



Statutory review of the Reef protection regulations

Report

February 2024



Queensland
Government

Prepared by: Office of the Great Barrier Reef and World Heritage, Department of Environment, Science and Innovation

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Executive summary

Background

The Great Barrier Reef (the Reef) is an international icon and valued as Australia's most acclaimed natural asset for its unique biodiversity, cultural significance and immense ecological scale. The Australian and Queensland Governments are committed to protecting the Reef through the Reef 2050 Long-Term Sustainability Plan and nested plans and strategies.

The *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Act 2019* amended the *Environmental Protection Act 1994* (EP Act) to strengthen existing Reef protection regulations (the Reef regulations) to improve the quality of the water entering the Great Barrier Reef (the Reef). The amendments were largely contained in Chapter 4A of the EP Act, commenced on 1 December 2019, and progressively came into effect over three years. The provisions are supported by subordinate legislation, statutory instruments and guidance materials.

The Reef regulations are part of a mix of actions under the Reef 2050 Water Quality Improvement Plan to accelerate progress towards meeting the Reef water quality targets for reducing sediment and nutrient pollution. Implementation and compliance of the Reef regulations are part of commitments by the Australian and Queensland Governments to the UNESCO World Heritage Centre. A progress report on these commitments is available at <https://www.dcceew.gov.au/sites/default/files/documents/great-barrier-reef-progress-report-2024.pdf>.

The main cause of poor water quality entering the Reef is due to nutrient, sediment and pesticide run-off from agriculture in Reef catchments, and the locally significant contributions from urban and industrial land uses. This runoff can be reduced by implementing improved practices. The intent of the Reef regulations is to drive uptake of improved practices that improve water quality outcomes, and to ensure industrial and resource development does not worsen water quality.

The Reef regulations consist of three key measures:

- agricultural Environmentally Relevant Activity (ERA) standards (regulated standards) for banana, beef cattle grazing and sugarcane, and associated record keeping for advisers and recognition for Best Management Practice (BMP) programs
- a requirement to obtain an environmental authority (EA) before starting commercial cropping or horticulture on new areas of over five hectares (ERA 13A requirement)
- new emission standards for industrial and point source development approvals that take into account end-of-basin load water quality objectives (the 35 Reef catchment water quality targets).

The Reef regulations took effect in stages for different agricultural sectors in different Natural Resource Management regions based on improved water quality management priorities. Regulated standards for certain sectors in some regions commenced as recently as December 2022. The Queensland Government has also concurrently invested in a range of other programs and projects, including industry-led Best Management Practice (BMP) programs, to support and complement the Reef regulations.

Review approach

Section 774 of the EP Act requires the Minister to review the extent to which Chapter 4A has been effective in reducing the load of dissolved inorganic nitrogen and sediment in the water in river basins across the Reef catchments. The review has been undertaken by the Department of Environment, Science and Innovation (the department) and this report has been prepared for the purposes of complying with section 774(3) of the EP Act.

To evaluate the effectiveness of the Reef regulations, the review has assessed whether:

- the Reef regulations, and Queensland Government investment to support implementation, have resulted in practice changes in the agriculture and industrial and resource sectors
- there have been any factors that have affected implementation (either positively or negatively).

The evaluation was informed by a wide range of data, including from the Reef Compliance and Regulation Program (Compliance Program), practice change projects, industry-led BMP programs, social research and monitoring projects, and the results of independent stakeholder consultation.

The review was limited by:

- timing – the review was undertaken very early in the implementation of the Reef regulations
- an inability to segregate the impact of the Reef regulations from other interventions designed to support practice change, noting there are often multiple drivers that influence practice change adoption

- Compliance Program data not reflecting a representative sample of all farm operations – the data is skewed towards lower rates of compliance as the program prioritises effort on finding non-compliance
- the sample size and types of stakeholders consulted – the number of interviews undertaken with stakeholders is not large enough to be statistically representative of the regulated community.

Findings

The review found multiple lines of evidence that practice change to reduce nutrient and sediment runoff has occurred because of the Reef regulations and complementary projects and programs, including:

- Compliance Program data showing the range of enforcement measures employed to address non-compliance results in practice change with increased levels of compliance.
- Strong producer engagement and interest in practice change tools, projects and programs, including those projects that acknowledge producers as meeting or exceeding the regulated standards.
- Alignment of practices in the Smartcane BMP and Freshcare Environmental Program - Reef Assured programs against the regulated standards, resulting in program recognition under the EP Act and recognition of BMP accredited producers.
- Social research that shows complying with the Reef regulations is a motivator for sugarcane producers to become involved in practice change projects and implement improved practices.
- Feedback from most producers interviewed as part of the independent stakeholder consultation indicating there has been practice change because of the Reef regulations. This includes feedback from some producers that the Reef regulations have acted as a catalyst for change toward more progressive and sustainable farm practices, and increased awareness of the impacts of nutrients and sediment on the Reef.
- Industrial and resource activities seeking and gaining EAs that meet the requirement to achieve a no residual impact to Reef water quality.

The evidence outlined in this review demonstrates that the Reef regulations are an influential part of a suite of practice change interventions being implemented to improve the quality of water entering the Reef. This includes both agricultural and industrial sources of sediment and nutrient loads.

The evidence also shows that the targeted investment and delivery of other practice change programs and projects by government complements the regulatory program and enhances progress. These important complementary programs and projects include extension, on-ground education and engagement initiatives, and recognition and certification pathways.

However, the review found there are also several factors, largely identified through stakeholder consultation, which may be affecting implementation, including:

- Some producers, particularly isolated or disengaged producers, may remain unaware of the requirements.
- A lack of landholder contact information has prevented the department from directly contacting each regulated producer and this reduces engagement opportunities and impedes the ability to more efficiently plan and undertake compliance inspections and communicate with producers.
- General scepticism about the need for the Reef regulations and a resistance to being regulated, mistrust in government and the evidence base for the regulations, and a belief that government officers do not understand farming, may be driving some reluctance to comply with or slower adoption of regulated standards.
- Challenges understanding and applying the Reef regulations and accessing necessary support, particularly in more complex and diverse farm situations or when managing point source emissions.

Opportunities identified by the review process to address these implementation issues are summarised below:

Enhance communication, engagement and evaluation

1. Continue to improve the efficiency and effectiveness of the compliance program, including developing Compliance Officer capability and commencing proactive compliance for ERA 13A.
2. Increase direct engagement with industry groups, extension officers, advisors and agronomists to ensure they remain informed about the programs and tools available to support producers to comply.
3. Strengthen efforts to increase reach and understanding within the regulated community.
4. Develop a Reef regulations monitoring and evaluation plan to increase understanding and improve the effectiveness of the regulations.

Assist the regulated community to comply and go beyond regulated standards

5. Support research that directly informs the evidence basis for offset policies and guidance and a process of regular review to reflect findings and ensure continuous improvement.
6. Enhance the delivery of programs under the Queensland Reef Water Quality Program that support producers to comply with and go beyond the regulated standards, including processes to recognise engaged producers as a lower priority for compliance inspections.
7. Facilitate opportunities for peak bodies, program managers, and auditors to engage with each other and government about recognised programs to foster learnings and improve alignment with regulatory requirements.

1 Introduction

On behalf of the Minister for the Environment and the Great Barrier Reef and Minister for Science and Innovation, the Department of Environment, Science and Innovation (the department) has undertaken a review of the Reef protection regulations (the Reef regulations). This report documents the findings of that review.

This review is required under section 774 of the *Environmental Protection Act 1994* (EP Act) which states:

774 Review of impact of ch 4A on contaminant levels

(1) The Minister must review the extent to which chapter 4A has been effective in reducing the load of the following contaminants in the water in river basins in the Great Barrier Reef catchment—

(a) dissolved inorganic nitrogen in the water;

(b) sediment suspended in the water.

(2) The review must be—

(a) started no earlier than 3 years, and no later than 3 years and 3 months, after the commencement of chapter 4A; and

(b) completed within 1 year.

(3) The Minister must, as soon as practicable after finishing the review, table a report about the outcome of the review in the Legislative Assembly.

(4) In this section—

load, of a contaminant that enters water, see section 77(5).

Out of scope of the review were broader matters, such as the need for regulations, who should be regulated and economic considerations.

2 Background

2.1 Reef protection regulations

The *Great Barrier Reef Protection Amendment Act 2009* introduced the first round of Reef protection regulations in 2010 (see **Box 1**). The purpose of the Reef regulations was to reduce the impact of agricultural activities on the quality of water entering the Reef and contribute to achieving the targets about water quality improvement for the Reef.

The main cause of poor water quality entering the Reef is due to the cumulative impacts from nutrient, sediment (and pesticide) run-off from land use impacts in the catchments adjacent to the Reef. Currently, this is predominantly from agriculture due to the large footprint of this industry, however there are also locally significant contributions from urban and industrial land uses.

Box 1: Reef protection regulations 2010 to 2019

Agricultural ERAs were cattle grazing (on a property of more than 2000 hectares) and commercial sugarcane growing in the Wet Tropics, Mackay Whitsunday and Burdekin regions. Sugarcane growers and graziers were required to comply with particular farming practices. These included applying fertilisers and chemicals using prescribed methodologies and keeping associated records. Environmental Risk Management Plans were required for properties growing sugarcane on more than 70 hectares in the Wet Tropics and grazing cattle on more than 2000 hectares in the Burdekin. BMP programs started during this period, but there was no legislative mechanism to formally recognise them as an alternative means of complying with regulatory requirements.

In 2012, a policy change saw active compliance for the Reef regulations deprioritised and the redirection of funding and effort to voluntary industry-led Best Management Practice (BMP) programs.

In 2016, the Great Barrier Reef Water Science Taskforce (the Taskforce) recommended that staged and targeted regulations were needed as part of a mix of tools and actions to rapidly accelerate progress towards water quality targets in the Reef 2050 Water Quality Improvement Plan. In response, compliance activity for the Reef regulations was re-initiated, and the Queensland Government progressed the *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Act 2019* to strengthen the Reef regulations and broaden the range of activities regulated.

The Reef regulations consist of three key measures:

- agricultural Environmentally Relevant Activity (ERA) standards (regulated standards) for banana, beef cattle grazing and sugarcane including:
 - prescribed methodologies for sugarcane and bananas that set out how to calculate fertiliser application rates including requiring soil or leaf testing
 - a requirement for agricultural advisers to keep records when providing tailored advice to producers, and provide advice that is not false or misleading, relating to the regulated standards
 - a mechanism to recognise accreditation programs for regulated standards to provide producers with an alternative industry-managed pathway to comply.
- a requirement for an environmental authority (EA) before starting commercial cropping or horticulture on over five hectares of land that does not have a cropping history¹ (ERA 13A requirement)
- new emission standards for industrial and point source development approvals that take into account end-of-basin load water quality objectives (no residual impact requirement), with the objectives based on the Reef water quality targets (see **Box 2**).

Implementation and compliance of the Reef regulations are part of commitments by the Australian and Queensland Governments to the UNESCO World Heritage Centre. A progress report on these commitments is available at <https://www.dcceew.gov.au/sites/default/files/documents/great-barrier-reef-progress-report-2024.pdf>.

The Reef regulations did not target pesticides, which are managed under a separate regulatory framework administered by the Department of Agriculture and Fisheries.

Box 2: Reef water quality targets

The joint Australian and Queensland government Reef 2050 Water Quality Improvement Plan defines end of catchment pollution load reduction targets for sediment and nutrients.

The 35 end of catchment or basin targets have been aggregated to provide indicative whole-of-Reef and regional scale nutrient and sediment reduction targets. The Reef-wide water quality targets are:

- **By 2025, a 60% reduction in anthropogenic end-of-catchment dissolved inorganic nitrogen loads.**
- **By 2025, a 25% reduction in anthropogenic end-of-catchment fine sediment loads.**

The end-of-basin load water quality objectives under the Reef regulations, found in the document called '**Great Barrier Reef River Basins End of Basin Load Water Quality Objectives**', dated **September 2019**, directly reflect the 35 end of catchment/basin targets outlined in the plan.

The Reef regulations commenced on 1 December 2019 and progressively took effect over three years to provide newly regulated producers more time to become compliant. The requirements took effect for different industries in different regions in stages based on water quality management priorities (see **Figure 1**).

¹ A cropping history is when the land has been used for cropping or horticultural activities in at least three out of the last 10 years. There are transitional provisions that allow some extra time to develop a cropping history for any cropping that has only started in the three years prior to 1 June 2021.

The introduction of the Reef regulations followed a full public consultation process including inviting submissions on a regulatory impact statement and targeted engagement with peak industry groups about the proposed regulated standards. Implementation was supported by dedicated funding and communication and engagement activities to assist producers to meet the regulated standards (see [Appendix A](#)), in addition to an expanded compliance program.

Figure 1 – Timeframes for commencement of the various components of the Reef regulations

	July 2019 - June 2020	July 2020 - June 2021	July 2021 - June 2022	July 2022 - June 2023	July 2023 - June 2024
Report cards	2020 Report card data period	2021 & 2022 Report card data period		2023 & 2024 Report card data period	
Sugarcane min standards	1 Dec 2019 - General record keeping requirements in all regions				
	1 Dec 2019 - All requirements (except nitrogen & phosphorus budget) in Wet Tropics, Mackay-Whitsundays & Burdekin				
				1 Dec 2021 - Nitrogen & phosphorus budget in Wet Tropics, Mackay-Whitsundays & Burdekin*	
				1 Dec 2022 - All requirements (including nitrogen & phosphorus budget) in Fitzroy & Burnett-Mary*	
Banana min standards	1 Dec 2019 - General record keeping requirements in all regions				
				1 Dec 2020 - All requirements in Wet Tropics	
				1 Dec 2022 - All requirements in Mackay-Whitsundays, Burdekin, Fitzroy and Burnett-Mary*	
Grazing min standards	1 Dec 2019 - General record keeping requirements in all regions				
			1 Dec 2020 - All requirements in Burdekin		
				1 Dec 2021 - All requirements in Fitzroy	
				1 Dec 2022 - All requirements in Wet Tropics, Mackay-Whitsundays and Burnett-Mary	
New cropping & no residual impact	1 June 2021 - All regions				

* Where there is an EA for ERA 13A, this requirement applies from commencement of the EA.

2.2 Compliance program

The Reef Compliance and Regulation Program (the Compliance Program) aims to drive increased adoption of improved farm practices in line with the department’s published Compliance and enforcement strategy: Reef protection regulations (the Compliance Strategy), available at www.qld.gov.au/__data/assets/pdf_file/0023/227156/reef-protection-regs-compliance-enforcement-strategy.pdf.

Since 2019, the Compliance Program focused on sugarcane farms, with banana and grazing compliance inspections starting in September and October 2021. Staged implementation of compliance activities was in line with commencement dates for the regulated standards for sugarcane cultivation, banana cultivation, and beef cattle grazing, and the onboarding and training of compliance staff.

The Compliance Program now has over 30 full-time equivalent positions dedicated to implementation of the Reef regulations. Compliance staff are located in offices in Cairns, Townsville, Bowen, Mackay, Rockhampton and Brisbane.

The Compliance Program prioritises properties for inspection based on their location within areas of highest risks to water quality. Inspections focus on driving compliance with the regulated standards to achieve improved water quality using a risk-based and responsive regulatory approach, as outlined in the Compliance Strategy. This involves focusing on increasing awareness of the Reef regulations, the benefits of improved farm practices and potential consequences for non-compliance, as strategies to inform and enable voluntary compliance in the first instance. Where voluntary compliance is not achieved, increasingly intrusive measures (including warning letters, statutory notices and fines (Penalty Infringement Notices)) are employed to enforce compliance. This approach achieves compliance outcomes on properties visited and influences compliance behaviour and improved practice for farms and properties which are a lower priority and are yet to be inspected.

For sugarcane and banana farms, the main compliance focus is on the requirements for application of fertiliser and associated record keeping. For grazing, the focus is on ensuring measures are being implemented for land which is in a poor or degraded condition and the required records are kept.

Due to the small number of activities currently covered by the ERA 13A requirement (Commercial cropping and horticulture in the Great Barrier Reef catchment), no proactive inspections have occurred to date. Reactive inspections have occurred for ERA 13A activities in response to information received by the department. Proactive compliance will commence in 2024.

As of 31 December 2023, four environmental authorities had been subject to the ‘no residual impact requirement’ for sediment and nutrient emissions and no proactive compliance had been undertaken in relation to these.

Program Recognition

Producers participating in recognised accreditation programs under the EP Act are considered a lower priority for compliance inspections². For sugarcane growers, the Smartcane BMP program delivered by CANEGROWERS has been granted program recognition up to April 2025. For banana growers, the Freshcare Environmental Program – Reef Assured has been granted program recognition up to March 2026.

Project Acknowledgement

The department has a policy to acknowledge producers that aren't certified in formal programs, but that are engaged in practice change projects. Compliance inspections for producers involved in an acknowledged practice change project³ are postponed for the period of their involvement in the project. In 2023, acknowledged practice change projects include the Grazing Resilience and Sustainability Solutions (GRASS) program for grazing and Smartcane BMP program for sugarcane where growers are working to achieve accreditation within 12 months. In addition, the department acknowledged four projects during 2020–2021 under the previous Queensland Reef Water Quality Program (QRWQP) (2016–2021):

- former GRASS program for grazing in the Fitzroy and Burdekin catchment areas
- Russell-Mulgrave Complete Nutrient Management Planning for Cane Farming project (RP222 and RP223) delivered nutrient management plans in the Russell-Mulgrave catchment of the Wet Tropics
- tailored nutrient and farm management solutions projects in the Herbert, Burdekin and Mackay catchment areas (RP210, RP161 and RP196), which worked with sugarcane growers to improve land management practices and refine nutrient practices.

The total number of landholders on the Program Recognition and Project Acknowledgement register varied from 99 in October 2020, to a peak of 391 in June 2022, and was at 242 in December 2023. The change in participant numbers over time does not correlate with regulatory change but reflects when programs and projects commence and finish and producers' willingness to opt into the compliance register.

Only a very small number of new environmental authorities have been subject to the 'no residual impact requirement' for sediment and nutrient emissions at the time of this review and no proactive compliance had been undertaken in relation to these.

3 Approach

3.1 Review framework

To evaluate the effectiveness of the Reef regulations, this review has assessed whether:

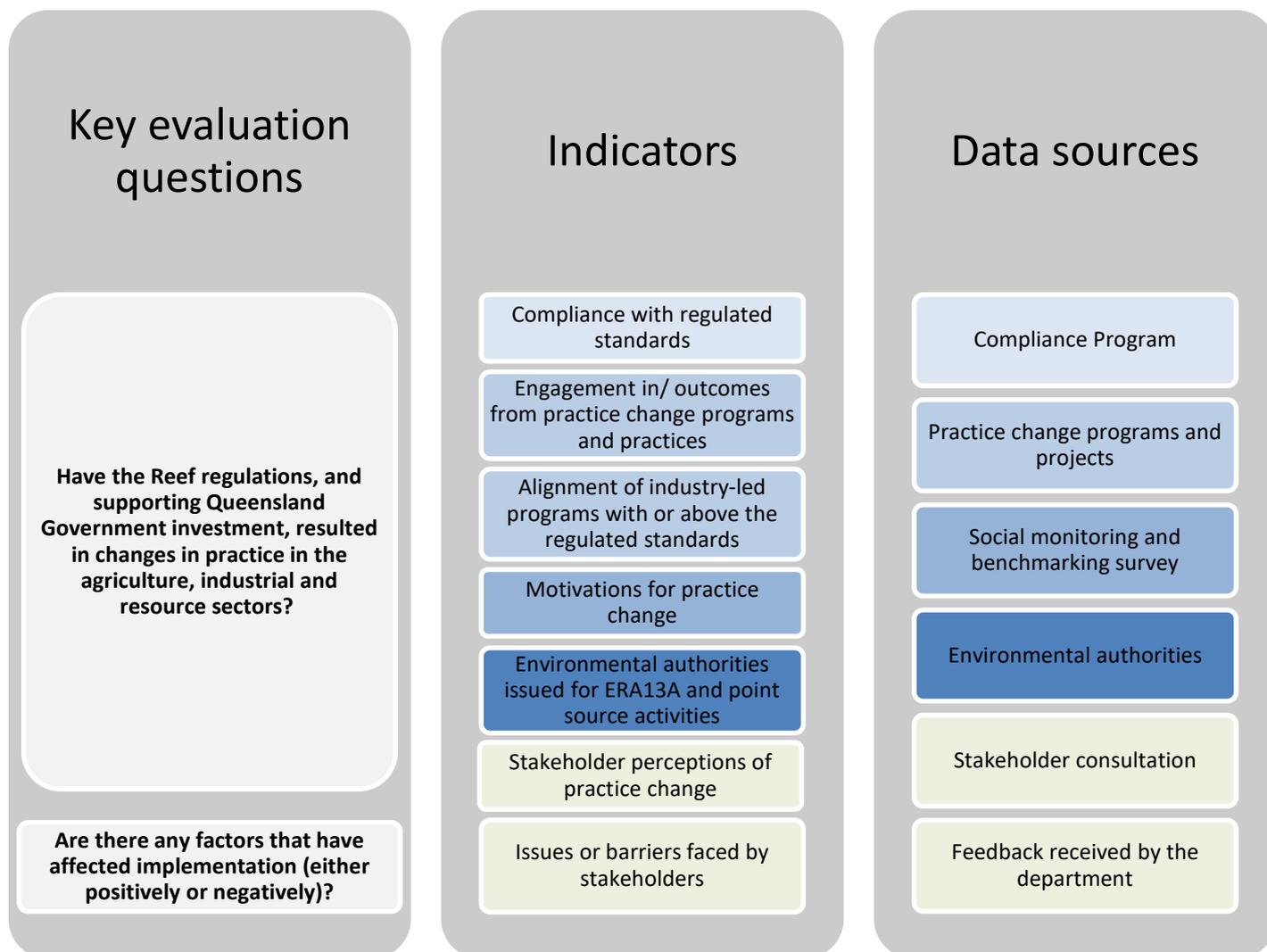
- the Reef regulations, and Queensland Government investment to support implementation, have resulted in changes to practices in the agriculture, industrial and resource sectors
- there have been any factors that have affected implementation (either positively or negatively).

Figure 2 shows the framework for the review, including the range of indicators and information sources that provided lines of evidence.

² These programs align to being at or above the regulated standards that apply for sugarcane and banana growing and beef cattle grazing in the Reef regions.

³ Projects that work with producers to improve one or more farming practices that directly reduce nutrient and sediment run-off from agricultural properties in the Reef regions can apply to become an acknowledged practice change project. They must meet a range of criteria as determined by the department (see www.qld.gov.au/environment/agriculture/sustainable-farming/reef/reef-regulations/resources-programs-projects/providers).

Figure 2 – Review framework to assess the extent to which the Reef protection regulations have been effective



3.2 Limitations

The review was limited by:

- timing – the review was undertaken very early in the implementation of the Reef regulations
- an inability to segregate the impact of the Reef regulations from other interventions designed to support practice change, noting there are often multiple drivers that influence practice change adoption
- Compliance Program data not reflecting a representative sample of all farm operations – the data is skewed towards lower rates of compliance as the program prioritises effort on finding non-compliance
- the sample size and types of stakeholders consulted – the number of interviews undertaken with stakeholders is not large enough to be statistically representative of the regulated community.

The Reef regulations have been in effect for a relatively short time

While Chapter 4A of the EP Act commenced on 1 December 2019, many of the requirements did not start immediately. Some requirements only started as recently as 1 December 2022 (see **Figure 1**). This meant that at the time this review was being undertaken, some regions and commodities were less than 12 months into implementation.

The requirements for starting or expanding cropping and industrial and resources activities were scheduled to commence 1 June 2020. However, the commencement was delayed until 1 June 2021 due to the COVID-19 (coronavirus) pandemic.

Segregating the impacts of regulation from other interventions

It was not expected or planned to use water quality monitoring results to assess the effectiveness of the Reef regulations. Very long-term monitoring data sets are needed to detect trends in catchment water quality from land management changes. This is because monitored loads leaving catchments vary significantly from year to year, mainly due to differences in annual rainfall and run-off and this obscures trends resulting from practice change.

The Paddock to Reef Monitoring, Modelling and Reporting Program (Paddock to Reef program) uses a combination of monitoring and modelling to get a measure of annual change in pollutant loads as a result of practice change.

The Paddock to Reef program models and reports on the impacts of Australian and Queensland government investment programs that aim to increase the adoption of improved land management practices. These programs include industry-led BMP programs, targeted agronomic support, landscape repair and the Reef regulations.

The modelled change in annual loads is aggregated across all interventions as only changes in practices for a land area, not what caused the change, are recorded. Multiple drivers may influence adoption of practices and in some land areas, multiple practice change interventions (such as extension and on-ground agronomy projects) have been delivered concurrently to the Reef regulations being implemented. Hence, modelled results from the Paddock to Reef program cannot be wholly attributed to the Reef regulations, or to any other one intervention.

While pollutant load reductions are expected from producers implementing the regulated standards, this is not the case for the requirements for new cropping or horticulture and industrial and resource development. The intent of these requirements was to ensure Reef water quality does not worsen because of new development, so a reduction in loads is not expected as a result.

Compliance Program data

Data from the Compliance Program is skewed towards lower rates of compliance as the farms visited are not a representative sample of the regulated community for several reasons:

- the program prioritises properties for inspection based on highest risks to water quality
- producers accredited under recognised accreditation programs and those participating in acknowledged practice change projects are a low priority for inspection, therefore producers with better practices are less likely to be inspected
- some visits are in response to previous non-compliance or community reports of non-compliance
- grazing sites are only visited if remote sensing indicates the site is likely to have poor ground cover (and weather conditions have resulted in good ground cover in most other locations in the region during 2019-2022).

For areas that have not been visited as part of the Compliance Program, the extent of improvement in land management practices resulting from the Reef regulations is unknown.

Stakeholder consultation

A key component of the review has been stakeholder consultation. The department engaged an independent third party, Ernst and Young (EY), to undertake targeted consultation with peak industry, environment and natural resource management groups and a cross-section of regulated producers. The purpose of this consultation was to learn about stakeholders' experiences with implementing the Reef regulations, including whether they believe the Reef regulations have had an impact on practices (such as fertiliser application methods and rates), any issues they have encountered with implementing the Reef regulations, and their suggestions for how to resolve these issues. Fifty-four different stakeholders were interviewed⁴. Written submissions were not invited.

In the context of the framework, the observations from the stakeholder consultation predominantly provide information on issues that have affected implementation and compliance with the Reef regulations. Relevant results are incorporated into [section 4](#) and [section 5](#) with the consultation report contained in [Appendix B](#).

A range of observations and stakeholder suggestions are outside the scope of this review. Whilst these are not addressed in this report, [Appendix C](#) responds to each suggestion contained in the stakeholder consultation report.

⁴ Stakeholder consultation noted 56 interviews in table 3 of the report but, as explained in the footnote on page 14, two interviewees were counted within multiple stakeholder groups.

The number of interviews undertaken with stakeholders is not large enough to be statistically representative of the whole sector. Instead, the sample size is reflective of the availability and willingness of producers to participate within the consultation timeframes. The stakeholder consultation report noted (on page 16 [Appendix B](#)) that the following biases may have been present within the selection of stakeholder participants:

- *Self-selection into or out of the consultation process: As participation in interviews was voluntary, EY expects that those with stronger views and more negative experiences may be more likely to self-select to be a part of this process. This may be exacerbated by individuals' time limitations and consultation fatigue, as only those who were highly motivated to provide feedback were likely to participate. The implication of this is that strong, and predominantly negative, views may be over-represented, and this should be considered when interpreting this report.*
- *Selecting for less isolated individuals: EY notes that many of the interviewees, including most of the primary producers, were identified by EY through other contacts. It is therefore likely that this process selected for individuals that were more connected in the community, while more isolated individuals were not reached. This is relevant when considering that isolated individuals may also be disproportionately affected by barriers and challenges to compliance.*

4 Evidence of practice change

Section 4 sets out a range of data that indicates whether practice change has occurred in the agriculture, industrial and resource sectors as a result of the Reef regulations and supporting Queensland Government investment.

4.1 Compliance with the regulated standards

Sugarcane

Between 1 December 2019 and 31 December 2023, the Compliance Program undertook 307 inspections of sugarcane farms, and 232 desktop assessments of records or participation in practice change programs. This covers approximately 18% (128,604 hectares) of the approximate area of commercial sugarcane grown in Reef catchments.

