



**National
Environmental
Law
Association
Ltd
ACN 008 657 761**

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Committee Secretary
Health and Environment Committee
Queensland Parliament
George Street
BRISBANE QLD 4000

By email: hec@parliament.qld.gov.au

Submission to the Inquiry on the Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021

1. The National Environmental Law Association Ltd ACN 008 657 761 (NELA) welcomes the opportunity to contribute to the review of the *Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021 (the Bill)*.¹
2. NELA is a peak body for advancing Australian environmental law. We are a national, multi-disciplinary, member-based association focused on environmental law and sustainability that is managed by a national board.² One of NELA's objectives is to provide a forum for and to otherwise assist in the discussion, consideration, and advancement of environmental law across the legal profession and the wider community. NELA serves the needs of practitioners in law, planning, natural resource management and the environmental sciences.
3. Various NELA members drafted this submission that the NELA board reviewed and approved.³
4. NELA's view is that the Bill should not be passed for the reasons that follow in summary, followed by our substantiation.

- In summary, the Bill is inconsistent with the Australian and Queensland Governments' current objectives that aim to meet the water quality targets set out in those governments' joint Reef 2050 Water Quality Improvement Plan 2017–2022 (**Reef 2050 WQIP**). Passing this Bill would weaken the regulatory measures implemented to reduce the impact of agricultural practices on the Great Barrier Reef's (**GBR**)'s water quality, at a time when progress towards the Reef 2050 WQIP targets has been found to be 'too slow'.⁴
- The Bill is inconsistent with the scientific consensus that there is substantial evidence to suggest that land-based run-off affects GBR water quality. The Bill adopts the perspectives of dissenting members of the scientific community, rather than the evidence that informed the

¹ Queensland, *Parliamentary Debates*, Health and Environment Committee, 21 April 2021 (Nicholas Dametto).

² The board has a strong mix of directors from State and Territory Bars, private sector not-for profit law firms, government and academia, namely Dr Hanna Jaireth (ACT) President, Jess Hamdorf (WA) Immediate Past President and Director, Natasha Hammond (NSW) Vice-President and Company Secretary, Nadja Zimmermann (VIC) Treasurer, Matt Floro (NSW) Director, Tiphonie Acreman (VIC) Director, Dr Katie Woolaston (Qld) Director, Dr Michele Lim (NSW) Director and Matt Littlejohn (NT) Director. The profiles of board members can be accessed on NELA's website www.nela.org.au/about/board-members/.

³ Callum Brockett and Queensland University of Technology students Erin McNamara, Jaymin Pratt, and Jonty Morrison drafted this submission, with guidance and comments from Dr Hanna Jaireth and Dr Katie Woolaston.

⁴ Great Barrier Reef Marine Park Authority 2019, Great Barrier Reef Outlook Report 2019 (Report, 2019) v. Ibid 189; World Heritage Committee, *Decisions adopted during the 41st session of the World Heritage Committee*, 41st Session, WHC 17/41.COM/18 (12 July 2017) 41 COM 7B.24.

*2017 Scientific Consensus Statement: Land use impacts on Great Barrier Reef water quality and ecosystem condition (2017 Scientific Consensus Statement).*⁵

- The Bill, if passed, would detract from Australia’s ability to fulfill its international obligations to protect the GBR under the Convention for the Protection of the World Cultural and Natural Heritage (**World Heritage Convention**)⁶ and the Convention on Biological Diversity (**Biodiversity Convention**).⁷
- The Bill would detract from the current objectives of the Australian and Queensland Governments to prevent the GBR from being placed on the World Heritage Committee’s (WHC)’s ‘in danger list’ under Article 11(4) of the World Heritage Convention. This is of significant concern, due to the prospect that the United Nations Educational, Scientific and Cultural Organization (UNESCO) WHC may place the GBR on the List of World Heritage in Danger (**‘in danger list’**) in July 2021,⁸ particularly in view of the International Union for Conservation of Nature’s (IUCN’s) World Heritage Outlook Report assessing the conservation outlook as ‘critical.’⁹
- The Bill is inconsistent with the ‘precautionary principle’ as expressed in national environmental legislation such as the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**) and the *Great Barrier Reef Marine Park Act 1975* (Cth) (**GBRMP Act**).

