce, public hearing transcript, Brisbane, 11 June 2021, p 29.

¹¹³ See, for example, submissions 5, 8, 9, 13, 17, 20 and 32; and Ms Artiach, Kalamia Cane Growers, transcript, public hearing, 3 September 2021, p 23.

¹¹⁴ See, for example, submissions 31 and 32.

¹¹⁵ See, for example, submissions 5, 17, 18, 31 and 32.

¹¹⁶ See, for example, submissions 4 and 31.

¹¹⁷ Submission 31, p 3.

provide localised records for temperature, humidity, wind speed and direction to assist in completing records for chemical application

- A soil test survey of the district has meant that the 100 leading growers have received a nutrient management plan in 2013, 2016 and 2019.¹¹⁸

It was also submitted that farmers do not want to destroy or degrade either their land or the GBR.¹¹⁹ For example, the Queensland Cane Growers Organisation Ltd (CANEGROWERS) stated that growers have consistently demonstrated a strong commitment to improving practices for both productivity and sustainability benefits, but that ever-increasing regulatory intervention in sugarcane farming practices have not benefited either growers or water quality, and that it has ‘reduced motivation of growers’ to participate in voluntary programs and discouraged on-farm innovation’.¹²⁰ CANEGROWERS suggested that ‘voluntary programs are the only effective means of working with growers for real progress that takes account of the extreme variability in our farming systems’.¹²¹ CANEGROWERS explained:

We do not support and have not supported any use of regulations for farming practices for a number of reasons: they are a very blunt instrument, they tend to disempower growers, and they assume farming can be done through rigid rules, whereas farming has to be a very flexible process. The 2009 regulations, which is when cane was first regulated, are a good example of how regulations can have adverse outcomes. At that stage, the government took bits of the industry’s well-proven Six Easy Steps nutrient management program and made that into fixed caps on nutrient use. This was an improper use of a tool which was meant to be guidance for growers towards optimal nutrient management. It also discredited in a sense or devalued that program in the eyes of growers because they saw that it had become part of a government program. Since then, they have been very reluctant to see any improvement to that program on the basis that anything they do will be regulated. It really restricts and discourages innovation. We support voluntary change.¹²²

The Green Shirt Movement Queensland (Green Shirt Movement) submitted that the Amendment Act fails to recognise that farmers and graziers of the state are at the cutting edge of innovation and practices that better manage and balance both the environment and profitability but are not encapsulated under official BMP initiatives.¹²³ The Green Shirt Movement submitted:

This skews data surrounding BMP uptake figures.

The legislation does not factor in clear evidence of demonstrated improvements made by the sugar industry in using fallow rotations, trash blanketing and underground fertiliser applications.

It does not consider that over 70% of the states cane growing land is already being operated under industry best practices. It instead gives broad reaching power to a departmental Chief Executive officer in setting minimum standards and the ability to change them without sufficient consultation, accountability, or regard to potential crop yield reduction and increased cost burdens.¹²⁴

Far North Queensland sugarcane farmer Mr Mario Quagliata also agreed with a voluntary approach, and stated he has already adopted, for a number of years, BMP farming methods, such as:

¹¹⁸ Submission 23, p 3.

¹¹⁹ See, for example, submissions 4, 12, 25, 27, 30 and 32.

¹²⁰ Submission 4, p 1.

¹²¹ Submission 4, p 2.

¹²² Transcript, Brisbane, 11 June 2021, p 35.

¹²³ Submission 32, p 2.

¹²⁴ Submission 32, p 3.

...laser levelling my paddocks, using trash blanketing, and installing wetlands to reduce erosion and I am SmartCane BMP accredited. I have also installed a bioreactor as a joint project with the MIP government appointed group to gather data.¹²⁵

Mr Quagliata noted that numerous farmers in his region have also taken up similar practices such as Landcare measures under the Smartcane BMP banner; while the KCGO submitted that the Smartcane BMP is an example of an agricultural industry itself setting the standard for BMP.¹²⁶

Similarly, stakeholders from the Cape York Peninsula advised that local farmers are aware they farm in an environmentally sensitive area and that they have a responsibility to continually update and improve their farming practices when new technology and management practices become available. These stakeholders suggested that lasting change is better achieved through behavioural modification brought about by education, extension and support rather than 'unproductive bureaucracy and penalties underpinning regulation'.¹²⁷

Some submitters called for a greater focus on programs that are tailored to the industry and the region, rather than regulation. For example, stakeholders from the Burdekin region referred to issues with the Six Easy Steps program which, under the regulations, requires farmers to substantially reduce their rates of application of nitrogen and phosphorus. The Burdekin Shire Council submitted the following:

Industry sources advise this program was not developed in the Burdekin region and based on assumptions that do not apply to our subsoil types and sub-catchment water quality.

The application of these requirements, which are not tailored to the Burdekin 's specific characteristics, are of significant concern as they have the potential to make farming in the Burdekin unprofitable due to the reduction in yield from crops such as sugar cane . The flow on effects would be substantial, particularly to the sugar milling and associated support industries, along with the broader community that is reliant on the economic contribution made by agriculture to the shire. If these industries fail, the consequences for the future of the Burdekin Shire would be dire.¹²⁸

The Pioneer Cane Growers Association Ltd (PCGO) also referred to difficulties with applying the Six Easy steps program in the Burdekin Shire due to differences in soil type, slope and compaction, and instead recommended local projects. The PCGO suggested that instead of increased regulation, the state government support 'identifying a 'ground-up' approach to integrated sub-catchment monitoring and intervention where farmers are directly involved in identifying issues in sub-catchments through localised water quality monitoring'.¹²⁹

Some stakeholders argued that the Reef Report Card 2019 released earlier this year showed improvements to water quality were occurring in the year the Amendment Act was introduced and passed, negating the need for greater regulation. The Green Shirts Movement submitted that 'Water quality improvements within the report showed an attained A Grading and a cumulative reduction of 25.5% to June 2019 for nitrogen entering the Great Barrier Lagoon'.¹³⁰ The Green Shirts Movement

¹²⁵ Submission 15, p 1.

¹²⁶ Submission 15, p 1; submission 17, p 4.

¹²⁷ See, for example, submissions 25, 27 and 30.

¹²⁸ Submission 13, p 2.

¹²⁹ Submission 20, p 3.

¹³⁰ Submission 32, p 2. The Reef Quality Water Report Card showed that the dissolved inorganic nitrogen load leaving catchments showed a cumulative reduction of 25.5% to June 2019, a modelled average annual reduction of 4.3% (approximately 226 tonnes) from July 2018 to June 2019 (<https://reportcard.reefplan.qld.gov.au/home?report=target&year=5e858f29194b0655bc3c3111&measure=DIN&area=GBR>)

argued that this result is ‘further confirmation that these legislative changes are an unnecessary overreach given these results were obtained in 2019, before these regulations came into effect’.¹³¹

A lack of government investment in industry programs was also raised as an issue. The QFF acknowledged that government considers the take up of improved practices has been too slow, but suggested that ‘there has been significant underinvestment in voluntary and industry-led programs to date when considered against the cost of achieving the water quality targets that governments have set’.¹³² The QFF suggested the State Government:

...increase investment in industry programs to a more realistic level considering the water quality targets it has set; and the government work more closely with agricultural industries operating in the Reef catchments to get the stewardship and market incentive mix right for farm businesses to speed up the progress towards the water quality targets under voluntary approaches.¹³³

3.1.1.2 Stakeholder views opposed to the Bill

In contrast to stakeholders supporting the Bill, some stakeholders argued that, despite some progress being made by farmers to establish and maintain good land management practices, including via the adoption of voluntary initiatives, regulation is necessary to reduce the impact of agricultural practices on the GBR’s water quality. These stakeholders did not support the reversal of the 2019 amendments.¹³⁴

Dr David Wachenfeld, Chief Scientist at GBRMPA, advised the committee that while there have been improvements in the reduction of many of the specific pollutants and increasing rates of uptake of best management practice by farmers, the reductions have not been consistent across all pollutants across all catchments and ‘we have not made as much difference as we need to’.¹³⁵ Dr Wachenfeld stated:

This is a problem that took 150 years to create. It will take a long-term dedicated effort to turn that around, but absolutely I think the investments that have already been made have been delivering good results. We just need to increase our efforts to get to the targets that we have set.¹³⁶

The results of the Reef Report Card 2019 and the GBRMPA Outlook Report 2019 were raised by a range of stakeholders as evidence that regulations are needed to reach the 2025 targets, and that weakening or removing current regulations will have a negative impact on the GBR and efforts to reach the 2025 targets.¹³⁷ These stakeholders argued that the 2025 water quality targets will not be met by relying solely on voluntary adoption of BMPs.¹³⁸

For example, the National Environmental Law Association Ltd (NELA) referred to a number of reports, including the Reef Report Card 2019 and the GBRMPA Outlook Report 2019, which indicated that on the current trajectories identified at the time, the outlook for the GBR was poor and that the targets for improving water quality by 2025 would not be met.¹³⁹ NELA raised concerns that weakening regulatory measures was of concern when progress towards these targets had been found to be ‘too slow’.¹⁴⁰

¹³¹ Submission 32, pp 2, 3.

¹³² Submission 31, p 3.

¹³³ Submission 31, p 3.

¹³⁴ See, for example, submissions 3, 5, 11 and 18.

¹³⁵ Public hearing transcript, Brisbane, 11 June 2021, p 13.

¹³⁶ Public hearing transcript, Brisbane, 11 June 2021, p 13.

¹³⁷ See, for example, submissions 3, 19 and 29.

¹³⁸ See, for example, submissions 3, 19, 21 and 22.

¹³⁹ Submission 3, p 3.

¹⁴⁰ Submission 3, p 1.

Similarly, the EDO and the AMCS argued that regulation is necessary.¹⁴¹ The EDO submitted:

Unfortunately, the 2019 GBR Report Card⁷ shows that, after more than a decade, only 36.2% of grazing land and 12.7% of sugarcane land are using best management practice systems—both of these land uses have a target of 90% of land at best management practice systems by 2025. So, whilst many farmers are participating and making a difference, others are not. Regulation is therefore a necessity to improve the rate of uptake of best management practice systems.¹⁴²

Referring to the results of the Reef Report Card 2019, NELA submitted:

The *Reef Water Quality Report Card of 2019* found that while progress had occurred in some areas with improved practices leading to pollutant reductions, faster uptake of improved land management practices was required to meet the water quality targets.... Positive notes from the Report indicate that good progress has been made in reducing fine sediment load, with a significant increase in best practice nutrient management in the sugarcane sector. However, the overall inshore marine condition remained poor in 2018–19, with only a 0.2% reduction (very poor) in anthropogenic end-of-catchment fine sediment loads and a 0.4% reduction (moderate) in anthropogenic end-of-catchment particulate nutrient loads. The current trajectory in both these reduction rates suggest that targets for 2025 will not be met and that more action is required.¹⁴³

The Wildlife Queensland-Townsville Branch also referred to the overall results of the Reef Report Card 2019, advising:

...the subsequent joint government Reef Water Quality Report card showed in 2019 that these targets were largely not being met. Of the 13 Reef-wide targets only 4 had a progress rating of Very Good (1) or Good (3). Seven of the remaining nine targets had a rating of Poor (4) or Very Poor (3). The remaining two showed only ‘moderate’ progress toward the target. While positive progress is recognised and efforts by farmers to establish and maintain good land management practices are acknowledged, as they should be, it is not surprising that the Report urges that “faster uptake of improved land management practices is required to meet the water quality targets”.¹⁴⁴

According to NELA and the Gecko Environment Council (Gecko), the GBRMPA Report 2019 similarly shows that while progress has been made since 2014, the adoption of improved land management practices continues to be slow, and concluded that the long-term outlook for the GBR ecosystem has deteriorated from *poor* to *very poor* due to climate change and land-based run-off (along with coastal development and some direct human uses), and that mitigating climate change and improving water quality was essential to turn this outlook around.¹⁴⁵ NELA advised, the ‘GBRMPA Report 2019 highlights particular concern about the influence of land-based run-off on inshore areas; stating that these areas have demonstrated the ability to improve, if they do not experience ‘extra stresses’ from sediment, nutrient and pesticide loads’.¹⁴⁶

Some stakeholders argued that regulation has been shown to improve compliance. The Ecological Society of Australia (ESA) submitted that voluntary programs will not be effective in substantially reducing agricultural run-off, stating:

Reducing governmental oversight of farm and land management, as proposed by the GBR Reversal Bill, is likely to lead to no change or increases in the amount of land-based pollution entering the GBR. While voluntary programs are often proposed to incentivise farmers to reduce pollution levels, the global

¹⁴¹ Submission 21, p 5; submission 29, p 4.

¹⁴² Submission 21, p 4.

¹⁴³ Submission 3, p 3.

¹⁴⁴ Submission 19, p 4.

¹⁴⁵ Submission 3, p 3; submission 14, p 2.

¹⁴⁶ Submission 3, p 3.

pattern shows that substantial reductions in agricultural run-off in coastal environments has only been achieved using legislation and regulatory procedures.¹⁴⁷

AMCS also argued that compliance and enforcement is necessary, submitting:

Regulation has been a necessity for many landmark initiatives and is already used extensively within the Great Barrier Reef to limit the impact of industries such as tourism, fishing and aquaculture. Farming should be no different to other regulated industries that operate near or on the Reef. The Queensland government compliance reporting is demonstrating that compliance and enforcement is a necessary component of improving water quality and land management practices. On average, approximately 45% of landowners are compliant with regulations on first visit by an authorised officer. This number increases to 66% on second visit; showing that repeat compliance visits are successfully increasing uptake of the regulations and demonstrating the regulatory approach is necessary.¹⁴⁸

Mr Richard Leck from WWF, stated that across many sectors in society, there is a consistent pattern that ‘voluntary practices, either by individuals or industry, need to be underpinned by adequate regulation to bring about change in behaviour or improved management outcomes’. He also told the committee:

It is clear now that the 2025 water quality targets will not be met by relying solely on voluntary adoption of best management practice.¹⁴⁹

...

It is clear from this rate of adoption that there are graziers and canegrowers who have made a business decision not to participate in government and industry programs to support adoption of best practice. Whilst many farmers are participating and making a fantastic difference, others are not. Those not participating are essentially free riding, and that is undermining the efforts of those leading growers and farmers.

...

You see those farmers who will be early adopters and do good things, but you will always have laggards. You will not move the entire industry unless you have the regulatory piece to set those minimum standards.¹⁵⁰

The EDO and AMCS submitted that that the regulations are reasonable, for example, the EDO argued that:

The 2019 Amendment Act provided for reasonable regulations, which simply provided for pollution load reduction targets, minimum practice standards and new permit requirements for the expansion of agriculture in Reef catchments, targeting high risk pollutants of nitrogen and sediment. Pesticides, which can be highly polluting, are not even included in the water quality regulations introduced by the 2019 Amendment Act, and catchments that have met their water quality targets are not required to reduce their nutrient loads. The Queensland Government has provided a soft, staged roll out of these regulations over three years, with extensions granted due to the inconveniences of COVID-19.¹⁵¹

Mr Leck from WWF told the committee about agricultural practice change programs in GBR catchments, which include Project Catalyst for sugar cane and Project Pioneer for grazing, which assure buyers that the farming practices of suppliers are in line with minimum standards. Mr Leck provided the following example:

With cane we work with Project Catalyst, a program of which the significant supporter is Coca-Cola. They are looking to purchase their product from farmers who have best management practices, for example,

¹⁴⁷ Submission 16, p 2.

¹⁴⁸ Submission 29, p 4.

¹⁴⁹ Public hearing transcript, Brisbane, 11 June 2021, p 15.

¹⁵⁰ Public hearing transcript, Brisbane, 11 June 2021, p 15.

¹⁵¹ Submission 21, p 3.

better sugar initiatives. As I understand it, they look for their suppliers to obviously be in line with minimum standards, in line with the regulations. Similarly, we work with Project Pioneer for cattle farmers.¹⁵²

The AMCS stated 'It is important to note pesticides are not included in the Reef Protection Regulations, which conflicts with the "*Policy objectives and the reason for them*" argument presented in this Reversal Bill Explanatory Notes'.¹⁵³

Submitters supported regulation as one of a mix of tools, in addition to government and industry investment, to meet the 2025 targets.¹⁵⁴ In addition, some stakeholders argued that the current legislation needs to be strengthened, not weakened.¹⁵⁵

Some stakeholders referred to the need to maintain the current regulations to provide time for their impacts to be assessed. Gecko cautioned that not all the regulations had been fully implemented yet, noting:

While there have been some improvements in farm management practice and a willingness to adopt measures to reduce agricultural run-off, it must be noted that the regulations this Bill seeks to overthrow have not even been fully implemented yet and will only be fully in force in 2022. Accordingly, there is no way to accurately measure whether or not they have been effective in improving overall water quality or if even stricter regulation is required. Any such measures, if required, should be informed by the updated draft Reef 2050 Long-Term Sustainability Plan (the Plan) which was due for release in early 2021 but is still awaited.¹⁵⁶

Similarly, Ms Jaimi Webster, Great Barrier Reef Water Quality Manager from the AMCS, told the committee:

In short, I think we need to maintain the status quo. As we talked about earlier before we came on board, there is progress being made. It will likely be reflected in the next report card since the regulations came in in 2019. That last report card we had reflects the changes or the improvements we saw for best management practices. We are really looking forward to this next report card, which is going to show the increase we have made since the regulations came into play.¹⁵⁷

Dr Wachenfeld explained why time is needed before changes to land management practice can be assessed:

One of the things we have to bear in mind, as I said, is that this is a problem that took us 150 years to create and it will take a while to fix. It will also take a while for the ecological and biological processes out on the Great Barrier Reef to process through some of the sediments and nutrients that are already out there. In other words, you do not immediately see a water quality or an ecosystem health improvement on the reef the week after you implement a new management practice on the land. These are processes that take time to play through. Again, I think absolutely we will see improvements but they will take time. This is a strategic endeavour that needs a strategic focus, which is exactly why the Reef 2050 Plan and the Water Quality Improvement Plan have a time line out to 2050. These are long-term strategic things that we need to focus on.¹⁵⁸

A number of submitters who expressed their opposition to the Bill raised the recent draft decision by the World Heritage Committee for the GBR to be included on the 'List of World Heritage in Danger' due to deteriorating conditions from climate change and poor water quality, in part due to insufficient

¹⁵² Public hearing transcript, Brisbane, 11 June 2021, p 18.

¹⁵³ Submission 29, p 3.

¹⁵⁴ See, for example, submissions 19, 22 and 29.

¹⁵⁵ See for example submissions 11, 14, 16 and 21.

¹⁵⁶ Submission 14, p 3.

¹⁵⁷ Public hearing transcript, Brisbane, 11 June 2021, p 17.