These compliance activities build on the compliance program prior to December 2019 for the previous regulatory requirements for sugarcane producers in the Wet Tropics, Burdekin, and Mackay Whitsunday areas (see **Box 1**). Between program commencement in March 2016 and 31 December 2023, compliance activities across the sugarcane industry in Reef catchments have captured a total of 810 sugarcane producers, representing approximately 33.2% of the sugarcane growing area in Reef catchments.

There has been an improvement in compliance rates at initial contact since the introduction of the amended Reef regulations in 2019 and with the maturation of the Compliance Program. As shown in **Figure 3**, the per cent of sugarcane farms inspected between 1 December 2019 and 31 December 2023 that were non-compliant at the initial contact was approximately 42.8%. For those growers who were revisited, this dropped to 28.6%. Prior to 1 December 2019, non-compliance rates at initial contact were approximately 56% and at follow-up contact 35.5%.

The follow-up visits found many of the farms are demonstrating improved practice, including through participating in a recognised program, or are otherwise addressing their practices to meet the requirements. Even where farmers are not fully meeting their requirements, most farms take significant steps to change their practice towards meeting the requirements after a compliance visit. The follow up visits show that the use of lower-level enforcement measures, including informing producers of the requirements and encouraging voluntary compliance, is effective in increasing compliance with the regulated standards for sugarcane under the Reef regulations.

The program has also found variations in farm practice across Reef catchments. As shown in **Figure 4**, non-compliance rates at initial engagement are the highest in the Mackay Whitsunday (O'Connell, Pioneer, Plane, Proserpine), Burdekin (Burdekin and Haughton) and Herbert catchment areas. However, the Mackay Whitsunday and Burdekin catchments also show some of the lowest non-compliance rates at the follow-up inspections.

Anecdotal observations by compliance staff have found linkages between the compliance rates in each basin, and the level of industry support and programs available in each basin to support producers transition farm practice. The very high non-compliance rates at the initial engagement in the Mackay Whitsunday area, where there has been lower investment (than some other regions) in voluntary practice change and support programs, highlights the effect of support programs in driving practice change and compliance with regulated standards.

Figure 3 – Compliance outcomes after first and follow-up inspections of sugarcane farms between December 2019 and December 2023

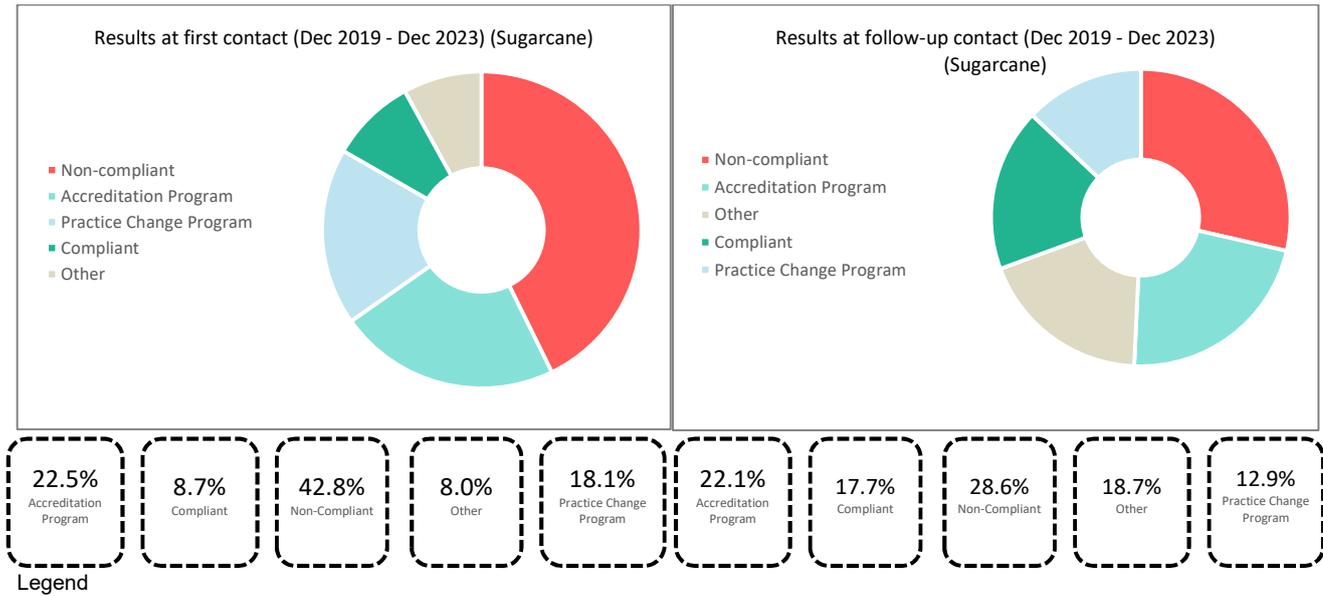


Figure 4 – Compliance outcomes by river basin after first and follow-up inspections of sugarcane farms since the compliance program commenced (March 2016 and December 2023)



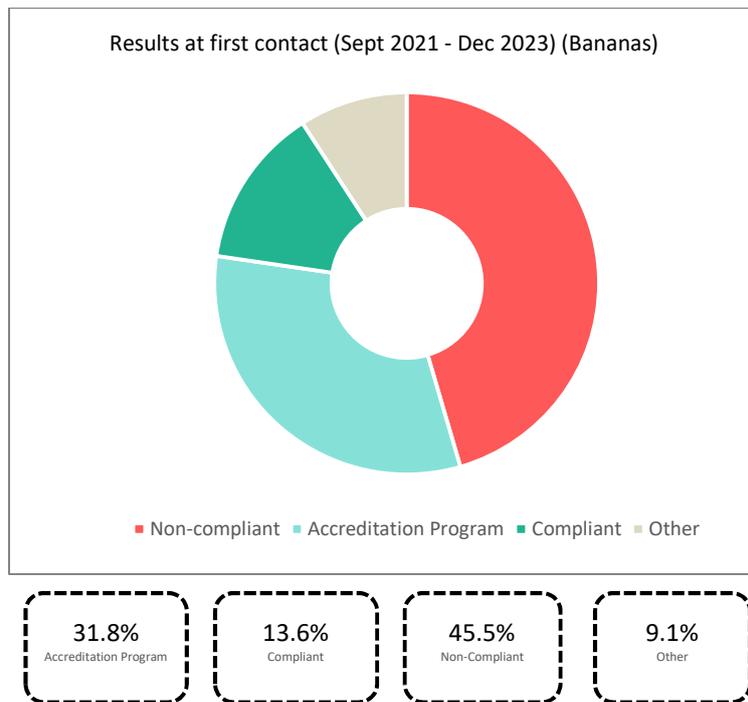
Bananas

Between September 2021 and December 2023, the Compliance Program inspected 66 banana growers in the Wet Tropics region. This covers approximately 25% (8,814 hectares) of the commercial banana growing area in Reef catchments.

As shown in **Figure 5**, approximately 45.4% of banana farms were either compliant or certified under the Freshcare Environmental Program – Reef Assured at the initial visit. Approximately 45.5% of banana farms were not compliant at the initial visit. The results of the remaining 9.1% of inspections were under assessment at the time of reporting.

Six follow-up visits have also been undertaken at banana farms as at the end of the December 2023. These results are not presented due to the statistically low number of follow-up visits to date.

Figure 5 – Compliance outcomes from first inspections of banana farms between September 2021 and December 2023



Legend

- Accreditation Program – the grower is accredited through the Freshcare Environmental Program – Reef Assured, which requires farm practices to meet the regulated requirements
- Compliant – no non-compliance was identified at the time of the inspection
- Non-compliant – the grower did not meet the regulated requirements at the time of the inspection
- Other – the inspection outcome is under assessment at the time of reporting

Grazing

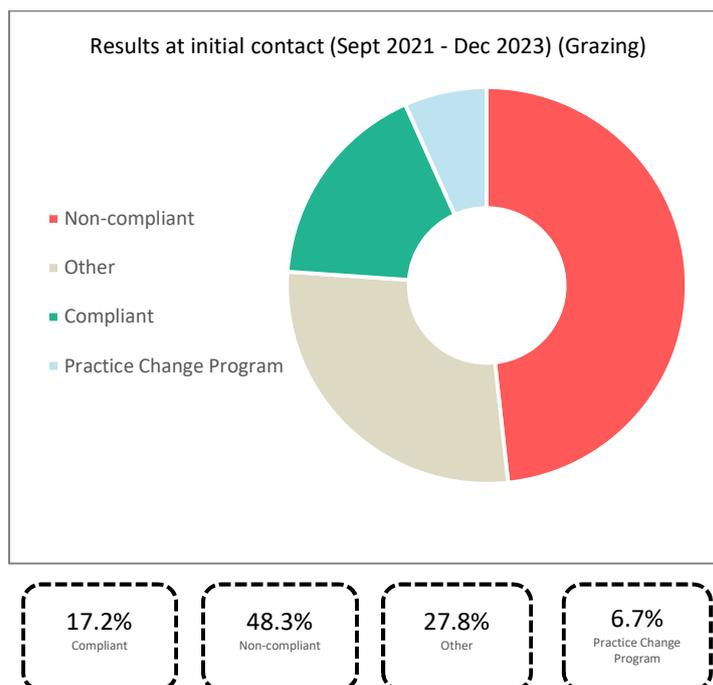
Between September 2021 and December 2023, the Compliance Program inspected 184 graziers with a further 14 assessments of engagement in a practice change project. This is approximately 2.3% of the estimated 8495 commercial beef cattle graziers in the regulated Reef catchments (other than Cape York) as of 31 December 2023. Accurate data on the total area of land under commercial beef cattle production is not available for Reef catchments, therefore the percentage inspected to date cannot be determined.

As shown in **Figure 6**, the visits found that approximately 48.3% of commercial beef cattle grazing activities are failing to meet the regulated standards. Of the approximately 48.3%, all were non-compliant with record keeping obligations. However, most have taken or are taking action to maintain or improve ground cover across the property/s. This demonstrates, in most cases, a willingness and ability to comply with the Reef regulations once properly informed.

Approximately 17.2% of inspections identified no contraventions of the regulated standards, with a further 6.7% of graziers actively engaged in a practice change program when contacted. In most cases where no contraventions were identified, graziers were taking action and making records without knowledge or understanding of the requirements under the Agricultural ERA standards. This highlights the need for increased communication and support of industry associations to effectively inform the industry. No follow up visits have been undertaken of these farms so far.

A further 27.8% of inspections were still under assessment at the time of reporting.

Figure 6 – Compliance outcomes from first inspections of beef cattle grazing activities between September 2021 and December 2023



Legend

- Compliant – no non-compliance was identified at the time of the inspection
- Non-compliant – the grazier did not meet the regulated requirements at the time of the inspection
- Other – the inspection outcome is under assessment at the time of reporting
- Practice Change Program – the grazier is currently improving their practices to meet the regulated requirements by participating in an acknowledged practice change program

Enforcement actions

The results from the follow-up visits for sugarcane indicate that the use of lower-level enforcement measures, including informing producers of the requirements and encouraging voluntary compliance, is effective in increasing compliance with the regulated standards under the Reef regulations. Where there is continued non-compliance, the department escalates its compliance response. From commencement of the Reef regulations on 1 December 2019 through to 30 June 2023, the department has issued more than 50 warning letters to producers for contraventions of the Reef regulations (see **Table 1**).

Table 1 Number of warning letters issued in each region from commencement of the Reef regulations on 1 December 2019 to 31 December 2023

Region	1/07/2023 to 31/12/2023	1/07/2022 to 30/06/2023	1/07/2021 to 30/06/2022	1/07/2020 to 30/06/2021	1/12/2019 to 30/06/2020
Wet Tropics	2	16	13	6	5
Burdekin	0	1	1	1	4
Mackay Whitsunday	0	1	0	0	1
Fitzroy	0	0	1	0	0

Since the commencement of the amended Reef regulations on 1 December 2019 to 31 December 2023, the department has issued the following escalated enforcement actions:

- Two direction notices under the EP Act related to agricultural ERA activities in the Burnett Mary region for prescribed water contaminants being unlawfully deposited in waters.
- Two statutory notices to sugarcane growers in the Wet Tropics region requesting the provision of records and information required under the agricultural ERA standard for sugarcane producers.
- Four penalty infringement notices to sugarcane growers for contravention of the agricultural ERA Standard for sugarcane producers; three in the Wet Tropics region and one in the Mackay Whitsunday region.

The department has not undertaken compliance visits with any producers who are accredited under a recognised program. Some properties have been visited following a community report which raised concerns of potential

environmental harm or environmental nuisance.

4.2 Practice change programs and projects

There has been strong industry engagement from sugarcane and banana growers and graziers, in voluntary practice change projects and industry-led BMP programs delivered under the QRWQP. This has led to improved on-ground farm practices and more producers operating at the regulated standards or above.

This section highlights some of the key findings with additional supporting information provided in [Appendix A](#). Extension services provided by the Department of Agriculture and Fisheries (DAF) further support growers and graziers to meet and exceed the regulated standards by adopting more sustainable and profitable business and farming practices in Reef catchments.

Sugarcane

Smartcane BMP

- As of June 2023:
 - 331,163 hectares were benchmarked against the Smartcane BMP industry standards that align with the regulated standards
 - 712 businesses operating over 157,739 hectares were accredited, which represents 41% of the industry by cane land area.
- Smartcane BMP has reported a 98% retention rate (against a target of 95%) of accredited businesses over the life of the program, which may be in part due to continued roll-out of the Compliance Program.
- Land area accredited under Smartcane BMP continues to increase over time (average annual increase of 5.28% between 2016-2023), largely in response to continued compliance activity and commencement of the Reef regulations in previously unregulated regions.

Complete nutrient management planning projects

- Nearly 700 farms covering almost 70,000 hectares have been involved in complete nutrient management planning projects, reducing on-farm nitrogen application by nearly 900 tonnes.
- Importantly, social surveys of many of the growers involved in these projects indicated that growers were motivated by external factors as follows, to comply with the Reef regulations (before: 73%, after: 74%), to increase profitability (before: 54%, after: 52%) and to increase production (before: 32%, after: 35%).

Sugarcane extension

- Between July 2019 and March 2022, the DAF sugarcane extension team undertook engagement activities with 3,298 growers, including 615 one-on-one activities.

Bananas

- At the end of Phase 2 (December 2022) of the Banana BMP program, 150 farms had benchmarked their practices using the **Banana BMP**, which represents 87% (over 9,836 hectares) of production area under bananas in the Reef catchments.
- As at September 2023, 63 growers operating over 9,200 hectares (approximately 80% of the banana industry in Wet Tropics) were reported as certified under **Freshcare Environmental Program – Reef Assured**. This allows the department's Compliance Program to focus on growers not certified through the program.

Grazing

GRASS

- GRASS is an acknowledged practice change project as it aligns with the regulated standards or above. Graziers actively involved in a GRASS project are considered lower priority for compliance inspections as they are recognised as taking efforts to improve on farm management in line with the Reef regulations.
- During GRASS Phase 1 (September 2019 - December 2022):
 - 449 Action Plans (against a target of 374) were delivered, which covered 2.92 million hectares of grazing land to guide improved management of 720,890 hectares of poor and degraded land.
 - 150 graziers undertook incentive projects including 40 gully remediations, 42 riparian fences, 52 watering point projects, and 16 other projects improved ground cover and land management.

Grazing extension

- Between 2019 and 2022 the DAF grazing extension team engaged with 6,522 graziers, including 1,391 one-on-one activities.
- Preliminary results from the final evaluation survey for the 2017-2022 project period indicate that 94% of respondents have considered doing new or different management on their property after attending DAF extension activities. So far 87% of respondents so far have decided to start or have completed some new or different management on their property. A final report on DAF grazing extension for this period will be available at the end of June 2024.

Other QRWQP projects and tools for graziers

Other projects and tools implemented to support graziers improve farm practices to better align with the regulatory requirements include the Grassroots project, the Forage budgeting service, and the development and availability of FORAGE reports offered through the Queensland Government's Long Paddock website. [Appendix A](#) contains further information about grazer engagement with these projects and tools.

4.3 Motivations for practice change

The Queensland and Australian governments have used voluntary surveys to monitor producers' perceptions of practices within Reef water quality practice change projects since mid-2019. This monitoring, which is part of the Paddock to Reef program, was designed to better understand why change is or is not happening, and to provide insight into how practice change can be accelerated to achieve Reef water quality outcomes.

Additionally, a social monitoring benchmarking survey project was conducted in 2023. This survey is further referred to in [section 5.5](#).

Sugarcane

Data from 2019/2020 for sugarcane growers engaged in practice change projects, complying with the Reef regulations was one of the main motivations for implementing a particular farming practice (Before: 67%, After: 67%), followed by increasing profitability (Before: 65%, After: 62%) and to increase production (Before: 35%, After: 36%).

This result was not replicated in the 2023 social monitoring benchmarking survey, which surveyed producers who have not been engaged in voluntary practice change projects as well as those that have. This survey found that financial reasons (65%) was the most frequently cited driver for using improved nutrient management practices by sugarcane growers. Regulation (35%) was the second most frequently cited driver alongside improving productivity (35%) and improving soil health (35%). Complying with the Reef regulations was not among the top drivers identified for irrigation management practices (20%) and soil management practices (17%).

These findings indicate that the Reef regulations have been a key motivator for some sugarcane farmers to implement improved farming practices that reduce sediment, nutrients and pesticides being lost to local waterways. It is unclear whether the reduction (67% to 35%) in regulations as a motivator for practice change from the 2019/2020 data set to the 2023 data set shows a trend in the regulatory driver reducing over time, or was simply due to the views of the different group of growers surveyed in 2023.

Banana

The sample size of banana growers that participated in the social monitoring surveys was not representative and could not be used to draw conclusions around the motivations of growers to participate in practice change.

Grazing

During 2019-2020, for graziers engaged in practice change projects that completed the social monitoring survey question complying with the Reef regulations was not one of their main reasons for implementing a particular farming practice (Before: 9%, After: 4%). The two most frequently selected reasons chosen by graziers were to benefit the environment (Before: 71%, After: 55%) and increased production (Before: 59%, After: 54%).

The 2023 social monitoring benchmark survey reflects these results as regulation compliance was a driver for only 5% of graziers to implement soil management practices, compared to improving soil health (61%), improving productivity (48%) and for the environment (35%).

These findings indicate that for graziers, the Reef regulations have not been a key motivator to engage in practice change to implement improved farming practices.

4.4 Stakeholder perceptions

Most of the producers interviewed as part of the stakeholder consultation agreed that there had been practice change because of the Reef regulations. This was the case mostly where producers had been operating below the regulated standards. Where producers were already undertaking practices consistent with, or better than, the requirements, they generally felt there was little or no practice change. This included where producers had adopted existing voluntary BMP frameworks, such as Smartcane BMP and the Banana BMP.

This is consistent with what was expected from the Reef regulations given that the minimum standards mirror practices already accepted by the agricultural industry as best management practice and some farmers were using these practices prior to the Reef regulations commencing. Instead, the Reef regulations were intended to eliminate the use of other high-risk farming practices that are more likely to contribute excess nutrient and sediment run-off into the Reef catchments.

The stakeholder consultation also found that some farmers believe deliberate non-compliance with the Reef regulations is occurring due to distrust of government and dislike of being regulated (see [section 5.5](#)).

The findings from the stakeholder consultation are consistent with the findings from the Compliance Program, in that some producers have made changes, but increased compliance with the requirements is required.

4.5 Environmental authorities

ERA 13A requirement

The Decision Regulatory Impact Statement for the Reef regulations forecast that approximately six applications for an EA for ERA 13A would be received per year based on the number of high value agriculture and irrigated high value agriculture clearing approvals for new sugarcane, horticulture, grains and banana activities.

As at 31 January 2024:

- 14 EAs subject to standard conditions were current, of which seven are in the Burnett Mary region, six are in the Wet Tropics region and one is in the Mackay Whitsunday region
- Seven EAs subject to site specific conditions were current, of which five are in the Fitzroy region, one is in the Wet Tropics region and one is in the Burdekin region.

The department issued a formal warning in 2022 for an offence under section 426 of the *Environmental Protection Act 1994*, where preparatory works were undertaken for new cropping activities without the required EA.

It is hard to draw conclusions about the effectiveness of this component of the Reef regulations given proactive compliance has not yet commenced. Proactive compliance that targets sites where an EA for ERA 13A has been issued will commence in 2024.

No residual impact requirement

The purpose of the no residual impact requirement for new or expanding industrial and resource activities is to ensure water quality does not worsen because of new or expanding development. The requirements only apply where the applicant proposes impacts to the Reef catchment waters from release of fine sediment and/or dissolved inorganic nitrogen (DIN). Assessing officers consider the Great Barrier Reef River Basins end-of-basin load water quality objectives, available at https://environment.des.qld.gov.au/__data/assets/pdf_file/0023/99320/gbr-river-basins-eob-load-wqos.pdf, in their assessment. They also consider the water quality objectives and local environmental values listed under the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*.

As of 31 December 2023, there were four environmental authorities that had been issued subject to conditions requiring a no residual impact and/or the provision of a water quality offset. Three of these were for aquaculture facilities and one was for battery storage.

The limited number of applications may be indicative of the short period of time this requirement has been in place. Further, a condition or offset requirement would not have been triggered for applications where they could already meet the no residual impact requirement.

Department officers are aware of some stakeholders, such as local government, who are considering how to apply the requirements to future projects and expansions e.g., for sewage treatment plants. In addition, the Queensland Government is supporting development of aquaculture in Queensland so further aquaculture development could see an increase in the number of EA applications that may trigger the no residual impact requirement.

Without the no residual impact requirement, the environmental authorities may have resulted in increased loads of fine sediment and DIN entering waters of the Great Barrier Reef. There may also be other benefits; for example, the stakeholder consultation (page 32) included:

One stakeholder within the NNRI (no net residual impact) group noted that the Reef regulations had driven increased focus on the management of erosion and sediment control in the mining sector, giving rise to new research, improved identification of gaps in these plans, and collection of more data. The stakeholder noted that while they may have already been compliant, the knowledge that these conditions would be scrutinised by the [g]overnment led to increased focus and development.

5 Factors affecting implementation

Section 5 outlines stakeholder perceptions of, and experiences with, the Reef regulations alongside issues or barriers experienced by the regulated community when implementing the Reef regulations. This section is largely informed by stakeholder consultation interviews, as well as feedback received directly by the department. As outlined in [section 3.2](#), there are some limitations to the review, including that the number of interviews undertaken with stakeholders is not large enough to be statistically representative of the regulated community.

5.1 Awareness of the requirements

A range of approaches were used to consult with and inform the regulated community about the Reef regulations prior to and after their commencement (see [Appendix A](#)). The stakeholder consultation found that some respondents reflected positivity about government engagement leading up to the Reef regulations and thought the effort to notify the regulated community was effective. However, others believe the notification was not sufficient and the communications used by government may not have reached isolated or disengaged producers who may still be unaware of the Reef regulations.

The department's efforts to reach the regulated community were constrained by not having direct access to the contact details of landholders who are undertaking agricultural ERAs. The department does not have this information for two reasons. Firstly, producers undertaking agricultural ERAs are not required to be registered suitable operators under the EP Act or register their operation with the department. This approach was taken to reduce regulatory burden for producers and is unlike other entities undertaking regulated ERAs. Secondly, due to the operation of the *Information Privacy Act 2009*, the department is unable to use existing government information to source contact details for making direct contact with the regulated community.

5.2 Understanding and ease of implementation

The stakeholder consultation yielded mixed results about the regulated community's understanding of, and experiences with, implementing the Reef regulations. Some respondents, particularly producers who were already voluntarily undertaking practice changes, felt that the requirements are simple, clear, and achievable. On the other hand, a range of respondents perceived the requirements to be complex and difficult to understand and apply in practice for a range of reasons, including:

- they found the language and concepts to be unclear, vague or contradictory e.g., the defined terms about adequate cover in the banana and sugarcane standards are not clear
- concern that the spatial data available for soils cannot always be relied on to inform fertiliser budgets due to inadequate resolution and inaccuracies
- confusion relating to interpreting requirements e.g., in relation to how to adequately prepare, implement and amend farm fertiliser budgets and how to report and budget across multi-year harvest or multi-within-year harvests (banana farmers)
- uncertainty about how to apply the Reef regulations in different business models e.g., mixed enterprises and multi-cropping situations
- the requirements are seen to be contradictory to other legislative requirements, such as weed management under the *Biosecurity Act 2014* which is enforced by local government, and existing industry practices (although no detail or examples was provided to further explain the latter issue).

The regulated standards and the standard conditions for ERA 13A⁵ were designed to be outcomes-focused to allow the regulated community flexibility when applying the requirements to their individual farm needs. However, a common reason raised during stakeholder consultation about why the Reef regulations are difficult to apply was that the requirements are perceived to be too inflexible. It is believed that the requirements do not allow for variations in farm conditions e.g., topography, climate, hydrology, irrigation, soil type, operation size, farm layout and product type⁶. In contrast, others thought the requirements should be more prescriptive and increased flexibility around the nutrient and phosphorus budgets was seen to be a good outcome from the government working collaboratively with stakeholders on the design of the Reef regulations. This was also found to be the case with the consultation on the ERA 13A requirement.

The stakeholder consultation indicates that some banana producers believe the banana regulated standards are based on guidance and information from the sugarcane industry and may not be as appropriate to bananas. The reasons for this are not clear from the information provided in the stakeholder consultation report, particularly given that the banana regulated standards were designed specifically with the banana industry (including the use of industry-specific terms and practices). Similarly, the sugarcane regulated standards were designed with the sugarcane industry and based on industry-specific terms and practices, including elements of the Six Easy Steps nutrient program.

The stakeholder consultation found that several respondents, including producers and agricultural advisers, felt the requirements for producers kept changing. However, only small updates have been made to the regulated standards in March 2022 to make them easier to understand. The updates were made following feedback from producers, as well as industry and public consultation, and included:

- clarifying certain terms and requirements
- removing record keeping requirements already regulated under the *Chemical Usage (Agricultural and Veterinary) Control Act 1988*
- for sugarcane cultivation, clarifying that Smartcane BMP accredited growers can develop, update or verify their own farm nitrogen and phosphorus budget.

More significant changes to the regulated standards have not been made as the former Minister committed to leave the requirements largely unchanged for the first five years to provide confidence to industry. A statutory review of the regulated standards will commence in late 2024 and will provide an opportunity to explore any more detailed changes that may be required to make the requirements easier to understand and implement.

5.3 Support to understand and comply

The department actively supported the introduction and ongoing implementation of the Reef regulations through a range of voluntary projects and programs that help producers comply with, and go beyond, the regulated standards. Projects and programs implemented are outlined in [Appendix A](#) and the outcomes referenced in [section 4.2](#). Also, the regulated standards were rolled out gradually based on the water quality priorities for each region and to allow industry time to comply (see [Figure 1](#)).

The results of the stakeholder consultation process reiterated the importance of the regulated community having access to reliable support and information programs to help them interpret and apply the Reef regulations. This includes having access to clear, concise information and guidance on how to comply, responses to frequently asked questions, funding programs that support compliance and innovation, well-informed local agronomists and fertiliser resellers, and compliance staff with local and where possible, commodity-specific knowledge.

However, when trying to access support to understand and comply with the Reef regulations, some respondents encountered challenges with:

- understanding the information provided in briefing sessions and information sheets
- accessing industry-led information on best management practices (grazing)
- accessing timely advice from departmental officers to clarify the requirements or about how to comply
- understanding their responsibilities in relation to compliance visits, particularly in relation to how to prepare for visits and what to expect.

⁵ The standard conditions for ERA 13A are contained within the Environmentally relevant activity standard Commercial cropping and horticulture in the Great Barrier Reef catchment (prescribed ERA 13A) – Version 1. They apply where: the commercial cropping and horticulture will be undertaken on no more than 100 hectares of land in a particular river basin; or the commercial cropping and horticulture is banana cultivation that is being relocated due to the presence of Panama disease tropical race 4 on other land for which a Notice has been given under the *Biosecurity Act 2014* (Qld).

⁶ EY did not identify whether this feedback applies specifically to the regulated standards or ERA 13A.

The stakeholder consultation highlighted concern over the limited availability of expertise and support from agronomists, advisers and other trusted local organisations. The consultation also highlighted that due to the perceived politicisation of, and mistrust in, the Reef regulations and government (see [section 5.5](#)), some may lose trust in these local experts or trusted organisations if they are seen to be supporting implementation of the Reef regulations.

In relation to funding to support the Reef regulations, some producers found the level of support to be adequate. Others, especially sugarcane growers and graziers, perceived the allocation of government funding not to be fair or equal across regions and commodities, and that it was not reaching the areas or producers where it would have the most impact. The stakeholder consultation noted this perception tended to undermine grower confidence in the Reef regulations and discourage participation.