Elaboration of NELA’s concerns

Preservation and Protection of the Great Barrier Reef Water Quality

5. NELA is concerned that the Bill is not consistent with the Australian and Queensland Governments’ attempts to protect, preserve, and improve the water quality of the GBR.
6. This is evident in the recent measures implemented, and internal assessments made by the Australian and Queensland Governments regarding water quality targets not being met, the pressure on Australia to keep the GBR off the WHC ‘in danger list’, and the scientific consensus on the impact of land-based run-off on GBR water quality that has underpinned these goals.

Objectives of the Australian and Queensland Governments to satisfy the water quality targets

7. The *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019 (the 2019 Bill)*,¹⁰ was enacted in September 2019 in an effort to ‘strengthen GBR protection measures to improve the quality of water entering the great barrier reef.’¹¹ This is measured by the target of a 60% reduction in anthropogenic end-of-catchment dissolved inorganic nitrogen loads and a 25% reduction in anthropogenic end-of-catchment sediment loads, as outlined

⁵ Jane Waterhouse et al, *2017 Scientific Consensus Statement: Land use impacts on Great Barrier Reef water quality and ecosystem condition* (Statement, 2017), accessible at <www.reefplan.qld.gov.au/science-and-research/the-scientific-consensus-statement>.

⁶ *Convention Concerning the Protection of the World Cultural and Natural Heritage*, opened for signature 16 November 1972, 1037 UNTS 151 (entered into force 17 December 1975).

⁷ *Convention on Biological Diversity*, opened for signature 5 June 1992, 1760 UNTS 79 (entered into force 29 December 1993).

⁸ A decision may be made in July this year: G Readfearn, ‘UN body pushed to demand stronger climate action from Australia to save Great Barrier Reef’, *The Guardian* 4 June 2021 <www.theguardian.com/environment/2021/jun/04/un-body-pushed-to-demand-stronger-climate-action-from-australia-to-save-great-barrier-reef>.

⁹ IUCN World Heritage Outlook, *Great Barrier Reef: 2020 Conservation Outlook Assessment* (Report, December 2020).

¹⁰ *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019* (Qld).

¹¹ Explanatory Notes, *The Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Bill 2019* (Qld), 1.

in the Queensland Government’s commitment under the Reef 2050 WQIP.¹² This plan, as part of the broader *Reef 2050 Long-Term Sustainability Plan (Reef 2050 LTSP)*,¹³ was released in response to the request of the WHC for a long-term strategy that ‘ensures conservation of the property and its Outstanding Universal Value.’¹⁴ NELA’s view is that the Bill will mitigate and hinder the ability for the Australian and Queensland Governments to meet these goals, as per the majority scientific findings underpinning these targets.

8. 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.¹⁵ 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.¹⁶
9. The *Great Barrier Reef Marine Park Authority Outlook Report 2019 (GBRMPA Report 2019)* reiterates that while progress has been made since 2014, the adoption of improved land management practices continues to be slow.¹⁷ 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. The GBRMPA Report 2019 states that socio-economic implications stem from poor water quality of the GBR, as poor water clarity reduces the appeal of the reef, which affects marine tourism.¹⁸ The Report also notes the introduction of the 2019 Bill introduced into Queensland Parliament as a means to strengthen existing reef protection Measures. Overall, the report concludes that the long-term outlook for the Reef’s ecosystem has deteriorated from *poor* to *very poor* and it reinforced the need to need to improve action to mitigate climate change and improve water quality.¹⁹
10. The *Australia State of the Environment Report 2016*²⁰ also identified land use and land management as producing pressure on and altering the state of water quality of the GBR.²¹ The report makes specific mention of farming practices in GBR catchments as part of the initiative to improve reef water quality. This includes targeting grazing and sugar cane farming, as well as coastal wetland management. Regulations cover fertiliser application rates, herbicide practices, nutrient management, and training for chemical handling. However, the State of the Environment Report reiterates that efforts, at the time of the report, were unlikely to be sufficient to protect the GBR ecosystems from declining water quality within the aspired time frames.²²

¹² State of Queensland, *Reef 2050 Water Quality Improvement Plan 2017-2022* (Report, 2018).