¹⁵⁸ Public hearing transcript, Brisbane, 11 June 2021, p 14.

progress to meet key targets of the Reef 2050 Plan (including water quality improvement and land management measures). These stakeholders suggested there is a need to at least continue, if not increase, the highest level of protection for the GBR, and that any law reform should focus on further reducing impacts in order to build resilience, not weaken the protections for the GBR that are currently in place. These stakeholders also suggested that implementing the amendments to this Bill would compromise commitments made to protecting the GBR.¹⁵⁹

Dr Wachenfeld told the committee that the Reef 2050 Plan was very well received by UNESCO and its technical advisers 'as being a very comprehensive plan and representing substantial investment in the Great Barrier Reef World Heritage area', and added 'certainly the improvements over time in work to do with water quality and government investment with improving water quality I think have been an important part of UNESCO's considerations around the Great Barrier Reef World Heritage area'.¹⁶⁰

The committee also heard from stakeholders about innovative projects being undertaken by farmers to reduce run-off from their land. Ms Webster from AMCS provided the following example:

I have seen a group of cane farmers up in the Mulgrave catchment who have been composting. Using fallow crops to compost and using the compost in the soil, they have reduced their fertiliser use by 40 per cent. They are seeing the savings of the fertiliser, but obviously there is the cost of the compost. Economically, it is probably on par, but there are water quality improvements to their area. They have creeks and rivers on their property that they have also revegetated. All five of them like to fish—they could not stop talking about how much they love to fish—and they have seen improvements to fish stock up in the creeks around their property. They have also seen cooling of the water around their land.¹⁶¹

Mr Leck from WWF Australia referred to trials of new practices that have been farmer-led, in conjunction with the Reef Protection Regulations:

Farmers will only adopt them if they actually have a cost saving to them. If you are doing precision agriculture where you are delivering fertiliser right to the roots of the sugarcane plant and you are delivering water right to the roots instead of spraying it on, you will have the same or better productivity outcome and your input costs will go down. Now you see through the Reef Trust Partnership and other investment from government things like the MIPs, the integrated projects, that take that same sort of approach, which is a little bit less government or interventionist led and more grower led, creating these communities of growers. It sounds terrible, but it is like a safe space, I guess, where they can share ideas and share innovation. That is what we were talking about earlier with that sort of leading edge. That is how change really happens. It is great to see that there is a significant portion of farmers doing that now.¹⁶²

In relation to the impacts on profitability, Ms Nyssa Henry, Chief Scientific Officer on Reef Policy, from the Department of Environment and Science provided the following example:

...the adoption of best practice nutrient management of sugar cane is about doing a fertiliser management plan for your property that takes into account your own data, rather than just a whole-of-district average. You can reduce your fertiliser input costs with that. We have done trials of farmers in the Burdekin, and some of them made \$30,000 profit over the course of the program by basically fertilising for what the predicted crop needs rather than overfertilising, for example.¹⁶³

Ms Henry also spoke to the barriers to taking up BMP which she described as 'quite individual', rather than being only about profits. Ms Henry stated 'It depends on people's individual circumstances: age, demographic, where they are, are they new to farming, have they been farming a long time'.¹⁶⁴ Ms

¹⁵⁹ See for example submissions 3, 6, 14, 16, 19, 21 and 22.

¹⁶⁰ Public hearing transcript, Brisbane, 11 June 2021, p 13.

¹⁶¹ Public hearing transcript, Brisbane, 11 June 2021, p 18.

¹⁶² Public hearing transcript, Brisbane, 11 June 2021, p 19.

¹⁶³ Public hearing transcript, Brisbane, 3 September 2021, p 15.

¹⁶⁴ Public hearing transcript, Brisbane, 3 September 2021, p 15.

Louise Smyth, Director of Reef Policy, from the Department of Environment and Science, added to the theme that barriers to taking up BMP are not necessarily driven by concerns about profits, but instead:

...there is a range of barriers as to why people are finding it difficult to take up best practice. It is actually not the case that everyone is entirely profit driven. There are a range of other matters that come into play. In the regulatory space, the peak industry representative bodies are very keen to support voluntary approaches over regulatory approaches. This is just opinion, but I expect that other submissions reflect that preference for voluntary versus regulatory approaches.¹⁶⁵

Some stakeholders opposed the Bill not only due to environmental concerns but also due to concerns about the impact of poor water quality on the tourism sector and related commercial activity and jobs, and the potential for the inclusion of the GBR on the World Heritage Committee's 'in danger' list.¹⁶⁶ For example, Dr David Wachenfeld told the committee:

Those habitats, particularly inshore reefs, are also a critical part of our local economy. Some of the inshore reef areas such as the Whitsunday islands, the Keppel islands, the Frankland Islands, the Low Isles—I could go on—are inshore reef systems. As I said in my opening remarks, they are not huge in area by comparison to the overall Great Barrier Reef and the coral in the marine park, but those areas are critical to tourism businesses, local economies and local communities who use them, both to generate jobs and the economy and to generate recreational values.¹⁶⁷

Similarly, the Queensland Tourism Industry Council submitted:

Poor water quality poses an alarming, ongoing threat to the biodiversity of the Great Barrier Reef's fragile ecosystem and to the communities and industries that rely on it. The Great Barrier Reef is a unique part of the natural environment that greatly contributes to the state and national economy. It has an "economic, social, and icon asset value of \$56 billion, supports [approximately] 64,000 jobs, and contributes \$6.4 billion to the Australian economy". As such, it is critical that measures are put in place to ensure its ongoing health and curtail the runoff of sediment and pesticides. QTIC stresses the vital and urgent need for effective action to mitigate these risks.¹⁶⁸

3.1.2 Disagreement with scientific consensus

Another argument for reversing the 2019 amendments set out by the Member for Hinchinbrook and discussed in the explanatory notes was that the 2019 reforms were based on 'flawed Reef science which has not been appropriately checked and replicated'.¹⁶⁹

To support his argument, the Member for Hinchinbrook pointed to statements made by representatives of the Australian Institute of Marine Science (AIMS) and Dr Peter Ridd at the Australian Senate's Rural and Regional Affairs and Transport References Committee into the identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier Reef (Senate inquiry), along with other claims by Dr Ridd. The Member for Hinchinbrook also referred to evidence given to ITDEC on the Amendment Bill by the late Dr Jon Brodie, ARC Centre of Excellence for Coral Reef Studies. In summary, the Member for Hinchinbrook's arguments included:

- AIMS representatives advised the Senate inquiry there was no link to declining coral core growth rates in Porites coral and farm run-off, water quality was not linked to reduced coral calcification but instead caused by marine heatwaves and coral bleaching, and that coral in

¹⁶⁵ Public hearing transcript, Brisbane, 3 September 2021, p 16.

¹⁶⁶ See, for example, submissions 6, 14, 16 and 22.

¹⁶⁷ Public hearing transcript, Brisbane, 11 June 2021, p 11.

¹⁶⁸ Submission 26, p 2.

¹⁶⁹ Explanatory notes, p 1.

general is not significantly exposed to pesticides because they are on the outer reefs where the pesticides do not reach¹⁷⁰

- Dr Peter Ridd's claims that
 - there are more significant factors affecting the health of the GBR, and that agricultural nutrient and pesticide run-off, especially on the middle and outer reefs, is having very little effect¹⁷¹
 - the churning of the muddy seabed by waves is the primary exposure of coral on the inner reef to mud while river plumes are a very minor factor¹⁷²
 - pesticides are rarely measured on the GBR as they are generally undetectable, and even for inshore reefs they are mostly found close to river mouths¹⁷³
 - there are flaws relating to peer reviewed literature, which is the main system of scientific quality assurance, including that it can promote one way of thinking and can often exclude views from a dissenting scientist (referred to as the 'replication crisis')¹⁷⁴
 - fertiliser from farms causes crown of thorns starfish plagues is not substantiated, as plagues also occur in other regions not affected by agriculture¹⁷⁵
- the late Professor Jon Brodie could not place a specific time frame with any modelling as to when water quality improvements would actually have an effect on the GBR.¹⁷⁶

In closing his explanatory speech, the Member for Hinchinbrook argued:

The accounts from AIMS, Dr Ridd and Professor Brodie clearly demonstrate that scientific debate around the impact of coastal agriculture on the health of the Great Barrier Reef is far from settled and calls into question the practical need for the state government to change the regulations set out in the Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Act 2019. Considering the flawed science and the fact that changing some of the regulations could impact industry through yield reduction and also affect the milling groups and local communities that thrive off that industry, clearly we need to look at this. That is the main reason that we are introducing this legislation into the House.¹⁷⁷

The Member for Hinchinbrook advised the committee that the health of the GBR is improving, that Cyclone Yasi has had a greater impact on the GBR than land-based run-off, and that coral species are now returning:

Things like climate change and the adverse effects of climate change—Cyclone Yasi, for example—did a lot of damage to the reef 10 years ago, which sort of coincides with when we started really measuring reef health. In 2009 the first reef water quality report card came out. If you talk to anyone out there who uses the reef for either tourism based business or recreational purposes, they will say that is what decimated the reef 10 years ago and what we are seeing right now is a real return of those coral species out there.¹⁷⁸

¹⁷⁰ Queensland Parliament, Record of Proceedings, 21 April 2021, p 1039; explanatory notes, p 1.

¹⁷¹ Public hearing transcript, Brisbane, 11 June 2021, p 23.

¹⁷² Explanatory notes, p 2.

¹⁷³ Explanatory notes, p 2.

¹⁷⁴ Queensland Parliament, Record of Proceedings, 21 April 2021, p 1039; explanatory notes, p 2.

¹⁷⁵ Queensland Parliament, Record of Proceedings, 21 April 2021, p 1039; explanatory notes, p 3.

¹⁷⁶ Explanatory notes, p 3.

¹⁷⁷ Queensland Parliament, Record of Proceedings, 21 April 2021, p 1040.

¹⁷⁸ Public hearing transcript, Brisbane, 11 June 2021, pp 22, 27.

3.1.2.1 *Stakeholder views in support of the Bill*

Some stakeholders supporting the Bill outlined their belief that the science relied upon for the development of the Reef Protection Regulations is flawed, in particular the water and sediment modelling, and does not accurately portray what happens on the GBR. Issues raised with the scientific evidence used by the state government as the foundation for the Amendment Act and Reef Protection Regulations included:

- lack of acknowledgement that there are a range of factors affecting the water quality of the GBR, including ocean temperatures and severe weather conditions¹⁷⁹
- incorrect and lack of modelling about
 - where the nutrient and sediment loads come from, including concerns that the Reef Report Card 2019 doesn't delineate or address other possible variables and causations such as state-owned land or urban areas, or the many other sources that can release dissolved inorganic nitrogen
 - the quantity of sediment that makes it past the river mouth, and
 - the potential for nutrients and sediments to be flushed by water currents of the Pacific Ocean¹⁸⁰
- incorrect conclusions about the impact nutrient and sediment loads have on the GBR (with the run-off stated to only reach the inner reef, if at all, and negligible impacts on coral and the crown of thorns starfish (COTS) on the outer reef where coral is predominantly found), and the expanse of the GBR impacted.¹⁸¹

A number of stakeholders referred to the Senate inquiry. These submitters referred to the evidence given at public hearings questioning the impact of farm run-off on the outer reef.¹⁸² For example, Mr Colin Boyce MP, Member for Callide submitted that:

The findings in the Australian Senate Inquiry are being ignored by the Queensland State Government. This inquiry found that the GBRMPA only studied 3% of the Great Barrier Reef, and that even the findings in that tiny proportion of the Reef were at "low to negligible risk". At the outer reef, there was no measures of sediment, nitrogen or pesticides. Other important findings were that there had been no studies measuring the coral growth or lack of in the last 15 years.¹⁸³

Mr Quagliata similarly referred to the Senate inquiry, stating:

I was most fascinated to hear the Australian Institute of Marine Science evidence which stated they have never blamed farming for their concerns with Reef health, their main concern is climate change.

Similarly, we heard from highly qualified reef scientists Piers Larcombe and Peter Ridd who testified that the Great Barrier Reef lagoon is naturally turbid from wave action stirring up sediment from the ocean floor, and that coral and sea grass had adapted to these conditions.

Furthermore, they said sediment and chemicals running off farms only affected inshore reefs - or about 3% of the total GBR. We also heard from internationally renowned reef scientist, Walter Starck who said coral is remarkably resilient to environmental changes and that the current state of the GBR is far better than what is constantly claimed in the media.¹⁸⁴

¹⁷⁹ Submission 28, p 1.

¹⁸⁰ See, for example, submissions, 12, 18, 31 and 32.

¹⁸¹ See, for example, submissions 12, 15, 18 and 32.

¹⁸² See, for example, submissions 15, 18 and 21.

¹⁸³ Submission 12, p 1.

¹⁸⁴ Submission 15, pp 1-2.

Dr Peter Ridd, a marine scientist and public critic of the reef science in the outlook reports and consensus statements, is referred to in the explanatory notes. Dr Ridd argued that the ‘regulations at the moment will have absolutely no effect on anything significant on the reef’, explaining:

- ...the latest AIMS data shows that we are presently at record high coral cover; there is about twice as much coral on the reef today as there was in 2012 when it hit its low point after a couple of the cyclones.
- ...is now well demonstrated that mud from farms does not reach the reef in anything but minute quantities and that pesticides are usually in such low levels they cannot even be measured with the most ultra-sensitive scientific equipment. You will find nothing in the consensus statement that actually contradicts those statements. However, GBRMPA and others keep on blaming the farmers.
- ...In the last report on pesticides on the inshore reef the data shows they are genuinely at extremely low levels—well below the effects level—and there were no exceedances above trigger levels.¹⁸⁵

The Green Shirts Movement questioned the legitimacy of peer review of science, which was used as the foundation for legislation. They submitted:

Before any science becomes that which underpins legislation it is paramount that it undergoes a rigorous antagonistic audit. The implications of such far reaching legislations are too great to solely rely on the acceptance of peer review as the only scrutinising system. This is especially prudent given the amplitude of data that offers other interpretations to that which is being offered as the basis of the *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Act 2019*.¹⁸⁶

Dr Ridd also argued that the key reef science papers should ‘be subject to not just peer review, which is often just a quick read by a few scientist, but actually go out and do the work again’. Dr Ridd called for those papers to be ‘peer reviewed by scientists who are independent to the present consensus group’ and that this needs to be performed in a ‘similar quasi-antagonistic manner that we use for financial audits’ to ‘give surety to every major industry in Northern Queensland, including agriculture, that is affected by regulations and legislation related to the GBR’.¹⁸⁷

3.1.2.2 Stakeholder views opposed to the Bill

In response to claims that the science on which the Amendment Act and Reef Protection Regulations is flawed, stakeholders opposed to the Bill argued the underlying scientific evidence-base, process, and rationale for regulatory measures to protect the GBR is robust. These stakeholders referred to the scientific evidence available, including the 2017 Scientific Consensus, to support this view.¹⁸⁸

For example, Ms Henry from the department told the committee:

...there is actually very strong consensus around the health of the reef, as stated in the Scientific Consensus Statement. I have the figures there. Over 3,000 authors and 400 research organisations from 50 countries and 1,300 published papers go into that consensus statement, and it was very conclusive that there is strong evidence for the decline of the inshore marine health related to land base run-off and the priority pollutants being from agriculture. It is very important to not get misled by some people that like to cherry-pick the offshore data and pretend that is the only part of the reef that matters.¹⁸⁹

Similarly, Mr Leck stated:

¹⁸⁵ Public hearing transcript, Brisbane, 3 September 2021, p 38.

¹⁸⁶ Submission 32, p 8.

¹⁸⁷ Public hearing transcript, Brisbane, 3 September 2021, p 38-39; explanatory notes, p 2.

¹⁸⁸ See for example, submissions 3, 6, 7, 21, 22 and 29.

¹⁸⁹ Public hearing transcript, Brisbane, 3 September 2021, pp 14-15.

The 2017 Scientific Consensus Statement on land use impacts on the Great Barrier Reef water quality and ecosystem condition provides the most comprehensive, consolidated analysis and synthesis of the evidence linking impacts of water quality run-off from both agricultural and urban-industrial land uses.¹⁹⁰

Some stakeholders argued that the many plans developed to protect the GBR, most with bipartisan support, are evidence of the consensus view on the science. For example, the AMCS submitted:

The overwhelming scientific consensus on the detrimental impacts of poor water quality to our Reef is settled after decades of thorough investigation and research. This fact is reflected in the numerous plans to protect the Reef, most of which have bipartisan political support, including Reef 2050 Long Term Sustainability Plan, Reef 2050 Water Quality Improvement Plan, The 2017 Scientific Consensus Statement, and the Great Barrier Reef Marine Park Authority Outlook Report 2019. These numerous plans support the consensus that the decline of marine water quality associated with land-based run-off from adjacent Reef catchments is a major cause of the current poor state of many coastal and marine ecosystems.¹⁹¹

The EDO added to this:

The *2017 Scientific Consensus Statement*⁵ is a synthesised statement from 48 scientists with expertise in Reef water quality science and management which provides the most comprehensive, consolidated analysis and synthesis of the evidence linking the impacts of water runoff from both agricultural and urban-industrial land uses to the deteriorating health of the Reef. In addition, the *Great Barrier Reef Marine Park Authority Outlook Report 2019*, found polluted land-based run-off from agriculture remains the greatest contributor to poor water quality in the inshore areas of our Reef.¹⁹²

NELA and Wildlife Queensland-Townsville Branch raised concerns that the Bill adopts the perspectives of dissenting members of the scientific community, rather than the evidence that informed the 2017 Scientific Consensus Statement.¹⁹³ Wildlife Queensland-Townsville Branch questioned the justification for the introduction of the Bill being based on what it terms a ‘far-reaching mistrust of the scientific findings coming from reputable institutions such as GBRMPA, AIMS, TropWATER and the ARC Centre for Coral Reef Excellence’. This group suggested that stakeholders and government must be guided by the body of research which ‘deals in realities rather than hints or what appear to be baseless allegations in relation to the criticism of peer reviewed research, errors and cover-ups, and doubt about the reliability of the scientific evidence provided by these institutions’.¹⁹⁴

The ESA submitted that ‘Much of the rationale for implementing the reversal bill stems from an inherent misunderstanding regarding the difference between having little to no evidence of a relationship, and having evidence that such a relationship does not exist. One cannot use the former to infer the latter’.¹⁹⁵ The ESA added:

In this case, establishing a direct causal relationship between agricultural run-off and the outer GBR is very difficult from a methodological perspective. However, there is evidence of run-off and nutrient pollution negatively affecting inshore and coastal areas of the GBR. These areas are linked to the outer regions of the GBR such that events occurring inshore will have cascading effects further out from the coast. As such, although evidence of a direct effect of nutrient pollution on the outer GBR is currently lacking, the evidence for indirect effects is available.¹⁹⁶

NELA raised concerns that the Bill does not align with the ‘precautionary principle’, which underlies Australia’s national environmental legislation. NELA stated:

¹⁹⁰ Public hearing transcript, Brisbane, 11 June 2021, p 15.

¹⁹¹ Submission 29, pp 2, 3.

¹⁹² Submission 21, p 4.

¹⁹³ See, for example, submissions 3 and 19.

¹⁹⁴ Submission 19, p 2.

¹⁹⁵ Submission 16, pp 3-4.

¹⁹⁶ Submission 16, pp 3-4.

The 'precautionary principle' is a key aspect of the principles of ecologically sustainable development, and states that 'if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.'¹⁹⁷

...

While the dissenting evidence highlights potential and controversial points in the consensus evidence, it does not provide comprehensive evidence to suggest that land-based run-off has no impact on water quality, rather that it may not be as severe as the evidence suggests. The explanatory notes state that dissenting evidence does not imply all GBR scientific evidence is wrong, just that it cannot conclude that it is reliable. Repealing the regulatory framework on a lack of absolute scientific certainty risks further damage to the GBR and would not be consistent with the previously mentioned 'precautionary principle.'¹⁹⁸

Concerns raised in the explanatory notes about the reliability of scientific institutions and the flaws of using peer-reviewed literature were addressed by NELA as follows:

The 2017 Scientific Consensus Statement, which underpins the Reef 2050 LTSP, found that the main source of primary pollutants (nutrients, fine sediments, and pesticides) is diffuse source pollution from agriculture. ...expert stakeholders have noted that the review process of the 2017 Scientific Consensus Statement was inclusive of a range of scientific views, including the dissenting ones that the Bill has based its objectives upon. The review process involved an internal peer review, then review by an independent science panel, then further consideration by several government reviewers independently. The Independent Science Panel established to review the 2017 Scientific Consensus Statement noted that it was the 'best available summary of information around the health of the Reef and the water quality problem.' As a result, NELA does not share the concern expressed in the explanatory notes of the Bill that take issue with the reliability of scientific evidence surrounding the impact of land-based run-off on the GBR.¹⁹⁹

In specific reference to the GBRMPA Report 2019 and peer review, Dr Wachenfeld advised the committee:

I think it is essential to recognise that in seeking reviewers for the Outlook Report—and in most scientific processes—you are seeking people who have expertise in the subject matter at hand. It was specific to the Great Barrier Reef or more generally the scientific discipline. Particularly in a report like the Outlook Report—which has, I think, 1,400 different scientific references in it—it would be very hard to find a credible reviewer whose science was not somewhere in the Outlook Report. I think the important point is that the Outlook Report is not saying new things about that science; it is simply summarising and synthesising what that science says from the original scientific papers.