5.4 Time and resources to implement and comply

The Decision Regulatory Impact Statement for Broadening and enhancing Reef protection regulations, available at https://www.qld.gov.au/__data/assets/pdf_file/0028/94636/broadening-enhancing-reef-protection-decision-ris.pdf, was released in February 2019. It sets out the costs and benefits that were estimated to arise as a result of the regulatory package, including the regulated standards. Feedback from both regulated and non-regulated stakeholders during the stakeholder consultation suggested that new time and cost requirements were realised due to record keeping, seeking advice on how to comply, accessing soil and leaf testing, and upgrading to new equipment. Of the regulated community, this feedback came predominantly from sugarcane and banana growers. Conversely, some stakeholders found the requirements straight-forward to comply with and requiring little, if any, additional effort.

Record keeping

In relation to record keeping requirements, producers across all commodities and agricultural advisers found them challenging and a time burden to adhere to, noting the requirements did not easily incorporate with existing farm records and were not necessarily used for any other farm management outside proving compliance. Some stakeholders, including advisers, noted that fulfilling the record keeping requirements took them away from primary on-ground duties or extended their workday. While the Reef regulations do not prescribe a format that records must be kept in, some feedback noted that producers with poor literacy, numeracy or technological skills may find the record keeping and nutrient and phosphorus budget calculations especially difficult to adhere to. It was suggested the impacts of this may fall disproportionately on smaller or more isolated producers that lack access to support.

Cost of advice

Stakeholder consultation reflected a perceived need for the regulated community to have access to agricultural advisers to better understand and apply the new requirements. Several stakeholders noted this additional expense was not always considered a beneficial investment and that they would prefer to utilise professional advice for broader farm matters, such as water, soil or disease management. Other feedback suggested that some producers may not be able to afford professional advice even when they recognised a need for it.

Other costs

Conflicting anecdotal feedback was received in the stakeholder consultation over whether the Reef regulations had any impact on productivity and yield, particularly in relation to the nutrient requirements. While it was a recurring sentiment among banana and sugarcane producers that yield was expected to decrease, examples were cited in the Tully area where strong yields were recorded despite a reduction in fertiliser. In other feedback, producers expressed concerns that perverse outcomes could occur, such as producers increasing the amount of land being farmed to maintain outputs, if similar results weren't achieved across regions and commodities. Others were concerned that land expansion restrictions could impact business viability, reducing the size of the industry. This latter feedback did not define what was meant by 'land expansion restrictions' and it is unclear if this is a reference to the ERA 13A requirement or something else external to the Reef regulations.

Unknown financial impacts were generally expressed as an area of concern as many producers are already vulnerable to increases in input costs.

Social impacts

Some producers reflected on impacts to mental health as a result of the Reef regulations. For example, some producers reported experiencing stress and fear from the unknown of compliance visits and if they were found to be non-compliant. One adviser suggested some stress may come from producers not knowing what to expect from compliance visits and any resulting compliance action and may lead to them fearing they could receive massive fines or be jailed. Other producers felt distress from the language used in the compliance letters and while waiting for follow-up visits from compliance officers. Other feedback related to the combination of the Reef regulations with general media relating to the impact of agricultural practices on Reef health, leading producers to feel vilified as if they were 'environmental vandals'.

Some respondents, including producers, believed that the Reef regulations acted as a catalyst for increasing conversations and action toward more progressive and sustainable practices that generated clear benefits for fertiliser and water efficiencies and in turn, greater business resilience. Feedback suggested the Reef regulations generated a greater consciousness of the impacts of nutrients on the environment and the Reef and the need for improved holistic nutrient management practices, increased willingness in engaging with technology relating to precision nutrient applications and an increased enthusiasm for knowledge sharing and capacity building.

5.5 Scepticism, mistrust, resistance and fairness

Consistent with sentiments expressed in past public consultation, the stakeholder consultation found there is still some scepticism around the need for the Reef regulations, mistrust in both the science and government, and a general resistance to being regulated. These factors can have an impact on the effectiveness of the Reef regulations as they may contribute to a reluctance to comply, or pushback from producers, leading to slower adoption. Some respondents suggested these sentiments were heightened by non-government organisations sharing misinformation and politicalising the Reef regulations.

Science and need for regulations

Although the consideration of the science underpinning the Reef regulations was out of scope for this review, it was raised during stakeholder consultation. Some respondents expressed scepticism about the science and data underpinning the Reef regulations and the relationship between practice change and water quality, or whether the Reef was at risk at all, leading to doubt about the need for the Reef regulations. There is the perception that there is a lack of data or evidence to demonstrate that the practice changes required by the Reef regulations will improve water quality or are needed in the first place.

Feedback provided by some respondents suggest the messaging about the purpose and rationale of the Reef regulations, including the need to protect the Reef, may not resonate with producers to motivate practice change, especially for producers that are disconnected from the Reef either via distance or indifference. Some respondents suggested the need for the Reef regulations could be better communicated to improve adoption for some producers, specifically improving communication and education around the link between on-farm practices and Reef water quality and around the modelling, mapping and measurement of load data.

The findings from the stakeholder consultation are consistent with the social monitoring benchmarking survey, which found that:

- 32% of respondents agreed that the government's regulations for protecting the Reef's water quality were based on at least some evidence (some evidence 27%, strong evidence 5%). 47% felt the evidence was weak or non-existent (40% weak, 7% no evidence). 4% were unsure or declined to answer.
- Sugarcane (61%) and grain (57%) producers were the commodity segments most likely to consider that regulations were based on weak evidence.
- Younger producers (born in 1971 or later 39%) appeared less likely than their older counterparts (1961-1970 50%, 1960 or earlier 47%) to rate the evidence as weak.

Mistrust and resistance

Stakeholder feedback, particularly from sugarcane producers, suggested that mistrust in government may present as a barrier to compliance and may be further fuelled by disbelief in the underpinning rationale for the Reef regulations. Other respondents expressed feelings of fear and mistrust in government that they might share producer's confidential data, particularly relating to fertiliser use, with other agencies to prove non-compliance with other regulations or be used to increase regulations.

Perception of fairness

The concept of fairness and transparency in regulation across other land uses was raised during consultation. Some stakeholders expressed concern that the Reef regulations were not proportionate when compared with the risk generated from other land use sectors or noted compliance effort for the Reef regulations felt disproportionately higher in comparison. This kind of feedback was expressed from both industry and agriculture, with both suggesting that their industry should not be regulated.

5.6 Compliance approach

[Section 2.2](#) of this report outlines the department's strategy for compliance and enforcement of the Reef regulations and sets out the department's approach for prioritising and inspecting properties operating under the Reef regulations. During consultation, respondents provided feedback about the compliance strategy, specifically relating to perceived gaps in prioritisation, engagement and tools used to inform compliance.

Some respondents felt that compliance failed to adequately identify or prioritise producers requiring the greatest improvement, which has led to frustration amongst compliant producers and the sense that their compliant actions would have little impact.

Some respondents felt that the compliance approach was too black and white, and treated minor non-compliances similarly to major breaches that had significant water quality impacts. In relation to this, a non-regulated respondent commented that they felt that the degree of precision compliance officers seek is not possible on the ground and suggested a more holistic whole-of-farm approach.

Some respondents, in particular banana and sugarcane producers felt that their practices (and constraints) are not well understood by the department and compliance officers, and as a result feel they must justify and explain their operations. It was suggested this has resulted in losing confidence in the process and regulations.

It was also noted by some respondents, including producers and agricultural advisers, that while they believed the compliance inspection experience was reasonable, they felt unprepared and alarmed by the harsh and accusatory legal language used in the follow-up non-compliance letters which undermined existing relations with compliance officers. One agricultural adviser noted that the mutual understanding and relationship that was built between growers and compliance officers was lost in the change of hands to the personnel managing compliance communications.

As well as receiving feedback directly from growers and producers who have been inspected, the Compliance Program engages with industry associations to receive ongoing feedback about the experience that their members have of the inspection process. As a result of this feedback, changes have been made to the Compliance Program. These include:

- Clearer explanation to those being inspected that they have been selected as the agricultural activity they are undertaking falls within an area which is high risk to water quality, rather than their particular property being identified as being high risk.
- Clearer explanation to those being inspected that compliance officers are there to assess compliance with the agricultural ERA standards and not to provide agronomic advice or extension services. While compliance officers need to have sufficient knowledge of agricultural practice to effectively communicate with growers and producers, their primary capabilities are in compliance monitoring and enforcement, and understanding of the legal requirements as applied to the agriculture industry.
- The Compliance Program is now a standalone team within Environmental Services and Regulation division within the department with a specific focus on agricultural ERA standards. Staff are recruited and trained so that they have a high appreciation of the agriculture industry and agriculture practices.
- Specific processes, approaches and communications for compliance monitoring and enforcement have been developed which are cognisant of the culture and make-up of the agriculture industry.

Given these changes, it is possible that the sentiment about compliance officers may reflect experiences from earlier in the Compliance Program rather than the approach currently taken.

5.7 Factors specific to the ERA 13A requirement

The ERA 13A requirement commenced on 1 June 2021 and sets out conditions for new farm design to limit sediment and nutrients being lost off-farm and ending up in the Reef. The department engaged in public consultation sessions from 1 December 2020 to June 2021 aimed at informing development of the ERA standard and to raise awareness of the requirement and how to comply. The department also conducted follow-up online sessions prior to commencement of the ERA 13A requirement to help producers understand and apply the new requirement and ask questions specific to their circumstances.

Understanding requirements

In stakeholder consultation some respondents provided feedback that the ERA 13A requirement lacks clarity in terms of when and how it applies and what steps are required to comply. For example, some producers were unclear about when an EA was required and how to apply the requirements, such as erosion control measures where land featured challenging topography or land features. Some respondents, such as graziers suggested the additional regulatory layer was perceived as a deterrent when considering expanding to incorporate sustainable cropping practices like mixed species, low tillage, or opportunistic expansion. Some producers provided feedback that there is some confusion about what is included under the definition of 'preparatory work' for crop cultivation which may be affecting compliance.

To support producers to understand and apply the ERA 13A requirements, the department prepared and published a guideline and responses to frequently asked questions. Producers are also encouraged to access the free pre-lodgement advice service from the department prior to submitting an application.

Interactions with other legislation

Feedback suggests producers experience confusion in relation to the interaction between the ERA 13A requirement and other regulatory requirements such as those relating to changes in land use and vegetation clearing with different instructions and information provided by different authorities at times.

ERA 13A is in effect regulating land use but is decoupled from the development assessment process, including vegetation clearing requirements and the department is not a concurrence agency under the *Planning Act 2016* for this requirement. At least one situation has arisen where a farm cleared Category X vegetation under a Property Map of Assessable Vegetation (which, on its own, is an activity exempt from the need for a clearing permit). The clearing was for the purpose of establishing cropping, but they were unaware of the need to have an EA for new cropping and horticulture prior to commencing this preparatory work.

Fodder cropping

The ERA 13A requirement applies to commercial crops. Fodder that is sold off site fits under the definition of a commercial activity for ERA 13A. A person who starts fodder cropping on land without a cropping history to feed their own cattle but later sells excess fodder offsite is required to have an EA for ERA 13A. The EA is required before any cropping or preparatory work commences, so if they have not obtained one before commencing the fodder cropping, they are not compliant with the requirements. This is seen by some as being unfair given the requirements do not apply to new fodder cropping that is not sold offsite (i.e. used to feed their own cattle).

5.8 Factors specific to the no residual impact requirement

Stakeholder consultation and feedback provided directly to the department suggests industry experiences challenges or uncertainties when applying the 'no residual impact' requirements, including:

- Challenges when applying the Guideline – Reef discharge standards for industrial activities (available at https://www.des.qld.gov.au/policies?a=272936:policy_registry/era-gl-reef-discharge-standards-industrial-activities.pdf) and determining what is meant by 'reasonable' in some cases and how this is assessed by the department.
- Seemingly differing requirements between the Reef regulations and existing industry standards/practices creating confusion and non-compliance.
- Barriers or challenges with understanding and applying water quality offsets as may be necessitated by the no residual impact requirement. Some respondents to the stakeholder consultation suggested that the current Point Source Water Quality Offset Policy (2019) can be unclear and difficult to consistently apply.

The department is commencing a review of the Point Source Water Quality Offset Policy (2019) (available at https://environment.des.qld.gov.au/__data/assets/pdf_file/0033/97845/point-source-wq-offsets-policy-2019.pdf) in 2024 and will factor in stakeholder feedback from this review process, with the aim to provide greater clarity for applying water quality offsets.

5.9 Program recognition

Freshcare and the department have identified the need to amend the program recognition for Freshcare Environmental Program – Reef Assured to make it clear to growers what the differences are between Freshcare Environmental and Reef Assured standards.

Discussions with industry have also highlighted gaps in understanding between peak bodies, programs and auditors regarding the approaches used by the Compliance Program and the practices audited under industry programs. There is an opportunity for peak bodies, programs and auditors to share information and guidance on lessons learnt to better align the approaches used by recognised accreditation programs to the approaches used by the department's Compliance Program.

6 Key findings and opportunities

The information presented in [section 4](#) indicates that there is a range of evidence that shows practice change has occurred because of the Reef regulations and the support programs in place to assist producers. However, as discussed in [section 5](#), there are a range of factors that may be impacting how effectively the regulated community is implementing the requirements. The following opportunities have been identified to address these factors, which fall into two main areas of focus:

Enhance communication, engagement and evaluation:

1. Continue to improve the efficiency and effectiveness of the compliance program, including developing Compliance Officer capability and commencing proactive compliance for ERA 13A.
2. Increase direct engagement with industry groups, extension officers, advisors and agronomists to ensure they remain informed about the programs and tools available to support producers to comply.
3. Strengthen efforts to increase reach and understanding within the regulated community.
4. Develop a Reef regulations monitoring and evaluation plan to increase understanding and improve the effectiveness of the regulations.

Assist the regulated community to comply and go beyond regulated standards:

5. Support research that directly informs the evidence basis for offset policies and guidance and a process of regular review to reflect findings and ensure continuous improvement.
6. Enhance the delivery of programs under the QRWQP that support producers to comply with and go beyond the regulated standards, including processes to recognise engaged producers as a lower priority for compliance inspections.
7. Facilitate opportunities for peak bodies, program managers, and auditors to engage with each other and government about recognised programs to foster learnings and improve alignment with regulatory requirements.

Key findings are summarised below, including opportunities to improve implementation of the Reef regulations.

6.1 Regulated standards

Findings	Implications / impact	Opportunity
Evidence of practice change		
<p>Compliance:</p> <ul style="list-style-type: none"> • Non-compliance with the sugarcane regulatory standards at initial contact has decreased from 56% prior to 1 December 2019 to 43% between 1 December 2019 and 31 December 2023 • Non-compliance with the sugarcane regulatory standards at revisit has decreased from 36% prior to 1 December 2019 to 29% between 1 December 2019 and 31 December 2023 • 45% of banana farms were either compliant or certified under the Freshcare Environmental program – Reef Assured at the initial visit. • 48% of commercial beef cattle grazing activities are compliant with the regulated standards 	<p>The range of enforcement measures employed to address non-compliance, including the lower-level measures of the Compliance Strategy (such as informing and enabling), results in practice change with increased levels of compliance.</p> <p>Ongoing compliance monitoring is required, as well as escalated enforcement measures where compliance is not fully achieved or sustained.</p>	1
<p>Practice change programs, projects and tools:</p> <ul style="list-style-type: none"> • There has been strong adoption of improved practices for sugarcane and banana growers and graziers as a result of producers participating in QRWQP funded practice change programs and projects that help growers to comply with, and go beyond, the regulated standards. 	<p>Practice change projects and programs are valuable to support compliance with the Reef regulations.</p> <p>An increase in producers engaging with tools, such as FORAGE reports, supports and enables producers to improve their practices.</p>	2 and 6

Findings	Implications / impact	Opportunity
<ul style="list-style-type: none"> Social monitoring shows that complying with the Reef regulations is a motivator for sugarcane growers involved in practice change projects to implement improved practices. 		
<p>Recognised accreditation programs and acknowledged projects, including Smartcane BMP, Banana BMP and GRASS:</p> <ul style="list-style-type: none"> These programs are successful at engaging growers as they provide an alternative industry supported pathway to improve farm practices and meet the Reef regulations. Smartcane BMP and Freshcare Environmental (ENV3) Reef Assured programs have aligned practices against the regulated standards, resulting in program recognition under the EP Act and recognition of BMP accredited producers. 	<p>Recognised programs and acknowledged projects are an important part of the suite of tools that provide support for producers. They reward producers for participating in practice improvement programs and implementing practices at or above the regulated standards, including by listing them as a lower priority for compliance inspections under the Compliance Strategy.</p>	2, 6 and 7
<p>Stakeholder perceptions:</p> <ul style="list-style-type: none"> Most of the producers interviewed as part of the stakeholder consultation agreed that there has been practice change because of the Reef regulations, especially for those previously below the regulated standards, but less so for those already involved in practice change programs or projects. 	<p>The Reef regulations are helping to eliminate high risk practices to reduce pollutant loads by requiring all producers to at least be at a minimum level of practice.</p> <p>Practice change projects and programs are valuable to support compliance with the Reef regulations.</p>	2 and 6
Factors affecting implementation		
<p>Awareness of the requirements:</p> <ul style="list-style-type: none"> The communication and engagement approaches used may not have reached isolated or disengaged producers, who may still be unaware of the requirements. A lack of access to contact information for landholders who are undertaking an agricultural ERA has increased the resources required to plan and undertake compliance inspections and prevented the department from directly contacting all producers. 	<p>Producers who are unaware of the requirements may be less likely to have implemented practice changes to comply with the regulated standards.</p> <p>A way to reach all producers undertaking agricultural ERAs would improve implementation.</p> <p>Updating the communication strategy and enhancing education and engagement with the regulated community may improve the reach and understanding within the regulated community.</p>	1 and 3
<p>Understanding and ease of implementation:</p> <ul style="list-style-type: none"> The requirements are clear and achievable for those who have already undertaken voluntary practice change. Others find the requirements to be difficult to understand and apply. Some believe the requirements are not flexible enough to cater for differences in/ across farms. 	<p>Producers who do not understand the requirements, or find them difficult to apply, may be less likely to comply with all the requirements.</p> <p>The statutory review of the regulated standards will provide an opportunity to identify enhancements to the regulated standards. This may include updating the guidance materials and reviewing the record keeping requirements.</p> <p>Providing producers the opportunity to access support to implement the requirements is likely to improve outcomes.</p>	2, 3 and 6
<p>Support to understand and comply:</p> <ul style="list-style-type: none"> Some producers have experienced challenges with accessing and understanding support to help them comply with the requirements, including difficulties in securing and affording local professional advice. 	<p>Some producers require ongoing support to implement the requirements.</p> <p>There is a need for increased communication with producers regarding the support that is available, how it is allocated, and how it can best be accessed may improve uptake of the regulated practices.</p>	

Findings	Implications / impact	Opportunity
<ul style="list-style-type: none"> Concern over limited availability of local agronomists, advisers and organisations and concern the community will lose trust in those seen to be supporting implementation of the Reef regulations. Some producers, especially sugarcane growers and graziers, perceive the allocation of government funding to support the Reef regulations as not effective or fair. 	<p>The department should continue to engage with extension officers, advisers and agronomists to ensure they remain informed about the Reef regulations, and the programs and tools available, to support producers to comply.</p> <p>The delivery of projects and tools under the QRWQP can be enhanced to support producers maintain productivity and improve practices that comply with and go beyond the regulated standards, as part of a whole-of-farm approach.</p>	
<p>Time and resources:</p> <ul style="list-style-type: none"> Some producers, particularly those who have not undertaken voluntary practice change, have found the Reef regulations have introduced new time and monetary costs associated with record keeping, seeking advice on how to comply, accessing soil and leaf testing, and upgrading to new equipment. 	<p>The additional time and monetary costs to meet the regulated standards for some producers may be a disincentive to comply with the Reef regulations.</p> <p>Some producers require ongoing support to implement the requirements.</p> <p>Increased communication and engagement with producers regarding the support that is available and how it can be accessed may improve uptake of the regulated practices.</p>	3 and 6
<p>Social impacts:</p> <ul style="list-style-type: none"> Some producers reported experiencing stress or uncertainty about whether they are compliant with the requirements. Some producers are concerned about what the impacts of the Reef regulations might be on productivity. Some producers felt the Reef regulations acted to raise greater awareness of the impacts of nutrients and sediment on the Reef and acted as a catalyst for change to encourage conversations and effort toward more progressive and sustainable practices. 	<p>Increased communication and engagement with producers regarding the compliance process may reduce uncertainty and anxiety about the regulated practices.</p> <p>Communicating about the Reef regulations provides an opportunity to increase engagement with producers about additional practices and approaches that benefit sustainability.</p>	1 and 3
<p>Compliance approach:</p> <ul style="list-style-type: none"> There is uncertainty and stress about the compliance process amongst some stakeholders, including the language used in communications. While the compliance program takes a risk-based approach using the best available information, there is a perception among some that the compliance approach is not targeting producers that require the greatest improvement. Some believe the compliance officers do not have an appropriate level of commodity-specific knowledge in relation to practices. 	<p>Increased communication and engagement with producers regarding the compliance process may reduce uncertainty and anxiety about the regulated practices.</p> <p>Recruiting officers with a level of agricultural practice knowledge that is appropriate for assessing compliance will have benefits for the implementation of the Compliance Program.</p> <p>However, there is also a need for:</p> <ul style="list-style-type: none"> ongoing compliance monitoring escalated enforcement measures where compliance is not fully achieved or sustained increased Compliance Officer capabilities to communicate with producers about improved practices that meet their legal obligations. 	1
<p>Program recognition:</p> <ul style="list-style-type: none"> There are gaps in understanding between peak bodies, programs and auditors regarding the alignment of approaches under the Compliance Program and industry recognised programs. 	<p>Program owners can provide additional information on lessons learnt/guidance to certified bodies and auditors to maximise alignment between the approaches used by the Compliance Program and the practices audited under industry programs.</p> <p>The department supports industry developing and maintaining robust recognised accreditation programs that align with the regulated standards or above.</p>	7

6.2 ERA 13A requirement

Findings	Implications / impacts	Opportunity
Evidence of practice change		
Very few EAs are subject to site specific conditions and proactive compliance inspections are yet to commence.	The potential impacts to water quality from expansion of cropping or horticulture have likely been reduced from putting in place requirements for farm design, but it is difficult to draw conclusions at this stage about the effectiveness of this component of the Reef regulations due to the short amount of time it has been in place.	1
Factors affecting implementation		
Some producers may be unaware or lack understanding of how to apply the requirements.	Producers who are unaware of the requirements are less likely to comply with the requirements.	2, 3 and 6
The requirement to obtain an EA before starting new cropping has introduced new costs e.g., the costs to prepare and apply for an EA.	The costs were expected (as set out in the Decision RIS) and considered by the Queensland Government prior to passing the relevant legislation.	3
Some believe the requirements are not flexible enough for differences in/ across farms and therefore find they are difficult to apply.	Producers who do not understand the requirements, or find them difficult to apply, may be less likely to be complying with all the requirements. Some producers require ongoing support to implement the requirements.	2 and 6
Some stakeholders are confused about when to apply for an EA for ERA 13A and how it interacts with other regulatory requirements (e.g., relating to vegetation clearing and land use).	Producers who do not understand the requirements, or when they apply, may be less likely to be complying with all the requirements. Increased communication with producers regarding how the Reef regulations interact with other legislative requirements may improve compliance with the Reef regulations.	3

6.3 No residual impact

Findings	Implications / impacts	Opportunity
Evidence of practice change		
As of 31 December 2023, four EAs have been issued subject to conditions requiring a no residual impact and/or the provision of a water quality offset. The limited number of applications may be indicative of the short period of time this requirement has been in place and the long planning timeframes for industrial and resource development. Additionally, a condition or offset requirement would not have been triggered for applications where they could already meet the no residual impact requirement.	Industrial and resource activities have approved EAs that meet the requirement to achieve a no residual impact to Reef water quality.	5
Factors affecting implementation		
Stakeholder consultation and feedback provided directly to the department suggest industry encounters challenges with understanding and applying the no residual impact requirement, including how it interacts with existing industry standards/practices, and the Point Source Water Quality Offset Policy (2019).	Knowledge gaps mean it is difficult for proponents to understand and navigate meeting the no residual impact requirement, including determining when there is a residual impact.	5

Findings	Implications / impacts	Opportunity
The current Point Source Water Quality Offset Policy (2019) can be unclear and difficult to consistently apply.	<p>Ensuring the opportunity to mitigate and offset impacts is well understood by proponents will increase outcome certainty for industry and assessment process efficiencies for the department.</p> <p>The current research projects to improve the science underpinning the Point Source Water Quality Offsets Policy (2019) to support application of the requirement by industry need to continue.</p> <p>When the research projects are completed, guidance material should be updated with reference to the latest findings.</p>	5

6.4 General

Findings	Implications	Opportunity
Factors affecting implementation		
The modelled change in annual end of catchment loads is aggregated across all measures and it is not possible at the time of this review to segregate the impact of Reef regulations from other interventions.	<p>There is no estimate of the extent to which the Reef regulations have reduced loads of DIN and fine sediment.</p> <p>A Reef regulation monitoring and evaluation plan that improves understanding of the effectiveness of the measures in reducing loss of fine sediment and DIN will be valuable for future reviews.</p>	4
<p>There remains some scepticism about the need for the Reef regulations, mistrust in the science and the government, a resistance to being regulated and a perception of unfairness (e.g., 'other' industries have more of an impact than mine).</p> <p>This may be underpinned by limited awareness or understanding of the vast array of science, programs and projects that underpin and support the Reef regulations.</p>	<p>Scepticism may be resulting in a reluctance to comply with or slower adoption of the requirements.</p> <p>Ways to communicate the science and water quality risks to better inform sceptical stakeholders is needed.</p>	3

List of appendices

Appendix A – Supporting information - QRWQP communication actions, investment and programs to support the introduction and implementation of the Reef regulations

Appendix B – Stakeholder consultation report

Appendix C – Department response to key observations and suggestions from stakeholder consultation

Appendix A: Supporting information

QRWQP communication actions, investment and programs to support the introduction and implementation of the Reef regulations

Summary of consultation and investment

The Queensland Government's key response to addressing water quality impacts affecting the Reef is the QRWQP. This program funds a range of water quality improvement projects working with industry, agricultural producers, communities and Traditional Owners. The introduction and ongoing implementation of the Reef regulations is actively supported as part of the QRWQP.

A range of approaches were used to consult with and inform the regulated community about the requirements (see **Box 3**), including radio and print advertising, peak group newsletters, information sessions and making detailed information available online and at various agricultural events. Detailed, commodity specific information kits can also be ordered in print or email format.

Box 3: Consultation activities to engage and notify about the Reef regulations

To consult with, and help, the regulated community comply with the Reef protection regulations, the department used the following approaches:

- Release of a consultation regulatory impact statement and decision regulatory impact statement.
- Ongoing discussions with producers on the proposed regulated practice standards with over 70 consultation and technical working group meetings with stakeholders from agricultural and urban industrial sectors, conservation groups, local governments, NRM bodies and other government departments.
- Made information available through media releases, social media posts, direct mail, videos, radio and print advertising, peak group newsletters, government websites, including publishing detailed web content on the Queensland Government website at www.qld.gov.au/ReefRegulations.
- Developed and printed collateral (guides, information kits, summary factsheets, DL flyers and FAQs) which were distributed to stakeholders and made available at events and also through an online request form.
- Convened face-to-face and online information sessions and individual meetings with agricultural advisers, producers and landholders.
- Engaged peak industry groups on the Reef regulations including AgForce, Queensland Farmers Federation, Queensland Resources Council and Natural Resource Management bodies.
- Provided assistance through Queensland Government funded programs, including the Grazing Resilience and Sustainable Solutions program (GRASS), industry-led BMPs Programs, practice change programs and government extension programs.
- Made information available or presented at various events including the Rockhampton Landholder Expo, Beef 2021 in Rockhampton, AgGrow Emerald in June 2021 and Project Catalyst 2019, 2020 and 2021.

Funding under the Queensland Reef Water Quality Program (2017-2018 to 2021-2022)⁷

The introduction of the Reef regulations in 2019 was supported by an additional \$13.8 million allocated to help producers to meet the regulated standards. This consisted of:

- \$10.1 million for the Farming in Reef Catchments Rebate Scheme (the rebate scheme) aimed at supporting producers transition to the regulated standards by providing a rebate to offset the cost of obtaining professional agronomic advice
- \$3.7 million for the department's compliance program.