¹³ Commonwealth of Australia, *Reef 2050 Long-Term Sustainability Plan* (Report, July 2018).

¹⁴ World Heritage Committee, *State of conservation of World Heritage properties inscribed on the World Heritage List*, 38th Comm, 38th Session, WHC 14/38.COM/7B.

¹⁵ Australian Government and Queensland Government, *Reef Water Quality Report Card 2019 – Summary* (Report, June 2019).

¹⁶ Ibid 3.

¹⁷ Great Barrier Reef Marine Park Authority 2019, *Great Barrier Reef Outlook Report 2019* (Report, 2019) v. Ibid 189.

¹⁸ Ibid v.

¹⁹ Ibid v.

²⁰ Australian Government Department of the Environment and Energy, *Australia State of the Environment 2016* (Web page) <<https://soe.environment.gov.au/>>.

²¹ Robert Argent, *Australia state of the environment 2016: inland water* (Report, 2017) 18.

²² Ibid; Frederieke J Kroon et al, ‘Towards Protecting the Great Barrier Reef from Land-Based Pollution’ (2016) 22(6) *Global Change Biology* 1985.

Australian Government support for 2019 Bill

11. In 2020 the Australian Parliament’s Senate Standing Committee on Rural and Regional Affairs and Transport reported on its inquiry into the identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality of the GBR (**the Inquiry**).²³ While it recognised the controversy around the 2019 bill, the Inquiry also noted that support for the Bill had been shown by Federal and state government representatives, various scientific bodies, individuals, education and environmentalists, all of whom supported the implementation of a regulated framework to improve water quality on the GBR.²⁴ 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.²⁵
12. The Inquiry committee was concerned by the ongoing reports of poor water quality in the GBR, with the current trajectory indicating that water quality targets would not be met until a decade after the agreed date.²⁶
13. The Senate committee addressed much of the dissenting scientific evidence that is raised in the explanatory notes of the Bill, including the reliability of the peer review process and replicability of scientific research. 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.²⁷
14. The Inquiry also recommended that the Australian and Queensland Governments ensure adequate stakeholder engagement and education processes, and improve consultation, information, accessibility, and transparency of data used to inform the scientific findings.²⁸
15. NELA supports these recommendations and draws upon the submissions made to this inquiry that provide scientific evidence regarding the impact of land-based run-off affecting GBR water quality.

The ‘precautionary principle’

16. NELA is also concerned that the Bill may not be consistent with the ‘precautionary principle’ iterated in Australia’s national environmental legislation including the EPBC Act and the GBRMP Act.
17. 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.’²⁹ As a result, the Bill, which argues that 2019 protective measures should be repealed based on a lack of full scientific certainty in specific areas, does not align with the precautionary principle.

Keeping the Great Barrier Reef off the ‘in danger list’

18. NELA is concerned that the Bill would detract from the Australian and Queensland Government efforts to prevent the GBR from being placed on the WHC ‘in danger list’. The potential inability to meet these goals and threat of an ‘in danger’ listing of the GBR has been of critical concern for

²³ Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, *Identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier* (Report, October 2020).

²⁴ Ibid [2.38].

²⁵ Ibid [5.71].

²⁶ Ibid [5.70].

²⁷ Ibid [3.8].

²⁸ Ibid [3.35].

²⁹ Discussed in Gerry Bates, *Environmental Law in Australia* (LexisNexis Butterworths, 8th ed, 2013) 240–253 [7.41]–[7.61].

the Australian and Queensland Government, international, and non-government organisation authorities.