Of course, I think there were four different independent reviews—in the sense of independent from each other—for that report. Yes, in some elements there is a person who is reviewing a summary of their own research, but there are three other people reviewing that as well. The content was written by the staff at the Great Barrier Reef Marine Park Authority. I do not see any particular concern with that. I do not think it really influences or changes the direction or findings of the Outlook Report. In a sense, it is perfectly standard practice.²⁰⁰

In reference to the Senate inquiry and the evidence referred to by the Member for Hinchinbrook to support the Bill, NELA noted that 'The inquiry committee's general view was that the regulatory framework of the 2019 Bill was necessary to expedite the rapid uptake of best practice measures'.²⁰¹ NELA also noted that the Senate committee addressed much of the dissenting scientific evidence that

¹⁹⁷ Submission 3, p 4.

¹⁹⁸ Submission 3, p 9.

¹⁹⁹ Submission 3, p 7.

²⁰⁰ Public hearing transcript, Brisbane, 11 June 2021, p 11.

²⁰¹ Submission 3, p 4.

is raised in the explanatory notes of the Bill, including the reliability of the peer review process and replicability of scientific research, and that:

The Inquiry made conclusions on these issues, namely that the committee did not question the legitimacy or accuracy underlying the scientific evidence surrounding the water quality of the GBR, and that current scientific evidence shows an impact from land-based pollutants on the Reef.²⁰²

Some stakeholders raised concerns that dividing the GBR into sections, such as the inner and outer reef, as referred to in the explanatory notes when quoting the work of Dr Peter Ridd, fails to recognise the interconnectedness of the GBR.²⁰³ Dr Wachenfeld advised that:

We know from the monitoring that we do not expect to find pesticides particularly far away from river mouths in the inshore Great Barrier Reef environment. The places where pesticides are certainly found more regularly are...in the estuaries, freshwater areas and wetlands...What is critical is that we know that the environments of the Great Barrier Reef and our estuarine, freshwater and wetland environments are critically interconnected.

...

Being careful about the coastal ecosystems that are connected with the health of the Great Barrier Reef is also very important.²⁰⁴

Wildlife Queensland-Townsville Branch similarly submitted:

The suggestion Mr Dametto makes in his explanatory notes, and speech that, because land runoff has its biggest effect on inshore waters, reefs and habitats, it is of little or no relevance to the health of corals on outer reefs, indicates a failure to understand the complex nature and fundamental interconnectedness of the Reef system. It also indicates an absolute failure to understand the importance of the inshore systems.

...

Any argument that toxins, pollutants and sediments are unlikely to damage the Reef because they do not directly reach one segment of it, cannot be sustained once one has acquired even a basic understanding of how the Reef's integrated ecosystems function.²⁰⁵

The ESA also argued that 'A healthy and diverse GBR, consisting of seagrass beds, mangroves, and coral reefs together, offers better protection against impacts of waves and storms compared to any single or coupled components of the reef'.²⁰⁶

Ms Henry from the department referred to the conferral of World Heritage status, and the importance of considering the reef as a whole, advising:

I know that a few people like to cherrypick the coral statistic for the inshore reef, ignoring the fact that 77 per cent of the area is seagrass, which is fundamental to fisheries production as well as many species that depend on that inshore area of the reef. When the reef was nominated for World Heritage status, they did not just look at coral only; they looked at the range of values, and that includes things from freshwater wetlands to the mangrove areas, saltmarshes, sponge gardens, inshore seagrass and inshore corals. It is also where the majority of the tourism is based. Around the islands of Mackay-Whitsundays, for example, is considered inshore areas, and that is where 45 per cent of the tourists usually—without COVID—go to. It is a really valuable part of the reef.²⁰⁷

²⁰² Submission 3, p 4.

²⁰³ See, for example, submissions 3, 16 and 19.

²⁰⁴ Public hearing transcript, Brisbane, 11 June 2021, p 12.

²⁰⁵ Submission 19, pp 3, 4.

²⁰⁶ Submission 16, p 3.

²⁰⁷ Public hearing transcript, Brisbane, 11 June 2021, p 8.

NELA raised concerns that that the Bill appears to compartmentalise and categorise sections of the GBR in relative importance, with the 'inshore' subsection being relatively less important than the outer reef, and submitted 'specialised inshore regions of the Reef, such as the heritage listed mangroves, seagrasses and soft sediment ecosystems, are critical due to their role in supporting many organisms in an important part of their life cycle'.²⁰⁸

Dr Wachenfeld also referred to the importance of the inshore habitats, telling the committee:

The inshore habitats that the reef supports are some of its most important values. More than three-quarters of the reef's seagrass habitat are in inshore areas. These habitats are critical for our fisheries as well as dugong and green turtle, both of which are of great cultural importance to the reef's traditional owners. Our inshore coral reefs, while not vast in area, are critical cultural, social and economic assets supporting our Queensland lifestyle and tourism industry.

...

I feel that some commentators dismiss the inshore reef as really not important or valuable. I do not see any evidence for that whatsoever. In fact, it is quite the opposite. The inshore environment of the Great Barrier Reef is where most of our seagrass beds are. It is where most of our mangrove forests are. Both of those habitats are absolutely critical for the sustainability of many of our fisheries, including recreational fisheries, which are obviously such an important part of the Queensland lifestyle.

...

I think the inshore environment of the Great Barrier Reef is extremely important, not only from a straight environmental perspective but also very much from a human, social, economic and cultural perspective. These are incredibly valuable areas for us.²⁰⁹

The reference by the Member for Hinchinbrook in the explanatory notes and his explanatory speech to comments made by AIMS representatives, Dr Paul Hardisty and Dr Britta Schaffelke, in relation to coral during the Senate committee's public hearing, was raised by Gecko, who submitted that the Member for Hinchinbrook selectively referenced the evidence given. Gecko stated:

The speech only focuses on their qualified comments on water quality in the outer reef and fails to refer to Dr Hardisty's unequivocal statement that "The results of our most recent 2020 survey showed that the Great Barrier Reef is in a period of prolonged decline due to the combined impacts of deteriorating water quality, cyclones, crown-of-thorns starfish outbreaks and the major threat, climate change. As outlined in our submission to this inquiry, AIMS research shows unequivocally that deteriorating water quality has a negative impact on coral reefs and other coastal marine ecosystems."

The two scientists noted, importantly for purposes of this Committee in examining the Bill, that "The Great Barrier Reef is obviously more than just coral." and that "This is a huge, huge complex ecosystem, and I think sometimes people forget that. It's 2,300 kilometres long. It's the size of a major country in its own right."

Accordingly, the inshore reefs and seagrass beds, intertidal zone, and catchments are all part of this system. Gecko believes that any attempt to reverse the 2019 Act referred to above fails to have regard for the serious and growing impacts of climate change on a system already suffering from poor water quality, which in turn places stress on seagrass beds and creates a nutrient-enriched environment in which crown of thorns starfish thrive.²¹⁰

Furthermore, both NELA and the ESA countered arguments that agricultural run-off doesn't impact on coral or the COTS, stating that it is likely to impact on the prevalence of the COTS, as well as diminishing coral resilience to climate change and poor water quality and the viability of coral species to reproduce

²⁰⁸ Submission 3, pp 8-9.

²⁰⁹ Public hearing transcript, Brisbane, 11 June 2021, pp 10, 11.

²¹⁰ Submission 14, p 2.

and remain healthy.²¹¹ NELA acknowledged that ‘pesticides are rarely detected in the waters of mid-shore and outer reefs’ but went on to state there is scientific evidence that suggests:

...pesticides pose significant risk to ecosystems closest to the source, i.e. freshwater inlands, rivers and estuaries. While it may be of low risk to the GBR, pesticides entering the water of these catchment areas should be of concern, as conditions of all parts of the system is important for long-term health of the reef.²¹²

Ms Henry from the department provided the following example of the Burdekin in relation to the impact on coral:

You can really see when the Burdekin was opened up to grazing. It is a real signature in the coral. As in tree growth rings, you can see in the coral a signal when grazing essentially was opened up. There has been about a fourfold to fivefold sediment load increase since grazing was introduced to the Burdekin, and that coincides with some of the hiatuses in coral growth as well, responding to the big flood events in the Burdekin.²¹³

3.1.3 Committee comment

The committee appreciates the significant contribution made by farmers who have worked to improve their land management practices either voluntarily or to comply with the existing legislation. The committee notes the work of the Bundaberg Cane Growers for their initiative in delivering the Six Easy Steps workshops informing local growers of soil and nutrient testing.

However, the committee considers the current regulatory arrangements are necessary for improving the water quality of the GBR.

The committee notes the department’s advice on the need and urgency for continuing to employ a mix of voluntary and regulatory tools and measures to accelerate the adoption of practice change to further reduce water quality pollution.

The committee is satisfied that the science underpinning existing legislation is robust.

The committee welcomes the Ministerial requirement for a review of the effectiveness of the Reef Protection Regulations in reducing nutrient and sediment loads in the GBR catchment, with the first review commencing December 2022 and to be completed within a year.

3.2 Revert to the previous definition of an agricultural environmentally relevant activity

3.2.1 Proposed amendments

The current definition of an agricultural ERA is set out in the EPA and includes the following activities carried out, on a commercial basis, on land in the GBR catchment:

- cattle grazing
- horticulture (e.g. bananas), or
- the cultivation of another crop (e.g. sugarcane or grains).²¹⁴

²¹¹ Submission 3, p 5, 8; submission 16, p 1.

²¹² Submission 3, p 8.

²¹³ Public hearing transcript, Brisbane, 11 June 2021, p 8.

²¹⁴ Explanatory notes, p 4.

The land in a lot is taken to be in the GBR catchment if more than 75% of the lot, or 20,000ha of land in the lot, is in the catchment.²¹⁵ The current definition defines the Reef catchment as the 6 reef catchments of Burdekin, Fitzroy, Burnett Mary, Mackay Whitsunday, Cape York and Wet Tropics.²¹⁶

The Bill proposes to amend this definition by reverting to the definition in place prior to the 2019 amendments. That is, limiting the activities included in the definition to those that involve commercial sugarcane growing and cattle grazing on agricultural properties over 2000 hectares, and to only apply the definition to the reef catchments of the Wet Tropics, Burdekin, and Mackay Whitsunday.²¹⁷

The Member for Hinchinbrook explained that ‘we want to repeal the legislation to return to the time before 2019, as the predominant crop in the reef catchment areas is sugar cane mixed with cattle farming’.²¹⁸

3.2.2 Stakeholder views

AgForce supported changes to the definition, arguing that the definition was too broad, and should only relate to particular land uses:

...The current Agricultural ERA 13A Standard for new or expanded cropping and horticulture has imposed regulations over a vast range of crops, where there is no previous evidence of impacts to Reef water quality. New developments of commercial crops such as turf, pasture seed, fodder for sale but not fodder for own livestock use, cropping on long-term fallowed land should be exempt of Reef regulations and a requirement for an environmental authority (permit).²¹⁹

Others felt that the geographical application of the regulations was too broad. Some stakeholders argued that there is a lack of scientific evidence that the South Burnett contributes to deteriorating water quality on the GBR, and therefore they should not be subject to the Reef Protection Regulations.²²⁰ For example, Peter and Margaret Hunt argued that ‘Despite claims of contributing sediment, scientists have recently confirmed that no baseline data has been established, and no water quality testing has been undertaken in the South Burnett area’.²²¹

Bundaberg CANEGROWERS Ltd also supported this provision in the Bill, stating ‘The inclusion of the Burnett Mary in the broader reef regulations was a flawed decision based on flawed information’ and ‘What is not recognised is the high level of innovation and adoption of practices by growers in the Burnett Mary region to minimise runoff’.²²²

AgForce similarly stated ‘The water flow from the Burnett Mary catchment generally moves away from the GBR lagoon and dams that capture river flow in most average and below average years’.²²³

As mentioned in section 3.1.1.1, the Burdekin Shire Council questioned the ‘broad-brush’ regulations and the use of programs that do not apply to their subsoil types and sub-catchment water quality.²²⁴ As an alternative, the Burdekin Shire Council submitted

²¹⁵ *Environmental Protection Act 1994*, s 79.

²¹⁶ Explanatory notes, p 4.

²¹⁷ Explanatory notes, p 4.

²¹⁸ Queensland Parliament, Record of Proceedings, 21 April 2021, p 1040.

²¹⁹ Submission no. 28, p 2.

²²⁰ See for example submissions 5, 8, 9 and 10.

²²¹ Submission 5, p 1.

²²² Submission 23, p 1, 3.

²²³ Submission no. 28, p 2.

²²⁴ Burdekin Shire Council, submission no. 13, p 2.

A partnership approach should be developed with the industry that focuses on the specific characteristics of each of the river catchment and sub-catchments that discharge to the Great Barrier Reef in order to find tailored solutions to the issues trying to be addressed through the current approach.²²⁵

In contrast, Wildlife Queensland argued that:

The current application of agricultural environmentally relevant activities appears to be contributing, at least in part, to an enhanced environmental health for the Reef so what is the logic in reverting to the former application that was a contributing factor to the problem. Such a recommendation has to be called into question. Why would you revert to a system that was obviously a contributing factor to the demise of the environmental health for the Great Barrier Reef environs.²²⁶

3.2.3 Committee comment

The committee does not support the amendment of the existing definition of an agricultural ERA.

3.3 Establish an Independent Regulator

3.3.1 Proposed amendment

The Bill proposes establishing an independent regulator to advise the Minister when making a new ERA standard and to oversee the administration of new provisions relating to the offence about fertiliser application for the industry. Under the Bill, the independent regulator should have an extensive agricultural and scientific background and not be, nor have ever been, 'an employee of the department or another government agency'.²²⁷

The Member for Hinchinbrook explained the following about the establishment of an independent regulator:

They would advise and assist the minister when making a new environmental regulatory activity standard and would oversee the administering of offences when a person commits an offence with respect to fertiliser application. The regulator would not be or have been an employee of the Department of Environment and Science or any other government agency. That is to ensure that the regulator has no conflict of interest with the government of the day and will not push another agenda.²²⁸

In addition, the Member for Hinchinbrook explained that the independent regulator would act as an extra safeguard for growers and would not have any ties to government funding and also would not have ties to environmental protection groups. The role of the independent regulator would be to make sure the state government is doing the right thing when introducing new regulations or ERA standards so that is in line with the science.²²⁹

The Member for Hinchinbrook pointed to the work of Dr Peter Ridd to support calls for an independent regulator, questioning the reliability of scientific institutions and the flaws of using peer reviewed literature.

3.3.2 Stakeholders views

Some stakeholders supported the establishment of an independent regulator.²³⁰ For example, the Pioneer Cane Growers Ltd (PCGO) supported independence from government, stating that it is

²²⁵ Submission 13, p 2.

²²⁶ Submission 11, p 2.

²²⁷ Explanatory notes, p 4; Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021, cl 444P

²²⁸ Hansard, 1040, 221 April 2021.

²²⁹ Public hearing transcript, Brisbane, 11 June 2021, p 21, 23.

²³⁰ Public hearing transcript, Brisbane, 11 June 2021, p 30; submission 24, p 3; submission 16, p 2; public hearing transcript, Brisbane, 3 September 2021, p 25.

‘absolutely necessary’ that a regulator be independent of not only government but also government funding when they are putting their research together.²³¹

The ESA indicated their view that improved governance and standards for the GBR could be achieved by establishing an independent regulator with the power to make and enforce ERA standards, ensuring ‘consistency in regulation of standards based on the scientific knowledge of reef water quality’.²³²

The EDO provided qualified support for an independent regulator, stating they support the theme of independent regulation that is free of politics, rather than the specific provisions in the Bill.²³³

In contrast, the Wildlife Preservation Society of Queensland (Wildlife Queensland) queried the necessity of establishing an independent regulator given that the State Government has ‘indicated the intention of appointing an independent Environmental Protection Agency’.²³⁴

AIMS expressed their view that a broader group of experts are needed when considering ERA standards because:

...to understand the science that underpins the Great Barrier Reef, you cannot expect one or two or three or four people to know that—you need a broad body of evidence, you need a broad body of experts.

That is why AIMS holds the position that the current science process of peer review is actually very thorough because you are not just tapping into local experts; you are tapping into experts worldwide who have experience in similar systems who can make a different perspective on how the reef may be changing and some of the drivers. If there was a concept of an independent panel, where would that expertise come from who would do that assessment? The only likely place that that expertise would come from to provide the input into that auditing would have to be the broader scientific community, and that is the same scientific community that we consider to be the peer review community. I think the concept is sound but the concept exists in the current peer review process.²³⁵

The view of AIMS was supported by the department. Ms Henry described the peer review process as follows:

That scientific literature is peer reviewed before it is published and it is that broad evidence base that we rely on to inform policies. It is not just the published science. That then gets synthesised by experts across a broad range of disciplines—biophysical, agricultural, social scientists—that make up those 48 scientists that produced the last consensus statement. That then is further reviewed by the Reef Water Quality Independent Science Panel which is a nine-member science panel of independent experts. In addition to that, they also send it to two outside reviewers, one from Murray-Darling and one that deals on World Heritage issues, just to have someone outside the reef space also look at the translation of that synthesis of those 2,000 peer reviewed published papers into that consensus statement document. We feel we have a very robust process. It is actually world-leading. We work with people in the US, the UK and around the world, and they are quite envious of our process of scientific evidence based policy decision-making. It is actually one of the few circumstances where we have this large process that we repeat every five years to really pull together what is the broad evidence base and synthesise that to tell us what the science is saying, and that then gets passed over to our policy colleagues to use in their decision-making. We feel that the processes are robust and the conclusions are strong.²³⁶

²³¹ Public hearing transcript, Brisbane, 3 September 2021, p 30.

²³² Submission 16, p 2.

²³³ Public hearing transcript, Brisbane, 3 September 2021, p 18.

²³⁴ Submission 11, p 2.

²³⁵ Public hearing transcript, Brisbane, 3 September 2021, p 6.

²³⁶ Public hearing transcript, Brisbane, 3 September 2021, p 16.

3.3.3 Committee comment

The committee notes some submitters argue for the establishment of an Independent Regulator. However, given that the Queensland Government has committed to investigating the potential for creating an independent Environmental Protection Agency, the committee does not support calls to establish an Independent Regulator as described in the Bill.

3.4 Reversal of a single offence for failing to comply with an agricultural ERA standard

3.4.1 Proposed amendment

Existing legislation makes it an offence for a person to contravene an agricultural ERA standard.²³⁷ This offence resulted from the consolidation of 3 single offences relating to fertiliser application, keeping primary documents and complying with a production requirement under the Amendment Act.²³⁸ Significant penalties are attached to this offence of either a maximum of 1665 penalty units (\$222,194.25) if the offence is committed wilfully, or otherwise a maximum of 600 penalty units (\$80,070).