A further \$1 million was allocated to support banana growers undertake on-farm projects that reduce sediment and nutrient run-off to help adjust to the regulatory requirements, which was delivered through the Australian Banana Growers' Council's (ABGC) Banana BMP program.

⁷ The Queensland Reef Water Quality Program investment reports are available at <https://www.qld.gov.au/environment/coasts-waterways/reef/reef-program/investment-plans-reports-resources>.

This was additional to existing investment under the QRWQP that supported agricultural businesses to adopt improved farming practices, including:

- regulatory support, certification and practice change programs, including \$6.8 million over 3.5 years to support graziers in the Burdekin, Fitzroy and Burnett Mary through GRASS Phase 1 (see [section 4.2](#))
- \$7.9 million for the banana and sugarcane BMP programs between 2017-18 and 2021-22.

Regional practice change projects which supported improved sediment, nutrient and pesticide management practices through local suppliers and advisers. This includes:

- Six Complete Nutrient Management Planning for Cane Farming nutrient management projects in the cane industry in Burnett Mary, Burdekin, Wet Tropics and Mackay Whitsunday regions supporting improved nutrient management practice working to improve production and pollutant reduction outcomes on farm.
- The Grassroots project and forage budgeting service projects that supported graziers adopt improved grazing land management with a focus on reducing soil loss and sediment loads.

The rebate scheme was underutilised, and a review concluded that it was not achieving its objective of assisting agricultural industries in Reef catchments to transition to new regulated standards. This was for a range of reasons, including eligible advice was often routinely provided as part of a fertiliser sale through to the ineligibility of engaged farmers who had received other similar government grants. As a result, unused funding was reallocated to alternative programs that support farmers to change practices and that could demonstrate clear and measurable success under the QRWQP. This included the GRASS program, on-ground practice change programs that support adoption and regulatory transition (including Complete Nutrient Management Planning projects for Cane Farming RP161) and the Compliance and Enforcement Strategy for the Reef protection regulations.

Funding under the Queensland Reef Water Quality Program 2021-2022 to 2025-2026⁸

The government has committed \$289.6 million over five years to 2025–2026 to continue the Queensland Reef Water Quality Program which funds a range of projects working with industry, agricultural producers, communities and Traditional Owners.

Under the QRWQP 2021–2022 to 2025–2026, the Queensland Government has committed \$125.1 million to support the agricultural industry to improve water quality. Relevant projects are designed to achieve significant progress towards meeting the Reef 2050 water quality targets by ensuring maximum uptake of at least regulated standards. This work area will continue to implement the Reef regulations, including expanding and enhancing the Compliance Program.

Underpinning this work area is science that informs practice change to deliver measurable impacts on land condition, water quality and business resilience. The projects and sub-programs to be delivered under this work area include:

- practice change and on-ground programs supporting adoption of improved practice (to at least meet, and exceed, regulations)
- GRASS, BMP and incentives programs supporting improved practice and regulatory transition
- industry-specific extension programs through DAF
- agriculture water treatment and extension
- various enabling projects focused on research, science, data, tools, training and coordination.

Specifically, \$23.6 million combined has been committed to the sugarcane, banana and horticulture BMP programs, and the Grazing Resilience and Sustainable Solutions program, to help landholders identify and implement on-farm practice improvements.

As part of the QRWQP between 2021–2022 to 2025–2026, nearly \$14.7 million of investment will go towards on-ground trials and innovation to find cost effective solutions to point-source wastewater treatment and leveraging private capital for innovation. This work will support industry to meet regulatory standards for new and expanding point source environmentally relevant activities.

⁸ The full breakdown of the Queensland Reef Water Quality Program 2021-2022 to 2025-2026 can be found at <https://www.qld.gov.au/environment/coasts-waterways/reef/reef-program>.

Practice change programs and projects (supporting information for [section 4.2](#))

Sugarcane

Smartcane BMP

- Is recognised as an accredited program under the EP Act, providing sugarcane growers with a pathway for benchmarking and accreditation of practices that align with the regulated standards or above.
- As part of the benchmarking process, growers identify areas for improvement, and then once BMP standards are satisfied, can be accredited through an independent third-party audit process.
- Updated the BMP requirements in 2022 to reflect the regulated requirements and to ensure currency with the regulated standards.
- Provided evidence of industry change and adoption by establishing reporting pathways as part of the Paddock to Reef program.

Between 2022–2026, \$5.2 million (including a \$800,000 CANEGROWERS cash contribution) is being provided to support Smartcane BMP. This phase is focusing on conversion from benchmarking to accreditation with the aim to have 45% of land under cane accredited by June 2026, with the view that increased engagement through benchmarking new engaged growers was unlikely to grow significantly. At the beginning of Phase 4, Smartcane BMP formally updated and quality assured the register to ensure currency, which coincided with the anniversary date of program recognition.

Complete nutrient management planning projects (sugarcane)

Complete nutrient management planning projects have supported sugarcane growers to improve their nutrient management, profitability and productivity since 2016.

The RP161 nutrient management planning project began in the Burdekin with a Queensland Government partnership with local agronomy firm Farmacist. The project attracted investment from the Australian Government's Reef Trust and extended into the Mackay Whitsunday region, Isis area (Burnett Mary region), Herbert catchment (Wet Tropics region) and Mulgrave-Russell catchment (Wet Tropics region). The projects provided sugarcane growers with a tailored nutrient management plan and up to two years of on-farm agronomic support to improve their whole-of-farm management.

Sugarcane extension support

The DAF Sugarcane extension program (2019-2022) took a holistic farming system approach aimed at integrating legume rotations, organic matter retention, reduced tillage and precision-controlled traffic to support growers meet the regulated standards. These key principles are directly aimed at supporting growers to meet and exceed the regulated standards while maximising grower profitability and productivity and simultaneously improving water quality outcomes.

Bananas

Banana BMP

The Banana BMP program, delivered by the Australian Banana Growers' Council (ABGC) in Reef regions, provides foundational support (e.g., training, extension and incentives) for growers to self-assess their own practices against the BMP standards. Through the program, growers seek to improve management practices and certification through the Freshcare Environmental Program – Reef Assured independent audit process, providing a pathway to demonstrate compliance with the regulated standards.

The program has been supported by funding through the QRWQP since 2016.

At the end of 2022, Phase 2 has provided resources and support to growers in Wet Tropics and Cape York to achieve best management practices for nutrient, pesticide, sediment and water management.

In response to the Reef regulations, ABGC, supported by QRWQP funding:

- used technical reference groups to review the BMP modules and amended the modules to ensure growers meet regulated standards
- delivered an incentive grant program to provide further support and enable growers to undertake practice change as part of the regulatory transition
- established reporting pathways, included as part of the Paddock to Reef program to provide evidence of industry change and adoption.

ABGC has partnered with Freshcare Limited to put in place an independent self-funded certification pathway - Freshcare Environmental Program – Reef Assured to provide an alternative pathway for growers to meet the Reef protection regulations. In March 2021, Freshcare Environmental Program – Reef Assured was granted accreditation program recognition under the EP Act with respect to commercial banana growing, by the department. The Banana BMP program then provides technical services to support growers in line with certification.

In 2022–2023 Freshcare further clarified the ‘Reef assured’ category as an additional certificate which reflected the growers who had met requirements of the Reef regulations.

An incentive grant program assisted growers to meet new standards with 68 grants delivering demonstrable practice change over approximately 2,600 hectares (25% of the total area under bananas in Reef catchments) with grower co-investment of \$1.6 million. More than 70% of the projects specifically support transition to the regulated standards or better.

Phase 3 of the Banana BMP program will be delivered over 2023 to 2026 with \$3.7 million in Queensland Government funding. Phase 3 will assist benchmarked growers and new growers entering the banana industry to meet the regulated standards in the Wet Tropics and support Far North Queensland growers to improve practices beyond the regulated standards through development and implementation of farm plans and the BMP grant program.

Grazing

GRASS

GRASS is a foundational program that assists graziers to understand, meet and exceed the regulatory requirements. It aims to increase the adoption of management practices that improve degraded land condition, sustain productivity and minimise soil loss to waterways flowing to the Reef.

Under the GRASS program, Graziers receive one-on-one extension support to develop and implement farm specific, tailor-made Action Plans for Land Management (Action Plans) to improve land condition and productivity on their properties.

The GRASS program is an acknowledged practice change project that works with graziers in Reef catchments to improve one or more farming practices that directly reduce nutrient and sediment run-off from their grazing property. Producers who are involved in an acknowledged practice change project are considered a lower priority for compliance inspections while they are actively involved in the project, as they are recognised as taking efforts to improve on farm management in line with the Reef regulations. GRASS commenced in 2019 following the cessation of the former Grazing BMP program and is funded through the QRWQP. The GRASS program is delivered by DAF, North Queensland Dry Tropics Ltd (NQDT), Fitzroy Basin Association Ltd (FBA) and Burnett Mary Regional Group (BMRG).

GRASS is accessible to all graziers in the Burdekin, Fitzroy and Burnett Mary regions. They receive one-on-one extension support to develop and implement farm specific, tailor-made Action Plans for Land Management (Action Plans) to improve land condition and productivity on their properties. A grazier whose Action Plan identifies an area of their farm operations that needs improvement can then apply to access the complementary GRASS financial incentive program for infrastructure improvement or landscape restoration projects involving minor or major erosion works. To participate in the program, graziers sign a Memorandum of Understanding that ensures they are aware of the Reef regulations and are working to comply with them.

Phase 1 (2019–2022) of the GRASS program was finalised in December 2022 with the following results:

- 449 Action Plans (against the 374 target) were delivered, which covered 2.92 million hectares of grazing land to guide improved management of 720,890 hectares of poor and degraded land.
- 150 graziers undertook incentive projects including 40 gully remediations, 42 riparian fences, 52 watering point projects, and 16 other projects improved ground cover and land management.
- Graziers co-contributed over \$2.65 million in cash and in-kind to leverage the Queensland Government investment of just over \$1.7 million, with total on-ground works of over \$4.35 million.
- Over 20,000 tonnes of estimated sediment savings, largely in relation to incentive projects.
- Provided support to graziers to ensure that they understood and met the Reef regulations, with graziers reporting that the ‘Extension officers significantly reduced grazier anxiety around the [regulated] standards.’

Phase 2 (2023–2026) of the GRASS program commenced in 2023 with \$8.68 million allocated under the QRWQP to deliver a target of 421 Action Plans and 168 incentive projects. In the first six months the program has:

- worked with landholders to put in place 72 Action Plans covering 361,205 hectares of grazing land with strategies in place to manage 52,558 hectares of poor and degraded lands
- commenced 20 incentive on-ground works projects designed with landholders.

Grazing Extension

The DAF Grazing Extension Support Project is a Queensland beef industry extension project that aims to reduce sediment loss from grazing lands and improve reef water quality. The project addresses land management and water quality issues within a beef business context.

Using a range of extension processes that enable change, the project assists beef producers to adopt grazing best management practices (BMP). The project outputs include extension activities, demonstration sites, producer groups, peer to peer learning activities, Advancing Beef Leaders (ABL), Northern Breeding Businesses (NB2) and agricultural economic options analysis.

Other QRWQP funded projects and tools

These projects and tools support and guide land management and stocking rate decisions and have been well regarded by graziers, with strong rates of engagement.

Grassroots project (2018 – 2020)

This project led by Resource Consulting Services directly engaged 37 grazing businesses across more than 160,000 hectares resulting in whole-of-property practice changes based on regenerative agriculture principles and improved business acumen. Through skills training, tailored grazing management advice and access to grants, graziers were able to improve farm capacity, productivity and land condition and hence reduce the risk of soil loss to waterways flowing to the Reef. The establishment of district grazer groups will also support capacity building by helping to encourage the ongoing exchange of ideas and peer-to-peer support.

Forage budgeting service in the Fitzroy and Belyando (2018 – 2021)

This project, led by CHRRUP, delivered an innovative one-on-one, grazier to grazier, forage budgeting service to 40 graziers for 124,729 hectares directly on properties covering 373,706 hectares in the Fitzroy region and Belyando catchment in the Burdekin. Forage budgeting is a valuable land management tool for matching stocking rates to carrying capacity of paddocks without overgrazing to help achieve better outcomes for pasture and soil condition and water quality for the Reef. CHRRUP is a community-owned organisation in central Queensland.

FORAGE reports

FORAGE reports assist graziers in making land management and stocking rate decisions and can be accessed free of charge from the online FORAGE platform at <https://www.longpaddock.qld.gov.au/forage/about/>. These property-scale customised reports can be used by graziers, extension officers, consultants and policy developers among others, to track ground cover, pasture growth and climate, map land types, and other property-specific information. As shown in

Figure 7, there has been a gradual increase in the annual number of reports requested across Queensland since 2013, with a more noticeable increase from 2017 onwards. This increase in the uptake of tools aligns with release of the consultation regulatory impact statement for the Reef regulations in 2017. The increase has been driven by agricultural businesses and landholders, rather than Queensland Government users, NRM groups and non-government organisations (NGOs).

Figure 8 shows that the area covered by the reports has increased in the Burdekin and Fitzroy regions, where the grazing regulations commenced first on 1 December 2020 and 1 December 2021 respectively. There has been a lesser increase in the Cape York region, where grazing is not regulated, and in the Burnett Mary, Wet Tropics and Mackay Whitsunday regions, where grazing was only regulated from December 2022.

Limitations with drawing a link between the uptake in FORAGE reports and the Reef regulations include:

- not all reports requested are for properties in the Reef catchment
- a user could request multiple reports
- requesting a report does not mean that it is used.

Figure 7 – Number of FORAGE reports and satellite imagery requested between 2011 to 2022

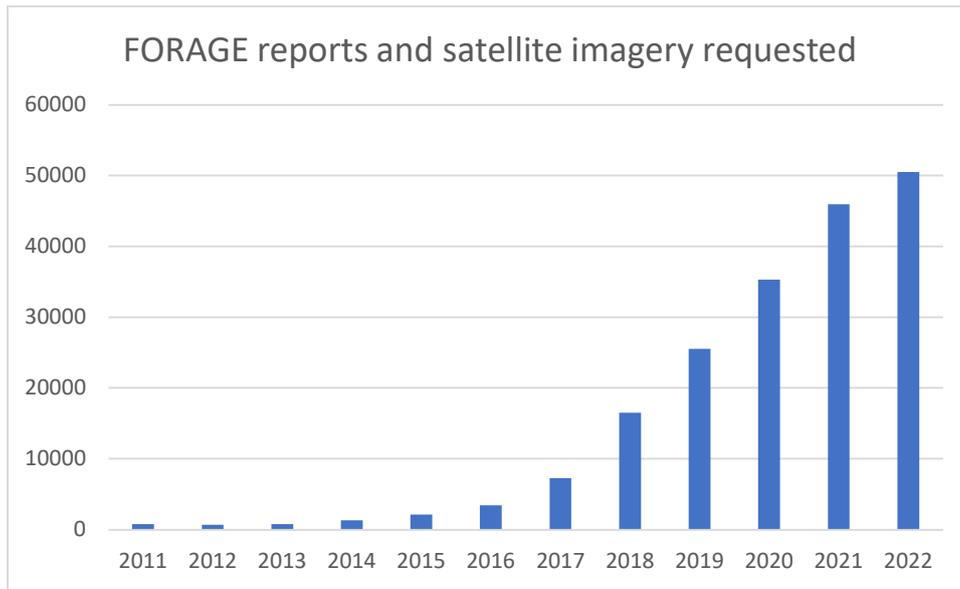
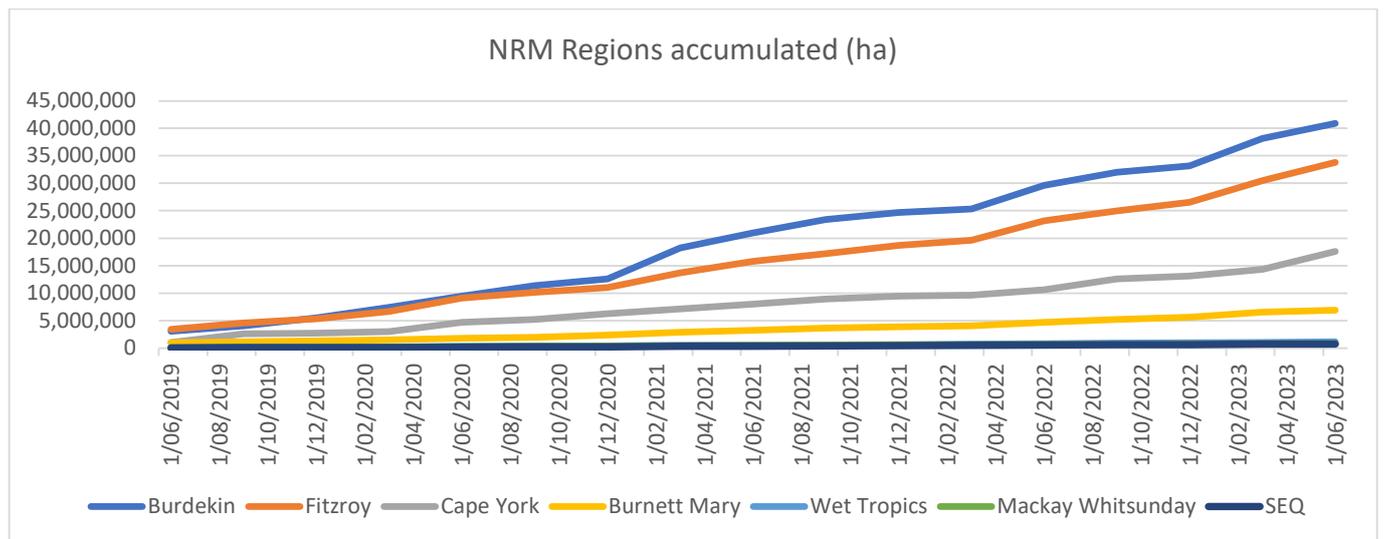


Figure 8 – Area (hectares) covered by FORAGE report requests per NRM region



Appendix B: Stakeholder consultation report

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Stakeholder consultation report

Supporting the Department of
Environment and Science Reef Protection
Regulations Statutory Review

17 November 2023

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1. Executive summary

To support improved water quality outcomes for the Great Barrier Reef, strengthened Reef Regulations were progressively rolled out from 1 December 2019 in the Cape York, Wet Tropics, Burdekin Dry Tropics ('Burdekin'), Mackay-Whitsunday, Fitzroy and Burnett-Mary regions. These regulations aim to reduce dissolved inorganic nitrogen, sediment and pesticide pollution in the Great Barrier Reef ('GBR', 'Reef') by strengthening regulations for agriculture, such as Sugarcane, Banana, Grazing, Grains and Horticulture, and other land uses and activities in the GBR catchment areas. Key aspects of the 2019 Reef Regulations included the introduction of:

- ▶ No net residual impacts for new and expanding industrial and resource activities,
- ▶ Environmental Authority for ERA 13A - permit requirements for new or expanding cropping activities,
- ▶ Agricultural Environmental Relevant Activity (ERA) Standards for Sugarcane, Bananas and Grazing (excluding Cape York, to be applied to Grains and Horticulture in 2024),
- ▶ Record keeping requirements and associated requirements for advisers,
- ▶ Farm nitrogen and phosphorus budgets (Sugarcane only), and
- ▶ Recognised Best Management Practice (BMP) accreditation programs, with accreditation affording lower priority for compliance inspections.

The Queensland Government Department of Environment and Science ('the Department') is completing a statutory review of these strengthened Reef protection regulations, as required under the *Environmental Protection Act 1994* ('EP Act'). The review will assess the extent to which the Reef protection regulations have been effective in reducing the loads of dissolved inorganic nitrogen and sediment suspended in waterways. This review is due to be completed on 28 February 2024.

As part of this review, the Department has engaged Ernst & Young ('EY') to conduct independent consultation across the regulated industries, as well as relevant non-regulated stakeholders, to better understand experiences implementing the regulations, and the impacts of the regulations on farming practices. This consultation was undertaken in accordance with our engagement agreement dated 25 May 2023.

1.1 Report purpose and approach

To support the Department's statutory review process, EY has undertaken extensive stakeholder engagement and collated first-hand perspectives from peak agricultural, natural resource management, conservation, environmental, industrial activity, and agricultural advisory organisations, as well as Producers in the regulated regions.

The overarching purpose of this consultation process was to provide the Department with a greater understanding of the regulated community's experience of the regulations and to identify key opportunities for improvement in terms of regulation design and implementation. Accordingly, EY tailored the consultation questions to gain insight into:

- ▶ The perception of the regulation impact in terms of practice improvements and water quality improvements
- ▶ The perception of any broader impacts to the industry or wider community
- ▶ The regulated community's experience implementing the regulations and any barriers or challenges experienced
- ▶ Any other feedback and suggestions to support greater environmental and socio-economic outcomes in the future.

Our approach to the consultation process and development of this report included the following key steps:

1. Development of a standardised but separate list of questions for regulated and non-regulated stakeholders, focusing on their experience of the regulations and opportunities for improvement.
2. Identification of stakeholders based on information provided by DES, via existing networks and contacts, online research on Producers and organisations in the key regions, announcements in e-newsletters, and asking contacted stakeholders to pass on our information.
3. Collation and analysis of responses from stakeholder consultations to identify key observations and suggestions to improve the regulation design, implementation and outcomes.

This report provides a summary of the feedback provided by stakeholders and highlights key stakeholder suggestions and learnings to support the Department in preparing the final statutory review report, while identifying transferable learnings to future regulation design and implementation.

Summary of stakeholders' observations and suggestions

Figure 1 below presents the key observations and suggestions raised by stakeholders, with more detailed examples in Table 1 and Table 2. The stakeholder suggestions presented in the body of this report have been related to the relevant observations, as numbered below.

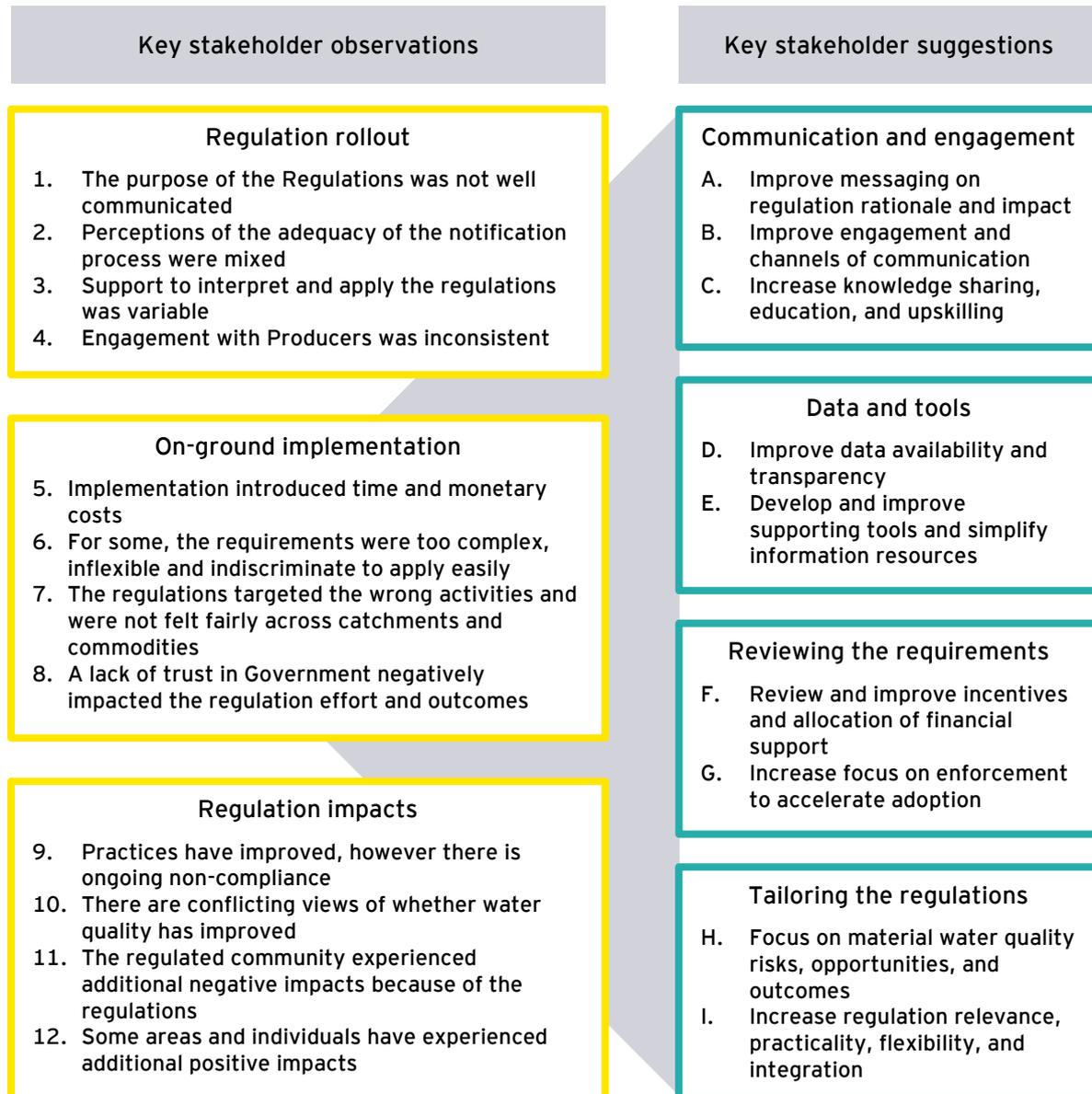


Figure 1: Summary of observations and suggestions from stakeholder interviews

Details of the key observations and suggestions made by stakeholders are presented in Table 1 and Table 2 below.

Table 1: Summary of stakeholder observations

Key stakeholder observations	Summary of what we heard
Regulation rollout	
1. The purpose of the Regulations was not well communicated	<p>Messaging about the rationale and purpose of the regulations was ineffective in motivating practice changes:</p> <ul style="list-style-type: none"> ▶ Doubt of the relationship between practice changes and water quality on the Reef. ▶ A lack of data and other evidence to demonstrate that practice changes required by the regulations would ultimately improve water quality. ▶ Messaging around protecting the Reef may not resonate with Producers.
2. Perceptions of the notification process were mixed	<p>Views on how Producers were notified varied greatly:</p> <ul style="list-style-type: none"> ▶ The information and notification effort was sufficient, and non-compliance was deliberate. ▶ The Government's traditional channels for notification may not have been adequate for more isolated individuals, who may be overrepresented by smaller or older growers.
3. Support to interpret and apply the regulations was variable	<p>There were mixed views on the communication and support provided to interpret and apply the regulations:</p> <ul style="list-style-type: none"> ▶ Government provided sufficient support and ongoing non-compliance was deliberate. ▶ Agronomists, advisers, and other trusted local organisations are critical in supporting regulation interpretation and application and concerns were raised over the limited supply.
4. Engagement with Producers was inconsistent	<p>There were different perspectives of Government engagement with Producers:</p> <ul style="list-style-type: none"> ▶ The consultation process in the lead up to the regulations was collaborative, considered and effective. ▶ Farm visits were positive and cooperative interactions which facilitated knowledge exchanges. ▶ Engagement was insufficient, and at times, undertaken in a manner that undermined relations. ▶ Producers felt alarmed by the harsh language of follow-up non-compliance communications.
On-ground implementation	
5. Implementation introduced time and monetary costs	<ul style="list-style-type: none"> ▶ The regulations introduced new costs (e.g., equipment, soil testing, and advisers). ▶ A new subset of the agricultural advisory industry had been created just to support with nutrient budgets. ▶ The reporting was challenging and onerous, especially for those without strong literacy or tech skills. ▶ There is a greater burden on smaller growers to absorb the time and monetary costs, and a lesser impact to Producers whose practices were already evolving or included advisers.