19. In 2017, UNESCO decided against placing the GBR on ‘in danger list’, despite growing concerns about the state of the GBR.³⁰
20. Agricultural runoff is an identified threat, that when serious enough, can lead to a World Heritage Listed Site to be placed on the ‘in danger list’.³¹ The threat may be ascertained or potential and must be of such a scale that those threats are likely to occur.³² The seriousness, being determined by the scale and likelihood of a threat occurring, is judged on a case-by-case basis.³³ Even if agricultural runoff didn’t have a direct impact on the growth, reproduction and overall health of the GBR, the indirect effects may still leave it vulnerable to being placed on the ‘in danger list’. As agricultural runoff has impacts on the pervasiveness of the Crown of Thorns Starfish (COTS), this threat may also lead to the GBR’s presence on the ‘in danger list’. The presence of invasive marine species is enough to place a property on the ‘in danger list’ when it is serious enough.
21. Where a State party (such as Australia) has inadequate legislative framework and governance of the GBR this alone can lead to its listing under the ‘in danger list’.³⁴ Passing this Bill may be evidence that the GBR is under serious threat due to inadequate regulation of agricultural runoff and its direct and indirect impacts on the GBR.
22. The WHC’s previous comments on the state of the GBR indicate a likelihood that that the threat would be deemed serious enough. In 2017, in WHC Decision 41 COM 7B.24, the WHC strongly encouraged the Australia to accelerate efforts to ensure it was meeting the intermediate and long-term targets of the Reef 2050 LTSP, which are essential to the overall resilience of the property, regarding water quality.³⁵ While the WHC welcomed the progress made, it noted that progress towards achieving the water quality targets was slow.³⁶ In 2019 Australia responded with a State Party Report, demonstrating how the pressures on the Great Barrier Reef were being addressed. In that report, regulation to improve water quality from land-based run-off (in the form of the 2019 Bill) was raised as a specific aspect of improving water quality management by strengthening the regulatory framework for reducing nutrient sediment releases.³⁷ The 2019 Bill was also listed as a ‘key achievement’ since Australia’s submission of the State Party Report, which was part of the 2021 Additional Information that Australia provided ahead of the rescheduled 44th session of the WHC.³⁸
23. This WHC decision also noted the serious concern that coral mortality had on the sustainability of the GBR.³⁹ The Bill would allow an increase in agricultural runoff to pollute the GBR waterways. This is likely to impact on the prevalence of the COTS, as well as diminishing the viability of coral species to reproduce and remain healthy. Based on the Committee’s decision, this would classify

³⁰ Phys.org, ‘UNESCO keeps Great Barrier Reef off ‘in danger list’’ *Environment* (Blog Post, 6 July 2017) <<https://phys.org/news/2017-07-unesco-great-barrier-reef-danger.html>>.

³¹ United Nations Educational, Scientific and Cultural Organisation, ‘List of factors affecting the properties’, *About World Heritage* (Web Page) <<https://whc.unesco.org/en/factors/>>.

³² ‘Chapter 7 List of World Heritage in Danger: Criteria and Benchmarks’ <https://www.environment.gov.au/system/files/pages/3f3a19ff-9007-4ce6-8d4f-cd8ade380804/files/chap07.pdf> 103 [7.2].

³³ Ibid.

³⁴ United Nations Educational, Scientific and Cultural Organisation, ‘List of factors affecting the properties’, *About World Heritage* (Web Page) <<https://whc.unesco.org/en/factors/>>.

³⁵ World Heritage Committee, *Decisions adopted during the 41st session of the World Heritage Committee*, 41st Session, WHC 17/41.COM/18 (12 July 2017) 41 COM 7B.24.

³⁶ Ibid.

³⁷ Commonwealth of Australia, *State Party Report on the state of conservation of the Great Barrier Reef World Heritage Area (Australia)* (Report, December 2019) 26.

³⁸ Commonwealth of Australia, *Additional Information - Great Barrier Reef World Heritage Area* (February 2021) 2.

³⁹ World Heritage Committee, *Decisions adopted during the 41st session of the World Heritage Committee*, 41st Session, WHC 17/41.COM/18 (12 July 2017) 41 COM 7B.24.

as a serious concern and would ultimately leave the GBR vulnerable to being placed on the ‘in danger list’.