The Bill proposes reversing the consolidation of a single offence for failing to comply with an agricultural ERA standard, and re-introducing 3 separate offences relating to:

- fertiliser application—providing that a person who carries out an agricultural ERA must not apply nitrogen or phosphorus to soil on the relevant agricultural property
- documents that must be kept—providing that a person who makes an agricultural ERA record must keep all relevant primary documents for the record for the required period (two years, instead of the current five years) unless the person has a reasonable excuse
- production of documents—providing that a person of whom a production requirement is made must comply with the requirement unless the person has a reasonable excuse.²³⁹

Under the Bill, the maximum penalty for each of the above offences will be reversed to 100 penalty units (\$13,345). This is greatly reduced from the maximum penalty a failure to comply with an agricultural ERA standard would entail under the current EPA.²⁴⁰

In his explanatory speech for the Bill, the Member for Hinchinbrook explained:

Most farmers cannot afford those fines. Most farmers would be sunk and pushed out of the industry if they were to be given a fine of \$220,000. That is why we are repealing that part of the legislation.²⁴¹

Reflecting on the particular impact on smaller growers, the Member for Hinchinbrook stated:

To give some perspective, a lot of the smaller growers, after taking out their input costs—after taking out everything—are making about \$40,000 profit a year from their farming operations. Most of these people have a second job in town or work in the mines just to pay for their fertiliser. They are doing their best. These are the mum-and-dad growers out there—the smaller families that have been in the industry for three or four generations. These people are saying, ‘Nick, if I was to make a mistake with my nutrient application, if I was to be slapped with an \$80,000 fine for a mistake and the government department was to come down hard and hit me with the stick, not only would that ensure I lost my farm but also I would be bankrupt.’ I do not have the exact figure in front of me, but there is a larger fine of \$220,000 at the department’s disposal. They are the kinds of fines that you would leave for a mining company or a

²³⁷ *Environmental Protection Act 1994*, s 82.

²³⁸ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 2.

²³⁹ Explanatory notes, p 4.

²⁴⁰ Explanatory notes, p 4.

²⁴¹ Queensland Parliament, Record of Proceedings, 21 April 2021, p 1040.

large industrial company that can afford that sort of thing. We have people here who are turning over \$40,000 a year. They just cannot afford that.²⁴²

3.4.2 Stakeholder views

A number of stakeholders welcomed the decrease in the size of the maximum penalty amount under the Bill. For example, AgForce supported the proposed amendments that see penalty units for offences reverting back to 'sensible fine limits' and argued that penalty fines as they currently exist should not be so high.²⁴³

The Green Shirt Movement referred to the current maximum penalties as 'punitive and excessive' and submitted that a 'well-grounded rationale to justify the monumental increase in penalties and amalgamation of offences' is yet to be provided.²⁴⁴

Property Rights Australia supported the reduction of the maximum fines, submitting that 'Attempts to justify the size of the available fines by using the turnover of the largest companies are not acceptable as they are not representative of the vast majority of businesses'.²⁴⁵ They went on to state:

In agriculture, more than most other industries, level of turnover is not indicative of profitability. Primary producers are price takers and have no way that they can pass on increases in costs. It is also a reality that our industries have few large players. Most are family-owned businesses, not large developers or mining companies. They do not have fat in the system for large fines levelled by legislation which many of us regard as impossible to comply with.²⁴⁶

In contrast, some stakeholders raised concerns that decreasing the penalty amount will also reduce the likelihood of compliance. The EDO argued:

...there is currently insufficient enforcement of our environmental laws, and the penalties that are implemented are not sufficient at all to disincentivise the likelihood of an environmental offence being committed. We would support, therefore, that penalties across the board for environmental impacts be increased. Particularly for large-scale operators, they are not enough to make a dent in changing practices at the moment. Higher penalties do lead to the business case, as it were, being better to actually follow the law rather than to take the hit of a low penalty for environmental offences that might be better in the long run for their business.²⁴⁷

Similarly, NELA stated that 'The cost of noncompliance must be a deterrent rather than the cost of doing business'.²⁴⁸ NELA also referred to a review report by Professor Graeme Samuel AC on Australia's national environmental law, the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), and advised their agreement with his recommendation that 'penalties for breaches in environmental law must be commensurate with the harm that may be done by noncompliance and that regulatory compliance must be regarded as mandatory rather than optional'.²⁴⁹

Wildlife Queensland also raised concerns that reducing penalties for infringements will only encourage people 'not to do the right thing. If someone does not comply with guidelines significant penalties should be imposed and simply not just a slap on the wrist'.²⁵⁰

²⁴² Public hearing transcript, Brisbane, 11 June 2021, p 24.

²⁴³ Submission no 28, p 3; public hearing transcript, Brisbane 11 June 2021, p 29.

²⁴⁴ Submission 32, p 4.

²⁴⁵ Submission 18, p 2.

²⁴⁶ Submission 18, p 2.

²⁴⁷ Public hearing transcript, Brisbane, 3 September 2021, p 21.

²⁴⁸ Public hearing transcript, Brisbane, 3 September 2021, p 20.

²⁴⁹ Public hearing transcript, Brisbane, 3 September 2021, p 20.

²⁵⁰ Submission 11, p 2.

3.4.3 Committee comment

The committee does not support the offence provisions in the Bill.

3.5 Offence about fertiliser application

3.5.1 Proposed amendment – enforceable undertaking

Along with the re-introduction of a single offence relating to fertiliser application, the Bill also proposes changes to the EPA relating to the operation of the offence about fertiliser application. The Bill proposes that the administering authority must accept a written undertaking, otherwise referred to as an enforceable undertaking, which obliges a person to undertake a specific activity—rather than a financial penalty—for a first contravention, or alleged first contravention, of the offence.²⁵¹

Explaining further, the Member for Hinchinbrook advised:

That is very similar to what happens with the QBCC. If a builder makes a blunder, they receive a direction to rectify. We want our farmers to have the opportunity to receive a direction to rectify, rather than having a fine imposed on them straightaway.²⁵²

3.5.2 Stakeholder views

A number of stakeholders expressed support for the inclusion of an enforceable undertaking for a first contravention.²⁵³ For example, the KCGO suggested mandating ‘that a first breach of these obligations is dealt with via an enforceable undertaking, and not a monetary penalty removes the “criminal” stigma of only the imposition of penalties and assists growers to devise a plan (that is, the “undertaking”) to ensure compliance with the legislation’.²⁵⁴

AgForce also supported the inclusion of an enforceable undertaking, arguing that the current legislation demonises farmers for being unable to comply with standards, and that failing to comply with reef standards should not automatically be a criminal offence.²⁵⁵ AgForce took issue with the tenor of the current legislation, stating that it assumes the landholder is guilty and there is a reverse onus of proof.²⁵⁶ The following was provided by AgForce to substantiate this claim:

Unless a farmer facing an audit can provide the required Environmental Risk Activity ERA records and completed all components of required records, there is inference by a compliance officer that the farmer is in breach of the ERA Standard. It is deemed the farmer, through inaccurate or lack of records, is potentially causing runoff of sediment or nutrient or pesticides to the Reef.²⁵⁷

AgForce also pointed out that:

Fertiliser is one of three sources of bioavailable nitrogen that may enter waterways. Although the land use footprint of other fertiliser users such as horticultural crops, urban gardens and sporting grounds is smaller, there is no penalty for over-fertilising by other land users.²⁵⁸

AgForce suggested further amendments to the Bill:

²⁵¹ Explanatory notes, p 8.

²⁵² Queensland Parliament, Record of Proceedings, p 1040, 21 April 2021.

²⁵³ Submission 17, p 3; submission 24, p 2; submission 28, p 3.

²⁵⁴ Submission 17, p 3.

²⁵⁵ Public hearing transcript, Brisbane 11, June 2021, p 30.

²⁵⁶ Public hearing transcript, Brisbane, 11 June 2021, p 32.

²⁵⁷ AgForce, correspondence dated 11 June 2021, p 10.

²⁵⁸ Submission 28, p 3.

It is important when enforceable undertakings are considered, additional weighting needs to be given by the decision-maker to a first-time offender who may have contravened the provisions without any wilful intent. In those circumstances an enforceable undertaking must be accepted if offered.

Not all enforceable undertakings will have immediate effect and there should be provision to take effect at a later date. This is particularly important when crop cycles are taken into account as action may not be taken until a future event has occurred.

AgForce recommends the administering authority for decisions under this section should be made by the independent regulator.²⁵⁹

Property Rights Australia expressed their view that the inclusion of an enforceable undertaking has merit, but submitted that ‘the terms must be spelt out, consistent and publicly available’, including ‘when the undertaking comes to an end and the obligation is at an end’.²⁶⁰

The PCGO also supported the amendment, but suggested further amendment that:

an undertaking must be accepted for a first contravention or alleged first contravention except where the contravention is such that the alleged offender’s conduct exceeds certain parameters (e.g. environmental and/or economic rectification impact). This will limit availability of this option where a substantial breach has occurred.²⁶¹

In response to concerns raised by the above stakeholders, NELA advised that there has not been a prosecution post the 2019 amendments and that maximum penalties are rarely imposed, especially for first offences.²⁶²

3.5.3 Committee comment

The committee does not support the introduction of an enforceable undertaking provision for a first offence.

3.5.4 Proposed amendment – absolve a person of responsibility

The Bill also proposes to absolve a person of responsibility of an offence about fertiliser application if the agricultural ERA standard is contravened by an employee employed or engaged to carry out the agricultural ERA on a person’s behalf in which the employee does not follow the instructions.²⁶³ In particular, under the Bill a person does not commit an offence if:

- the person employs or engages someone else (the employee) to carry out the agricultural ERA on the person’s behalf
- before nitrogen and phosphorus was applied to the soil in contravention of Subsection (1), the person gave instructions to the employee about the carrying out of the agricultural ERA
- the employee did not comply with the instructions, and
- the application of the nitrogen or phosphorus would not have contravened 78(1) if the employee had complied with the instructions.²⁶⁴

Explaining further, the Member for Hinchinbrook advised in the explanatory speech:

There has been a push from industry to absolve a person of an offence committed by an employee who engages in an ERA process on that person’s farm. Section 78 takes the onus off the owner of the property

²⁵⁹ Submission 28, p 6.

²⁶⁰ Submission 18, p 2.

²⁶¹ Submission 20, p 6.

²⁶² Public hearing transcript, Brisbane, 3 September 2021, p 21.

²⁶³ Explanatory notes, p 5, 8.

²⁶⁴ Explanatory notes, p 8.

and puts it back on the person who is applying the fertiliser or the pesticide. In this industry a lot of people are contracted to spray herbicides and fertilizers. The onus should be on the contractor, not the owner of the property.²⁶⁵

3.5.5 Stakeholder views

The Australian Cane Farmers Association Limited (ACFA) supported this proposed provision.²⁶⁶

In contrast, the PCGO advised they do not agree that employees should be liable in relation to offences for fertiliser application as it would 'usurp the principles of vicarious liability and will deter people from working within the industry'.²⁶⁷

3.5.6 Committee comment

The committee does not support absolving a person of responsibility of an offence about fertiliser application if the agricultural ERA standard is contravened by an employee employed or engaged to carry out the agricultural ERA on a person's behalf in which the employee does not follow the instructions.

3.6 Record keeping and documents

3.6.1 Proposed amendment

The current GBR protection regulations introduced requirements for all graziers, sugarcane and banana producers in the Wet Tropics, Burdekin, Mackay Whitsunday, Fitzroy and Burnett Mary regions to keep records now, and all grains and horticulture producers to keep records from 1 December 2022.²⁶⁸

Three types of record need to be kept by producers:

- General records – records about the person carrying out the activity, the property, and agricultural chemicals, fertiliser and mill mud/mill ash applied to the property as part of carrying out the activity. These records need to be supported by primary documents such as leaf or soil tests, fertiliser contractor print-outs, fertiliser or agricultural chemical invoices.²⁶⁹
- Minimum standard records (including farm nitrogen and phosphorus budget records for sugarcane growers) – Commercial graziers and sugarcane and banana growers will be required to meet minimum practice agricultural standards as they come into effect for their industry, and their region. Records are notes about the actions taken to meet the standards and are different for each industry. Minimum standard records must be supported by primary documents.²⁷⁰
- Primary documents – are documents that relate to the record, for example a fertiliser invoice, or a leaf or soil report. They must be kept and may be requested by an authorised person such as a Queensland Government compliance officer.²⁷¹

²⁶⁵ Queensland Parliament, Record of Proceedings, 21 April 2021, p 1041.

²⁶⁶ Submission 24, pp 2-3.

²⁶⁷ Submission 20, p 6.

²⁶⁸ Queensland Government, About the Regulations, Overview | Environment, land and water | Queensland Government (www.qld.gov.au)

²⁶⁹ Queensland Government, Record keeping, Record keeping | Environment, land and water | Queensland Government (www.qld.gov.au)

²⁷⁰ Queensland Government, Record keeping, Record keeping | Environment, land and water | Queensland Government (www.qld.gov.au)

²⁷¹ Queensland Government, Record keeping, Record keeping | Environment, land and water | Queensland Government (www.qld.gov.au)

The GBR protection measures require that records must be made within 3 days of the activity or action, and must be kept for at least 6 years.²⁷²

The Bill proposes to limit the required period that relevant primary documents for an agricultural ERA record must be kept to 2 years after the last day of the financial year in which the record was made.²⁷³

According to the explanatory notes, 'consultation with the agricultural sector has found that the requirement for primary documents to be kept for 5 years for an agricultural ERA to be both onerous and unnecessary', with 2 years considered to be more than sufficient.²⁷⁴ The Member for Hinchinbrook explained that the 'bill seeks to limit red and green tape by taking some of the regulatory burden away from farmers'.²⁷⁵

3.6.2 Stakeholder views

Several stakeholders from the agricultural sector specifically expressed their support for this part of the Bill. For example, the KCGO submitted that the reduced requirements for keeping primary documents 'is more realistic and not onerous', whilst 'maintaining accountability'.²⁷⁶ The ACFA also stated its support for this provision.²⁷⁷

AgForce submitted that current requirements around record keeping should be revoked, noting several issues with the collection of primary documents. AgForce advised that 'sale records of fertiliser and agricultural chemical products from a manufacturer or distributor has no bearing on usage within the GBR catchment'. Furthermore, 'farmers often purchase bulk product, depending on sales, tax implications and availability' and these products may be stored for use over a longer period of time, or on farms outside the GBR catchment.²⁷⁸

In relation to agricultural chemicals, AgForce also submitted that agricultural chemicals should be removed from the definition of Agricultural ERA records.²⁷⁹ AgForce advised that current requirements are a 'duplication of government red tape and departmental compliance costs', adding:

There is no substantiation for additional regulation of pesticide use and record-keeping through Reef agricultural ERA Standards, on top of existing statewide record-keeping regulations under the *Chemical Usage (Agricultural and Veterinary) Control Act 1988* and *Chemical Usage (Agricultural and Veterinary) Control Regulation 2017*.²⁸⁰

Section 20(1)(j) of the Chemical Usage Control Act 1988 and Division 4 of the Chemical Usage (Agricultural and Veterinary) Control Regulation 2017ⁱⁱⁱ authorises a Department of Agriculture and Fisheries DAF inspector to require a person to produce accounts, books, invoices, records or other documents relating to the sale, storage or use of any agricultural chemical or prescribed substance. Records to be kept for two years.²⁸¹

3.6.3 Committee comment

The committee does not support changes to the record keeping requirements.

²⁷² Queensland Government, Record keeping, Record keeping | Environment, land and water | Queensland Government (www.qld.gov.au)

²⁷³ Explanatory notes, p 5.

²⁷⁴ Ex notes, p 8.

²⁷⁵ Mr Nick Dametto MP, Hansard, 21 April 2021, 1041.

²⁷⁶ Kalamia Cane Growers Organisation, Submission 17, p 2.

²⁷⁷ Australian Cane Farmers Association, submission 24, p 3.

²⁷⁸ AgForce, submission 28, p 3.

²⁷⁹ AgForce, submission 28, p 3.

²⁸⁰ AgForce, submission 28, p 4.

²⁸¹ AgForce, submission 28, p 4.

3.7 Powers and requirements when making a new ERA standard

3.7.1 Proposed amendment

Currently, the EPA provides that the chief executive (i.e. the Director-General) may make an ERA standard. The EPA places a number of requirements on the chief executive in making an ERA including: publishing a notice of the proposed standard and seeking and considering submissions. The EPA also provides that the ERA will only take effect when it is approved by a regulation, and that the chief executive can only make minor amendments to an existing ERA standard, before a new standard must be made.²⁸²

The Bill proposes transferring the powers for making an ERA standard away from the responsible chief executive (i.e the Director-General) to the responsible Minister. The Member for Hinchinbrook explained that the provision ‘would ensure that such a decision is made by an elected official and not by an unelected member of the Public Service’.²⁸³

The Bill also proposes that before making a new ERA, the responsible Minister would be required to consult with an independent regulator as well as representatives from at least 2 relevant industry bodies. And that, the Minister would be required to publish a copy of the ERA, together with the advice of the independent regulator, on the department’s website.²⁸⁴

The Member for Hinchinbrook explained that this provision was in the interest of public transparency, such as in the case ‘where the minister makes a decision to make an ERA standard against the recommendations of the regulator’.²⁸⁵

3.7.2 Stakeholder views

Some inquiry stakeholders, including KCGO, ACFA, QFF and AgForce outlined their support for this specific provision of the Bill.²⁸⁶ By way of example, the KCGO submitted that the requirement to publish advice from the independent regulator would provide transparency, thereby improving the ability to scrutinise the Minister’s decisions.²⁸⁷ The KCGO also submitted that existing powers afforded to the Chief Executive to make an ERA standard were ‘ambiguous and without limitation’ and that there were no criteria specified that the chief executive must have regard to when making an ERA standard.²⁸⁸

3.7.3 Committee comment

The committee does not support the proposed changes to how an ERA standard is made.

²⁸² *Environmental Protection Act 1994*, sections 318, 318A, 318B, 318C, 319D, 318DA.

²⁸³ Public hearing transcript, 11 June 2021, Brisbane, p 21.

²⁸⁴ Hansard, 21 April 2021, 1041.

²⁸⁵ Explanatory speech, Hansard, 1041, 21 April 2021.

²⁸⁶ See, for example, submissions 17, 24 and 28.

²⁸⁷ Kalamia Cane Growers Organisation, submission 17, p 3.

²⁸⁸ Kalamia Cane Growers Organisation, submission 17, p 3.

4 Compliance with the *Legislative Standards Act 1992*

4.1 Fundamental legislative principles

Section 4 of the *Legislative Standards Act 1992* (LSA) states that ‘fundamental legislative principles’ are the ‘principles relating to legislation that underlie a parliamentary democracy based on the rule of law’. The principles include that legislation has sufficient regard to:

- the rights and liberties of individuals
- the institution of Parliament.

The committee has examined the application of the fundamental legislative principles to the Bill and brings clause 8 to the attention of the Legislative Assembly.

4.2 Rights and liberties of individuals

Section 4(2)(a) of the LSA requires that legislation has sufficient regard to the rights and liberties of individuals.

4.2.1 Proportion and relevance

The creation of new offences and penalties affects the rights and liberties of individuals.

Whether legislation has sufficient regard to rights and liberties of individuals depends on whether, for example, penalties and other consequences imposed by legislation are proportionate and relevant to the actions to which the consequences relate. A penalty should be proportionate to the offence:

In the context of supporting fundamental legislative principles, the desirable attitude should be to maximise the reasonableness, appropriateness and proportionality of the legislative provisions devised to give effect to policy.