Key stakeholder observations	Summary of what we heard
6. For some, the requirements were too complex, inflexible and indiscriminate to apply easily	<ul style="list-style-type: none"> ▶ The requirements were simple, clear, and achievable, especially for Producers already engaging in voluntary practice changes (e.g., regenerative practices) and BMP or reef-related programs. ▶ The requirements were too complex and inflexible to easily put into practice and did not account for important variation in operations, land types, topography etc. ▶ The regulations were vague, contradictory, and unclear on how to apply in practice across different contexts and business models. ▶ It was unclear how to accurately implement and report multiple or multi-year harvests. ▶ The focus was too nutrient-centric, focusing limited resources on only narrow practice change and away from options that can also support broader issues and more holistic change.
7. The regulations targeted the wrong activities and were not felt fairly across catchments and commodities	<ul style="list-style-type: none"> ▶ The regulations are targeting the wrong industries and Producers and other contributors to poor water quality were not being proportionally regulated or managed. ▶ The regulations are too 'black and white' and did not consider materiality when assessing non-compliance. Compliance also failed to prioritise activities or landholders requiring the greatest improvement. ▶ The regulations impact Producers unequally across industry, size, location, land type, etc. ▶ Government funding to support practice changes is being misallocated and misused.
8. A lack of trust in government negatively impacted the regulation effort and outcomes	<ul style="list-style-type: none"> ▶ Auditors had an insufficient understanding of on-ground processes and constraints and were too focused on minor details, rather than keeping the whole-of-farm reconciliation in mind. ▶ The information used to develop the regulations and guidance materials was inappropriate (e.g., based on sugarcane practices but applied to bananas, maps inaccurate and low resolution). ▶ Growers felt distrust of Government which hindered compliance and fostered pushback. ▶ Misinformation challenges heightened distrust; some sources describing the regulations and the underpinning science were poor or misleading.
Regulation impacts	
9. Practices have improved, however there is ongoing non-compliance	<p>Most Producers agreed that there had been practice change as a result of the regulations.</p> <ul style="list-style-type: none"> ▶ Producers that were already operating in line with requirements and had adopted voluntary frameworks (e.g. regenerative agriculture, BMP, Grazing Resilience and Sustainable Solutions (GRASS)) saw little or no practice change. ▶ There were some cases of no practice change due to deliberate non-compliance or implementation challenges. ▶ Practices are improving across the regulated community, especially for those previously below standard. <p>Perspectives on practice improvements were more mixed for the non-regulated stakeholder groups:</p> <ul style="list-style-type: none"> ▶ Progressive growers were already aligned, and regulations were deployed to prompt late adopters. ▶ There were practice improvements but also other key factors, making it difficult to attribute to the regulations. ▶ The change was insufficient and land clearing and overgrazing continued, driving erosion, gullyng and runoff. <p>Across both groups there was a common view that practice improvements have occurred but there is ongoing non-compliance.</p>

Key stakeholder observations	Summary of what we heard
<p>10. There are conflicting views of whether water quality has improved</p>	<p>Across regulated and non-regulated groups there were varied perspectives on whether water quality had improved.</p> <ul style="list-style-type: none"> ▶ Some felt sure the regulations improved water quality by virtue of reduced fertiliser use. ▶ Many expected water quality should theoretically be improving, but acknowledged limited evidence available to support this. Others said it was too soon to tell and would take years to determine. ▶ Those that did not expect water quality had improved, pointed to ongoing non-compliance, and other polluting activities. There was a common suggestion to overcome this with increased enforcement. <p>Amongst regulated stakeholders:</p> <ul style="list-style-type: none"> ▶ There was a sentiment that Producers contributing the most to poor water quality hadn't improved their practices. ▶ Some believed water quality on the Reef was already very good, and the regulations were redundant. <p>Amongst non-regulated stakeholders:</p> <ul style="list-style-type: none"> ▶ There was a sentiment that the regulations could have a positive impact on water quality, however they did not go far enough in terms of scope and enforcement. ▶ There was concern that key issues are not being addressed by the regulations, and that these factors (e.g., land clearing) would determine whether the 2050 water targets will be achieved.
<p>11. The regulated community experienced additional negative impacts as a result of the regulations</p>	<p>Both regulated and non-regulated stakeholders identified negative impacts from the regulations:</p> <p>Business viability:</p> <ul style="list-style-type: none"> ▶ There was concern around the time and monetary costs, noting Producer vulnerability to input cost increases, and an expectation that these costs, alongside reduced production (due to reduced fertiliser and land expansion restrictions), was impacting business viability and reducing the size of the industry. ▶ There were conflicting views that the fertiliser limits both had and had not decreased productivity and yield. <p>Mental health:</p> <ul style="list-style-type: none"> ▶ There was increased stress associated with fear of non-compliance, heightened by a lack of clarity on what compliance looked like, harsh legal jargon, and long wait times in audit communications. Being regulated, combined with external media around the agricultural sector's impact on Reef health, made Producers feel vilified as "environmental vandals" and created disconnect in the community. <p>Unintended negative impacts to on-ground practices:</p> <ul style="list-style-type: none"> ▶ The regulations may have discouraged early adoption or exploration of future practice improvements. ▶ Resistance to the regulations generated disregard for environmental issues and reluctance to share information with the Government, or anyone associated, in case this encouraged scrutiny or further regulation in the future. ▶ Lower yields will increase the amount of land needed to maintain production, and drive further land clearing.

Key stakeholder observations	Summary of what we heard
12. Some areas and individuals have experienced additional positive impacts	<p>Both regulated and non-regulated stakeholders identified positive impacts resulting from the regulations:</p> <ul style="list-style-type: none"> ▶ There was greater awareness of nutrient impacts on the Reef and a better understanding of nutrient management. ▶ The regulations served as a catalyst for adoption of more progressive practices by fostering conversations on holistic practice improvements and the economic benefits of these (e.g., water conservation, waste management, fertiliser efficiency, reduced water table in drought prone areas, etc.). ▶ Profitability improved (e.g., increased ground cover reduced Grazier feed costs and cattle loss). ▶ Benefits to the broader population such as: <ul style="list-style-type: none"> ▶ improvements in technology through demand and investment in innovative solutions, ▶ reduced impact of chemicals such as pesticides on the environment and the community, ▶ biodiversity benefits through increased adoption of sustainable practices, and ▶ improved water quality theoretically leading to improved tourism on the GBR.

Table 2: Summary of stakeholder suggestions

Stakeholder suggestions	Summary of what we heard
Communication and engagement	
A. Improve messaging on regulation rationale and impact	<ul style="list-style-type: none"> ▶ Better articulation of the regulation rationale and underpinning science early in the rollout process. ▶ Collect data on an ongoing basis to demonstrate that compliance is making a difference. ▶ Better resonate with Producers by communicating the potential on-farm benefits of the practice changes and broader sustainability improvements (e.g., reduced costs and water savings).
B. Improve engagement and channels of communication	<ul style="list-style-type: none"> ▶ Engage directly with Producers, using a variety of formats to maximise the reach, including in-person visits for more isolated Producers. ▶ Strengthen relations with the regulated community by: <ul style="list-style-type: none"> ▶ taking the lead on communication, engagement, and education around the regulations, ▶ building rapport with Producers and reducing stress by engaging early and directly, such as through informal farm visits prior to audits and providing information on 'what to expect', and ▶ undertaking greater initial engagement and consultation to 'bring them along' through the process. ▶ Recognise the key role that local organisations (e.g., NRMs, advisers, industry bodies, etc.) play in supporting Producer's understanding of the regulations and education on best practice. <ul style="list-style-type: none"> ▶ Communicate clearly and early with these groups to support dissemination of current and accurate information ▶ Increase engagement with these groups to support improved identification of area-specific risks and opportunities in regulation design, implementation, and impact. ▶ Collaborate with wider initiatives for greater outcomes in the land, water quality & carbon space. ▶ Be transparent in communicating the areas, industries or practices posing the greatest water quality risk.

Stakeholder suggestions	Summary of what we heard
C. Increase knowledge sharing, education and upskilling	<ul style="list-style-type: none"> ▶ Improve understanding of the underlying science and rationale for the regulations. ▶ Provide simplified practical tools, systems and technological aids, to support easier and faster completion of the reporting and documentation requirements (e.g., mobile apps, simple reporting templates) as well as broader compliance (e.g., case studies, FAQs, and peer knowledge sharing workshops to show how practices can be tailored to on-farm constraints). ▶ Provide training programs aligned with the regulation objectives (e.g., nutrient management, sustainable farming, farm design for sediment control). ▶ Increase education for Government representatives and auditors on real-world farming practices and constraints.
Data and tools	
D. Improve data availability and transparency	<ul style="list-style-type: none"> ▶ Improve the availability and quality of data linking on-farm practices and water quality improvement on the GBR. ▶ Increase transparency and availability of water quality data and make it clearer how this data is being used to target areas and Producers of greatest impact. ▶ Be transparent about trials and monitoring and make the results publicly available; ensure they are conducted over various contexts (e.g., different soil types, hydrological systems, etc.).
E. Develop and improve supporting tools and simplify informational resources	<ul style="list-style-type: none"> ▶ Provide more guidance on what compliance looks like, with simplified language and clearer instructions. ▶ Provide more research and information on whole-of-farm mechanisms and paddock designs to stabilise and control sediment in rainfall conditions, as well as alternative nutrient inputs or technologies.
Reviewing the requirements	
F. Review and improve incentives and allocation of financial support	<ul style="list-style-type: none"> ▶ Review and improve incentives and access to financial support to comply with the regulations, such as: <ul style="list-style-type: none"> ▶ make financial support more accessible to offset the monetary and time costs, ▶ improve recognition or positive incentives for those Producers aligned to best practice, especially early adopters or those improving the environmental condition of their land beyond compliance, and ▶ investigate the potential for water quality credits to reflect the reduced downstream impact on water quality, for example from innovative drainage systems. ▶ Ensure funding is well-managed, with strong supervision of the allocation to priority areas and to appropriate expenditure (e.g., machinery, labour and so on) to support the intent of the regulation.
G. Increase focus on enforcement to accelerate adoption	<ul style="list-style-type: none"> ▶ Make audits and enforcement efforts more targeted to ensure that the minimum requirements of the regulations are being met.

Stakeholder suggestions	Summary of what we heard
Tailoring the regulations	
H. Focus on material water quality risks, opportunities, and outcomes	<ul style="list-style-type: none"> ▶ Increase focus on prioritising materiality of water quality risks. For example: <ul style="list-style-type: none"> ▶ consider the most material contributors to water quality including beyond agricultural practices and provide justification that regulating these groups will be materially beneficial to the Reef, ▶ prioritise and respond to non-compliance in proportion to the materiality for water quality (e.g., consider size, region, landscape, and operations, proximity to waterways, etc. and apply regulations most material non-compliance first) , ▶ identify and regulate high impact activities such as land clearing and encourage revegetation, and ▶ Use catchment or point source water quality monitoring to identify key pollution contributions. ▶ Focus on the outcomes, rather than the inputs; permitted practices can still result in poor outcomes if the farm is poorly designed ▶ In particular, focus on sediment and nutrients leaving a property to allow Producers to operate within their unique conditions, and allow more flexibility and innovation.
I. Increase regulation relevance, practicality, flexibility, and integration	<ul style="list-style-type: none"> ▶ Align requirements to industry best practice programs and other leading practices to maximise outcomes (e.g. synergistic improvements across water quality, land condition, water conservation, etc.). ▶ Identify and resolve instances of contradictory legislation, and identify one leading authority for matters with overlapping jurisdiction. ▶ Allow for greater flexibility and nuance in the regulations to allow for the breadth of variation across the industry. For example: <ul style="list-style-type: none"> ▶ provide catchment- or farm-specific regulations, and consider the farm as a whole, ▶ make allowances for alternative fertiliser inputs and technology advances to reduce ambiguity around allowable techniques for erosion control, ▶ include clauses to account for impacts of significant events, such as weather events or dramatic price increases, and ▶ remove or streamline inefficient blanket requirements for nutrient budgets to free up resources for more impactful changes and better water-quality and other outcomes.

2. Introduction

2.1 Background

The Great Barrier Reef ('Reef' or 'GBR') has been inscribed on the United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage List since 1981 for its unique natural attributes, and enormous environmental and scientific importance.¹ It is the largest continuous coral reef system in the world and is of substantial cultural and environmental significance, with an estimated value in economic terms of \$56 billion.² The Reef is of special significance to more than 70 Traditional Owner groups who have been caring for the Reef and its catchments for more than 60,000 years.³ It is now under growing pressure from climate change and was recently at risk of being put on the UNESCO 'Danger List' in its latest State of Conservation.

The most significant threat to the Reef is climate change, which is warming the world's oceans, triggering bleaching events and increasing the severity of storm events.⁴ Improved Reef health is essential to building resilience to the impacts of climate change. In Queensland, a key focus to support Reef health has been on improving water quality through mitigating sediment, nutrient and other pollutant run-off into catchment waterways and ultimately, onto the Reef.

As shown in Figure 2, nutrient runoff such as nitrogen and phosphorus can directly impact the skeletal integrity of reef-building corals and increase coral vulnerability to heat and bleaching. Indirectly, these nutrients can promote disease, growth of light-competing algae, and crown-of-thorns starfish outbreaks.⁵ Sediment exposure can reduce coral health, condition, and survival through a number of pathways, including available light to corals for photosynthesis by its symbiotic zooxanthellae.⁶ The reduction of such pollutants and thus the improvement of water quality entering the Reef is pivotal in supporting and improving the ongoing health of the GBR.

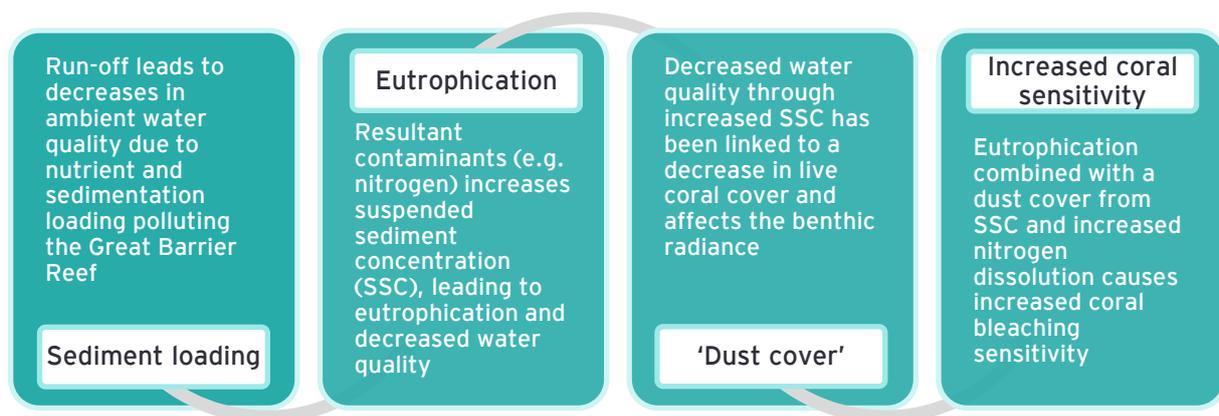


Figure 2: Impact of sediment and nutrient run-off on declining Reef health

¹ "Great Barrier Reef World Heritage Area", DCCEEW website, <https://www.dcceew.gov.au/parks-heritage/great-barrier-reef/world-heritage>

² "Need a reason to save the Great Barrier Reef?", Deloitte website, <https://www.deloitte.com/au/en/services/economics/perspectives/great-barrier-reef.html>

³ "Protecting the Great Barrier Reef", DES website, <https://www.des.qld.gov.au/great-barrier-reef>

⁴ "Climate change and extreme events", DCCEEW website, <https://soe.dcceew.gov.au/overview/pressures/climate-change-and-extreme-events>

⁵ Zhao, Hongwei, Yuan, Meile, et al. "Impacts of nitrogen pollution on corals in the context of global climate change and potential strategies to conserve coral reefs", *The Science of the Total Environment*, 2021. 774, 145017. <https://doi.org/10.1016/j.scitotenv.2021.145017>

⁶ Tuttle, Lillian, Donahue, Megan. "Effects of sediment exposure on corals: a systematic review of experimental studies", *Environmental Evidence*, 2022. 11(1), 4-4. <https://doi.org/10.1186/s13750-022-00256-0>

The degree of sediment and pollutant loading is strongly influenced by intensive land use, such as agriculture and grazing, linked to increased erosion, and increased sediment and pollutant runoff, particularly during seasonal periods of heavy rain. In 2017, the Queensland Government released a Scientific Consensus Statement on land use impacts on the GBR water quality and ecosystem condition, which identified key sources of land-based pollutants and the risk to coastal and marine ecosystems.⁷ Agriculture was identified as the main source of excess nutrients, fine sediments and pesticides from the GBR catchments.⁸ Sugarcane-growing areas were noted as the largest contributors of dissolved inorganic nitrogen (78% of the anthropogenic load) and pesticides (more than 95% of the load), while grazing contributed the largest proportion of sediment (49% of the anthropogenic total load) mostly through erosion from gullies, streambanks and deep rill hillslope erosion.⁹

2.2 The Reef Protection Regulations

The proposal for strengthened reef protection regulations was first introduced through the GBR Water Science Taskforce Interim Report in 2015, which included several consultations on the regulatory proposals in 2017, 2018, and 2019. The regulatory proposals were passed by the Queensland Parliament in 2019 as part of the *Environmental Protection (Great Barrier Reef Protection Measures) and Other Legislation Amendment Act 2019*.

A key driver of the design of the strengthened regulations was the Reef 2050 Water Quality Improvement Plan (WQIP) 2017-2022: a joint commitment of the Australian and Queensland governments to outline how industry, community groups, Traditional Owners and government will work to improve the quality of water flowing from the GBR catchments. Importantly, the WQIP defined 2025 water quality targets for Queensland as follows:

- ▶ 60% reduction in anthropogenic end-of-catchment dissolved inorganic nitrogen loads,
- ▶ 20% reduction in anthropogenic end-of-catchment particulate nutrient loads,
- ▶ 25% reduction in anthropogenic end-of-catchment fine sediment loads, and
- ▶ 99% of aquatic species to be protected at the end-of-catchments (pesticide target).

Informed by the Reef 2050 WQIP, updates to the Reef protection regulations were made to support reduced sediment, nitrogen and other pollutant runoff in the Wet Tropics, Burdekin, Mackay-Whitsunday, Fitzroy, Cape York and Burnett-Mary regions. Industrial and resource activities, cattle grazing, sugarcane and banana production were met with stricter regulations, including:

- ▶ Agricultural Environmental Relevant Activity (ERA) standards, or minimum practice standards, for Banana, Sugarcane and Grazing practices, including requirements for record keeping, the introduction of agricultural advisors and a mechanism to accredit BMP programs,
- ▶ Environmental Authority for ERA 13A - new or expanding cropping and horticulture, and
- ▶ A requirement for new or expanding industrial and resource activities to ensure no residual impact on GBR catchment waters from Dissolved Inorganic Nitrogen (DIN) and fine sediment.

The regulation rollout has been staggered across both industries and regions, which was staged to align with priorities for water quality improvement (those in the Reef 2050 WQIP 2017-2022). Sugarcane, grazing and banana production record keeping requirements under the minimum standards have been in place since 1 December 2019, while no net residual impact requirements for new or expanding permits were introduced on 1 June 2021 and grain and horticulture regulation are set to commence on 1 December 2024.

⁷ Bartley, Rebecca, Waters, David, et al. "2017 Scientific Consensus Statement: A synthesis of the science of land-based water quality impacts on the Great Barrier Reef, Chapter 2: Sources of sediment, nutrients, pesticides and other pollutants to the Great Barrier Reef", *State of Queensland*, 2017.

⁸ Waterhouse, Jane, Schaffelke, Britta, et al. "Frequently asked questions: Reef 2050 Water Quality Improvement Plan and 2017 Scientific Consensus Statement", *State of Queensland*, 2017

⁹ Ibid.

2.3 This report

In line with the requirements of the *Environmental Protection Act 1994* (EP Act), in February 2023, the Department commenced a statutory review of these strengthened Reef protection regulations, due for completion in February 2024. The review will assess the extent to which the Reef protection regulations have been effective in reducing the loads of dissolved inorganic nitrogen and sediment suspended in waterways. To support this review, the Department has engaged Ernst & Young (EY) to conduct an independent consultation on the strengthened Reef protection regulations introduced on 1 December 2019, in accordance with our engagement agreement dated 25 May 2023.

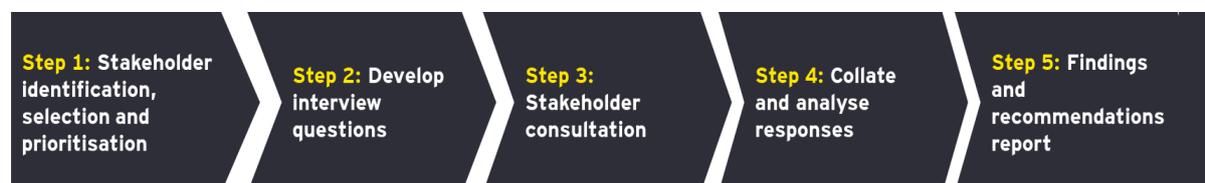
This report outlines the key stakeholder observations and suggestions collated during our consultation process. It provides perspectives of a cross-section of the regulated industries and relevant non-regulated stakeholders, summarised in the following sections.

- ▶ Section 4.1 explores the rollout of the regulations,
- ▶ Section 4.2 describes observations of changes in agricultural practices,
- ▶ Section 4.3 details the perceived impact of the regulations, and
- ▶ Section 5 details the key stakeholder suggestions for improvement.

Not only will these insights inform the Department's statutory review, but also highlight learnings for future initiatives, policy design and other work within the Reef catchments.

3. Approach

To collect a comprehensive and accurate response from the people most impacted by the Reef regulations, EY developed the following approach to identify, conduct, and analyse the feedback. It was essential to identify stakeholders that were not part of previous consultations as well as stakeholders who had gone through a compliance inspection. While there was some collaboration with DES to identify stakeholders, EY conducted the interviews independently and results were anonymised. EY's approach included the following key stages:



Stakeholder identification, selection and prioritisation

During engagement planning EY and the Department aimed to identify a list of stakeholder groups that would support a diverse range of perspectives, while having relevant experience of the regulations and/or sufficient understanding of the wider socio-economic and environmental context to provide key insights. The Department determined a target number of stakeholders for each group and industry, to support a balanced representation across the key regions. Key considerations included the prominence of the activity in the region and the duration since the commencement date for the region. For example, Fitzroy sugarcane was not targeted given the relatively low sugarcane land in this region and relatively recent regulation commencement (1 Dec 2022). The target stakeholder distribution is summarised in Table 3 below, alongside the achieved number of consultations conducted.

Table 3: Stakeholder consultation groups and number of interviews completed

Stakeholder group	Target number of interviews	Number of interviews conducted
Non-regulated Stakeholders		
Agricultural Peak Groups	12	11
Recognised accreditation program providers	2	2
Agriculture advisers*	8	9
Environment/Conservation groups	5	5
Natural resource management (NRM) groups	5	3 [†]
Subtotal	32	30
Regulated Stakeholders		
EA holders for ERA 13A	5	2
No net residual impact (NNRI) requirement [‡]	5	3
Sugarcane growers - Wet Tropics	5	0
Sugarcane growers - Mackay Whitsunday	5	1
Sugarcane growers - Burdekin	5	9
Sugarcane growers - Burnett Mary	2	0
Graziers - Burdekin	5	4
Graziers - Fitzroy	5	1
Graziers - Burnett Mary	2	1
Banana Producers - Wet Tropics	5	5 [§]
Subtotal	44	26
Total	76	56

* Agricultural advisers are subject to certain requirements under the Reef Regulations and could be considered 'Regulated Stakeholders'. However, their feedback predominantly related to their clients' experience, so they have been included as 'Non-regulated Stakeholders'.

[†] One NRM stakeholder provided a written response in lieu of an interview.

[‡] This group includes stakeholders that are not yet subject to the no net residual requirement, as well as unregulated stakeholders with relevant insight or expertise on this particular requirement.

[§] Includes a Banana grower from Burnett Mary.

^{||} Two interviews were counted within multiple stakeholder groups; one stakeholder was both an Agricultural Peak Group and a recognised accreditation program provider, and another was both an EA holder for ERA 13A and a Banana Grower.

EY undertook the following steps to identify and reach out to potential stakeholders:

Non-regulated stakeholder groups:

- ▶ Leveraged both EY and the Department's existing networks and contacts operating across the Reef regions, and
- ▶ Performed online research to identify relevant organisations and obtain public contact information.

Engagement with natural resource management groups, was the only challenge for this cohort as these organisations were stretched for time and resources.

Regulated stakeholder groups:

For regulated groups, it was often more difficult to find contact information due to lesser online presence and privacy policies preventing others from sharing contact details. To overcome this, EY undertook the following:

- ▶ Asked peak bodies and other industry groups to circulate a consultation invitation with their members and communities,
- ▶ Leveraged internal networks to reach out to organisations that had contact with Producers and could further distribute invitations to participate,
- ▶ Performed online searches for any direct contact information available (e.g., LinkedIn, regional industry and farming association websites, etc.), and
- ▶ At the end of each interview, asked the interviewee to circulate the consultation invitation with any other growers or Graziers that may be interested in taking part.

In addition, the Department included an invitation to take part in the consultation process as part of the 'Grazing Update' and 'Protecting the Great Barrier Reef' e-newsletters and reached out to Producers that had undergone compliance visits.

The key barriers to achieving a balanced and broad representation of regulated stakeholders across the regions were obtaining contact details and willingness to participate. EY was able to have details of the consultation added to various communication networks but as privacy policies prevented many organisations, including the Department, from providing contact information, EY did not have visibility to follow-up on these communications or reach out directly. Notably, all Producers that expressed interest to EY in being involved in the statutory review process, were interviewed. While a significant number of individuals and organisations were made aware of the consultation, in some regions, only a small portion were willing to participate, evidenced by the difference between the targeted and achieved number of consultations in Table 3.

Refining selections:

There was an oversupply of Agricultural Advisers with available contact information, which resulted in EY prioritising the stakeholders based on:

- ▶ Expectation of most relevant expertise and potential involvement with the regulations (e.g., the type of advisory services that an agricultural service provides),
- ▶ Achieving a balanced spread across the geographic regions,
- ▶ Whether the stakeholder had previously provided feedback to the Department, with the preference to collate feedback from new stakeholders, and
- ▶ Through discussions with the Department, certain stakeholders were identified for inclusion due to their important or unique insight and experience of the regulations.

Interview question development

To develop interview questions that were standardised, but sufficiently relevant to the stakeholder group, EY designed a similar but distinct set of questions for the regulated and non-regulated groups, with the former placing greater focus on the first-hand experience of implementation and practice changes resulting from the regulations. Refer to Appendix A for the full set of questions used to guide the discussions while allowing for flexibility. EY encouraged the interviewees to speak freely and to provide any feedback on the regulations, regardless of alignment to the prepared questions.

Approach limitations

Sample size for the consultation process:

The inclusion of peak bodies, agricultural advisors and other industry and regional representatives was considered valuable to provide insight over a larger proportion of the agricultural and grazing communities. However, EY notes that the number of interviews is not large enough to be statistically representative of the whole sector, which comprises thousands of farmers. Instead, the sample size is reflective of the availability and willingness of Producers to participate and the timeframes of the consultation.

Throughout this report we have provided quantitative estimates of the number or proportion of stakeholders who expressed certain sentiments. These estimates are based on qualitative statements provided by stakeholders during the interviews. This information is only reflective and indicative of the size and sample for this consultation process and should not be extrapolated to other stakeholder populations or relied upon for any other purpose than to provide deeper context for this report.

First Nations representation:

EY notes that the list of stakeholder groups identified by the Department in Table 1 did not include First Nations organisations, unless these stakeholders were already included in one of the other categories. Where First Nations organisations were identified through the consultation process (e.g., by referral from other participants), EY invited them to participate in an interview. However, EY was unsuccessful in arranging discussions with First Nations groups, and their views are not represented within this report.

Interviewee selection biases:

EY has identified that the following biases may have been present within the selection of stakeholders:

- ▶ **Self-selection into or out of the consultation process:** As participation in interviews was voluntary, EY expects that those with stronger views and more negative experiences may be more likely to self-select to be a part of this process. This may be exacerbated by individuals' time limitations and consultation fatigue, as only those who were highly motivated to provide feedback were likely to participate. The implication of this is that strong, and predominantly negative, views may be overrepresented, and this should be considered when interpreting this report.
- ▶ **Selecting for less isolated individuals:** EY notes that many of the interviewees, including most of the primary Producers, were identified by EY through other contacts. It is therefore likely that this process selected for individuals that were more connected in the community, while more isolated individuals were not reached. This is relevant when considering that isolated individuals may also be disproportionately affected by barriers and challenges to compliance, which is a theme we explore in more detail in Section 4.3.

4. Key stakeholder observations and suggestions

The key observations and suggestions have been organised into three sections, broadly following the regulation phases.

- ▶ Section 4.1 explores the rollout of the regulations,
- ▶ Section 4.2 describes observations of changes in agricultural practices, and
- ▶ Section 4.3 details the perceived impact of the regulations.