24. As noted above, the IUCN has assessed the conservation outlook for the GBR as ‘critical.’⁴⁰ In the assessment, poor water quality from catchment run-off is considered a very high threat.⁴¹ While the IUCN acknowledges improvements over recent years through initiatives such as the Reef 2050 WQIP, slow progress has been made towards achieving water quality targets, with these results being assessed as ‘poor’ and ‘very poor.’ This has led to the ‘very high threat’ classification. The IUCN report notes the strengthening of the legal framework to address this threat to the GBR, with specific mention of the 2019 Bill that aimed to reduce nutrient and sediment releases from existing and new agricultural activities.⁴²
25. The Australian Marine Conservation Society (AMCS) has urged the WHC to ask the Australian Government to include improved protection measures in an updated Reef 2050 WQIP, including accelerated action and investment to improve reef water quality.⁴³ Other environmental law groups, in both the United States (US) and Australia have, have lobbied for UNESCO to place the GBR on the ‘in danger list’, due to the Australian Government not doing enough to protect the GBR.⁴⁴
26. Both the AMCS and WWF-Australia issued statements of approval regarding the regulatory framework of the 2019 Bill, due to a failure of voluntary programs.⁴⁵ CSIRO also notes that where ecosystems have returned to good health, this has largely resulted from regulation.⁴⁶
27. NELA is concerned that repealing the measures implemented by the 2019 Bill would exacerbate these established concerns that water quality targets will not be met and erode progress that has been made. To repeal the measures of the 2019 Bill would detract from efforts to eliminate high risk practices that contribute to excess nutrient and sediment run-off and instead establish only minimum practice standards to limit this run-off.⁴⁷
28. The current pressure on the Australia and Queensland Governments to meet the Reef 2050 WQIP targets and prevent the GBR to receive a WHC ‘in danger list’ing, as demonstrated in the above international and domestic reports, suggest that strong regulation of agricultural activities to prevent the impact of land-based run-off is required. Weakening this regulatory framework would only serve to compound the issue of ‘slow progress’ towards these goals. This would demonstrate to the WHC that the Australian and Queensland is not doing all that is necessary to improve GBR water quality.

Scientific consensus on agricultural runoff affecting the GBR

29. NELA is concerned that the 2017 Scientific Consensus Statement and the wider scientific community are not reflected in the Bill. The dissenting scientific evidence relied upon by the Bill

⁴⁰ IUCN World Heritage Outlook, *Great Barrier Reef: 2020 Conservation Outlook Assessment* (Report, December 2020).

⁴¹ Ibid 4.

⁴² Ibid.

⁴³ Australian Marine Conservation Society, ‘New report urges the Australian Government to ramp up climate actions to protect Great Barrier Reef as World Heritage Committee decision looms’ (Media Release, 3 June 2021) <https://www.marineconservation.org.au/new-report-urges-the-australian-government-to-ramp-up-climate-actions-to-protect-great-barrier-reef-as-world-heritage-committee-decision-looms/>

⁴⁴ Adam Morton, ‘UNESCO urged to declare Great Barrier Reef ‘in danger’’, *The Guardian* (online, 11 June 2020) <https://www.theguardian.com/environment/2020/jun/11/unesco-urged-to-declare-great-barrier-reef-in-danger>.

⁴⁵ Evidence to Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, Canberra 28 July 2020, 14 (Imogen Zethoven, Australian Marine Conservation Society); Evidence to Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, Canberra 28 July 2020, 10 (Richard Leck, WWF-Australia).

⁴⁶ Evidence to Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, Canberra 28 July 2020, 61 (Rebecca Bartley, CSIRO).

⁴⁷ The Queensland Cabinet and Ministerial Directory, ‘New laws give Great Barrier Reef best chance at survival’ (Media Release, 27 February 2019).

is also not consistent with broader scientific consensus that has been consistently relied upon in guiding the objectives and targets of the Australian and Queensland Governments regarding the GBR.

30. 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.⁴⁸ NELA notes that the explanatory notes for the Bill express discontent with the reliability of scientific institutions and the flaws of using peer reviewed literature. However, 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.⁴⁹ 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.’⁵⁰ 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.
31. The explanatory notes of the Bill also state that sediment from farm runoff generally does not reach the GBR where about 99% of the coral lives, that any risk is restricted to the tiny area of inshore Reefs, and that river plumes are a minor factor compared with the naturally occurring waves that expose coral to mud.⁵¹ However, research suggests that the source of sediments is from agricultural land use, with gullies contributing approximately one-third of the total sediment load in the Reef and up to 90 per cent of the sediment load in some catchments.⁵² The Independent Science Panel noted that flood plumes should be of concern, as they can impact 30% of the continental shelf, with and seagrasses known to take eight to ten years to recover from these major events.⁵³
32. Scientific evidence suggests that contaminants from land run-off pose a major threat to coral growth.⁵⁴ It can persist and present an ongoing threat due to the resuspension of contaminants on the reef.⁵⁵ International scientific studies indicate that water quality has an effect on coral richness.⁵⁶

⁴⁸ Jane Waterhouse et al, *2017 Scientific Consensus Statement* (Statement, 2017) 7.