...Legislation should provide a higher penalty for an offence of greater seriousness than for a lesser offence. Penalties within legislation should be consistent with each other.²⁸⁹

4.2.1.1 *Summary of relevant provisions*

Clause 8 replaces chapter 4A (Great Barrier Reef protection measures) of the EPA. This clause contains 3 offence provisions, all of which largely reflect the offences and penalties that existed prior to the changes introduced by the Amendment Act except as set out as ‘new’ below.²⁹⁰

Proposed section 78 contains an offence about fertiliser application, providing that a person who carries out an agricultural ERA must not apply nitrogen or phosphorus to soil on the relevant agricultural property (maximum penalty – 100 penalty units or \$13,345).²⁹¹

Under proposed new section 78(2), a person will not commit an offence to the extent that:

- the person employs or engages someone else (the employee) to carry out the agricultural ERA on that person’s behalf
- before nitrogen or phosphorus was applied to the soil, the person gave instructions to the employee about the carrying out of the agricultural ERA
- the employee did not comply with the instructions, and

²⁸⁹ Office of the Queensland Parliamentary Counsel, *Fundamental Legislative Principles: The OQPC Notebook*, p 120.

²⁹⁰ The amendments to the *Environmental Protection Act 1994* introduced by the Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019 commenced by proclamation on 1 December 2019 (SL 233 of 2019).

²⁹¹ The penalty unit value in Queensland is currently \$133.45 (Penalties and Sentences Regulation 2015, s 3).

- the application of the nitrogen or phosphorus would not have contravened the provision if the employee had complied with the instructions.

Proposed section 84 provides that a person who makes an agricultural ERA record must keep all relevant primary documents for the record for the required period for the record unless the person has a reasonable excuse. The new required period is 2 years (previously 5 years). The maximum penalty for contravention of this section is 100 penalty units or \$13,345.

Proposed section 86 provides that a person of whom a production requirement is made must comply with the requirement unless the person has a reasonable excuse. The maximum penalty for contravention of this section is 100 penalty units or \$13,345.

4.2.1.2 Analysis and comment

As noted above, these offences, for the most part, replicate the offence and penalty provisions contained in chapter 4A of the EPA prior to the changes introduced by the Amendment Act. The Amendment Act consolidated these offences into one single offence of ‘contravening an agricultural ERA standard’, the maximum penalty being 1,665 penalty units (\$222,194.25) if committed wilfully or 600 penalty units (\$80,070) otherwise.²⁹² The penalties proposed by the Bill, therefore, are significantly less than the current penalties.

The explanatory notes do not directly address the fundamental legislative principle relating to proportionality of penalties.

More generally, the explanatory notes state that the penalties introduced by clause 8 are ‘greatly reduced from the maximum penalty a failure to comply with an agricultural ERA standard would entail under the current *Environmental Protection Act 1994*’.²⁹³

When introducing the Bill, the Member for Hinchinbrook made the following comments regarding penalties:

Through this bill the maximum penalty for an offence would be restored to 100 penalty units, or \$13,345, as opposed to the state government’s legislation, which specifies a fine of 1,665 penalty units, or \$222,194.25, or a fine of 600 penalty units, or \$80,070. Most farmers cannot afford those fines. Most farmers would be sunk and pushed out of the industry if they were to be given a fine of \$220,000. That is why we are repealing that part of the legislation.²⁹⁴

During the former ITDEC inquiry into the Amendment Bill (which introduced the current penalties), representatives of the agricultural sector and individuals from the relevant local catchment areas described the (now current) penalties as excessive or unreasonable.²⁹⁵

The department acknowledged the increase, but provided the following justification:

The justification for that increase is to align it with similar penalties in the Environmental Protection Act and in particular penalties in section 440ZG, which are for minor water contamination, which broadly aligns with the kinds of water contamination that you would see from an agricultural property. The penalties are very aligned across that. That was the justification for those increases.²⁹⁶

The penalties were also said to align with that for the offence of causing environmental nuisance, in section 440 of the EPA, which attracts a penalty of 1,665 penalty units for wilful contravention of that

²⁹² *Environmental Protection Act 1994*, s 82.

²⁹³ Explanatory notes, p 4.

²⁹⁴ Queensland Parliament, Record of Proceedings, 21 April 2021, p 1040.

²⁹⁵ ITDEC, Report No. 16, 56th Parliament – *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019*, p 43.

²⁹⁶ Elisa Nichols, Executive Director, Office of the Great Barrier Reef, Environmental Policy and Programs, Department of Environment and Science, public briefing transcript, Brisbane, 25 March 2019, p 6.

section or 600 penalty units otherwise.²⁹⁷ The department advised the committee during that inquiry that it exercises discretion when taking enforcement action which is tailored to the seriousness of the breach of the legislation.²⁹⁸

The EPA contains a range of offence provisions, with penalties ranging from 6,250 penalty units (e.g. wilful contravention of court order pending decision on application)²⁹⁹ to 10 penalty units (e.g. failure to give notice to owners of transferred environmental authority).³⁰⁰ As set out above, there are offence provisions that contain similar penalties to the current penalties for failure to comply with an agricultural ERA. There are also a number of offences that carry a lower penalty of 100 penalty units, like the offences proposed in the Bill. These include:

- failure to comply with a surrender notice (section 260)
- failure to comply with plan of operations (section 294)
- failure to keep certificate of approval (section 574K)
- failure to give plan of operations for environmental authority for petroleum activity that relates to petroleum lease (section 703).

4.2.1.3 Committee comment

The committee considers that the current fees legislated under the Amendment Act are proportionate and relevant, given the overall objective of the EPA and specifically, the GBR protection measures set out in chapter 4A.

Therefore, the committee is satisfied that the existing provisions are justified and appropriate in the circumstances.

4.3 Explanatory notes

Part 4 of the LSA requires that an explanatory note be circulated when a Bill is introduced into the Legislative Assembly, and sets out the information an explanatory note should contain.

4.3.1.1 Committee comment

Explanatory notes were tabled with the introduction of the Bill. The notes are reasonably detailed and contain the information required by Part 4 and a sufficient level of background information and commentary to facilitate understanding of the Bill's aims and origins.

As noted above, the explanatory notes do not directly address the fundamental legislative principle relating to proportionality of penalties.

²⁹⁷ Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019, explanatory notes, p 10.

²⁹⁸ ITDEC, Report No. 16, 56th Parliament – *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019*, p 45.

²⁹⁹ *Environmental Protection Act 1994*, s 357.

³⁰⁰ *Environmental Protection Act 1994*, s 256.

5 Compliance with the *Human Rights Act 2019*

The portfolio committee responsible for examining a Bill must consider and report to the Legislative Assembly about whether the Bill is not compatible with human rights, and consider and report to the Legislative Assembly about the statement of compatibility tabled for the Bill.³⁰¹

A Bill is compatible with human rights if the Bill:

- (a) does not limit a human right, or
- (b) limits a human right only to the extent that is reasonable and demonstrably justifiable in accordance with section 13 of the *Human Rights Act 2019* (HRA).³⁰²

The HRA protects fundamental human rights drawn from international human rights law.³⁰³ Section 13 of the HRA provides that a human right may be subject under law only to reasonable limits that can be demonstrably justified in a free and democratic society based on human dignity, equality and freedom.

In the Statement of Compatibility accompanying the Bill, the Member for Hinchinbrook states that the Bill ‘is compatible with the human rights protected by the *Human Rights Act 2019*’, and advises:

Bill does not contravene any human right listed under **Part 2, Division 2 and 3 Human Rights Act 2019**.

The Bill focuses largely on regulation of agricultural activities. It does not restrict an individual’s civil and political rights, such as freedom of movement, freedom of thought, freedom of expression, property rights, privacy and reputation or recognition and equality before the law.³⁰⁴

The committee has examined the Bill for human rights compatibility. The committee brings the following to the attention of the Legislative Assembly.

5.1 Human rights compatibility

5.1.1 Cultural rights – Aboriginal and Torres Strait Islander peoples

Clause 8 of the Bill, particularly proposed sections 75 (What is an agricultural ERA) and 78 (Offence about fertiliser application), have been identified as potentially limiting section 28 of the HRA, which pertains to the cultural rights of Aboriginal peoples and Torres Strait Islander peoples.

5.1.1.1 *Nature of the human right*

According to section 28(2)(d) of the HRA, Aboriginal and Torres Strait Islander peoples have the right to ‘maintain and strengthen their distinctive spiritual, material and economic relationship with the land, territories, waters, coastal seas and other resources with which they have a connection under Aboriginal tradition or Island custom’.

This right reflects similar concepts within international human rights law, for example article 25 of the *United Nations Declaration on the Rights of Indigenous Peoples*, which Australia endorsed in 2009. Article 27 of the *International Covenant on Civil and Political Rights* (ICCPR) guarantees the right of minority groups to enjoy and maintain their cultures. International law also requires that, where an activity is likely to interfere with an Indigenous group’s cultural rights, they ought to be consulted and their consent obtained.

³⁰¹ HRA, s 39.

³⁰² HRA, s 8.

³⁰³ The human rights protected by the HRA are set out in sections 15 to 37 of the Act. A right or freedom not included in the Act that arises or is recognised under another law must not be taken to be abrogated or limited only because the right or freedom is not included in this Act or is only partly included; HRA, s 12.

³⁰⁴ Statement of Compatibility, p 1, 2.

The importance of protecting Indigenous peoples' cultural connections with lands and waters has been recognised in human rights case law in other jurisdictions. For example, the Inter-American Court of Human Rights' recent decision in *Lhaka Honhat Association v Argentina* (6 February 2020) confirmed states' duties to ensure a healthy environment in order to protect Indigenous communities' rights to food, water and culture.

While the proposed amendments do not directly limit human rights, they reverse protections designed to improve water quality entering the GBR and would therefore be expected to have a deleterious impact on the overall health of the GBR. A significant number of Traditional Owner groups have cultural and spiritual connections to the GBR and exercise management responsibilities with respect to Sea Country. Any negative impact on the health of the GBR could be expected to have an indirect impact on the enjoyment of cultural rights pursuant to section 28.

5.1.1.2 Nature of the purpose of the limitation

The proposed amendments do not present a direct limitation on human rights but have potential to limit the enjoyment of rights indirectly, as outlined above. The purpose of that limitation would appear to be to address the concerns of the agricultural industry, who opposed the previous restrictions on fertiliser usage introduced in 2019.

5.1.1.3 The relationship between the limitation and its purpose

The proposed amendments would lift existing restrictions and decrease the penalty attached to offences. This is intended to fulfil the stated purpose of reducing regulation on farming activities to allow greater use of prescribed fertilisers and other activities. Any limitation on the enjoyment of human rights will be incidental to that purpose, though such impacts are foreseeable.

5.1.1.4 Whether there are less restrictive and reasonably available ways to achieve the purpose

To the extent that existing regulations help to protect enjoyment of cultural rights through protection of the coastal and marine environments, any removal of those regulations would likely have a proportionate negative impact on the enjoyment of rights. It is not clear that there are 'less restrictive' ways of achieving the same purpose of reducing regulation – there are only degrees to which that purpose is being achieved and degrees of associated human rights impacts.

While proposed section 75 retains some controls on agricultural activities, it reduces the geographic scope of the previous protections to the three areas listed in section 75(1)(b), and also limits the controlled activities to cattle grazing and sugar cane growing. This reduced regulation on fertiliser use increases the risk of negative environmental impacts in other areas of Northern Queensland, and consequently increases the risk that the human rights of Aboriginal and Torres Strait Islander communities in those areas will be affected. There is little justification in the explanatory notes for these changes to the scope of the restrictions, other than the fact that most agricultural activity in Northern Queensland is either sugar cane or cattle. The potential human rights impact of the amendments would be ameliorated by maintaining existing protections across the full GBR catchment area and for the broader range of agricultural activities.

5.1.1.5 The importance of the purpose of the limitation

The claim in the explanatory notes that the previous laws were a 'complete assault on farming' has not been substantiated. The scientific evidence relied upon appears to be selective rather than comprehensive. The previous legal framework did make provision for some fertiliser use and it is not clear that the 2019 restrictions have had an overly burdensome impact on agricultural activities. From that perspective, there is some doubt about the need for the proposed amendments.

Furthermore, while the interests of individual farmers and the agricultural industry are relevant, these are not the only relevant interests. The interests of Aboriginal and Torres Strait Islander peoples, the wider Queensland community and indeed the international community in maintaining and restoring the health of the GBR World Heritage area must be weighed up as well.

5.1.1.6 The importance of preserving the human right

The right to culture under section 28 of the HRA is a fundamental human right recognised by international law and protected in other domestic jurisdictions (as noted above).

5.1.1.7 The balance between the importance of the purpose of the limitation and the importance of preserving the human right

The importance of protecting human rights, particularly Aboriginal and Torres Strait Islander cultural rights, would outweigh the interests of the agricultural industry in being able to carry out the relevant prescribed activities, given that farming activities can still occur.

While it is foreseeable that cultural rights would be impacted by the proposed amendments, those impacts are not guaranteed. Further, if they do occur they are likely to be just one of many factors impacting on the enjoyment of cultural rights (including, for example, the significant impacts of climate change on the health of the GBR).

5.1.1.8 Relevant precedents from Queensland or other jurisdictions

The case of *Lhaka Honhat Association v Argentina* (Inter-American Court of Human Rights, 2020) confirmed that Indigenous peoples have the right to a healthy environment as part of assuring their rights to food, water, culture and connection to land.

The *Case of the Mayagna (Sumo) Awas Tingni Community v Nicaragua* (Inter-American Court of Human Rights, 2001) recognised that the right to property under the American Convention on Human Rights protects Indigenous communal tenure, and that close ties between Indigenous people and their lands must be recognised as the fundamental basis for their cultures and spiritual lives.

In *Länsman v Finland* (United Nations Human Rights Committee, 2013) it was considered that a state's obligation to protect minority cultural rights under article 27 of the ICCPR imposes limits on economic development. In this case, the economic activity (quarrying of stone) was limited to a small area and did not constitute a substantial infringement of reindeer herders' rights. The committee found however that any larger scale activities could constitute a violation of cultural rights.

5.1.1.9 Committee comment

The committee notes the potential for an indirect impact on the enjoyment of cultural rights by Aboriginal and Torres Strait Islander peoples. However, on balance, the committee considers that the impact of the proposed amendments are unlikely to constitute an unjustifiable interference with the rights of Aboriginal and Torres Strait Islander peoples under section 28 of the HRA.

5.2 Statement of compatibility

Section 38 of the HRA requires that a member who introduces a Bill in the Legislative Assembly must prepare and table a statement of the Bill's compatibility with human rights.

5.2.1.1 Committee comment

A statement of compatibility was tabled with the introduction of the Bill as required by s 38 of the HRA.

The statement contained an insufficient level of information to facilitate understanding of the Bill in relation to its compatibility with human rights.

The statement of compatibility did not identify cultural rights among the possible rights affected, but rather focussed on civil and political rights. It is the view of the committee that there was therefore an insufficient level of detail to enable an assessment of impacts on rights protected under the HRA.

Appendix A – Submitters

Sub #	Submitter
001	Christian Jesus Xavier Victor Friedman
002	Australian Barramundi Farmers Association (ABFA)
003	National Environmental Law Association (NELA)
004	CANEGROWERS
005	Peter and Margaret Hunt
006	Whitsunday Conservation Council
007	Great Barrier Reef Marine Park Authority
008	Jonathan Hunt
009	Alan Broome
010	Margaret Lee-Madigan
011	Wildlife Preservation Society of Queensland
012	Colin Boyce MP, Member for Callide
013	Burdekin Shire Council
014	Gecko Environment Council Assoc. Inc.
015	Mario Quagliata
016	Ecological Society of Australia
017	Kalamia Cane Growers Organisation Ltd
018	Property Rights Australia
019	Wildlife Queensland - Townsville Branch
020	Pioneer Cane Growers Organisation Limited
021	Environmental Defenders Office
022	Whitsunday Local Marine Advisory Committee
023	Bundaberg Canegrowers Ltd
024	Australian Cane Farmers Association Limited
025	Annette Marriott
026	Queensland Tourism Industry Council
027	Paul Inderbitzin
028	AgForce Queensland
029	Australian Marine Conservation Society
030	Red Valley Farms Pty Ltd
031	Queensland Farmers' Federation
032	Green Shirts Movement Queensland

Appendix B – Witnesses at public hearings

Brisbane – 11 June 2021

Department of Environment and Science

- Ms Elisa Nichols, Executive Director, Office of the Great Barrier Reef, Environmental Policy and Programs
- Ms Louise Smyth, Director, Reef Policy, Office of the Great Barrier Reef, Environmental Policy and Programs
- Ms Nyssa Henry, Chief Scientific Officer, Reef Policy, Office of the Great Barrier Reef, Environmental Policy and Programs

Great Barrier Reef Marine Park Authority

- Dr David Wachenfeld, Chief Scientist

Australian Marine Conservation Society

- Ms Jaimi Webster, Great Barrier Reef Water Quality Manager

WWF-Australia

- Mr Richard Leck, Head of Oceans

Visiting Member

- Mr Nicholas Dametto MP, Member for Hinchinbrook

AgForce Queensland Farmers Ltd

- Mr Michael Guerin, Chief Executive Officer
- Mr Alex Stubbs, Chair, AgForce Reef Taskforce
- Mrs Marie Vitelli, Senior Policy Officer

CANEGROWERS

- Mr Mark Mammino, Director
- Dr Michael Quirk, Environment Policy Manager

Australian Banana Growers' Council

- Mr Stephen Lowe, Chair
- Ms Michelle McKinlay, Industry Strategy Manager

Association of Marine Park Tourism Operators

- Mr Gareth Phillips, Chief Executive Officer

Queensland Tourism Industry Council

- Mr Daniel Gschwind, Chief Executive Officer

Brisbane – 3 September 2021

Australian Institute of Marine Science

- Dr Britta Schaffelke, Research Program Director, A Healthy and Resilient Great Barrier Reef

- Dr Richard Brinkman, Research Program Director, Sustainable Coastal Ecosystems and Industries in Tropical Australia

Panel of Individual conservationists of the Whitsundays

- Mr Tony Fontes
- Mr Talen Rimmer
- Ms Olivia Brodhurst

Department of Environment and Science

- Ms Louise Smyth, Director, Reef Policy, Office of the Great Barrier Reef
- Ms Nyssa Henry, Chief Scientific Officer, Reef Policy, Office of the Great Barrier Reef

Environmental Defenders Office

- Ms Revel Pointon, Managing Lawyer

National Environmental Law Association

- Dr Hanna Jaireth, National President
- Ms Erin McNamara, NELA submission contributing author

Kalamia Cane Growers Organisation Limited

- Mr Robert Malaponte, Chairman
- Mr Dave Paine, Manager and Company Secretary
- Mr Robert Zandonadi, Director
- Ms Julie Artiach, Representative

Bundaberg CANEGROWERS Ltd

- Mr Dale Holliss, Manager
- Mr Matt Leighton, Membership Services Extension Officer