For each of these regulation phases, we have identified and summarised the key observations and suggestions raised during our discussions. This includes the key strengths, challenges, and barriers faced in interpreting and implementing the regulations, broader insights into the experience of the regulated community, and key opportunities to improve or amplify the implementation or outcomes of the regulations. Distillation of these key observations was primarily based on the relevance and importance for the Government's statutory review purposes. Additionally, EY considered the relative importance to stakeholders and frequency of mention when identifying key observations.

The key observations are numbered from 1 to 12 throughout the following sections, while the common suggestions have been assigned letters from A to I. These common suggestions reappear in relation to different observations throughout the sections below.

4.1 The regulation rollout process

EY collected insights from stakeholders in relation to their experience in rolling out the regulations across different catchments and agricultural commodities, which included the before, after and ongoing process since the introduction of the regulations. Key observations include:

1. The purpose of the regulations was not well communicated,
2. Perceptions of the notification process were mixed,
3. Support to interpret and apply the regulations was variable, and
4. Engagement with Producers was inconsistent.

1. The purpose of the regulations was not well communicated

Stakeholders noted that the messaging about the rationale and purpose of the regulations was ineffective in motivating practice changes. This was a key limitation noted for the regulation rollout process by both regulated and non-regulated stakeholders. Farmers perceived a tenuous relationship between their practice changes and water quality on the Reef. In their feedback, farmers associated the doubt of this relationship with a lack of data and other evidence to demonstrate that practice changes required by the regulations would ultimately improve water quality.

Environmental groups mentioned that there was a lack of baseline data from which to compare the expected water quality improvements. Even groups that supported the regulations and the need for improved water quality outcomes felt that supporting evidence and data was an omission of the regulation design and rollout.

“

All we heard was that all farmers are harming the Reef – but we didn't understand how this was being measured – there wasn't much evidence to support those claims that I've been shown.

It was done very poorly. It is unfortunate how it was rolled out. Would have liked to see some trial work and data collected and worked towards a regulation.

Banana grower

Some stakeholders felt that providing greater evidence and education on the link between on-farm practices and water quality may have improved confidence in the regulations and uptake. Others expected that, even with evidence supporting the regulations, there would be individuals who would refute the findings due to their unique circumstances, such as crop type, soil type, and rainfall patterns. One stakeholder described this as a challenge of reconciling the evidence of region-wide impacts with their individual operation.

Several stakeholders felt that the messaging around protecting the Reef may not resonate with Producers, particularly those that feel disconnected from the Reef via distance or indifference. This was supported by stakeholder observations of ongoing, deliberate non-compliance and strong pushback from being regulated. Other growers believed Reef health was at record levels and did not see the poor water quality being described, or the need for the Reef regulations.

2. Perceptions of the notification process were mixed

Views on how Producers were notified of the commencement of the Reef Protection Regulations and their requirements varied greatly. The Department notification process included radio and newspaper advertising, media releases, word of mouth at industry events, direct emails, electronic newsletters, and website updates. Approximately a quarter of regulated and non-regulated stakeholders felt that the information and notification effort was sufficient to have made growers aware of the upcoming regulations and the key practice changes required. These stakeholders cited Government consultation, media articles, resources such as an online nutrient management program, webinars, and other supporting information as evidence of this. A range of stakeholders agreed that the dissemination of information was effective, but that some Producers simply chose not to comply.

However, almost half of the stakeholders interviewed across all groups felt that there was insufficient notification provided and suspected that there were landholders still unaware of the regulations. Such stakeholders often did not recall any consultation with Government and noted that they were first made aware of the regulations through key local associations and organisations. Notably, stakeholders flagged that Government's traditional channels for notification may not have been adequate for individuals that were more isolated and disengaged from community networks such as industry groups, grower meetings and online guidance. It was also suggested that such isolation and disconnection may be overrepresented in smaller operations or older growers. Additionally, these groups were noted on several occasions to require greater support to interpret and apply the regulations, and in some cases, considered the least motivated to adopt practice changes.

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Access to data to interrogate claims of improved water quality – really hard to get a hold of this data...its predominantly modelled rather than measured

Environmental / Conservation Group

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[The Government] have done a lot of work in rolling it out... They did a good job of this in terms of communication, the staging, and the notifications of due dates with consistent reminders and so on.

No Net Residual Impact stakeholder

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When we reach out it's often the first time they've heard about the regulations. Most of the time, 95% don't know about them, and don't know they are active. A lot of these people are in the middle of nowhere and they might not see a lot of people.

NRM Group

3. Support to interpret and apply the regulations was variable

There were mixed views on the communication and support provided to interpret and apply the regulations. 15% of regulated and non-regulated stakeholders considered the amount of support provided adequate. For example, one Grazer noted that he sought and received support from Government representatives a number of times over the process. Some banana and Sugarcane Growers also suggested that the instances of ongoing non-compliance were not a result of insufficient support, but rather, was deliberate resistance to practice change and being regulated.

“

There was sufficient support, the rest (non-compliant farmers) were never going to change.

Sugarcane Grower

However, almost 20% of regulated and non-regulated stakeholders indicated that the support provided by government was insufficient. It was mentioned that the information provided through briefing sessions and factsheets was confusing, and that it was unclear how to apply the new requirements to different contexts and business models e.g., mixed enterprises or multi-year cropping systems. One Grazer raised that due to the relatively limited external industry information and guidance on benchmark practices, that there was less support for Grazers than other Producers.

Asking for clarity and advice from the Department was perceived to be time consuming and not always useful. For example, one stakeholder experienced a lack of responsiveness by the Department, while another felt the Department were themselves unclear on the application of the requirements, resulting in growers being unsure if they were compliant until their compliance inspection.

13% of stakeholders, including but not limited to stakeholders from all regulated industries, noted how agronomists, advisers, and other trusted local organisations are critical in supporting regulation interpretation and application. Even Producers who found compliance simple, expected that others in the industry would have struggled without their support. For example, one Sugarcane Grower explained the instrumental support their local Producer services group had provided, and that they expected without such support, other growers, particularly older growers, would struggle to understand the requirements.

“

[Without the agronomist], we would have failed ... to put that into a nutrient budget. I wouldn't have liked to have been doing that without the agronomist.

Banana Grower

Importantly, concerns were frequently raised over the limited availability of such expertise and support. Agricultural Advisers, Agricultural Peak Groups, and Producers also warned that due to politicisation and distrust of the regulations and Government, reliance on local groups to support regulation rollout and implementation could lead Producers to become similarly suspicious of these critical local networks. Examples were given in which certain local groups were perceived as hesitant to support Producers to respond to the regulation, for fear of losing community trust.

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The support of these [field officer] groups has been extremely influential in farmers making change... Once they see things in the market and they are communicated well, they [Producers] themselves will change

Banana Grower

4. Engagement with Producers was inconsistent

There were different perspectives of Government engagement across Producers, both initially and after the implementation of the regulations. As part of the Reef Protection Regulation design and communication phase, the Government engaged in a consultation process including both the regulated and non-regulated community. Some stakeholders, including Producers, mentioned the effectiveness of the consultation process in the lead up to the regulations. They noted that the Government representatives engaged collaboratively, and considered and incorporated feedback in the regulation design. Examples, such as the increased flexibility around the nitrogen and phosphorus budgets in the updated regulations, were cited as evidence of this collaboration. In addition to this, others mentioned positive and cooperative interactions in which Government representatives performed farm visits and exchanged knowledge of the regulations. One regulated Producer noted having constructive communications with staff in the Department and other government agencies such as the Department of Agriculture and Fisheries.

Some Producers and the non-regulated community viewed the engagement between the Government and the farmers as insufficient. Several stakeholders noted that when questions or contradictions on the regulation requirements were identified and raised directly with the Department, the responses were delayed, or unclear. The compliance inspections were also noted by some stakeholders, including Producers and Agricultural Advisers, to undermine relations with growers. These stakeholders indicated that while the compliance inspection experience was reasonable, growers felt unprepared and alarmed by the harsh and accusatory legal language used in the follow-up non-compliance letters. One Agricultural Advisor noted that the mutual understanding and relationship that was built between growers and compliance officers was lost in the change of hands to the personnel managing compliance communications.

“

The level and type of consultation was much better in the 2019 rollout [than in 2009]. I'm impressed ... the timing was realistic and [there was] consideration of feedback from industry and stakeholders

Agricultural Peak Group

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The people doing audit were lovely and very professional, but then the communication material that came out of that was horrendous. The language targeted them like they were criminals even if they had done nothing wrong. [Language like]: *'this is ok but if we find the future that you do anything wrong, we will'....* This creates mental stress for the growers.

Agricultural adviser

4.2 The implementation of on-ground practice changes

EY collected insights in relation to the regulated sectors' experience in implementing the regulation requirements on-ground. Key observations include:

5. Implementation introduced time and monetary costs,
6. For some, the requirements were too complex, inflexible and indiscriminate to apply easily,
7. The regulations targeted the wrong activities and were not felt fairly across catchments and commodities, and
8. A lack of trust in Government negatively impacted the regulation effort and outcomes.

5. Implementation introduced time and monetary costs

Many regulated and non-regulated stakeholders, specifically sugarcane Producers and Banana Growers mentioned that the regulations introduced new costs, for example new equipment and soil testing. Additionally, to understand and apply the required practice changes and reporting, or to involve an 'appropriate person', many stakeholders noted the need to engage agronomists or other advisers. Anecdotally, it was noted that an entire agricultural advisory industry had been borne from the regulation requirements and supporting the nutrient budgets.

Several stakeholders, noted that this cost was not always considered a beneficial investment, as growers would prefer to use such advice for other practice improvements such as water, soil, and disease management. One Agricultural Peak Group articulated this, noting that the narrow focus of practice change on N&P use diminished the resources and effort available to consider broader and more holistic change, which could also increase nutrient use efficiency and support the regulation intent. An Agricultural Adviser noted that staff time was consumed by the administrative tasks, detracting from dealing with issues that impact productivity, profitability, and water quality, like irrigation, soil health, and weed management.

Producers from all sectors and several Agricultural Advisers highlighted that the administration and reporting requirements were challenging and generated a significant time burden. Producers described themselves as time poor, and explained that the record-keeping was extending their workday into the evening. They felt that this was a cost implication or an extension of their job description that in another industry, would be compensated. One Banana Grower noted that the reporting requirements and the system format were not well aligned with the records that most farmers would find useful for farm management.

Some highlighted that these requirements would be challenging for growers who did not have strong literacy or technological skills. For example, one Agricultural Peak Group noted that a major frustration for older growers was struggling to use spreadsheets in reporting. Another Agricultural Peak Group noted that older growers did not necessarily have the numeracy or computer skills to accommodate the N&P budgets. One Grazier described this as an expectation to become 'an expert overnight'.

“

Not easy to justify spending on an agronomist. The smaller growers don't have that luxury of getting the product right, getting the right amount on some blocks versus others, it's impossible. The lack of production gets worse then.

Banana grower

“

Local advisers...do a lot of the N&P budgets with their time rather than the overall efficiency considerations, leading to distraction of resources and less of a holistic approach. It's just about meeting compliance requirements and is seen as a bit of a ticket for

Agricultural peak group

These time and monetary challenges were perceived to be less common and impactful for Producers that were already implementing practice changes, or whose operations already included agronomists. Notably, several stakeholders highlighted the disproportionate challenge for smaller growers to absorb these time or monetary costs. Especially where they were already performing operational roles and must take on further measurement and reporting tasks.

6. For some, the requirements were too complex, inflexible and indiscriminate to apply easily

Some non-regulated stakeholders, as well as stakeholders from the banana, sugarcane, and grazing industries, felt that the regulation requirements were simple to implement, clear, and achievable. For example, one Grazier mentioned that the implementation of regulations did not significantly change their practices as they were already compliant. They believed that compliance with the Reef regulations is relatively easy and that they did not expect it should be time-consuming. This was disproportionately experienced by growers who were already voluntarily engaging in practice changes to improve the sustainability of their practices (e.g., regenerative agriculture practices), or aligning to standards such as BMPs or engaged in other reef-related programs such as GRASS. It was also suggested by some growers and agricultural advisors, that there was an incorrect perception that compliance was complicated.

However, almost 30% of stakeholders, including Producers, Agricultural Advisers, peak groups, and permit holders felt that the regulations were too complex to easily implement, and unclear due to vague wording, contradictions, and lack of clarity on how to apply the requirements under varied circumstances.

For example, an issue commonly raised by Producers, Agricultural Peak Groups, Agricultural Advisers, and other stakeholders was that the requirements were too complex and inflexible to easily put into practice. It was argued that the regulation requirements did not account for important variation in topography, climate, hydrology, irrigation, soil type, farm layout, operation size and product type, which made a simple blanket approach impossible. It was often noted that the regulations would not only fail to apply to the variation across farms, but even within farms, the hypothetical examples and guidance provided did not apply year-round, or under all conditions.

In addition to being complex, one Agricultural Adviser noted that the requirements and the details they were required to report were so complicated and tailored that the supporting technology was not able to deliver on the expectations. A Sugarcane Grower highlighted that there was no platform available for record-keeping and questioned how an audit could be performed given the lack of conformity in the industry.

“

I am a younger farmer and I have the precision equipment. There's a lot of older people who don't have GPS or other technology on their equipment ... For those people it's harder to calibrate.

Sugarcane Grower

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The regs are one size fits all, but it's not like that. For example, there's different soil types throughout the district.

Sugarcane Grower

Reconciling contradictory requirements within the Reef Regulations and between these and existing industry practice requirements and legislation, was noted as a key challenge, for Producers, as well as EA holders and stakeholders under the No Net Residual Impact (NNRI) group. For example, one EA holder and one Grazier, noted that overlapping policy and legislation scope across Departments and differences in underpinning data, created challenges as different instructions and information was provided by the different authorities. This was seconded by an NNRI stakeholder, who pointed to contradictions with existing industry standards and the regulation implications for event-based water release conditions. Another NNRI stakeholder highlighted that the regulations created confusion and non-compliance where there was overlapping, or perceived overlapping jurisdiction across multiple authorities. This stakeholder gave the example of weed management, where growers receive support by NRMs to align to the requirements of the BMPs, however these conflict with the weed management obligations under the Biosecurity Act. As this Act is the responsibility of the Local Government, this was felt to hurt the relationship between the Local Governments and agriculture industry, painting the former as the 'bad guys'.

Lack of clarity in the regulation wording was also noted by a range of groups. For example, an EA Holder noted that while they felt it must not be the intended meaning, their first interpretation of the permit regulations was that they would be best off by discing all paddocks. An NNRI stakeholder noted lack of clarity in the modelling, mapping, and measurement of load underpinning the regulations. Both an Environmental & Conservation stakeholder and an Agricultural Adviser highlighted that wording such as "adequate coverage" in relation to farming documentation was not clearly defined, even when one Producer contacted the Department directly. Other examples across various stakeholder groups included a lack of clarity of how to accurately implement fertiliser budgets, when it was allowable to 'amend' the farm budgets and how to report and budget across multi-year harvests or multiple within-year harvests. The latter was particularly raised by Banana Growers who noted there was nowhere in the reporting requirements and no exceptions in the nutrient allowances that there may be multiple harvests within a year.

It was also noted by several stakeholders, including Producers and Agricultural Advisers, that it felt like the goalposts for Producers kept changing (e.g. from the BMP to the regulations). One sugarcane Producer described confusion and uncertainty due to the requirements appearing to change from year to year. The grower elaborated, that in 2022 they had contacted the Department and been told that mill ash did not need to be included in their nutrient budget. However, they are now being told that it must be included, meaning they must reduce their nitrogen rates, which may impact yields.

“

We spent years managing the event-based release but now it's non-compliant. Especially when these events contribute infinitesimal amounts in the big picture. It should be significant residual impact

No Net Residual
Impact stakeholder

“

We have not expanded our cropping... However, I acknowledge that if we were to increase our cropping, the regulation could pose challenges. For instance, if we wanted to adopt sustainable cropping practices like mixed-species crops or low tillage, the added regulatory layers could make the process more cumbersome and expensive.

Grazier

7. The regulations targeted the wrong activities and were not felt fairly across catchments and commodities

As has been noted previously, as there are key differences among the industry, location, land types, resources, technologies and skills of the regulated individuals and organisations, the impact of the regulations was felt to be unequal. Compounding this, especially amongst Sugarcane Growers and Graziers, there was a perception of unequal and poorly targeted allocation of Government funding to support practice changes. Several felt that the funding was not reaching the areas and individuals for which it would have the greatest impact for farmers or the environment. Others highlighted instances where Producers were being dishonest or fraudulent in Reef funding applications or accreditation program checks. This sense of unfair and inefficient allocation of funding was noted to discourage growers who felt unfairly disadvantaged and undermine grower confidence in the overarching objective of the regulations. For example, one Agricultural Peak Group noted that only 10-20% of growers received funding as the distribution was insufficiently strategic.

In addition to unequal support, there was some sentiment that the regulations are targeting the wrong industries and Producers. Firstly, there are perceptions that there were other industries that were having a more detrimental impact on water quality, that were not being proportionally regulated or managed. Environmental and Conservation groups highlighted that while the agricultural community was showing compliance, mining operations continued to release disproportionate toxicants and wastewater. One Grazer explained that the biggest challenge was the uneven distribution of responsibility, as different environmental authorities and rules seemed to apply for other industries, such as mining and gas companies. Conversely, stakeholders in the industrial and natural resource sectors felt their industry had been inappropriately targeted, citing that, relative to agriculture, their contribution was small. Several growers suggested that regulations were targeting the wrong groups entirely, arguing that farmers would not use excessive amounts of fertiliser due to its high cost.

Secondly, some felt that there were key water quality concerns and contributing activities continued despite contravening the stated objective of the Reef Regulations. For example, one banana Producer expressed frustration that major water quality concerns arising from the sugar mill operation had been overlooked while he had been regulated. Specifically, they pointed to mill by-products such as fly-ash, gas and mud, pooling in ponds on a floodplain, and dispersing thousands of tonnes of ash spilled in each wet weather event. They also questioned how major environmental modifications, such as raising the water level of rivers by dumping trucks of boulders and sediment was allowed to continue. One NRM group expected that the minimum standards regulations will have around a 5000 tonne sediment saving, while investment in a large scale streambank restoration project may contribute over 10,000 tonnes of savings. Several Environmental and Conservation groups raised ongoing land clearing as a major concern that was exacerbating erosion and sediment transport in the catchments. One highlighted the Regulations did not adequately address clearing as despite being in the third year of the regulations, recent reports suggested 47% of land clearing had occurred in the Reef catchment areas.

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A lot of the Reef protection moneys are going to the wrong people...people are cheating their soil tests...some people have received multiple grants, but I have collected none. It's disheartening.

Sugarcane Grower

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It is a soft spot with our landholders – they feel like ‘What is the point of complying this whole time if we are now cutting down all our remnant vegetation and mines are releasing wastewater?’

Environmental / Conservation Group

Finally, among some growers and other stakeholders, there was a strong sense that the regulations failed to identify and prioritise Producers requiring the greatest improvement. Several stakeholders noted ongoing non-compliance, and one Sugarcane Grower likened this experience to two sets of farmers, one with the regulations and one without. One Agricultural Adviser explained that the lack of prioritisation can frustrate compliant growers who see neighbours continue to exhibit poor practices. Another expected that those growers whose practices are having the greatest negative impact are also likely to delay practice change until they are inspected, suggesting these landholders reflect greatest 'bang for buck'. Although the regulation requires that accredited Producers be given low priority for compliance inspections, a few stakeholders even felt that the compliance inspections actively prioritised those who were already aligning to a BMP or the regulation intent.

Relatedly, some Producers and non-regulated groups indicated that the regulations were too 'black and white', without proper consideration for the materiality of non-compliance. It was perceived that through the 'blanket approach' of the regulations, minor non-compliances, such as small nutrient exceedances, were treated similarly to major breaches with significant water quality impacts. One NRM group noted that they had seen very good land managers told off by compliance officers, and warned that this has changed grower attitudes to 'how do I placate' rather than how can we embed constructive practices.

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The problem with this stuff is they never really target the bad people anyway

Agricultural Adviser

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No appreciation that for the small farms - the regs don't make sense as they won't have an impact on water quality...and little appreciation of the different weather along the 1100km of coastline and so on.

Agricultural Peak Group

8. A lack of trust in Government negatively impacted the regulation effort and outcomes

Producers distrust of the Government was noted during a number of discussions, particularly with sugarcane Producers. Both stakeholders who felt positively and negatively about the regulations noted that some growers held a sense of distrust of the Government which presented a barrier to compliance. Others noted a strong industry pushback against being regulated and the sense that this 'stick' approach may have reduced engagement and compliance.

During our consultations, a key barrier to the required practice change noted across a range of stakeholders, was grower distrust of the regulation rationale and of Government more broadly. There was a common sentiment of concern around the science and data that the Government had drawn upon in development of the regulations and guidance materials, compounded by the sentiment described earlier, of insufficient evidence justifying the regulations. A number of Producers, particularly Sugarcane Growers, suggested they did not believe the underpinning rationale for the regulations. For example questioning whether nutrient transport from their industry reached the GBR, whether this had a material impact on the Reef health, or whether the Reef health was reduced or vulnerable at all.

One Agricultural Adviser articulated that a lack of belief in the science was the first key barrier to success of the regulations, noting that there is doubt about the accuracy of publicised water quality impacts due to perceived potential for sensationalism. This was corroborated by a stakeholder with prior experience in Government, who explained that there is significant distrust in science among growers, and as the regulations are said to be based in science, growers feel suspicious and adoption is slowed.

This stakeholder, as well as Producers and stakeholders from NRM, NNRI and Agricultural Peak Groups, also highlighted the belief that Government and associated organisations may share grower's record-keeping and other information, especially regarding fertiliser usage, or use this information against Producers. One Grazier gave the example that as policy has become more enforcement-based, officers from the Department of Natural Resources, who would visit farms and assist on-ground, have experienced growing mistrust and fear that data shared with one Department may be used as evidence of non-compliance by another.

This stakeholder, as well as stakeholders from NRM and Agricultural Peak Groups, also highlighted the belief that Government and associated organisations may share grower's confidential information, especially regarding fertiliser usage. For example, one Grazier explained that officers from the Department of Natural Resources would visit farms and assist on-ground, however as policy has become more enforcement-based, there has been growing mistrust and fear that information shared with one Department may be used as evidence of non-compliance by another. Several stakeholders including one sugarcane Producer also highlighted that key local organisations were now hesitant to support the regulations, for fear of being closely associated with Government.

Another challenge was that this frustration and distrust was heightened by perceptions of misinformation and politicisation of the regulations. Several stakeholders explained that the regulated community was sometimes exposed to limited or misleading information describing the regulations and the underpinning science. A number of Agricultural Advisers explained that certain groups were encouraging the politicisation and distrust of the regulations. This sentiment was corroborated by one Sugarcane Grower who noted that a Peak Agricultural Group had promoted negative information on the regulations to their members. Another noted this misinformation was also generated by farmers themselves. A few stakeholders, including an Agricultural Peak Group, also highlighted that many growers received advice from individuals with a conflict of interest, such as advice on fertiliser rates from their long-standing fertiliser supplier.

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There has been attempt by industry to debunk the science and I'm unsure how you would overcome this.... There is a deeply embedded attitude amongst growers that 'we know what's best'.... It doesn't matter what you do, they won't believe you.

Environment / Conservation Group

A further barrier to trust was that the regulation design and the interactions between the Government and stakeholders, gave stakeholders the impression that their practices were not well understood. Some stakeholders, in particular, sugarcane and Banana Growers, felt that the Department and the compliance officers visiting the farms had an insufficient understanding of on-ground processes and constraints. For example, several sugarcane Producers noted that the compliance officers did not have an appropriate understanding of cane farming practices in the region, and that they had to justify and explain their operations. This has resulted in losing confidence in the process and the regulations.

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Additionally, a non-regulated stakeholder noted that the regulations and accordingly, the compliance officers, were too focused on minor details, with a view to testing for a level of precision that is infeasible on-ground, rather than keeping the whole-of-farm reconciliation in mind.

(I have) no confidence in Government at all – I only have confidence in my own work because I test it on my blocks.

... Someone that knows nothing about farming to come and tell me what to do... I started implementing it before I even had to, but now I don't want to due to the flaws.

Sugarcane Grower

Some banana Producers felt that the regulations for their industry were based on guidance and information from the sugarcane industry and considered this inappropriate. Other non-Producer stakeholders noted inaccuracies, inadequate resolutions on soil types, and incorrect interpretations of maps used by the Department, with some noting the potential for inappropriate fertiliser budgets being developed. This lack of adequate understanding was noted to further diminish Producer's trust.

4.3 The impact of the regulations

EY collected insights from stakeholders in relation to the impact of the regulations on farming practices, water quality and broader positive or negative impacts on the community. Key observations include:

9. Practices have improved, however there is ongoing non-compliance,
10. There are conflicting views of whether water quality has improved,
11. The regulated community experienced additional negative impacts as a result of the regulations, and
12. Some areas and individuals have experienced additional positive impacts.

9. Practices have improved, however there is ongoing non-compliance

During our discussions with stakeholders, we asked whether they felt that Producer’s practices had changed as a result of the regulations. As shown in Figure 3 below, 20% of stakeholders noted significant changes, 41% saw minor changes and 26% indicated that no change had occurred. Primary Producers, Agricultural Peak Groups, and Recognised accreditation program providers accounted for 95% of stakeholders indicating ‘minor changes’ had occurred, while Primary Producers and Agricultural Peak Groups represented nearly 55% of stakeholders noting ‘significant changes’. Stakeholder groups believing there was no change in practices included Primary Producers (9), Environment and Conservation Groups (3), Agricultural Peak Groups (1), and NRM Groups (1).

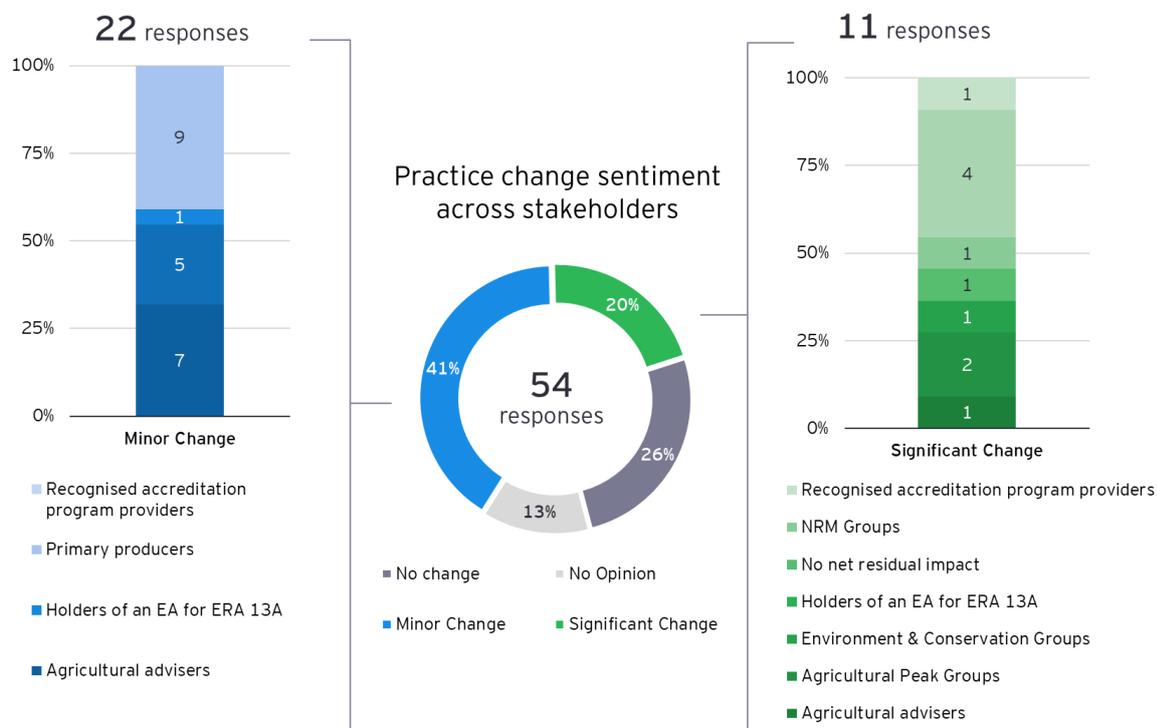


Figure 3: Practice change sentiment from stakeholder discussions¹⁰

¹⁰ It is important to note that the 54 stakeholders are not evenly distributed across each stakeholder group, where primary Producers reflect 41%, followed by Agricultural Peak Groups (20%), Environment and Conservation Groups (1%) and all other groups (<1%).