⁴⁹ Evidence to Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, Canberra 27 July 2020, 63 (Rebecca Bartley, CSIRO).

⁵⁰ Evidence to Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, Canberra 27 July 2020, 76 (Roger Shaw, Independent Science Panel).

⁵¹ Explanatory Notes, Environmental and Other Legislation (Reversal of Great Barrier Reef Protection Measures) Amendment Bill 2021 (Qld) 2.

⁵² Evidence to Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, Canberra 28 July 2020, 25 (David Hamilton, Griffith University).

⁵³ Evidence to Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, Canberra 27 July 2020, 83 (Roger Shaw and Peter Doherty, Independent Science Panel).

⁵⁴ Rachel R Carlson, Shawna A Foo and Gregory P Asner, ‘Land Use Impacts on Coral Reef Health: A Ridge-to-Reef Perspective’ (2019) 6 (September) *Frontiers in Marine Science* 562; Katharina Fabricius, Glenn De’ath, Laurence McCook, Emre Turak and David Williams, ‘Changes in algal, coral and fish assemblages along water quality gradients on the inshore Great Barrier Reef’ (2005) 51(1-4) *Marine Pollution Bulletin* 384; Eric Wolanski, Robert H. Richmond and Laurence McCook ‘A model of the effects of land-based, human activities on the health of coral reefs in the Great Barrier Reef and in Fouha Bay, Guam, Micronesia’ (2004) 46(1-4) *Journal of Marine Systems* 133.

⁵⁵ Lida T Teneva et al, ‘Understanding reef flat sediment regimes and hydrodynamics can inform erosion mitigation on land’ (2016) 2(1) *Collabra* 1; Gordon Tribble, Jonathon Stock and Jim Jacobi, ‘Watershed processes from ridge to reef: consequences of feral ungulates for coral reef and effects of watershed management’ in Christina E Stringer, Ken W Krauss and James S Latimer (eds), *Headwaters to Estuaries: Advances in Watershed Science and Management - Proceedings of the 5th Interagency Conference on Research in the Watersheds* (U.S Department of Agriculture Forest Service, 2016) 194.

⁵⁶ Carlson, Foo and Asner (n 54).

There is also evidence that exposure to moderate levels of herbicides can impact photosynthesis and reduce the reproductivity of corals, sometimes inhibiting it completely.⁵⁷

33. The agricultural industry releases 12,114 kilograms of herbicides into the Great Barrier Reef region annually.⁵⁸ As run off contributes to coral's ability to photosynthesise, the coral is more susceptible to bleaching and disease.⁵⁹
34. An increase in nutrient runoff has been linked to influence coral disease and decline in reproduction.⁶⁰ Long-term excessive nutrient conditions can disrupt the natural balance between algae and corals and lead to an algal dominated ecosystem.⁶¹ Scientific evidence also suggests that land-based run-off can result in the COTS outbreaks.⁶² This can occur through the nutrients supplied through the runoff decreasing predation pressure and COTS larvae grow faster when exposed to increased nutrients.⁶³ The association between nutrient run-off and COTS blooms was also stated in the State of the Environment Report in 2016.⁶⁴
35. NELA acknowledges that pesticides are rarely detected in the waters of mid-shore and outer reefs yet highlight 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.⁶⁵
36. More broadly, the explanatory notes of the Bill appear to compartmentalise sections of the GBR and categories them into sections of 'relative importance.'⁶⁶ It appears to classify 'inshore' areas as a subsection of the GBR and of relative unimportance. Specialised inshore regions of the Reef, such

⁵⁷ Neal E Cantin, Andrew P Negri and Bette L Willis, 'Photoinhibition from chronic herbicide exposure reduces reproductive output of reef-building corals' [2007] (344) *Marine Ecology Progress Series* 81, 89; Marie Magnusson, Kirsten Heimann and Andrew Negri 'Comparative effects of herbicides on photosynthesis and growth of tropical estuarine microalgae' (2008) 56(9) *Marine Pollution Bulletin* 1545, 1545.