Pioneer Cane Growers Organisation Ltd

- Mr Dean Sgroi, Director
- Mrs Lisa Parker, Manager

Green Shirts Movement Queensland

- Ms Joanne Rea, Director
- Ms Rachael Cruwys, Director

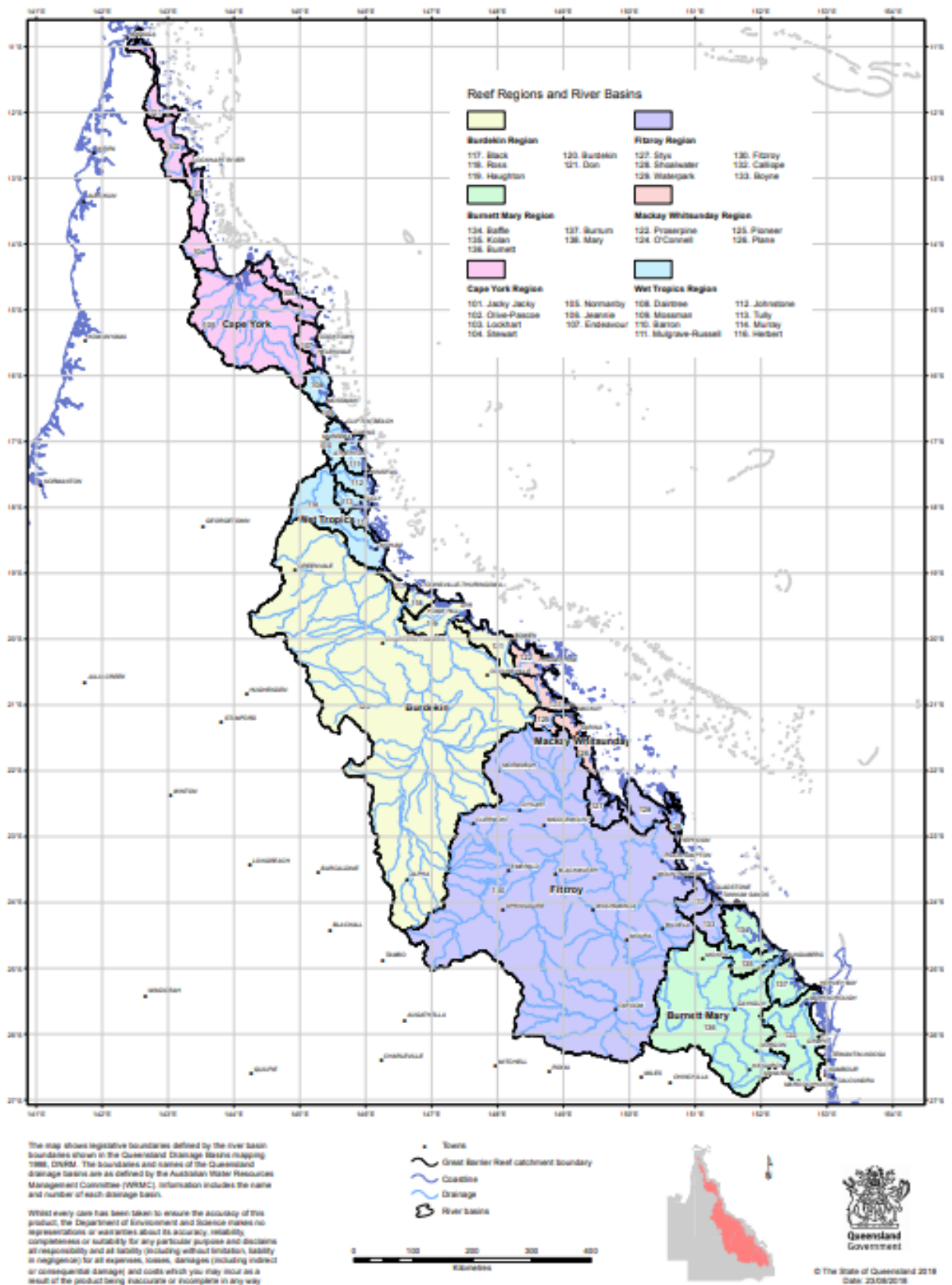
Panel – individual farmers

- Mr Peter and Mrs Margaret Hunt (South Burnett area)
- Mr Alan Broome (South Burnett area)

Independent Scientist

- Dr Peter Ridd

Appendix C – Map of Great Barrier Reef catchment and river basins



**Appendix D – 2017 Scientific Consensus Statement: Land Use Impacts on Great
Barrier Reef Water Quality and Ecosystem Condition**

2017 Scientific Consensus Statement

LAND USE IMPACTS ON GREAT BARRIER REEF
WATER QUALITY AND ECOSYSTEM CONDITION



Lead authors: Jane Waterhouse, Britta Schaffelke, Rebecca Bartley, Rachel Eberhard, Jon Brodie, Megan Star, Peter Thorburn, John Rolfe, Mike Ronan, Bruce Taylor and Frederieke Kroon.

Independent Science Panel: Roger Shaw, Eva Abal, Mike Grundy, Peter Doherty, Hugh Yorkston, Graham Bonnett, Andrew Ash, Jenny Stauber and Bronwyn Harch.

This document was prepared by a panel of scientists with expertise in Great Barrier Reef water quality. This document does not represent government policy.

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1. Introduction

The 2017 Scientific Consensus Statement reviews and adds to the scientific knowledge of water quality issues in the Great Barrier Reef from the 2013 statement. It draws heavily on the regional water quality improvement plans and supporting studies, specific research and monitoring results as well as published science to date related to ecological processes operating in the Great Barrier Reef.

This Scientific Consensus Statement applies a risk management framework based on the ISO 31000 (AS/NZS, 2004) shown in Figure 1.

Chapter 1 describes Great Barrier Reef marine and coastal aquatic ecosystem status and condition, identifies the primary drivers, pressures and threats to these systems and the known effects of land-based pollutants based on understanding derived through monitoring and modelling (Schaffelke et al., 2017).

Chapter 2 describes the sources of pollutants, considered as the hazards to Great Barrier Reef ecosystems (Bartley et al., 2017).

Chapter 3 applies the risk assessment components of the framework by evaluating the likelihood, consequences and quantified risk to the Great Barrier Reef coastal aquatic and marine ecosystems, particularly from different nutrient species, suspended sediment (including different size fractions) and pesticides (Waterhouse et al., 2017).

Chapter 4 considers management of the risks (Eberhard et al., 2017).

Chapter 5 presents an overall synthesis and draws on the previous chapters to present a management prioritisation and discussion on management implications of the new knowledge (Waterhouse et al., 2017). It also identifies uncertainties and where there remain differences in the interpretation of the scientific evidence (identified in Chapters 1 to 4).

The scope of the 2017 Scientific Consensus Statement was expanded from 2013 to include additional sections to align with the water quality theme of the Reef 2050 Long-Term Sustainability Plan (Reef 2050 Plan). It covers all land-based pollutant sources including urban diffuse, point source and industrial discharge. The Reef 2050 Plan water quality theme has an additional focus on improving water quality from all sectors including marine-based impacts, such as from dredging, which remain outside the scope of the Reef 2050 Water Quality Improvement Plan 2017-2022 (previously the Reef Water Quality Protection Plan).

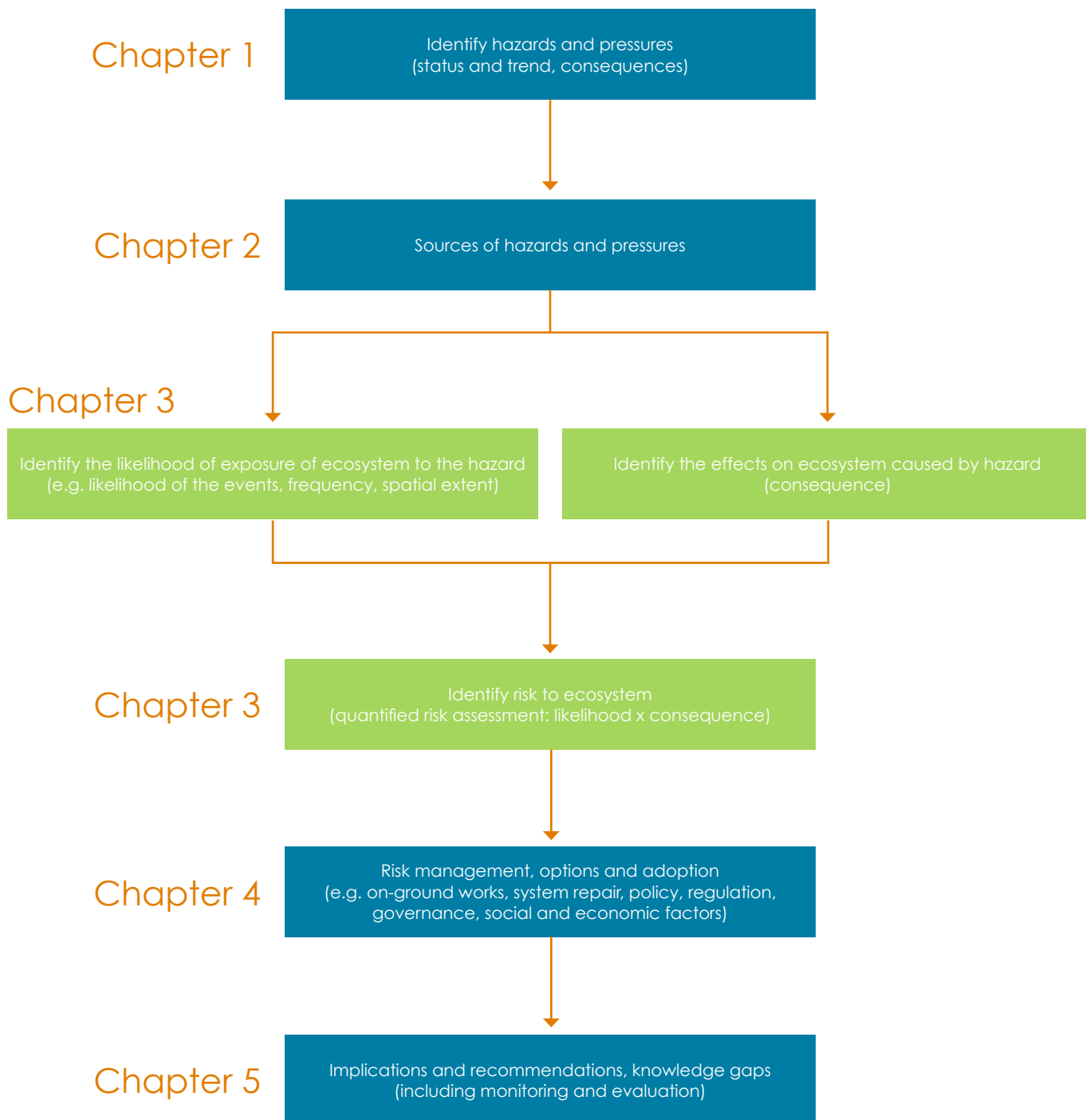
While all land-based pollutant sources have been considered as part of this Scientific Consensus Statement, the emphasis is on the agricultural diffuse sources of pollutants as the dominant contributor of land-based pollutant loads at a regional and Great Barrier Reef-wide scale. Evidence about the effectiveness of water quality management in the Great Barrier Reef reflects the focus on agricultural industries. Chapter 4 highlights there is little direct Great Barrier Reef evidence about the effectiveness of urban water quality management, wetland and treatment systems, and the social, economic and governance literature in this chapter deals almost exclusively with agricultural practice change.

The Reef 2050 Plan also links the ecosystem health theme to the water quality targets under the actions of protecting and restoring, reducing impacts and monitoring and reporting. Accordingly, new sections have been added to the Scientific Consensus Statement to cover coastal aquatic ecosystems in terms of status and water quality impacts, relative risk and management options. For some aspects of these new sections, where there is limited specific knowledge for the Great Barrier Reef, it has been necessary to draw on national and international literature. These aspects are highlighted as knowledge gaps in Chapter 5.

The primary ecosystems considered include coastal wetlands and floodplains, estuaries, marine waters and benthic marine ecosystems with a focus on coral reefs and seagrass. The geographic scope is extended to include reference to the Torres Strait and Hervey Bay. Information is reported at the scale of the six natural resource management regions, 35 main catchments and additional management units in the Burdekin and Fitzroy natural resource management regions (see Figure 2).

The primary source of information in the 2017 Scientific Consensus Statement is published, publicly available information that has undergone a peer review process.

Figure 1: Risk management framework adopted for the 2017 Scientific Consensus Statement showing how each chapter maps into the framework. Derived from AS/NZS (2004).



2. Background

The Reef 2050 Water Quality Improvement Plan 2017-2022 is a joint commitment of the Australian and Queensland governments. The plan is a collaborative program of coordinated projects and partnerships designed to improve the quality of water flowing to the Great Barrier Reef. The 2017 Scientific Consensus Statement is a foundational document which provides the scientific understanding underpinning the design and implementation of the Reef 2050 Water Quality Improvement Plan.

The Scientific Consensus Statement has been prepared by a panel of scientists with expertise in Great Barrier Reef water quality science and management. They have reviewed and synthesised the significant advances in scientific knowledge of water quality issues in the Great Barrier Reef from the 2013 Scientific Consensus Statement. The evidence reviewed is summarised in the next section.

In parallel to the update of the Scientific Consensus Statement in 2017, new catchment-based pollutant load reduction targets were developed for the Reef 2050 Water Quality Improvement Plan (Brodie et al., 2017).

Figure 2: Map of the marine natural resource management (NRM) boundaries, coastal aquatic and marine habitats, NRM regions and catchment boundaries included in the 2017 Scientific Consensus Statement. Map prepared by D. Tracey, James Cook University.



3. Scientific Consensus in 2017

This report provides the 2017 Scientific Consensus Statement for the Great Barrier Reef – a review of the significant advances in scientific knowledge of water quality issues in the Great Barrier Reef to arrive at a consensus on the current understanding of the system. The consensus statement was produced by a multidisciplinary group of scientists, with oversight from the Reef Independent Science Panel, and supports the development of the Reef 2050 Water Quality Improvement Plan 2017-2022.

The overarching consensus is:

Key Great Barrier Reef ecosystems continue to be in poor condition. This is largely due to the collective impact of land run-off associated with past and ongoing catchment development, coastal development activities, extreme weather events and climate change impacts such as the 2016 and 2017 coral bleaching events.

Current initiatives will not meet the water quality targets. To accelerate the change in on-ground management, improvements to governance, program design, delivery and evaluation systems are urgently needed. This will require greater incorporation of social and economic factors, better targeting and prioritisation, exploration of alternative management options and increased support and resources.

The evidence base supporting this consensus is provided in a series of four supporting chapters. The main conclusions were:

1. The decline of marine water quality associated with land-based run-off from the adjacent catchments is a major cause of the current poor state of many of the coastal and marine ecosystems of the Great Barrier Reef. Water quality improvement has an important role in ecosystem resilience.
2. The main source of the primary pollutants (nutrients, fine sediments and pesticides) from Great Barrier Reef catchments is diffuse source pollution from agriculture. These pollutants pose a risk to Great Barrier Reef coastal and marine ecosystems.
3. Progress towards the water quality targets has been slow and the present trajectory suggests these targets will not be met.
4. Greater effort to improve water quality is urgently required to progress substantial pollutant reductions using an expanded scope of tailored and innovative solutions. Climate change adaptation and mitigation, cumulative impact assessment for major projects and better policy coordination are also required to protect the Great Barrier Reef.
5. There is an urgent need for greater investment in voluntary practice change programs, the use of regulatory tools and other policy mechanisms to accelerate the adoption of practice change, and robust monitoring and evaluation programs to measure the rate and effectiveness of adoption.
6. Strengthened and more effective coordination of Australian and Queensland government policies and programs, further collaboration with farmers and other stakeholders, and strong evaluation systems are critical to the success of Great Barrier Reef water quality initiatives.
7. Priorities for reducing pollutant loads are now established at a catchment scale, based on the exposure of coastal and marine ecosystems to land-based pollutants, and should be used to guide investment.
8. A greater focus on experimentation, prioritisation and evaluation at different scales, coupled with the use of modelling and other approaches to understand future scenarios, could further improve water quality programs.

4. Independent Science Panel remarks

The Independent Science Panel (the panel) was established in 2009 to provide multidisciplinary scientific advice to the Australian and Queensland governments on the implementation of the Reef Water Quality Protection Plan. In this role, the panel has reviewed the 2013 and 2017 Scientific Consensus Statements.

After reviewing the 2017 Scientific Consensus Statement, the panel agreed:

- 1. There has been significant progress since the 2013 Scientific Consensus Statement in understanding sediment, nutrient and pesticide delivery from Great Barrier Reef catchments and their mitigation through improved land management practices.** The new eReefs biogeochemical model tracks sediments and nutrients in the marine environment and connects the impact of these pollutants to water clarity and indicators of ecosystem health. The increased capability of terrestrial and marine models to evaluate processes in the catchments and receiving waters must be supported by additional investment in the in-situ monitoring of coastal water quality. This monitoring will also benefit regional report cards partnerships.
- 2. The cumulative effects of multiple pressures substantially reduce the health and resilience of the Great Barrier Reef** including the combined impacts of extreme weather events, climate change and historical developments. In the past four years, a fourth outbreak of crown-of-thorns starfish occurred, originating from reefs impacted by river flows from the Wet Tropics region. In addition, unusually warm sea temperatures in the northern Great Barrier Reef resulted in widespread coral bleaching in 2016 and 2017. However, later low rainfall and run-off has shown the ability of seagrass ecosystems to recover from the acute impacts of run-off. Reducing land-based pollution will improve the resilience of the marine ecosystems to cope with a changing climate.
- 3. The robust risk-based approach to land-based pollutants implemented in the 2017 Scientific Consensus Statement represents an improvement** of the risk assessment in the 2013 Scientific Consensus Statement and has allowed high risk pollutants and catchments to be identified. The panel notes that point sources (e.g. urban, industrial and ports) and other pollutants (e.g. marine debris/microplastics, antifouling paint components and personal care products) are included in the 2017 Scientific Consensus Statement, but require more information to understand the level of risk. The panel reaffirms the focus of the Reef Water Quality Protection Plan 2013 and updated plan on diffuse pollution from agricultural sources.
- 4. The Paddock to Reef Integrated Monitoring, Modelling and Reporting Program catchment models include more robust estimates of the effectiveness of improved land management practices** as defined by the water quality risk frameworks. The rates of adoption have slowed after a period of early uptake, challenging expectations of meeting the water quality targets entirely from voluntary reforms. In addition to continuous improvement and innovation, the panel believes that transformational change will be required to reach the targets.
- 5. Further consideration of economic and social dimensions is needed** in the development and implementation of programs to improve reef water quality.
- 6. There is a need for a mechanism of ongoing evaluation of the reef water quality program to inform future program design** because regionally specific feedback on design and delivery can be available before it is published and/or fully evaluated by the consensus process. Future scientific consensus statements could elevate the economic and human dimensions of program design and better communicate the achievement of outcomes for improved reef water quality.
- 7. Coordination and collaboration** across all sectors (particularly among levels of government responsible for managing development pressures) is needed **to reduce land-based impacts** on inshore marine water quality. It is clear that the health of the Great Barrier Reef and its catchment ecosystems are linked and need to be improved together. This will require appropriate risk assessments in the planning of all future developments in Great Barrier Reef catchments.
- 8. The 2017 Scientific Consensus Statement is currently the best and most authoritative source of information to support evidence-based decisions for better water quality within the Great Barrier Reef World Heritage Area. The panel supports the general findings, conclusions and recommendations of the updated statement.**

5. Summary of evidence to support the 2017 Scientific Consensus Statement

Condition of coastal and marine ecosystems

The decline of marine water quality associated with land-based run-off from the adjacent catchments is a major cause of the current poor state of many of the Great Barrier Reef coastal and marine ecosystems. Additionally, coastal ecosystems have been highly modified and continue to be exposed to a range of pressures from catchment development. The resilience of marine ecosystems was indicated by their ability to at least partially recover from previous losses during periods of low disturbance and reduced catchment pollutant loads. The systems have been severely impacted by a number of recent events—including prolonged periods of extreme sea surface temperatures, tropical cyclones and the progression of the fourth wave of crown-of-thorns starfish population outbreaks. Climate change is predicted to increase the frequency of large-scale bleaching events and the intensity of extreme weather events.