Where Producers saw little or no significant practice changes, these farmers were often already operating in line with, or surpassing the regulation requirements. Often, these farmers had already embraced regenerative practices, or aligned to existing voluntary frameworks, such as 6 Easy Steps for canegrowers, Best Management Practices (BMP) for Banana Growers, and the Grazing Resilience and Sustainable Solutions (GRASS) program for Graziers.

However, in some cases, the lack of practice improvement was attributed to deliberate non-compliance, due to the challenges of implementation outlined previously. Other Producers were sceptical that their practices and any practice changes, would result in sediment run-off or other impacts to the environment beyond their farm. A sugarcane and a banana Agricultural Peak Group corroborated that this scepticism was common in growers across these regulated industries. Despite this, there was a sense that practices were improving across the regulated community, particularly for those that were previously operating below the best practice standards.

For the non-regulated stakeholder groups, perspectives on practice improvements were more mixed. Some echoed the sentiments of the Producers, that progressive growers would already have implemented this practice, and the regulations were deployed to prompt late adaptors. Others recognised practice improvements but noted that a range of other factors made it difficult to attribute change to the regulations. Several indicated that the degree of change was insufficient and that, in spite of the regulations, they still observed land clearing and overgrazing, driving erosion, gullyng and sediment runoff.

A common theme across both the regulated and the non-regulated groups, was that while practice improvements had occurred, there were ongoing compliance issues, especially for individuals reluctant to change. One sugarcane Producer described this as resulting in two sets of farmers, one with and one without the rules being applied. One Grazier explained that they weren't sure if there had been any practice change, as they hadn't heard of any enforcement or compliance inspections occurring.

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Yes, [the regulations] have resulted in practice changes. [Fertiliser] rates have definitely been reduced with the regulations... Practices have improved but that's because its regulated.

Agricultural Adviser

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The regulations did not greatly change my practice - I already had most of the stuff required to more than fit in with the regulations in place.

Grazier

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Over the last 10-15 years, those that were going to change would have – the ones who didn't change wouldn't have anyway.

Sugarcane Grower

10. There are conflicting views of whether water quality has improved

Across the regulated and non-regulated stakeholders, there was a range of perspectives on whether the regulations had resulted in improved water quality. As shown in Figure 4, the stakeholder groups believing there was a 'clear improvement' were predominantly Primary Producers and Environment and Conservation groups, each comprising 27% respectively. Stakeholders 'expecting an improvement' in water quality predominantly comprised of Primary Producers, representing 70% of these responses. However, stakeholder groups expressing that there was no improvement in water quality included mostly Primary Producers (6), as well as Agricultural Peak Groups (3), Agricultural Advisers (2), Environment and Conservation Groups (2), No net residual impact groups (2) and Recognised Accreditation Program Providers (1).

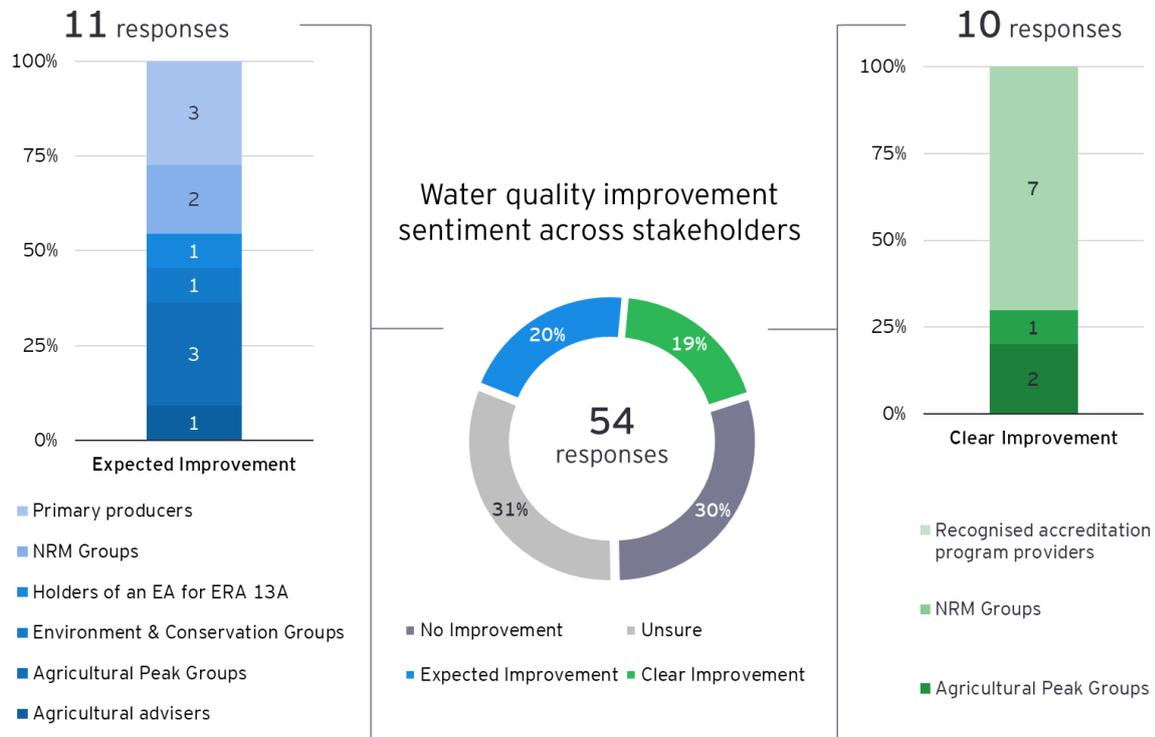


Figure 4: Water quality improvement sentiment from stakeholder discussions¹¹

Several stakeholders felt assured that the regulations had improved water quality. More commonly, however, the stakeholder did not know. Many Producers and non-regulated stakeholders expected that the water quality should theoretically be improving, however, acknowledged that there was limited evidence available to support this. Some explained that it was too soon to tell, and it would take years before the practice changes in practice would translate into improved water quality outcomes.

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Yes, there's enormous change compared to our bare ground percentage. Can't imagine how it wouldn't help [there's] reduced sediment [going] into the Reef.

Grazier

¹¹ It is important to note that as the 54 stakeholders are not evenly distributed across each stakeholder group, where primary Producers reflect 41%, followed by Agricultural Peak Groups (20%), Environment and Conservation Groups (1%) and all other groups (<1%).

Both regulated and non-regulated stakeholders that did not expect water quality had improved, tended to point to examples of ongoing non-compliance, and other polluting activities. There was a common expectation that this could be overcome with increased enforcement.

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There isn't anything wrong with the Reef

Sugarcane Grower

Amongst Producers, it was raised that some of the farmers contributing most significantly to water pollution had not been impacted by, or changed their practices in line with the regulations. Some Producers also believed that the catchment and GBR water quality was already very good, and the regulations were redundant.

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I dive whenever I can... For years I've been saying the same thing to deaf ears: of course you can't physically see the reef change – but it has to be and will be making a difference.

Banana Grower

Amongst the non-regulated stakeholders, there was also sentiment that the regulations could have a positive impact on water quality, however they did not go far enough in terms of scope and enforcement. Environmental and Conservation Groups raised concerns that key water pollution issues were not being addressed by the regulations. A recurring example was ongoing land clearing, which exacerbates the problems of erosion and sediment runoff and causes broader ecological harm. Three of the Environmental and Conservation Groups considered this issue to be a deterministic factor of whether the 2050 water quality targets will be reached.

With regard to the ERA13A component of the regulations, one EA holder expected that there would have been limited impact on water quality. They expected that too few permits had been issued to achieve an improvement as most of the suitable areas have already been developed, and sediment continued to come off the key contributors' blocks. An Environmental and Conservation Group stakeholder, however, expected that it was effective and had pushed people to think twice about land clearing.

11. The regulated community experienced additional negative impacts as a result of the regulations

Both regulated and non-regulated stakeholders identified negative impacts of the regulations, such as business viability, mental health, and having unintended negative consequences for on-ground practices. One significant impact noted by many growers, was the associated time and monetary costs that have been detailed in sections above. This was often raised in conjunction with comments that many growers are already vulnerable to input cost increases. Some expected that such costs, alongside reduced production due to lower fertiliser rates and land expansion restrictions, was impacting business viability and reducing the size of the industry. It was expected that smaller growers, with fewer skills and resources to adapt to the change, were more likely to be negatively and driven from the industry.

Conflicting views were raised over the regulation impact on productivity and yield, particularly concerning the nutrient budgets. While some stakeholders, including Producers, expected that the reduced fertiliser rates would not significantly impact yield, there was a common sentiment amongst banana and Sugarcane Growers that this had reduced, or was expected to reduce, the yield of their crops. One Agricultural Adviser articulated a common view, that what works in one region will not work in another; citing examples where in the Tully, they had seen great yields alongside reduced nitrogen and phosphorus costs, but expected this wouldn't be the case in Innisfail, given different soil types and farming practices.

In addition, there were several detrimental mental health and social impacts experienced by the regulated community. Firstly, a number of Producers noted significant mental stress associated with the fear of being found non-compliant. Stakeholders pointed to a lack of clarity around what compliance looked like, harsh legal jargon in formal compliance communications, and long wait times between the compliance inspection and the follow-up determinations as key drivers for this stress and apprehension. One Agricultural Adviser explained that growers often did not understand the compliance inspection process, and assumed that they would receive massive fines or be jailed for non-compliance. Several Producers also noted that the act of being regulated, combined with external media around the agricultural sector's impact on Reef health, made them feel vilified as "environmental vandals" and generated disconnection from others in their community and the state.

Further, it was suggested that the regulations may have resulted in unintended negative consequences to do with engagement, such as a reluctance to explore more holistic practice improvements or a general disregard for environmental issues. Several sugarcane Producers and one agricultural advisor suggested that the regulations have discouraged early adoption of positive practice improvements and that Producers felt reluctant to share information with the Government or anyone associated in case this encouraged scrutiny or further regulation in the future.

Finally, it was suggested by two banana Producers that there were likely unintended environmental impacts arising from the practice changes. They pointed that reducing productivity would increase the amount of land needed to produce the same amount of produce, and consequently, greater environmental degradation and sediment erosion. One also highlighted that systems such as silt traps sacrificed a large amount of land and could have harmful impacts on native biodiversity.

12. Some areas and individuals have experienced additional positive impacts

Both regulated and non-regulated stakeholders identified positive impacts resulting from the regulations. Several non-regulated stakeholders as well as Producers, felt that the regulations had generated greater consciousness of the impacts of nutrients on the environment and the Reef, and resulting nutrient management.

Additionally, there has been a sense that the regulations have raised conversations and awareness around other, more holistic practice improvements, particularly in groups that were less mature in farm management and sustainable practices. In this way, the regulations were perceived to serve as a catalyst for change towards improved decision making and adopting more progressive practices.

For example, better understanding of biogeochemical cycles and the economic benefits, such as water conservation and waste management were noted to contribute to a growth in the circular economy mindset among farmers. One Agricultural Adviser described the regulations as allowing farmers to make choices better informed by evidence, for example for greater cost efficiency when using fertilisers. An Agricultural Peak Group noticed sugarcane Producers had increased willingness and interest in technology and precision applications and engaged in less wholesale land preparation.

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If depression and anxiety was on a scale of 10 – the impact of this regulations [would] have to be at least a 9.

Sugarcane grower

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Yes it's made improvements to practice change but it's also limited the ability of people to make adjustments and improve production

Agricultural Adviser

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It has resulted in increased conversations around ground cover for the grazing in the Burdekin catchment... There is a slow societal shift to be more conscious through the mention of the regulations

Grazier

This shift towards more sustainable practices, was noted by some growers to generate clear benefits such as fertiliser and water use efficiencies, reduced water table level in drought prone areas, and greater business resilience. One Grazier also noted that compliance, through balancing cattle management and the preservation of ground cover, could improve profitability, through improving the land and grass condition and consequently, reduce supplementary feed purchases and cattle loss. Witnessing and hearing of these benefits, and the benefits from farmers who were already implementing sustainable practices prior to the regulations, was felt to be very influential for a proportion of the market, and increased momentum for sustainable practice adoption. For example, one farmer who effectively implemented changes on their farm, expressed the ability to guide and demonstrate to fellow growers the benefits of adopting similar practices. An Agricultural Adviser noted that some Producers have adopted practices that support greater soil health and reduce soil transport during monsoons, which has encouraged others to try new practices.

In addition to on farm benefits, there were suggestions by some non-regulated and regulated stakeholders that the regulations may also foster benefits to the broader population such as:

- ▶ Significant improvements in technology arising from the shift in practices, through the demand and investment in innovative solutions and equipment,
- ▶ Reduced impact of chemicals such as pesticides on the environment and the community,
- ▶ Biodiversity benefits for the regions through increased awareness and adoption of regenerative and sustainable farming practices (e.g., reduced dryland salinity, improved habitat, etc.), and
- ▶ Improved water quality theoretically leading to improved tourism on the GBR.

One stakeholder within the NNRI group noted that the regulations had driven increased focus on the management of erosion and sediment control in the mining sector, giving rise to new research, improved identification of gaps in these plans, and collection of more data. The stakeholder noted that while they may have already been compliant, the knowledge that these conditions would be scrutinised by the Government led to increased focus and development.

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The idea with the cattle grazing, trees are seen as a waste of space and considered evil with Graziers. But they realised if we keep the trees there are all kinds of benefits like shade and improved water table and fatter

Environment / Conservation Group

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Probably a benefit of the regs is that there's increased understanding in terms of what they were doing on farm in terms of potential impact ... Maybe conversations are starting to generate on other opportunities beyond water quality... improving biodiversity and whole farm as a package... to look for co-benefits. It raised the profile a bit.

Agricultural Peak Group

5. Key stakeholder suggestions

Communication and engagement

A. Improve messaging on regulation rationale and impact

Relates to Observation:
1

The Government should have better articulated the rationale for the regulations and the underpinning science early in the rollout process. For example, this should have included the intended impact, providing clear evidence to support the pathway from the required practice changes to water quality improvement and improvements in Reef health. It was also suggested that data should be collected on an ongoing basis to demonstrate, to those Producers who are complying, that their efforts are making a difference.

Additionally, stakeholders recommended communicating the potential on-farm benefits of the practice changes and broader sustainability improvements to better engage with Producers, such as the potential for reduced costs, water savings, long-term productivity, and increased profitability with improved farm and system design. An Agricultural Adviser gave the example for grazing, that well managed land, with ground cover and appropriate stocking rates, could reduce runoff but also soil condition and moisture, supporting business resilience, drought resistance, productivity and profitability. An Agricultural Peak Group highlighted the opportunity to improve Producer understanding of, and clarify the opportunities in emerging markets, such as carbon sequestration, biodiversity conservation.

There was also sentiment from a number of stakeholders, particularly Agricultural Advisers, that given the strong pushback from certain Producers, more focus should be placed on driving behaviour change through support from trusted groups. For example, one suggestion was to increase understanding in the importance of the change, and then to support farmers to have the confidence to make a change and remain profitable.

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The nitrogen and phosphorous cap should have been road tested by experts... If they can make sure its relatable to the growers, then they know it's something meaningful.

Agricultural Adviser

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It takes time and energy to change views [of people], who have been doing something specific for years.

Agricultural Peak Group

B. Improve engagement and channels of communication

Relates to Observation:
2, 3, 4, 7, 8

To improve relations between the regulated community and the Government, stakeholders suggested that the Government take a more active local role to lead communication, engagement, and education of the regulated community. It was also suggested that this greater consultation, as well as more direct engagement with Producers could drive improved adoption of practice changes by 'bringing regulated industries along' through the process.

To maximise the reach of the communications, particularly for more isolated individuals, it was suggested that this be delivered in a variety of formats. For example, stakeholders recommended providing short online instructional videos and frequently asked questions that can be shared and watched at a time-poor Producers' convenience. Suggestions for more isolated individuals included mail communications, notification boards at supply stores (e.g., fertiliser stores), and in-person visitation by field officers and representatives.

Producers that had not been involved in prior Government consultation with exhibited a strong sentiment that having a Government representative visit their farm and engage with them prior to the regulations would have supported mutual understanding, more collaborative relations and better outcomes.

On-ground consultations and informal farm-visits were also recommended to build rapport and facilitate more effective communication pathways, reduce 'bureaucratic' and other communication barriers (e.g., technological) between the Government representative and the Producers. It was also suggested that where this had been done, it had provided the Department with a deeper understanding of the challenges of applying the regulations in varying contexts and supported cooperation.

Additionally, building this relationship with growers, as well as engaging and consulting early in the regulation implementation process, may help to reduce grower stress associated with potential non-compliance. Providing more and clearer information on compliance requirements and 'what to expect' as part of the compliance inspection process, as well as engaging more directly with the Producers in the lead up to the visit, was suggested to mitigate the significant stress and apprehension experienced by the community. Specifically, stakeholders highlighted a need for clarity around the wait times between the inspection and the next communication, the legal communications they can expect to receive, any next steps that they may be required to fulfill, and the potential consequences of findings of non-compliance.

It was also highlighted that to improve trust in the Government and in the regulations, there should be greater transparency around how the regulations aim to achieve improved water quality. This was recommended to include evidence demonstrating the areas, industries or practices identified as having the greatest risk of water quality impact, and how the Government have prioritised the regulated sectors and activities. For example, some

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Needs to be less of the top down. Growers need to be brought on as partners in the district and be part of the solution rather than just being seen as the problem and having these regulations thrust upon them. The engagement locally is going to be the key to success.

Agricultural peak group

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If you go to a fella's place and you show him how to fix a gully properly, he will probably do the rest himself. All the social things are massively in play with these Producers – they are the king of their own principality.

Agricultural adviser

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Stop people from doing this behind a desk. They have to get out there and talk to growers on the farms and say how do you fellows do this.

Sugarcane Grower

stakeholders requested that a review of the greatest water pollution contributors, perceiving a disproportionate impact of mining areas on water toxicants, relative to agriculture.

Finally, many stakeholders suggested Government should also recognise the key role that local organisations play in supporting Producer’s awareness and understanding of the regulations and education on best practice. It was underscored that these key groups, such as LGAs, NRMs, industry associations, agricultural advisors, retailers, First Nations groups, and other local organisations, are well placed to support the dissemination of current and accurate information in a way that is most relevant and accessible to Producers. These groups may be perceived to be more collaborative and trustworthy, particularly where there has been long-standing engagement with the community, and they have been involved in delivery of funding and other support. Accordingly, there should be greater engagement and consultation with these groups, to identify key risks and opportunities specific to the local and regional contexts, and to reach more isolated, growers.

However, it was also noted that too much reliance on local organisations could conflate their supporting roles with the perceived ‘policing’ roles of Government, and foster distrust for these key groups and networks. As such, Government should actively and vocally lead the regulation communication, education and delivery, and any collaboration with local groups should be clearly delineated. One Agricultural Adviser suggested that positive engagement and greater trust could be fostered by Government showcasing the positive actions of the industry in the media, and addressing perceptions that the regulations may intensify in the future.

Notably, it was suggested that LGAs are well placed to bridge this gap, as they are already perceived to be associated with Government and have the appetite to do more to support the local communities. Another stakeholder recommended that the Department collaborate with wider Government initiatives for greater outcomes in the carbon and water quality space, noting related programs for the Department of Agriculture and Fisheries and the commencing program by the Federal Government to provide carbon farming extension services for Graziers.

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Very important that the Government needs to be delivering the messages - they cannot be delivered through the local groups on the ground because the grower will lose the trust and respect of those people they deal with on the ground and day to day.

Working through these services to get attendance at events – that’s fine. But then giving the actual workshops needs to come from Government.

Agricultural Peak Group

C. Increase knowledge sharing, education and upskilling

Relates to Observation:
1, 3, 5, 8

To improve understanding of the regulation purpose and the need for practice change, it was suggested that the Government provide educational resources on the underlying science and rationale for the regulations. For example, one Banana Grower noted that, through other Reef programs, growers are supported to attend a nutrient management course which was not only beneficial for the growers but supported a deeper understanding of the reasoning behind the regulations and the importance of the measures being implemented.

To equip growers with the necessary knowledge and skills to comply with the regulations, stakeholders suggested the provision of training programs and workshops that are aligned with the objectives of the regulations. Case studies, best practice examples, and knowledge sharing amongst peers were suggested to support the accessibility and relevance of the information, and present examples of how practice changes can be tailored to on-farm conditions and constraints. Sustainable farming techniques and designing farm systems for sediment and erosion control were also highlighted as key training areas to support water quality and other outcomes.

It was also noted that the Government needs to recognise different levels of administrative and technical knowledge and capabilities across the regulated community, and provide training and education opportunities to support compliance. This was recommended for the administration and record keeping processes, with several Graziers noting the potential utility of short, small, and localised workshops and meetings. One sugarcane Producer suggested that the compliance officers or other staff could attend sites, openly offering to support with the N&P budgets, provide clarification, and supply tools to support reporting compliance. This was corroborated by an Agricultural Peak Group, that suggested where growers cannot access an agronomist, the Department could provide on-site courses, demonstrating the requirements in practice. Another sugarcane Producer suggested that the Department could also support greater research and education on alternative fertiliser options that may have reduced impact on waterways.

A further suggestion was around the perception among some stakeholders that Government staff, including compliance officers, did not fully understand on-ground practices. It was recommended that additional capacity building was required, to develop greater understanding and awareness of the variety of on-ground practices across different regions, product types, irrigation systems and so on. This was expected to support relations on-ground and greater recognition of the farm-specific complexities of implementing the regulations. For example, an NNRI stakeholder suggested that in developing the regulation, it should be ensured there is appropriate technical understanding of the underpinning subject matter.

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The reef regs are easy to achieve, but it's an awareness issue. There could be more focus and money spent on getting the message out there to get people compliant. Maybe they need more boots on the ground to get their message out and be more available for workshops to grazing groups.

NRM Group

Data and tools

D. Improve data availability and transparency

Relates to Observation:
1, 10

A common suggestion across the spread of stakeholder groups was the need to improve the availability and quality of data linking on-farm practices to water quality and reef health on the GBR. While it was acknowledged that certain individuals would remain sceptical, there was strong sentiment that transparent and publicly available data evidencing this link would have improved regulation design and rollout.

For example, several Agricultural Peak Groups, Agricultural Advisers and Producers, recommended that to improve the regulation messaging and justification, validate Producers' compliance efforts, and increase provider confidence and trust in the regulations, the Government should have provided robust data evidencing nutrient and sediment transport from farms to the reef, and data demonstrating that the required practices have a material impact on water quality.

To enhance the perceived reliability of this data, it was suggested that the publicly available trials be conducted over various regions and operational contexts, such as different soil types, irrigation methods, hydrological systems, rainfall patterns, and so on. One Agricultural Peak Group noted that the regulations were based on data that should have been based on such detailed on-farm and catchment water quality monitoring, rather than modelling. They explained that Producers are sceptical of modelling as it is perceived to be based on unreliable assumptions, whereas monitoring on-farm runoff and change is considered more 'real'. A stakeholder from the NNRI group suggested undertaking an environmental monitoring programme for the receiving environment, and developing models for agriculture similar to those already used by the mining industry.

There was also a sense that most nutrient and sediment runoff is emanating from a select number of Producers and catchments. To improve the uptake and the outcomes of the regulations, it was recommended that the Government use evidenced-based methods to identify and focus the regulations on key contributing areas, practice types and operations. For example, several stakeholders suggested that water monitoring at key catchment points be used to determine which localities were having the greatest impact, and focus regulation and compliance efforts there. Others felt that regardless of the information provided in the future, there is an overarching sense of distrust that will have to be overcome first.

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Is it even making a difference and if not why? At the ground level people aren't getting that feedback – the engagement locally is going to be the key to success.

They have all the data there accumulating, and each basin or district should model the water quality over time... Data sharing issues could be overcome - even if not spatially specific... or if just in practice change rather than water quality.

Agricultural Peak Group

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CSIRO has water sampling devices throughout the catchments – 100 devices from Cairns to Mackay. Bring up the map where all the devices are and you can read the nitrogen and other measurements. Measure it at the head and bottom of catchment and if there is evidence that one of those has an exceedance then go and check the farms in the area.

Sugarcane Grower

E. Develop and improve supporting tools and simplify informational resources

Relates to Observation:
3, 5, 6, 11

Many stakeholders suggested that more guidance should be made available to support interpretation and application of the regulations, with simplified language and clearer instructions. Specifically, it was recommended such guidance could be industry-specific and aim to address potential or commonly experienced challenges and frequently asked questions and provide clear examples of what compliance looks like in practice. Several stakeholders also suggested providing videos explaining the key requirements in simple, accessible language, that can be accessed at a time suitable for the Producer.

Stakeholders also recommended the Government provide improved and simplified tools, notebooks, and templates to Producers to support greater compliance and easier and less time-consuming administration and reporting. Simple technological aids such as digital applications for mobiles, were also suggested to assist with record keeping. One stakeholder underscored this, noting the importance of farmers being able to understand and confidently complete their own nutrient budget and reporting.

There was also feedback that there should be greater peer-reviewed research and information made accessible to Producers. For example, as the nutrient limits were reported to reduce productivity for some farmers, some stakeholders suggested research on alternate practices or inputs that could maintain productivity while meeting the regulatory requirements. Others emphasised that a better understanding of mechanisms and paddock designs to stabilise and control sediment in rainfall conditions was needed.

Finally, a number of stakeholders, including Producers, Agricultural Advisers, Agricultural Peak Groups and others, suggested the Department support greater research into, or provision of, specific technology and infrastructure to support water quality outcomes, including but not limited to:

- ▶ Sediment detention basins to catch and recycle the water to improve the water quality before it leaves the farm,
- ▶ Automated flood irrigation to reduce nutrient runoff more effectively,
- ▶ Use of additional and existing (e.g., CSIRO) catchment sampling to support more effective and timely monitoring and identification of areas with key water quality issues, and
- ▶ Technology enhancing the ability to apply variable rates of nutrients and reduced tillage. For example, an Agricultural Adviser recommended that instead of regulating volume or frequency of nutrient application, which may not be appropriate across unique farm and soil types, the Department should offer support to transition to scheduling tools and software.

Notably, in considering reviews and revisions to the regulations, one Grazier also suggested the Government should anticipate changes in the technological landscape and opportunities in evolving technology in the coming years.

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While regulations are in place, leveraging technology and automation in irrigation presents the biggest opportunity.

For example, implementing software that advises on irrigation scheduling and records can significantly improve water quality. Recent local data showed a 40% reduction in dissolved nitrogen runoff from fields due to adoption of improved irrigation practices. In comparison, reducing nitrogen use by 40% might only result in a 10% change.

Agricultural Adviser

Reviewing the requirements

F. Review and improve incentives and allocation of financial support

Relates to Observation:
5, 7, 9, 10, 11, 12

It was a common sentiment that farmers have limited influence over prices and are very sensitive to any additional costs. Some stakeholders, including sugarcane and banana Producers, suggested increased or more accessible financial support to offset the monetary and time costs to implement the practice changes. For example, one Agricultural Adviser recommended greater funding to engage agronomist support, and an Agricultural Peak Group recommended a grant system for extension officers to work with growers until they reach compliance.

Stakeholders also suggested that in addition to or instead of the 'stick' of the regulations, the Government should have incentivised best practice or practice improvements. Formal recognition, improved access to financial support, and targeted financial incentives were recommended to encourage greater and more sustainable practice improvements. Such incentives should explicitly recognise early adopters and stakeholders already operating in line with best practice and regulation intent to avoid potential perverse incentives, such as delaying practice improvements.

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Avoid the stick, give them a carrot. [Currently, there is] no reward for improving land condition and ground cover.

Grazier

A key non-financial incentive suggested was public recognition of leading practices. For example, one Environmental and Conservation Group stakeholder suggested introducing accreditations such as a GBR Marine Park Authority 'Reef Guardian Farmer', that championed high performing farmers in the media. A Grazier noted that regulatory compliance could be used as another 'feather in the cap' for product branding; similar to carbon neutrality, this milestone could be a mechanism to celebrate and recognise performance.

Market mechanisms and financial incentives that value the delivery of key environmental benefits were also identified as opportunities to drive holistic practice improvements and water quality outcomes. For example, some stakeholders suggested that the regulation requirements could be aligned to existing environmental credit schemes, such as carbon credits for increased ground cover and soil health, or new credit schemes, such as a 'blue' water quality credits for innovative drainage systems reducing sediment export. One Agricultural Peak Group noted that the Reef Credits mechanism was difficult to apply at the individual grower level, as the scale was not large enough to justify the documentation requirements. They instead recommended a process that was easy for the Producer to adopt, such as payments to fertiliser providers to reduce the cost for enhanced fertiliser types.