⁵⁸ Queensland Government, 'Land-based run-off pressure on the Great Barrier Reef', *State of the Environment: Biodiversity* (Web Page, 2020) <<https://www.stateoftheenvironment.des.qld.gov.au/biodiversity/estuarine-and-marine-ecosystems/land-based-run-off-pressure-on-the-great-barrier-reef>>.

⁵⁹ Sarah Hamylton and Lucas Ihlein, 'Cleaning up runoff onto the Great Barrier Reef: how art and science are inspiring farmers to help' (Blog Post, 3 November 2016) <<https://theconversation.com/cleaning-up-runoff-onto-the-great-barrier-reef-how-art-and-science-are-inspiring-farmers-to-help-67629>>.

⁶⁰ Alexa Fredston-Hermann et al., 'Where Does River Runoff Matter for Coastal Marine Conservation?' (2016) 3 (December) *Frontiers in Marine Science* 273; Jessica Haapkylä et al., 'Seasonal Rainfall and Runoff Promote Coral Disease on an Inshore Reef' (2011) 6(3) *PLOS ONE* e16893.

⁶¹ Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, *Identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier Reef* (Report, October 2020) [3.59].

⁶² Queensland Department of Environment and Science, Submission No 72 Attachment 7 to Senate Standing Committees on Rural and Regional Affairs and Transport, *Identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier* (November 2019) 2.

⁶³ Cecilia D'Angelo and Jorj Wiedenmann, 'Impacts of nutrient enrichment on coral reefs: new perspectives and implications for coastal management and reef survival' (2014) 7 *Current Opinion in Environmental Sustainability* 82; Queensland Department of Environment and Science, Submission No 72 Attachment 7 to Senate Standing Committees on Rural and Regional Affairs and Transport, *Identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier* (November 2019) 2.

⁶⁴ Karen Evans et al, *Australia state of the environment 2016: marine environment* (Report, 2016) 110.

⁶⁵ Queensland Department of Environment and Science, Submission No 72 Attachment 7 to Senate Standing Committees on Rural and Regional Affairs and Transport, *Identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier* (November 2019) 3.

⁶⁶ TropWATER James Cook University, Supplementary Submission No 61 to Senate Standing Committees on Rural and Regional Affairs and Transport, *Identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier* (27 July 2020) 2.

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.⁶⁷ As a result, a decline in these areas could see a decline in select species, many of which are commercially important to Australia, affecting specific industries.⁶⁸ Passing the Bill may demonstrate that the ecosystems of these inshore areas are not valued to the same extent as other parts of the GBR. This hinders Australia's ability to satisfy its WHC obligations to protect the 'the Outstanding Universal Value of the property,' which ranges from 'inshore fringing reefs to mid-shelf reefs, and exposed outer reefs.'⁶⁹

37. 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.'
38. Overall, NELA is concerned that passing the Bill would ignore the scientific consensus regarding the impact of land-based run-off on GBR water quality, and instead rely on dissenting scientific evidence. While NELA supports and recognises the need for further research that strengthens the current evidence base, it is of the opinion that this does not constitute justification for repealing the regulatory framework of the 2019 Bill as enacted, especially at a time when Australia's ability to protect the GBR is being questioned on an international level.

Australia's International Obligations to protect the Great Barrier Reef

39. NELA is concerned that a reversal of GBR protection measures may hinder Australia's ability to fulfill its international obligations to protect the GBR under the World Heritage Convention and the Biodiversity Convention.