Summary of evidence

- The Great Barrier Reef marine ecosystems and their associated catchments are part of a dynamic, interconnected system. The condition of all parts of the system, including the catchment, is important for the long-term health of the Great Barrier Reef. Each part has its own inherent ecosystem and biodiversity values and provides ecosystem services such as water quality improvement and carbon storage that benefit the receiving marine environment.
- Coastal freshwater wetlands continue to be affected by a range of chronic and acute pressures such as excess nutrient, sediment and pesticide loads; loss of connectivity; changes in hydrology and invasive species.
- Poor marine water quality associated with pollutant run-off from the adjacent catchments, especially during major floods, affects the condition of many of the key marine ecosystems of the Great Barrier Reef.
- Inshore seagrass meadows and coral reefs continue to recover from previous losses due to major run-off events and cyclones, but remain in moderate to poor condition.
- Periods of reduced catchment run-off associated with low rainfall demonstrate the inherent ability of inshore reef communities to recover from acute disturbances. This provides a strong case for reducing the pollutant loads being delivered to the Great Barrier Reef.
- Mid-shelf and outer shelf reefs in the southern half of the Great Barrier Reef have shown the capacity to rapidly recover from previous disturbances; however, a severe mass thermal coral bleaching event in 2016 resulted in significant coral mortality, especially north of Port Douglas.
- Ongoing, warmer-than-average sea temperatures resulted in a further widespread mass coral bleaching event in 2017 which was most intense on reefs between Cairns and Townsville. In addition, a severe Tropical Cyclone Debbie affected reefs in the Mackay Whitsunday region and subsequent flooding also affected the Fitzroy region. Impacts of these events have yet to be quantified.
- Climate change is predicted to increase the intensity of extreme weather events, which are significant in driving impacts to coastal and marine ecosystems.

Recommendations

- **Implement measures to better anticipate and respond to future changes including climate change, coastal urban growth, and agricultural expansion and intensification. This will require: (a) developing a coherent climate adaptation strategy for the Great Barrier Reef catchments; (b) modified water quality planning and delivery approaches; (c) strategies to manage unforeseen impacts of future land use change (e.g. coastal development or land retirement) including offsets or strict conditioning; (d) future scenario modelling; and (e) better standards for cumulative impact assessment including climate scenarios for environmental impact assessment of development proposals in the Great Barrier Reef catchments.**
- Undertake urgent action to maintain and improve the resilience of the coastal and marine ecosystems of the Great Barrier Reef through implementing more intensive management of catchment water quality and other local pressures, active landscape protection and restoration approaches to maintain as many biodiversity and ecosystem functions as possible, and more effective global climate change mitigation measures. A stronger knowledge base about the role of extreme events and a changing climate on end-of-catchment pollutant loads is essential for developing achievable water quality targets.
- Implement a more holistic and coordinated approach to managing wetlands (including rivers) and floodplains and their connections to the Great Barrier Reef by embedding the protection of catchment, estuary and floodplain functions and connectivity in Great Barrier Reef policy. This should also include increased efforts to understand how multiple and cumulative environmental pressures (including water quality) affect recovery processes, to help refine predictions of future condition and resilience of coastal and marine ecosystems.

Risk to coastal and marine ecosystems

The greatest water quality risks to the Great Barrier Reef and coastal ecosystems are from discharges of: (a) nutrients, which are an additional stress factor for many coral species, promote crown-of-thorns starfish population outbreaks with destructive effects on mid-shelf and offshore coral reefs, and promote macroalgal growth; (b) fine sediments, which reduce the light available to seagrass ecosystems and inshore coral reefs; and (c) pesticides, which pose a toxicity risk to freshwater ecosystems and some inshore and coastal habitats.

Summary of evidence

A combination of qualitative and semi-quantitative assessments were used to estimate the relative risk of water quality pollutants to Great Barrier Reef coastal aquatic and marine ecosystem health.

- Increased loads of fine sediments, nutrients (nitrogen and phosphorus) and pesticides were all found to be important at different scales and different locations in the Great Barrier Reef. However, the risks differ between the individual pollutants, source catchments and distance from the coast.
- Exposure to fine sediment is most significant for areas with shallow seagrass and coral reefs on the inner shelf adjacent to basins with high anthropogenic fine sediment loads. The greatest coral reef and seagrass exposure to fine sediment is from the Burdekin, Fitzroy, Mary, Herbert, Johnstone and Burnett catchment areas. The Burdekin and Fitzroy catchments also contribute the greatest fine sediment risk to seagrass ecosystems.
- Exposure to dissolved inorganic nitrogen is most significant for all inner shelf areas and the mid-shelf area between Lizard Island and Townsville adjacent to catchments with high anthropogenic dissolved inorganic nitrogen loads. The relative importance of dissolved inorganic nitrogen to seagrass ecosystems is still uncertain, but it may influence light availability for deep water seagrass in areas deeper than 10 to 15 metres due to increased phytoplankton growth.
- The greatest coral reef and seagrass exposure to dissolved inorganic nitrogen is from the Herbert, Haughton, Johnstone, Mulgrave-Russell, Tully, Plane and Murray catchment areas. The Herbert, Johnstone, Mulgrave-Russell and Tully also contribute the greatest dissolved inorganic nitrogen risk to coral reefs and primary crown-of-thorns starfish outbreaks. Anthropogenic particulate nitrogen is also likely to be of some importance in the same catchment areas, as well as the Fitzroy; however, our knowledge on the bioavailability of particulate nitrogen to the marine ecosystems in relation to that of dissolved inorganic nitrogen is limited.
- Anthropogenic phosphorus loads are considerable from many catchment areas. Knowledge of the relative importance of nitrogen and phosphorus is limited, but nitrogen is considered to be the limiting nutrient and, hence, more important in any form than phosphorus.
- Pesticides pose the greatest risk to ecosystems closest to the source of the pesticides; i.e. freshwater wetlands, rivers and estuaries; followed by coastal ecosystems, seagrass and coral. Catchments within the Mackay Whitsunday region and the Lower Burdekin present a very high to moderate risk to end-of-catchment ecosystems from pesticides, with diuron presenting the highest risk.
- Marine plastic pollution was found to be the highest priority among emerging pollutants. This is particularly an issue in the Cape York region due to exposure to oceanic and local shipping sources. Additionally, chronic contamination of water and sediments with antifouling paints, and exposure to certain personal care products, has been assessed as a risk in regions south of Cape York. All other emerging contaminants were assessed as relatively low risk, with some minor differences between regions.

Recommendation

- Use the Great Barrier Reef catchment-specific pollutant load reduction targets to guide actions to minimise water quality risks to the Great Barrier Reef.



Image: © Tourism and Events Queensland

Sources of land-based pollutants

The main source of excess nutrients, fine sediments and pesticides from Great Barrier Reef catchments is diffuse source pollution from agriculture. Other land uses, including urban areas, contribute relatively small but concentrated pollutant loads, which may be important at local scales.

Summary of evidence

- Water discharged from the catchments into the Great Barrier Reef lagoon continues to be of poor quality in many locations. Knowledge of the major sources and processes contributing to these river pollutant loads has significantly improved due to better modelling and monitoring.
- Sugarcane areas are the largest contributors of dissolved inorganic nitrogen and pesticides, while grazing contributes the largest proportion of sediment and particulate nutrients to the Great Barrier Reef primarily through sub-surface (gully, streambank and rill) erosion. Contributions from other land uses, including urban, are relatively minor in comparison to agriculture but can be important locally.
- At the regional scale, the Wet Tropics, Burdekin and Fitzroy regions contribute most of these river pollutant loads. However, at the catchment scale, areas within the Mackay Whitsunday and Burnett Mary regions are also important contributors, illustrating the value of identifying management priorities at the catchment or finer scale.
- Catchment modelling shows that mean-annual fine sediment, nutrient and pesticide loads delivered to the Great Barrier Reef lagoon have increased substantially since pre-development conditions. They include an: approximate 5.0 fold increase in fine sediment for the entire Great Barrier Reef catchment (range 3.0 to 8.0 fold depending on the region); approximate 2.0 fold increase in dissolved inorganic nitrogen (range 1.2 to 6.0 fold, with the exception of Cape York); approximate 1.5 fold increase in particulate nitrogen (range 1.2 to 2.2 fold) and approximate 2.9 fold increase in particulate phosphorus (range 1.2 to 5.3 fold).
- The mean-annual loads of prevalent pesticides (ametryn, atrazine, diuron, hexazinone, tebuthiuron and simazine) are estimated (modelled) to be around 12,000kg per year across the Great Barrier Reef. The measured pesticide data suggests that most pesticides are found in all regions, even though some are in very small quantities. The catchments that contribute the most pollutants have remained reasonably consistent over the past 10 years.
- Expansion of agriculture in the Great Barrier Reef catchments (e.g. under the Northern Australia Development Plan), major development projects and anticipated growth in coastal populations adjacent to the Great Barrier Reef will increase pollutant loads delivered to the Great Barrier Reef.

Recommendation

- **Continue to prioritise agricultural sources of pollutants in Great Barrier Reef catchment management. Information on the pollutant contributions from non-agricultural sources (e.g. urban, industrial and ports) and other pollutants should be compiled as a priority to support whole-of-catchment management approaches.**



Progress to targets

Progress towards the Reef Water Quality Protection Plan 2013 targets has been slow and the present trajectory will not meet the targets. This puts the Outstanding Universal Value of the Great Barrier Reef under increasing pressure, especially in the context of other pressures such as climate change. Greater effort to improve reef water quality is urgently required to restore and protect the Great Barrier Reef ecosystems.

Summary of evidence

- The Reef Water Quality Protection Plan 2013 included land and catchment management targets to address improved agricultural management practices and the protection of natural wetlands and riparian areas. These targets were based on the conceptual understanding of the link between land condition, management practice standards and water quality outcomes.
- The annual Great Barrier Reef Report Card details progress against the Reef Water Quality Protection Plan targets, with the most recent report card providing 2014-2015 data. Most of the indicators are reported annually, except for the wetland and riparian extent indicators, which are reported every four years (the last report was in 2014).
 - » The overall condition of the inshore marine environment (water quality, seagrass and coral) remains poor, and has not changed greatly since Report Card 2011.
 - » While there has been good progress in adopting improved management practices across the agricultural industries in the Great Barrier Reef catchments, a large proportion (in some cases, up to 77%) of agricultural land is managed using practices which are below best management practice for water quality. This demonstrates the challenges associated with facilitating the adoption of improved (lower water quality risk) land management practices, and highlights the limited progress towards achieving the management practice adoption targets since 2009.
 - » An analysis of the Great Barrier Reef Report Card data indicates the rate of progress towards the targets is slowing and it is unlikely the targets will be met on the current trajectory.
 - » Catchment condition targets are tracking positively, with very good, good and moderate scores for ground cover, wetland loss and riparian extent, respectively.
- The adoption of existing best management practices for agricultural land will not be sufficient to achieve the water quality targets and additional management options need to be urgently trialled and validated in the Great Barrier Reef context and then implemented.

Recommendations

- The recommendations for these findings are combined with those for 'Efforts to improve Great Barrier Reef water quality'. The key message is **that there is a need to urgently implement more targeted and substantial effort to improve water quality in the Great Barrier Reef.**



Image: © Tourism and Events Queensland

Efforts to improve Great Barrier Reef water quality

Current management options to reduce pollutant run-off to the Great Barrier Reef provide a solid foundation for program implementation, but an expanded scope of tailored and innovative solutions is urgently required to progress the substantial pollutant load reductions required to meet the Reef 2050 Water Quality Improvement Plan targets by 2025. There is an urgent need for greater investment in voluntary practice change programs, the use of regulatory tools and other policy mechanisms to accelerate the adoption of practice change, and robust monitoring and evaluation programs to measure the rate and effectiveness of adoption.

Summary of evidence

- There is very high confidence in the Paddock to Reef Integrated Monitoring, Modelling and Reporting Program water quality risk frameworks which are used to assess the effectiveness of agricultural practices for water quality. New research has highlighted the benefits of lower fertiliser (nitrogen) application rates, and site and season-specific fertiliser recommendations, in reducing water quality risk. In grazing, land cover management has been found to be effective at generally reducing erosion. However, gully and streambank erosion remains a major problem and remediation has become a higher priority.
- The adoption of new agricultural practices depends on many factors including individual goals and circumstances, local context, perceived profitability and risk and ease of management. Farmers are diverse, with different goals, motivations and information sources. Conflicting messages about Great Barrier Reef health, blaming farmers and the over-emphasis on science (to the exclusion of local or industry knowledge) have been found to contribute to low acceptance of environmental responsibility.
- Collaborative processes to deliver interventions and improve trust in decisions and data are essential. Local, trusted intermediaries and flexible incentives need to be fostered to improve participation in reef water quality programs.
- Wetland and floodplain protection, management and restoration, as well as engineered treatment systems are required to complement on-farm practices to reduce nutrient, sediment and pesticide run-off.
- Changes in land use to less intensive options (such as from sugarcane to grazing, wetlands or conservation) warrants further consideration to accelerate pollutant load reductions. There is currently limited investigation or evidence of these options in the Great Barrier Reef catchments.
- Additional water quality benefits can be achieved from non-agricultural lands such as urban areas and ports, although our understanding of the effectiveness of different practices for water quality in the Great Barrier Reef is limited.
- Large variations exist in the costs of improving water quality between natural resource management regions, programs and industries. Investments can be better prioritised to improve the efficiency and effectiveness of practice change programs. The costs of meeting the water quality targets has been shown to be very high; much higher than previously thought. As the water quality targets are approached, the costs of additional actions are likely to rise sharply.
- Better prioritisation of investments should take into account the cost-effectiveness of agricultural management options including adoption rates, costs, time lags and climatic influences, as well as risks to the marine environment. The areas where the most cost-effective management options can be achieved are not necessarily the areas that generate the most pollutants.

Recommendations

- **Develop and implement cost-effective techniques to manage gullies and riparian erosion; further develop and implement new approaches to fertiliser management in cropping lands (including the use of enhanced efficiency fertilisers, site-specific fertiliser management, and considering seasonal climate forecasts); and investigate methods to reduce catchment run-off as a result of extreme climatic events.**
- **Introduce tailored practice change programs that target different groups of landholders and involve collaboration with landholders, industry organisations and service providers to design and deliver programs. Include programs that involve knowledge exchange between farmers, scientists and others; address perceptions of risk; provide trusted and diverse advisory services; and deliver adequate financial, cultural and social rewards.**
- **Develop and implement a broader range of management options for pollutant reduction from all land uses considering costs, water quality benefits, other trade-offs and policy instruments. In particular: (a) test and validate the water quality effectiveness of wetland and treatment systems in specific locations to support their broader application; (b) review options for voluntary land use change to less intensive uses which support water quality improvement; and (c) incorporate total water cycle management in expanding urban areas and quantify benefits at local scales. Encourage adoption of proven applications.**
- Undertake a more comprehensive and systematic evaluation of existing and proposed policies and programs to improve their effectiveness in accelerating adoption. Additionally, ensure that an economic assessment of projects, in terms of public costs and private benefits, is undertaken to better judge cost-effectiveness and likely adoption before proceeding.
- Implement regulatory and market mechanisms to favour selection of lower cost projects and faster practice change, supported by voluntary approaches to meet the pollutant reduction targets. A variety of regulatory tools already exist, and others e.g. 'smart regulation' should be considered.

Governance and program delivery arrangements

Great Barrier Reef water quality governance requires a commitment to adaptive, participatory and transdisciplinary approaches, and better use of social, economic and institutional research. There is strong evidence to show where aspects of current water quality management programs can be strengthened. Risks including climate change, major development projects and related policy areas, such as agricultural intensification and coastal development, need to be addressed more directly. Strengthened and more effective coordination of Australian and Queensland government policies and programs, further collaboration with farmers and other stakeholders, and strong evaluation systems are critical to the success of Great Barrier Reef water quality initiatives.

Summary of evidence

- Overall, the governance of the Great Barrier Reef is inherently complex. Coordination between governments and government programs is critical to provide clear policy signals and ensure effective management actions.
- There has been a lack of systematic evaluation of program design and implementation, and limited use of social, economic and institutional research to find and test new solutions and improve program delivery.
- Great Barrier Reef governance requires adaptive, participatory and transdisciplinary approaches:
 - » **Adaptive** approaches use modelling and other tools to build system understanding, encourage experimentation and evaluation, and tailor solutions to regional variations. A greater focus on experimentation and evaluation of on-ground works and program delivery would strengthen the adaptive capacity of Great Barrier Reef programs. Current governance arrangements have not effectively supported a culture of innovation for water quality outcomes.
 - » **Participatory** approaches can bring more knowledge to the debate about solutions, garner support, coordinate effort and reveal value conflicts. Participation and collaboration are features of Great Barrier Reef policy, planning and implementation. Collaboration between natural resource management organisations and industry peak bodies has facilitated coordinated program delivery. Regional capacity is, however, fragile with changes to natural resource management programs, capacity and funding commitments.
 - » **Transdisciplinary** approaches use natural and social sciences and stakeholder knowledge to test and evaluate innovative solutions.
- Climate change, the cumulative impact of major development projects and uncoordinated policies represent critical risks to Great Barrier Reef health.
- Intergovernmental coordination and policy alignment must be improved as they affect all aspects of program design and delivery. Related policy areas, such as agricultural intensification, drought relief and water resource development, and poor alignment with other regional planning and management efforts can have perverse impacts on Great Barrier Reef water quality outcomes.

Recommendations

- **Evaluate the effectiveness, efficiency and outcomes of Great Barrier Reef programs and share learnings at Great Barrier Reef and regional levels to drive improvement in program governance, design, delivery and implementation. Incorporate learnings from social research and international case studies, and commission locally relevant research, to support formal Great Barrier Reef policy review cycles.**
- **Address the significant risks to Great Barrier Reef ecosystems from other policy areas by implementing measures to reduce greenhouse gas emissions, assessing the cumulative impacts of major projects on the Great Barrier Reef, and influencing related policy areas such as agricultural intensification and coastal development that may increase risks to the Great Barrier Reef.**
- Develop stronger alignment between Great Barrier Reef management programs, wetland and floodplain management, and other regional planning and management activities such as land use planning, development assessment and floodplain management.
- Encourage and invest in core natural resource management activities such as local partnerships, planning and community engagement to strengthen the regional, catchment and property-scale delivery network. Longer term funding commitments tied to performance outcomes will provide flexibility to tailor approaches to local contexts.
- Encourage experimentation and innovation by scientists working with local stakeholders to develop, test and evaluate potential new solutions.
- Strengthen intergovernmental coordination to ensure effective management of the Great Barrier Reef. The Reef 2050 Long-Term Sustainability Plan needs greater authority and investment, clearer strategies and better stakeholder engagement.

Catchment-scale management priorities

Several catchments contribute to the highest exposure of coastal or marine ecosystems to pollutants, and are considered a high priority for water quality improvement. These include the Mulgrave-Russell, Johnstone, Tully, Herbert, Haughton, Burdekin, Pioneer, Plane, Fitzroy and Mary catchments. Social and economic information is required to prioritise efforts within catchments.