Other stakeholders suggested that compliance or improvements beyond compliance could be rewarded with subsidies or product price premiums. One Grazier suggested that land condition metrics such as ground cover could be tied to discounts on council rates and land rent. It was noted however, that such mechanisms would require strong support from advisors, which are noted to have limited availability.

In any case, it was recognised that any funding should be well managed, with strong supervision of the allocation to priority areas and to appropriate costs (e.g., machinery, labour and so on) to support the intent of the regulation. For effective allocation of any funding, it was proposed that incentives should target specific, high-impact upgrades and reflect the unique conditions and needs of each region. For example, water recycle systems in irrigated areas like the Burdekin can reduce sediment and fertiliser runoff while reducing water use and improving profitability. In grazing regions, focusing on restoring waterways will have the greatest impact on reducing erosion and sediment runoff. It was also suggested by one Grazier that any program that rewards good performance, should not create perverse incentives such as delayed action, for example by rewarding practice improvements and inadvertently penalising those who have already improved practices.

G. Increase focus on enforcement to accelerate adoption

Relates to Observation:
9

As noted in the stakeholder observations above, there was feedback received across a number of non-regulated and regulated groups, that there was continued non-compliance, and other un-regulated activities expected to be impacting the water quality. To address this, several regulated and non-regulated stakeholders expressed the need for improved inspection and enforcement. For example, one Sugarcane Grower expressed that they wished there was more paddock compliance checks and more enforcement, to overcome the unfairness of some farmers operating outside the rules.

This suggestion was most common among Environmental and Conservation groups, where it was felt that greater and more targeted enforcement efforts were required to achieve the regulation purpose. One was suggested that Government effort should have focused less on education and resolving and responding to industry pushback, and instead focused on earlier compliance interventions and a clear message that non-compliance is illegal. They also felt that as the carrot approach, with a number of incentives to cane growers over the last decade, had not resulted in practice changes, Government should not hesitate to enforce compliance. Another noted that the greatest barrier to enforcement was the scale of the roll-out, and suggested compliance effort should have been prioritised based on water quality risk. Concern was often raised that the current trajectory of the regulations was insufficient to support a reef resilient against climate change, unless rapid action was taken.

As noted previously, other stakeholders, including some Sugarcane Growers, Agricultural Peak Groups, and Agricultural Advisers expressed disagreement with the 'stick' approach of the regulations, suggesting instead an educational approach, a 'stick and carrot' approach, or a combination of the two. For example, one Sugarcane Grower felt that the big stick approach lead to greater isolation of farmers rather than engagement, and instead, the Government should focus on education of growers in a manner that is accessible and relevant to them. As described in suggestion F above, certain stakeholders felt that greater compliance could be encouraged through financial incentives. One Agricultural Peak Group suggested that the Government should provide a carrot in the form of a payment to reduce fertiliser, and / or a stick in the form of a tax on fertilisers.

“

There will always be Producers out there who will do the wrong thing. ... Unfortunately, until they start wielding the big stick, probably nothing will happen.

Grazier

“

The obvious solution is the stick...until you have 100% compliance, wont have 100% uptake and until that happens, we won't save the reef... We need that big stick. The Government should come down heavy and do it quickly.

Environmental / Conservation Group

Tailoring the regulations

H. Focus on material water quality risks, opportunities, and outcomes

Relates to Observation:
7, 9, 10, 11

A common recommendation from stakeholders, particularly in relation to regulation distrust, perceived unfairness and effectiveness, was to more clearly and robustly identify high-risk activities and the most material contributors to water quality. It was felt that as these may fall outside of the current regulations, the regulation of a certain activity, group, or area should be supported by sufficient justification that this will be materially beneficial to the local environment and the GBR. For example, several non-regulated stakeholders expressed frustration with ongoing land clearing despite this activity having a high impact on water quality and highlighted the urgent need to prevent this and encourage large scale revegetation.

Stakeholders also proposed greater focus on prioritising non-compliance risks based on materiality of potential impact. For example, in deciding compliance visit priorities, stakeholders suggested considering factors such as size, region, landscape hydrology, operation type, and proximity to waterways. Another stakeholder suggested catchment or point source water quality monitoring to better isolate the greatest contributors, but acknowledged the significant cost of this. Additionally, to reduce the negative impacts to Producers, it was recommended that the regulations should be applied in a staged approach, with greater focus and stringency for those Producers or organisations with a more material risk, such as farms closer to waterways or in water quality hotspots.

Relatedly, it was articulated by several Producers, including a banana and sugarcane Producer, that there should be greater focus on the outcomes, rather than the inputs. An example was given that permitted practices such as fertigation systems can still result in poor outcomes if the farm is poorly designed. Shifting the policy and compliance to focus on sediment and nutrients leaving a property could allow Producers to operate within their unique rainfall and soil conditions without compromising the ultimate objective of the regulations. This greater flexibility around practices could mitigate the challenge of applying blanket requirements across the variety of land types and operations, encourage more holistic environmental outcomes, and allow for greater practice innovation.

“

It's ridiculous that we allow that much clearing to occur... exacerbating the problem while spending money on stopping it.

Environmental / Conservation group

“

If they prioritised the landholders with the lowest groundcover, they'd have better outcomes – those are the ones who need improving.

Grazier

I. Increase regulation relevance, practicality, flexibility, and integration

Relates to Observation:
6

The regulation guidance should be aligned to, and better recognise, industry best practice programs and other leading practices and guidance. For example, several stakeholders noted potential synergistic improvements across water quality, but also land condition, and reduced water extraction.

It was recommended that, where there is overlapping legislation, such as the ERA requirement, this should be simplified so that there is just one leading authority responsible for the matter. It was also mentioned that some requirements of the regulations appeared to be in conflict with the requirements of other legislation, which was explored in more detail under Observation 6. It was suggested that these conflicts should be identified prior to rollout to reduce confusion and distress. For example, one Grazier suggested that, where there are multiple environmental authorities, on-ground visits and in-person discussions can mitigate growers' stress and confusion.

There was a common suggestion of the need for greater flexibility and nuance in the regulations to allow for the breadth of variation across the agricultural sector. Recommendations on how this could be achieved included designing requirements with catchment- or farm-specific regulations, and greater consideration of the farm as a whole, including variations across paddocks and unique interactions with neighbouring land. Additionally, it was suggested that there should be allowances for alternative fertiliser inputs and technology advances. For example, one stakeholder suggested this could be supported by reducing ambiguity around different techniques for erosion control, such as sediment ponds. A further suggestion was the inclusion of clauses to account for impacts of significant events, such as weather events or dramatic price increases. Another suggestion was that inefficient blanket approaches, such as nitrogen and phosphorous budgets, should be eliminated or streamlined to free up resources for more impactful changes.

“

You don't want regs that disagree with industry best practice – otherwise the regs become the focal point and the best management takes a back seat.

Agricultural Adviser

“

The local advisors... do a lot of the N and P budgets with their time rather than [focusing on] efficiency. [It's a] distraction of resources... just about meeting compliance requirements; a tick box.

Agricultural Peak Group

Appendix A Interview questions

The following tables present the interview questions that were used to frame conversations with stakeholders. It should be noted that EY encouraged stakeholders to speak freely and be comfortable deviating from these topics to better understand the issues that mattered to the individual. EY did not use a strict script, but added ad hoc questions based on the specific experience and expertise of the individual.

Regulated sectors:

Impact questions

<p>1. If at all, how have your practices changed since the implementation of the regulations? If so: Please explain / provide examples? <i>Prompt: For sugarcane and Banana Growers: If not mentioned, ask whether their fertiliser application methods and rates have changed as a result of the regulations?</i></p>
<p>2. How have the regulations impacted your operations / business more broadly? Please provide examples.</p>
<p>3. Was compliance relatively simple or complex? If so: Were there any aspects of the regulations that are challenging to comply with? (e.g., on-ground reality makes it hard to implement due to external factors such as weather, harvest times, etc.)?</p>
<p>4. Do you think the regulations have reduced sediment or nitrogen runoff to local waterways? Why/ why not?</p>
<p>5. Do you think the regulations have resulted in any (other) benefits to you or the broader community? (e.g., greater understanding of the relationship between on farm practices and the broader environment, adoption of other good practice techniques, etc)</p>
<p>6. Do you think the regulations have resulted in any (other) negative impacts to you or the broader community? (e.g., unintended consequences to community employment, production, etc.)</p>

Implementation questions - Producer's practice change

<p>1. What has been your experience implementing the regulations on-ground?</p>
<p>2. Did you experience any on-ground barriers or challenges that hindered or prevented you from making the necessary practice changes? e.g. weather, resourcing, cost, etc.</p>
<p>3. If yes: what were the impacts of these barriers?</p>
<p>4. Are there any on-ground actions that could have been taken to avoid these barriers or better support your practice changes?</p>
<p>5. Were there any on-ground factors that you felt particularly supported your practice changes that should be used in future implementation? e.g. What did your group do well that supported your practice change? What resources / skills did you already have in place that supported this?</p>

Implementation questions: The Queensland Government's regulation rollout

<p>1. Do you feel that the regulation requirements were clearly communicated and easy to understand?</p>
<p>2. Did you feel that you had enough time to make the required changes? e.g. enough time to prepare and change practices?</p>

3. What additional information, support and guidance did you seek to implement the new requirements and were you able to get that support?
4. Did you identify any barriers or challenges to the way the regulations were rolled out? e.g. communication, timing, support provided If yes: what were the impacts of these barriers?
5. What would you like to see done now to support the on-going implementation?
6. Are there any other comments you would like to make about your experience with the Reef regulations that could improve outcomes for your group or for preventing sediment and nutrient runoff?

Non-regulated sectors:

Impact questions

1. From your perspective, have agricultural practices changed since the implementation of the regulations? If so: How have these changed? <i>Prompt: For sugarcane and Banana Growers: If not mentioned, ask whether their fertiliser application methods and rates have changed as a result of the regulations?</i>
2. From your perspective, have there been any impacts on water quality after the enforcement of the regulations? e.g. improved water quality due to reduced sediment or N runoff to local waterways. Why/ why not?
3. Do you think the regulations have resulted in any (other) benefits? e.g., greater understanding of the relationship between on farm practices and the broader environment, adoption of other good practice techniques, etc
4. Do you think the regulations have resulted in any (other) negative impacts? e.g., unintended consequences to community employment, cost implications, production, etc.
5. Do you have any thoughts on other ways to change practices to reduce sediment or nitrogen runoff to local waterways? E.g., are there any other Types of incentives, regulations, initiatives or programs that you think should be implemented?

Implementation questions: Producer's practice change

1. Have you heard any feedback on challenges or barriers to implementing the practice changes on ground? If so: What do you think could be done to overcome / avoid these?
2. Are there any actions that you think could be taken to better support regulation compliance on ground?

Implementation questions: The Queensland Government's regulation rollout

1. Did you identify / have you heard of any issues or challenges to the way the regulations were rolled out? E.g.: (communication, timing, sufficient support)? If yes: What were the impacts of these barriers?
2. Do you think there can be any changes made to avoid these issues / improve regulation rollouts in future?
3. Are there any other comments you would like to make about your experience with the Reef regulations that could improve outcomes for your group or for preventing sediment and nutrient runoff?

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Appendix C: Department response to key observations (Table 1) and suggestions (Table 2) from the stakeholder consultation report

Table C1: Key stakeholder observations from the Stakeholder Consultation Report pages 5-8) and the department's analysis and response

Stakeholder observations	Summary of stakeholder consultation	Department response
Regulation roll-out		
1. The purpose of the Reef regulations was not well communicated	<p>Messaging about the rationale and purpose of the Reef regulations was ineffective in motivating practice changes:</p> <ul style="list-style-type: none"> • Doubt of the relationship between practice changes and water quality on the Reef. • A lack of data and other evidence to demonstrate that practice changes required by the Reef regulations would ultimately improve water quality. • Messaging around protecting the Reef may not resonate with Producers. 	<p>Section 5.1 Awareness of the requirements, 5.2 Understanding and ease of implementation and 5.5 Scepticism, mistrust, resistance and fairness</p> <p>Opportunity 3</p>
2. Perceptions of the notification process were mixed	<p>Views on how producers were notified varied greatly:</p> <ul style="list-style-type: none"> • The information and notification effort was sufficient, and non-compliance was deliberate. • The Government's traditional channels for notification may not have been adequate for more isolated individuals, who may be overrepresented by smaller or older growers. 	<p>Section 5.1 Awareness of the requirements</p> <p>Opportunity 3</p>
3. Support to interpret and apply the Reef regulations was variable	<p>There were mixed views on the communication and support provided to interpret and apply the Reef regulations:</p> <ul style="list-style-type: none"> • Government provided sufficient support and ongoing non-compliance was deliberate. • Agronomists, advisers, and other trusted local organisations are critical in supporting regulation interpretation and application and concerns were raised over the limited supply. 	<p>Section 5.2 Understanding and ease of implementation and 5.3 Support to understand and comply</p> <p>Opportunities 3 and 6</p>
4. Engagement with Producers was inconsistent	<p>There were different perspectives of Government engagement with Producers:</p> <ul style="list-style-type: none"> • The consultation process in the lead up to the Reef regulations was collaborative, considered and effective. • Farm visits were positive and cooperative interactions which facilitated knowledge exchanges. • Engagement was insufficient, and at times, undertaken in a manner that undermined relations. • Producers felt alarmed by the harsh language of follow-up non-compliance communications. 	<p>Section 5.3 Support to understand and comply and 5.6 Compliance approach</p> <p>Opportunities 1, 2 and 3</p>
On-ground implementation		
5. Implementation introduced time and monetary costs	<ul style="list-style-type: none"> • The Reef regulations introduced new costs (e.g., equipment, soil testing, and advisers). • A new subset of the agricultural advisory industry had been created just to support with nutrient budgets. • The reporting was challenging and onerous, especially for those without strong literacy or tech skills. • There is a greater burden on smaller growers to absorb the time and monetary costs, and a lesser impact to Producers whose practices were already evolving or included advisers. 	<p>Section 5.4 Time and resources to implement and comply</p> <p>Opportunities 3 and 6</p>

Stakeholder observations	Summary of stakeholder consultation	Department response
6. For some, the requirements were too complex, inflexible and indiscriminate to apply easily	<ul style="list-style-type: none"> The requirements were simple, clear, and achievable, especially for Producers already engaging in voluntary practice changes (e.g., regenerative practices) and BMP or reef-related programs. The requirements were too complex and inflexible to easily put into practice and did not account for important variation in operations. Land types, topography etc. The Reef regulations were vague, contradictory, and unclear on how to apply in practice across different contexts and business models. It was unclear how to accurately implement and report multiple or multi-year harvests. The focus was too nutrient-centric, focusing limited resources on only narrow practice change and away from options that can also support broader issues and more holistic change. 	<p>Section 5.2 Understanding and ease of implementation, 5.3 Support to understand and comply and 5.9 Program recognition</p> <p>Opportunities 3 and 6</p>
7. The Reef regulations targeted the wrong activities and were not felt fairly across catchments and commodities	<ul style="list-style-type: none"> The Reef regulations are targeting the wrong industries and Producers and other contributors to poor water quality were not being proportionally regulated or managed. The Reef regulations are too 'black and white' and did not consider materiality when assessing non-compliance. Compliance also failed to prioritise activities or landholders requiring the greatest improvement. The Reef regulations impact Producers unequally across industry, size, location, land type, etc. Government funding to support practice changes is being misallocated and misused. 	<p>Section 5.2 Understanding and ease of implementation, 5.3 Support to understand and comply and 5.4 Time and resources to implement and comply</p> <p>Opportunities 3 and 6</p>
8. A lack of trust in government negatively impacted the regulation effort and outcomes	<ul style="list-style-type: none"> Auditors [meaning Compliance Officers] had an insufficient understanding of on-ground processes and constraints and were too focused on minor details, rather than keeping the whole-of-farm reconciliation in mind. The information used to develop the Reef regulations and guidance materials was inappropriate (e.g., based on sugarcane practices but applied to bananas, maps inaccurate and low resolution). Growers felt distrust of Government which hindered compliance and fostered pushback. Misinformation challenges heightened distrust; some sources describing the Reef regulations and the underpinning science were poor or misleading. 	<p>Section 5.5 Scepticism, mistrust, resistance and fairness</p> <p>Opportunities 1, 2 and 3</p>
Regulation impacts		
9. Practices have improved, however there is ongoing non-compliance	<ul style="list-style-type: none"> Most Producers agreed that there had been practice change as a result of the Reef regulations. Producers that were already operating in line with requirements and had adopted voluntary frameworks (e.g. regenerative agriculture, BMP, Grazing Resilience and Sustainable Solutions (GRASS)) saw little or no practice change. There were some cases of no practice change due to deliberate non-compliance or implementation challenges. Practices are improving across the regulated community, especially for those previously below standard. <p>Perspectives on practice improvements were more mixed for the non-regulated stakeholder groups:</p> <ul style="list-style-type: none"> Progressive growers were already aligned, and regulations were deployed to prompt late adopters. 	<p>Section 5.2 Understanding and ease of implementation, 5.3 Support to understand and comply and 5.6 Compliance approach</p> <p>Opportunities 1, 2, 3 and 6</p>

Stakeholder observations	Summary of stakeholder consultation	Department response
	<ul style="list-style-type: none"> • There were practice improvements but also other key factors, making it difficult to attribute to the Reef regulations. • The change was insufficient and land clearing and overgrazing continued, driving erosion, gullying and run-off. <p>Across both groups there was a common view that practice improvements have occurred but there is ongoing non-compliance.</p>	
10. There are conflicting views of whether water quality has improved	<ul style="list-style-type: none"> • Across regulated and non-regulated groups there were varied perspectives on whether water quality had improved. • Some felt sure the Reef regulations improved water quality by virtue of reduced fertiliser use. • Many expected water quality should theoretically be improving but acknowledged limited evidence available to support this. Others said it was too soon to tell and would take years to determine. • Those that did not expect water quality had improved, pointed to ongoing non-compliance, and other polluting activities. There was a common suggestion to overcome this with increased enforcement. <p>Amongst regulated stakeholders:</p> <ul style="list-style-type: none"> • There was a sentiment that Producers contributing the most to poor water quality hadn't improved their practices. • Some believed water quality on the Reef was already very good, and the Reef regulations were redundant. <p>Amongst non-regulated stakeholders:</p> <ul style="list-style-type: none"> • There was a sentiment that the Reef regulations could have a positive impact on water quality, however they did not go far enough in terms of scope and enforcement. • There was concern that key issues are not being addressed by the Reef regulations, and that these factors (e.g., land clearing) would determine whether the 2050 water targets will be achieved. 	<p>Section 5.1 Compliance with the Reef regulations and 5.5 Scepticism, mistrust, resistance and fairness</p> <p>Opportunities 1, 3 and 4</p>
11. The regulated community experienced additional negative impacts as a result of the Reef regulations	<p>Both regulated and non-regulated stakeholders identified negative impacts from the Reef regulations:</p> <p>Business viability:</p> <ul style="list-style-type: none"> • There was concern around the time and monetary costs, noting Producer vulnerability to input cost increases, and an expectation that these costs, alongside reduced production (due to reduced fertiliser and land expansion restrictions), was impacting business viability and reducing the size of the industry. • There were conflicting views that the fertiliser limits both had and had not decreased productivity and yield. 	<p>Section 5.4 Time and resources to implement and comply</p> <p>Opportunities 1, 3 and 6</p>

Stakeholder observations	Summary of stakeholder consultation	Department response
	<p>Mental health:</p> <ul style="list-style-type: none"> • There was increased stress associated with fear of non-compliance, heightened by a lack of clarity on what compliance looked like, harsh legal jargon, and long wait times in audit communications [meaning communications following inspections]. Being regulated, combined with external media around the agricultural sector's impact on Reef health, made Producers feel vilified as "environmental vandals" and created disconnect in the community. <p>Unintended negative impacts to on-ground practices:</p> <ul style="list-style-type: none"> • The Reef regulations may have discouraged early adoption or exploration of future practice improvements. • Resistance to the Reef regulations generated disregard for environmental issues and reluctance to share information with the Government, or anyone associated, in case this encouraged scrutiny or further regulation in the future. • Lower yields will increase the amount of land needed to maintain production and drive further land clearing. 	
<p>12. Some areas and individuals have experienced additional positive impacts</p>	<p>Both regulated and non-regulated stakeholders identified positive impacts resulting from the Reef regulations:</p> <ul style="list-style-type: none"> • There was greater awareness of nutrient impacts on the Reef and a better understanding of nutrient management. • The Reef regulations served as a catalyst for adoption of more progressive practices by fostering conversations on holistic practice improvements and the economic benefits of these (e.g., water conservation, waste management, fertiliser efficiency, reduced water table in drought prone areas, etc.). • Profitability improved (e.g., increased ground cover reduced Grazier feed costs and cattle loss). <p>Benefits to the broader population such as:</p> <ul style="list-style-type: none"> • improvements in technology through demand and investment in innovative solutions, • reduced impact of chemicals such as pesticides on the environment and the community, • biodiversity benefits through increased adoption of sustainable practices, and • improved water quality theoretically leading to improved tourism on the Reef. 	<p>5.2 Understanding and ease of implementation and 5.4 Time and resources to implement and comply</p> <p>Opportunities 3 and 6</p>

Table C2: Summary of stakeholder suggestions from the Stakeholder Consultation Report pages 8-10) and the department’s response.

Stakeholder suggestions	Summary of stakeholder consultation	Department response
Communication and engagement		
A. Improve messaging on regulation rationale and impact	Better articulation of the regulation rationale and underpinning science early in the rollout process.	Addressed by opportunity 3
	Collect data on an ongoing basis to demonstrate that compliance is making a difference.	Addressed by opportunity 1 and 4
	Better resonate with Producers by communicating the potential on-farm benefits of the practice changes and broader sustainability improvements (e.g., reduced costs and water savings).	Addressed by opportunity 3
B. Improve engagement and channels of communication	Engage directly with Producers, using a variety of formats to maximise the reach, including in-person visits for more isolated Producers.	Addressed by opportunities 3 and 6
	Strengthen relations with the regulated community by: <ul style="list-style-type: none"> • taking the lead on communication, engagement, and education around the Reef regulations • building rapport with Producers and reducing stress by engaging early and directly, such as through informal farm visits prior to audits [meaning inspections] and providing information on ‘what to expect’ • undertaking greater initial engagement and consultation to ‘bring them along’ through the process. 	Addressed by opportunities 1, 3 and 6
	Recognise the key role that local organisations (e.g., NRMs, advisers, industry bodies, etc.) play in supporting Producer’s understanding of the Reef regulations and education on best practice. Communicate clearly and early with these groups to support dissemination of current and accurate information. Increase engagement with these groups to support improved identification of area-specific risks and opportunities in regulation design, implementation, and impact.	Addressed by opportunity 2
	Collaborate with wider initiatives for greater outcomes in the land, water quality & carbon space.	Addressed by opportunity 3
	Be transparent in communicating the areas, industries or practices posing the greatest water quality risk.	Addressed by opportunity 3

Stakeholder suggestions	Summary of stakeholder consultation	Department response
C. Increase knowledge sharing, education and upskilling	Improve understanding of the underlying science and rationale for the Reef regulations.	Addressed by opportunity 3
	Provide simplified practical tools, systems and technological aids, to support easier and faster completion of the reporting and documentation requirements (e.g., mobile apps, simple reporting templates) as well as broader compliance (e.g., case studies, FAQs, and peer knowledge sharing workshops to show how practices can be tailored to on-farm constraints).	Addressed by opportunity 3
	Provide training programs aligned with the regulation objectives (e.g., nutrient management, sustainable farming, farm design for sediment control).	Addressed by opportunity 6
	Increase education for Government representatives and auditors [meaning Compliance Officers] on real-world farming practices and constraints.	Addressed by opportunity 1
Data and tools		
D. Improve data availability and transparency	Improve the availability and quality of data linking on-farm practices and water quality improvement on the Reef.	Addressed by opportunity 3
	Increase transparency and availability of water quality data and make it clearer how this data is being used to target areas and Producers of greatest impact.	Addressed by opportunity 1 and 3
	Be transparent about trials and monitoring and make the results publicly available; ensure they are conducted over various contexts (e.g., different soil types, hydrological systems, etc.).	Addressed by opportunity 1, 3 and 6
E. Develop and improve supporting tools and simplify informational resources	Provide more guidance on what compliance looks like, with simplified language and clearer instructions.	Addressed by opportunity 1
	Provide more research and information on whole-of-farm mechanisms and paddock designs to stabilise and control sediment in rainfall conditions, as well as alternative nutrient inputs or technologies.	Addressed by opportunities 3 and 6
Reviewing the requirements		
F. Review and improve incentives and allocation of financial support	<p>Review and improve incentives and access to financial support to comply with the Reef regulations, such as:</p> <ul style="list-style-type: none"> • make financial support more accessible to offset the monetary and time costs, • improve recognition or positive incentives for those Producers aligned to best practice, especially early adopters or those improving the environmental condition of their land beyond compliance, and • investigate the potential for water quality credits to reflect the reduced downstream impact on water quality, for example from innovative drainage systems. 	<p>Addressed by opportunity 3 and 6</p> <p>At the time the Reef regulations were passed in 2019, the Queensland Government decided not to pursue water quality offsets for agriculture due to the significant technical difficulties with applying water quality offsets to diffuse pollution activities, such as farming. This includes the accuracy of assessing any additional discharge from the activity.</p>

Stakeholder suggestions	Summary of stakeholder consultation	Department response
	Ensure funding is well-managed, with strong supervision of the allocation to priority areas and to appropriate expenditure (e.g., machinery, labour and so on) to support the intent of the regulation.	QRWQP funding is delivered in line with the Queensland Procurement Policy and financial administration is done in accordance with the <i>Financial Accountability Act 2009</i> and the <i>Financial and Performance Management Standard 2019</i> Projects are also assessed by an expert panel to ensure they are delivered in priority areas and maximise outcomes.
G. Increase focus on enforcement to accelerate adoption	Make audits [meaning inspections] and enforcement efforts more targeted to ensure that the minimum requirements of the Reef regulations are being met.	Compliance activities take a risk-based approach based on outcomes for Reef water quality improvements.
Tailoring the Reef regulations		
H. Focus on material water quality risks, opportunities, and outcomes	<p>Increase focus on prioritising materiality of water quality risks. For example:</p> <ul style="list-style-type: none"> • consider the most material contributors to water quality including beyond agricultural practices and provide justification that regulating these groups will be materially beneficial to the Reef • prioritise and respond to non-compliance in proportion to the materiality for water quality (e.g., consider size, region, landscape, and operations, proximity to waterways, etc. and apply regulations most material non-compliance first), • identify and regulate high impact activities such as land clearing and encourage revegetation, and • Use catchment or point source water quality monitoring to identify key pollution contributions. 	Addressed by opportunities 1 and 3
	<p>Focus on the outcomes, rather than the inputs; permitted practices can still result in poor outcomes if the farm is poorly designed</p> <p>In particular, focus on sediment and nutrients leaving a property to allow Producers to operate within their unique conditions, and allow more flexibility and innovation.</p>	Addressed by opportunity 3
I. Increase regulation relevance, practicality, flexibility, and integration	Align requirements to industry best practice programs and other leading practices to maximise outcomes (e.g. synergistic improvements across water quality, land condition, water conservation, etc.).	<p>Addressed by opportunity 7</p> <p>The Queensland Government continues to actively support the industry-led BMP programs for sugarcane, bananas, horticulture and grazing.</p> <p>The regulated standards mirror practices accepted by industry and already used by many farmers.</p> <p>The Reef regulations include a mechanism to recognise accreditation programs for regulated standards to provide producers with an alternative industry-managed pathway to comply.</p>

Stakeholder suggestions	Summary of stakeholder consultation	Department response
	Identify and resolve instances of contradictory legislation and identify one leading authority for matters with overlapping jurisdiction.	Out of scope of this review. Opportunities 3 and 6 will help the regulated community to understand different legislative requirements and how they interact.
	<p>Allow for greater flexibility and nuance in the Reef regulations to allow for the breadth of variation across the industry. For example:</p> <ul style="list-style-type: none"> • provide catchment- or farm-specific regulations, and consider the farm as a whole • make allowances for alternative fertiliser inputs and technology advances to reduce ambiguity around allowable techniques for erosion control • include clauses to account for impacts of significant events, such as weather events or dramatic price increases, and • remove or streamline inefficient blanket requirements for nutrient budgets to free up resources for more impactful changes and better water-quality and other outcomes. 	<p>Addressed by opportunity 3</p> <p>Compliance activities are moderated on a case-by-case basis during and immediately after declared natural disasters such as drought and flood events, following standard departmental practice in response to natural disasters.</p>

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