Convention Concerning the Protection of the World Cultural and Natural Heritage

40. Article 4 of the World Heritage Convention states that each state recognises 'the duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage' situated in its territory, and that it will do all it can to this end, to the utmost of its own resources, and where appropriate with international assistance and cooperation.⁷⁰
41. Article 5 of the Convention also requires each State party to take the appropriate legal, administrative, and financial measures necessary for the protection, conservation, presentation of this heritage, amongst other obligations in that Article.⁷¹
42. International obligations under Articles 4 and 5 may not be adequately met by the provisions of the Bill. Repealing the recently improved regulatory framework detracts from efforts to implement greater protection measures, which can interfere with accelerated efforts to meet water quality targets. This can demonstrate that Australia is not doing 'all it can' or taking the 'appropriate legal measures necessary to ensure protection, conservation, and presentation of the GBR.' This is evident by the Bill aiming to ease regulatory measures on agricultural activities that inflict land-based run-off on the GBR, and therefore, the legal measures necessary for the conservation of the GBR.

⁶⁷ Evidence to Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, 28 August 2020, 4 (Ove Hoegh-Guldberg, University of Queensland).

⁶⁸ Ibid.

⁶⁹ UNESCO, 'Great Barrier Reef' (Web page) <https://whc.unesco.org/en/list/154/>.

⁷⁰ *Convention Concerning the Protection of the World Cultural and Natural Heritage*, opened for signature 16 November 1972, 1037 UNTS 151 (entered into force 17 December 1975) art 4.

⁷¹ Ibid art 5.

Convention on Biological Diversity

43. NELA is concerned that the Bill may be inconsistent with obligations assumed under the Biodiversity Convention. This stems from the effect that poor water quality has on the habitats of marine species and the biological diversity of these areas. The functioning of these ecosystems, such as the coral reefs, support biodiversity, and any impact on coral or invasive species such as COTS will impact this biodiversity. For example, the inner shelf of the Reef, which has the highest exposure risk to land-based run-off, accounts for 12 per cent of the total area of the Reef's marine park, including 3.6 per cent of the 'total area of coral reefs and 77 [per cent] of the area of mapped seagrass meadows and mangrove forests (which provide critical habitat and breeding grounds for many species of fish, and turtles and dugongs).⁷² An objective of the Biodiversity Convention is the conservation of biological diversity,⁷³ with State parties taking measures to 'integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.'⁷⁴ The Bill weakens the regulation of land-based run-off, which impacts upon the ecosystem, and thus the conservation of the biodiversity in the GBR.
44. The seventh Conference of the Parties to the Biodiversity Convention (CoP 7) urged State parties to address through appropriate management approaches, all threats, including those which arise from the land (including poor water quality and sedimentation) in order to achieve marine and coastal biodiversity objectives.⁷⁵ The CoP decision noted initiatives and programs to reduce land-based sources of pollution (specifically GBR water quality protection plans) to improve biodiversity protection.⁷⁶
45. In view of this, the Bill's goals to ease regulation measures on agricultural activities may not be aligned with the objectives and principles of the Biodiversity Convention to ensure parties are 'integrating, as far as possible' the conservation of GBR biodiversity.
46. Thank you again for providing an opportunity for NELA to express our concerns about the Bill. NELA would welcome an opportunity to appear before the Committee to respond to any questions you may have concerning this submission. Please email [REDACTED] and the authors of this submission (Callum Brockett, Erin McNamara, Jonty Morrison, and Jaymin Pratt, Dr Hanna Jaireth and Dr Katie Woolaston) will be contacted accordingly.

⁷² Evidence to Senate Standing Committees on Rural and Regional Affairs and Transport, Parliament of Australia, Canberra 27 July 2020, 50 (Peter Ridd); TropWATER James Cook University, Supplementary Submission No 61 to Senate Standing Committees on Rural and Regional Affairs and Transport, *Identification of leading practices in ensuring evidence-based regulation of farm practices that impact water quality outcomes in the Great Barrier* (27 July 2020) 1.

⁷³ *Convention on Biological Diversity*, opened for signature 5 June 1992, 1760 UNTS 79 (entered into force 29 December 1993) art 1.

⁷⁴ *Ibid* art 6(b).

⁷⁵ Conference of the Parties to the Convention of Biological Diversity, *Decisions adopted by the Conference of the Parties to the Convention of Biological Diversity at its Seventh Meeting, 7th Meeting, UNEP/CBD/DC/VII/5* (13 April 2004) [36].

⁷⁶ *Ibid*.