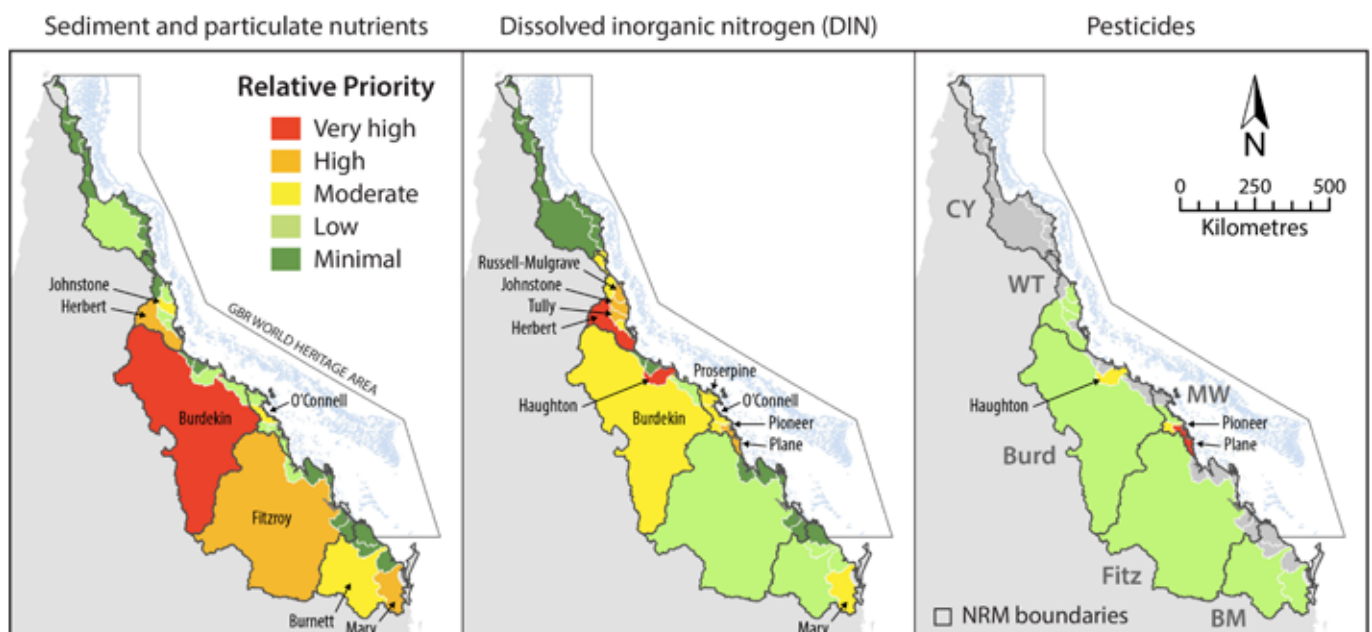
Summary of evidence

- The highest priority areas for reducing fine sediments, dissolved inorganic nitrogen and pesticides loads delivered to the Great Barrier Reef are shown in Figure 3. They are:
 - » Fine sediment and particulate nutrients: Burdekin, Herbert, Fitzroy and Mary catchments.
 - » Dissolved inorganic nitrogen: Herbert, Haughton, Mulgrave-Russell, Johnstone, Tully and Plane catchments.
 - » Pesticides: Plane, Pioneer and Haughton catchments.
- The Cape York catchments could also be a priority for protection and for maintaining current water quality given their relatively low risk contributions and relatively good condition of the adjacent marine ecosystems.
- Comparing the highest priority catchments for pollutant reduction against those with the most cost-effective management options (in \$/tonne) shows:
 - » The Mary, Herbert, Fitzroy and Burdekin catchments offer the most cost-effective management for sediment, while actions in the Burdekin, including the Bowen-Broken-Bogie catchment, provide larger scale reductions at higher cost levels.
 - » The results are less clear for dissolved inorganic nitrogen due to limited data availability across the Great Barrier Reef but indications are the Plane, Herbert, Tully and Johnstone catchments are the most cost-effective for reducing dissolved inorganic nitrogen loads through improved sugarcane management.

Recommendations

- Develop a detailed, comprehensive and costed water quality management plan, drawing on the existing regional water quality improvement plans, to guide strategic investment in priority areas and ensure the water quality targets for the Great Barrier Reef are achieved.
- Undertake finer scale spatial prioritisation of management and allocate resource effort across and within the Great Barrier Reef catchments, using (a) biophysical catchment characteristics and the likelihood of exposure of coastal and marine ecosystems to pollutants to identify priority areas at a catchment scale, supported by (b) current practice adoption, and social and economic factors to inform the most cost-effective areas for increased management effort and the choice of policy mechanisms and (c) a range of agricultural management practice, landscape remediation and/or land conversion management scenarios. Incorporate risks to landholders and partners, climate, markets and time lags. Industries such as horticulture and broadacre cropping require further attention as they present an opportunity for cost-effective outcomes in short timeframes.
- Target funding for improved land management and remediation to the priority catchments identified in the 2017 Scientific Consensus Statement. Areas of lower priority for remediation need to be maintained or improved.

Figure 3: Map illustrating the relative spatial priorities for water quality improvement in the Great Barrier Reef catchments based on the assessment of pollutant exposure and risk to coastal and marine ecosystems. Note this is a result of the biophysical assessment only, and results for particulate nutrients have been extrapolated from the fine sediment assessment and were not considered independently. Social and economic factors should determine priorities within catchments.



Monitoring and modelling

Monitoring and modelling of the Great Barrier Reef ecosystems is a strength of the Reef Water Quality Protection Plan 2013 and its programs, with some spatial limitations. However, there has been limited investment in social and institutional research and monitoring, and a lack of systematic evaluation of delivery processes and governance systems. A greater focus on experimentation, prioritisation and evaluation at different scales, coupled with the use of modelling and other approaches to understand future scenarios, could further improve water quality programs.

Summary of evidence

- The Paddock to Reef Integrating Monitoring, Modelling and Reporting Program (Paddock to Reef program) commenced in 2009 and is the central program for evaluating progress towards the Reef Water Quality Protection Plan management practice, catchment condition and pollutant reduction targets, as well as marine water quality and ecosystem health condition. The scope of the program does not include social (except for management practice adoption reporting), economic or governance indicators. There is also limited marine condition assessment in the northern (Cape York) and southern (Burnett Mary) regions.
- Almost 10 years of data collected under the Paddock to Reef program provides the basis for assessing catchment management effectiveness and catchment and marine water quality and ecosystem condition.
- Regional reporting partnerships have been established involving a broad range of stakeholders. Access to monitoring data outside of the Paddock to Reef program will become more important with the scope of the Reef 2050 Water Quality Improvement Plan 2017-2022 expanded to include non-agricultural land uses.
- The ability to quantitatively attribute changes in catchment activities and end-of-catchment water quality to coastal and marine water quality and ecosystem condition remains limited due to climate variability, sparse monitoring and incomplete operational models. Overall, catchment and marine monitoring and modelling approaches to support evaluation and reporting of the progress towards targets continues to improve. There are still challenges with the lack of data for all indicators in the Cape York and Burnett Mary regions.
- There has been little investment in social, economic and institutional research, or monitoring, evaluation and reporting of indicators related to Great Barrier Reef water quality management, and this constrains the ability to improve the effectiveness of programs.

Recommendations

- Expand the scope of the Paddock to Reef Integrated Monitoring, Modelling and Reporting program to:
 - » Include condition reporting of coastal aquatic ecosystems.
 - » Address the lack of monitoring data, validation of models and the estimation of water quality risks and ecosystem condition in the Cape York and Burnett Mary regions.
 - » Incorporate a formal social and economic monitoring and modelling component.
 - » Address the lack of monitoring data from other pollutants, e.g. marine debris, microplastics, and personal care products.
- Expand and improve public reporting of water quality data from all land uses and whole-of-catchment efforts to support broader community engagement.
- Develop the capacity to model the cumulative impacts of water quality and other pressures (major projects, coastal development) under a range of climate and other scenarios to better inform policy, planning and assessment processes.
- Develop a systematic approach to program evaluations that incorporates social, economic, governance and programmatic dimensions to inform program delivery efforts and support innovation.

6. Knowledge gaps

While a great deal of evidence is available to support the 2017 Scientific Consensus Statement, there are still many important knowledge gaps that need to be addressed to improve our understanding and management of water quality issues in the Great Barrier Reef. Key knowledge gaps and areas for further research are included in each chapter, and highlighted in Chapter 5. These will be incorporated into the updated Reef 2050 Water Quality Research, Development and Innovation Strategy.

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Appendix E – Reef Water Quality Report Card 2019



Reef Water Quality Report Card 2019 - Summary

Background

Reef water quality report cards measure progress towards the Reef 2050 Water Quality Improvement Plan (Reef 2050 WQIP) targets through the Paddock to Reef Integrated Monitoring, Modelling and Reporting Program (Paddock to Reef program).

They assess management practice adoption, catchment condition (riparian, wetlands and ground cover), pollutant (sediment, nutrient and pesticide) run-off and marine condition (water quality, corals and seagrass).

The report card draws upon the best available science, monitoring and modelling programs to capture progress with new and updated information helping to drive continuous improvement.

Reporting is at a range of scales including paddock, sub-catchment, catchment, regional and Great Barrier Reef-wide.

The Reef Water Quality Report Card 2019 details progress up to June 2019 and was released in February 2021.

What are the targets?

The targets for sediment, particulate nutrients and dissolved inorganic nitrogen are based on the quality of water that corals and seagrasses need to be healthy. They are calculated as reductions in anthropogenic loads – the pollutant load from human activities.

The pesticide target requires aquatic species to be protected because they can be badly impacted by high exposure to pesticides.

Water quality targets were set for each catchment based on land use and pollutant loads. These targets were rolled up to provide regional and Great Barrier Reef wide targets.



Why is improving water quality important?

While climate change remains the greatest threat to Reefs globally and efforts to reduce greenhouse gas emissions are underway, one of the most manageable impacts on the Reef is improving the quality of water flowing from the land to the sea.

The Australian and Queensland governments have invested \$667 million (from 2017 to 2022) in actions to drive progress towards the water quality targets.

This helps build the resilience of the Reef and protects important inshore ecosystem habitats including coastal wetlands, estuaries, mangroves, seagrass meadows and coral reefs. These habitats support freshwater species and are important to many marine species during part of their life cycle.

What about other pollutants?

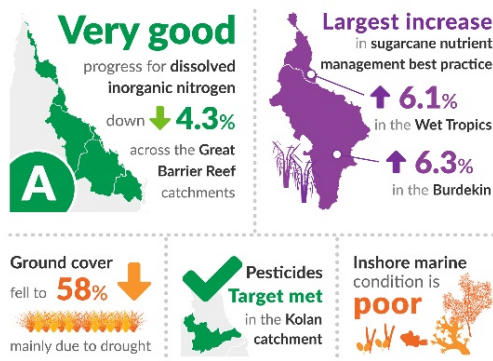
Science shows the five main pollutants that impact the Reef are sediment (especially fine sediment), dissolved inorganic nitrogen, particulate nitrogen, particulate phosphorus and pesticides.

Other pollutants such as heavy metals, pharmaceuticals, plastics and micro plastics also affect the Reef but pose less risk and have more localised impacts.

What about other sources of pollutants?

Everyone, not just farmers, needs to play their part in improving water quality. While it is important that all industries, urban and public land management minimise run-off to the Reef, the largest contribution to nutrient, sediment and pesticide run-off is broad scale agriculture.

Overall findings



Encouraging progress is being made towards achieving the targets.

This includes very good progress towards the **dissolved inorganic nitrogen target** with a modelled **4.3% reduction** across the **Great Barrier Reef** catchments thanks to the efforts of sugarcane and banana growers who improved their nutrient and irrigation management practices. The **Herbert** catchment (Wet Tropics region) recording the greatest reduction – **down 9.4%**.

Sugarcane growers in the **Wet Tropics** and **Burdekin** regions were major contributors to this progress, recording the greatest increase in best practice nutrient management – **up 6.1% and 6.3%** respectively.

Another highlight was the **pesticide target** being **met** in the **Kolan** catchment (Burnett Mary region). The **Pioneer** catchment (Mackay Whitsunday region) recorded the greatest progress towards the pesticide target – **up 4.5%**.

Cape York has met its 5% **sediment** reduction target since 2016 with further reductions in 2018-2019 contributing to an overall **reduction of 10.1%**.

Burnett Mary graziers also contributed significantly to the sediment target with a **1.3% modelled reduction** due to investment in fencing to exclude cattle from waterways.

There was a **1.5% increase** in **Fitzroy grain** farming land managed using best management practices.

Ground cover also fell to **58%** mainly due to the impacts of the drought.

Overall **marine condition** remained **poor** in 2018-2019 due to a range of pressures including above-average sea temperatures, rainfall and extreme weather events. **Corals** and **seagrass** were in **poor** condition with **water quality** rated **moderate**.

Why are the riparian and wetland results unchanged?

Changes in riparian vegetation and wetland extent are assessed every four years while wetland condition is reported every two years. These results were last updated in Reef Water Quality Report Card 2017 and 2018.

Why are some results modelled?

Modelling is used to estimate the pollutant load reductions from adopting improved land management practices. Monitoring data cannot be used as it varies significantly from year to year depending on rainfall. Research suggests time lags to monitor improvements from land management practice change could range from years for pesticides up to decades for nutrients and sediments.

What do the results mean?

The land management results show graziers and producers across the Great Barrier Reef catchments have taken action to improve their land management practices which is keeping soil and nutrients on their farm rather than flowing into local waterways. They are also seeing productivity and profitability benefits from the changes.

The marine condition results combine the scores for coral, seagrass and water quality as at June 2019. They reflect multiple influences including temperature, rainfall, river flow, run-off, extreme weather events, and for coral, the impacts of crown-of-thorns starfish predation and coral disease.

Why is this information important?

Results help determine the success of actions to improve the quality of water flowing to the Great Barrier Reef and identify where further measures need to be taken.

Will the targets be met?

With projects in different stages of implementation, not all water quality improvement outcomes have been captured in this report card.

The results show some improvements. In some locations, progress is on track to meeting some of the targets but more action is required across all Reef catchments to continue to drive progress towards all the targets.

More information

- Visit the Reef 2050 Water Quality Improvement Plan website at www.reefplan.qld.gov.au
- Access the interactive report card at <https://reportcard.reefplan.qld.gov.au/>
- Email officeofthegbr@des.qld.gov.au

Statements of Reservation and Dissenting Reports

Statement of Reservation

The Liberal National Party members of the committee believe the Great Barrier Reef (GBR) is Queensland's most important natural asset and as such we wish to highlight some key policy issues and opportunities.

To safeguard the Reef for future generations, the LNP believes the State Government must take every opportunity to protect it from the impact of climate change and declining water quality. Similarly, the LNP also recognises the importance of agriculture to Queensland's economy, and in particular, our cane industry. All Queenslanders should be proud of our growers who produce sustainable, high quality sugar which is exported across the world.

The LNP believes these farmers must be better recognised by the government as genuine partners in protecting our environment. Acknowledging and promoting the work of our farmers is essential to protecting the Reef. The LNP believes the issues with reef protection regulations need to be highlighted as well as the need for the State Government to better incentivise sustainable farming practices through industry-led programs.

The LNP members of the committee believe that the committee should have undertaken travel to North Queensland to meet with stakeholders on the ground.

The perspective gained from seeing the impacts to the GBR in-person with the relevant statutory authorities or environmental groups, or visiting cane farms and speaking with local farmers and agriculture industry representatives is priceless, and not something that can be experienced from a committee meeting room in Brisbane.

The committee's Deputy Chair and Member for Southport, Rob Molhoek, visited North Queensland to meet with stakeholders directly across Townsville, the Burdekin and the Whitsundays.

In the Burdekin, Mr Molhoek met with canefarmers to see improvements to farming technologies and better understand the BMP accreditation. Improvements to technologies included the use of water pits, to capture water so that it can be reused on the farm instead of running into local water bodies, and the use of more precise nutrient delivery systems to reduce wastage.

A reoccurring theme of the agricultural technology improvements was less wastage; fertiliser and water are expensive consumables in cane farming, so economising their use on the land would lead to both better environmental outcomes and more efficient farming practices.

The LNP members of the committee extend their thanks to Chris and Sonya Hesp for opening their farm for the visit and discussing farming practices and improvements in more detail.

Mr Molhoek also visited the Australian Institute of Marine Science, as well as spoke to other environmental stakeholders to better understand the issues facing the GBR as well as the impact the bill would have to the local environment.

The LNP supports the independently-compiled Scientific Consensus Statement and the need to have a policy response to tackle the situation and future threats it has outlined in 2008, 2013 and 2017. This statement underpins the Australian Government and Queensland Government's Reef 2050 Long-Term Sustainability Plan and Reef 2050 Water Quality Improvement Plan 2017-2022.

The LNP also supports the next scheduled statement (2022) being produced by an independent panel made up of scientists from diverse fields of study with the latest available research.

It is the LNP's view that practical and sustainable methods for landholders to demonstrate their environmental credentials need to be better supported. In doing so, the LNP wants to genuinely work with the agricultural industry to protect the GBR to get the regulatory balance right. In doing so, the LNP wants to encourage farmers to take part in best practice programs recognising they achieve what the regulations seek to.

As the recent response to Question on Notice No. 919 showed, only \$3,849.50 of the \$10.1 million Reef Catchments Rebate Scheme has been spent since October 2019. That means only four producers have been paid this \$1,000 grant to obtain professional agronomic advice enabling them to meet their requirements under the regulations.

This was the main funding the State Government made available to assist farmers to improve their water quality so it beggars belief that not a single person within either the Department of Environment or Department of Agricultural and Fisheries raised concerns that practically none of it had been expended in almost three years.

The LNP are concerned about the message this bill sends to Queenslanders should it be passed by the Parliament. Queenslanders expect the State Government to act in the best interest of our greatest natural asset, balancing this against allowing cane growers to do their job without unworkable regulations. This bill threatens both.

The bill neglects to consider there is already an industry-led standard, in the form of Smartcane BMP accreditation, or other similar recognised best practice evidence-based programs. The bill also neglects to consider the environmental benefits associated with these industry-led standards, nor the already significant take up of these initiatives.

These programs deliver the outcomes the reef regulations seek to achieve, and as such, should be better supported by the State Government.

As sugar product demand evolves, so too should the Government's response to policy. Increasing the adoption of Smartcane BMP, and other similar programs, will increase productivity farm-wide and deliver environmental benefits. It also will allow existing growers the opportunity to reach new markets with major sugar purchasers such as Coca-Cola only purchasing sugar from Smartcane accredited farmers. Furthermore, Mars and Pepsi, Unilever and Kellogg's only use sustainably sourced sugar. It is inevitable more businesses will adopt this position into the near future.

The State Government needs to substantially increase funding to implement these programs, particularly in the lead up to their scheduled funding cycle ending in mid-2022. This is the opportunity to increase funding.

Currently this is just \$1.4M a year which covers 8 FTEs state-wide to assist with accreditation and auditing. More support is needed to get more growers BMP-accredited, whilst promoting the benefits of this program.

As an incentive for more growers to adopt BMP or other similar certification, the LNP proposes formally exempting BMP accredited farmers.

If they are certified with a recognised best practice program, they should not be required to prove to the Government that they comply with the reef regulations, and obligations under the *Environmental Protection Act 1994 – Great Barrier Reef protection measures*.

The LNP believes this is a position that will promote the uptake of a program that delivers significant environmental benefits, importantly through reducing on-farm chemical usage while being proven to increase productivity farm-wide. This is because it will remove one of the biggest grievances with the reef regulations; duplicated compliance.

This is also a position that better supports Queensland's cane growers in ensuring their businesses meet the changing demand of the sugar industry in sourcing sustainably grown product for their customer base.

The LNP will always back Queensland's farmers and agriculture industry. The bill proposed presents significant risks to lucrative future markets, the reputation of a vital economic and job generator in many small towns, and one of our world's greatest natural assets. The bill also fails to consider how the cane growing sector has evolved over the past decade to implement sustainable farming practices. And above all, it threatens one of the world's greatest natural assets.



Mr Rob Molhoek MP
Deputy Chair
Member for Southport



Mr Mark Robinson MP
Member for Oodgeroo