

**Wetlands in the Great Barrier Reef
Catchment Management Strategy 2016-
2021: Evaluation Report**

September 2021



**Queensland
Government**

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1 Executive Summary

1.1 Introduction and background

Wetlands are valuable for our environment, our food, our recreation and our culture. A healthy wetland is a lively place with a rich natural diversity of wildlife and environments. Chemical processes and the life cycles of wetland plants and animals combine to create a system that helps stop nutrients and chemicals getting into healthy rivers, the sea and the reef¹.

The Wetlands in the Great Barrier Reef Catchments Management Strategy 2016-2021² (Strategy) was developed by the Queensland Government and sets out a framework for the improved management of wetlands in the Great Barrier Reef catchments. It builds on the achievements of previous activities of the Queensland Wetlands Program and recognises wetlands as vital to the health of the Great Barrier Reef ecosystem and catchments. The Strategy identifies key initiatives to help meet the Reef 2050 Long Term Sustainability Plan³ (Reef 2050 Plan) targets. It provides a range of objectives and activities to meet the Reef 2050 Plan targets, including wetland and catchment management activities, better access to information, enhanced planning and regulation and productive collaborations with partners.

1.1.1 Evaluation aim and objectives

A team within the Environmental Policy and Legislation Unit were engaged in March 2020 to evaluate the Strategy on behalf of the Queensland Wetlands Program. The scope of the evaluation was to review both the process of implementing the Strategy and the outcomes achieved by the Strategy, by primarily examining the appropriateness and effectiveness of the Strategy. The evaluation is intended to identify improvements for the planned development of the next Strategy in 2022. The majority of the evaluation was undertaken between January and August 2021. The evaluation process included undertaking a desktop analysis using a PowerBI dashboard, in-depth targeted stakeholder interviews and an online evaluation survey.

1.2 Overarching conclusions

The Strategy was determined to be broadly appropriate and effective. It was found that the structure of the Strategy was generally clear and that the themes, goals, objectives and activities were appropriate for the Strategy. In some cases, the alignment of objectives to a goal could be improved by moving them to another theme. Interview results suggested that there are many stakeholders dedicated to improving wetlands management in Queensland. Impressively, good progress had been made against all but one quite specific activity (setting up an acquisition fund). In most cases, many more activities were occurring to support the achievement of each objective than is reflected under each theme within the Strategy document. Considering the small number of recommendations made, and developing the next Strategy through a consultative process - perhaps guided by a communications strategy - will ensure continued success of the Strategy in its next iteration.

¹ WetlandInfo, *What are wetlands?* (Web Page, 9 October 2018) <<https://wetlandinfo.des.qld.gov.au/wetlands/what-are-wetlands/>>

² [wetlands-gbr-strategy2016-21v13.pdf \(des.qld.gov.au\)](#)

³ [Reef 2050 Long-Term Sustainability Plan \(environment.gov.au\)](#)

2 Introduction and Overview

2.1 Background and context

Wetlands are considered one of the most valuable ecosystems on Earth as they absorb and release water, process and transport nutrients and sediment, are nurseries for fish and crustaceans, and support recreation, education and science. Whilst many people think of wetlands as the low-lying areas along the coast, wetlands actually capture a much greater range of habitats such as lakes, salt marshes, peat bogs, swamps, marshes, coral reefs, mangroves and fens⁴. Wetlands are amongst the most threatened ecosystems on the planet as they have traditionally been exploited by humans for urban, agricultural and industrial development.⁵

It is believed that over half the world's wetlands have been lost and, of those that remain, only 11% are afforded some level of protection.⁶ In some locations, wetland hydrology has been altered through drainage work, construction of dams, or regulation of river flows, and urban and rural land uses which release pollutants and cause increased sedimentation. Pests and weeds adversely affect wetlands as they can cause habitat degradation, compete with native fauna and flora for food and shelter and can alter the ecosystem's function⁷. Wetlands are also impacted by climate change and shifting water regimes that affect the integrity of wetland ecosystems.

Wetlands in Queensland

Wetlands are found throughout Queensland. Queensland's wetlands provide essential habitat for approximately 130 fish species, 150 species of waterbird (both resident and migratory) and more than 3,000 plant species, many of which are considered rare or threatened⁸. Queensland has five Ramsar-listed wetland sites that protect around 400,000 ha of mangroves, more than 600,000 ha of saline coastal flats, and almost 300,000 ha of intertidal flats.

The Great Barrier Reef (GBR) is the world's largest coral reef and because of its Outstanding Universal Value (OUV) has been provided World Heritage Status. There are approximately 1 million hectares of wetlands in the GBR catchment, which are made up of swamps, rivers, billabongs, lakes, mudflats, mangroves and groundwater systems. These wetlands are critical for maintaining the OUV of the GBR. Wetlands play a vital role in protecting shores from wave action and storms, reducing flood impacts, retaining sediment, absorbing and transforming pollutants and providing nurseries for fish and other freshwater and marine species. Activities to improve water quality at the end-of-catchment also deliver benefits for wetlands within the catchment by protecting their multiple values and the role they play in the ecosystem health of the Great Barrier Reef⁹.

⁴ WetlandInfo, *What are wetlands?* (Web Page, 9 October 2018) <<https://wetlandinfo.des.qld.gov.au/wetlands/what-are-wetlands/>>

⁵ Maria Fernanda Adame et al, 'Managing threats and restoring wetlands within catchments of the Great Barrier Reef, Australia' 29(5) *Aquatic Conservation* 829.

⁶ Maria Fernanda Adame et al, 'Managing threats and restoring wetlands within catchments of the Great Barrier Reef, Australia' 29(5) *Aquatic Conservation* 829.

⁷ WetlandInfo, *Wetland Pests* (Web Page, 15 April 2015) <<https://wetlandinfo.des.qld.gov.au/wetlands/ecology/components/fauna/wetland-pests.html>>

⁸ Strategy for the conservation and management of Queensland's wetlands (State of Queensland, 1999) <<https://wetlandinfo.des.qld.gov.au/resources/static/pdf/resources/reports/wetland-strategy.pdf>>

⁹ Reef 2050 Water Quality Improvement Plan 2017-2022.

2.2 Protection of Wetlands in Queensland

The Queensland Government shares responsibility for the management of wetlands with the Australian Government, local governments, landholders and the wider community. These instruments are briefly outlined below.

2.2.1 International Conventions and Agreements

The Australian Government is party to several international agreements/conventions, these include the:

- *Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat* treaty (Ramsar Convention), which aims to halt the worldwide loss of wetlands and to conserve, through wise use and management, those that remain. Bilateral agreements that exist between Australia and Japan (JAMBA), China (CAMBA) and the Republic of Korea (ROKAMBA) to protect migratory bird species and their habitats (often wetlands).
- *Convention on the Conservation of Migratory Species of Wild Animals* (i.e. the Bonn Convention), which seeks to conserve migratory species and their habitats by implementing coordinated conservation measures throughout their range.
- United Nations Convention on Biological Diversity, where the objectives include the conservation of biological diversity, the sustainable use of the components of biological diversity and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources¹⁰.
- World Heritage Convention, that encourages countries to integrate the protection of the natural and cultural heritage into regional planning schemes, undertake scientific research and adopt measures which give these areas a function in the day-to-day life of the community¹¹.

2.2.2 Commonwealth Policies and Legislation

The Australian Government has enacted legislation and implemented several policies for the protection of wetlands, including:

- the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), which aims to achieve the Federal Government's obligations under the various international agreements related to the protection and conservation of the environment.
- *Australia's Strategy for Nature 2019-2030*, which brings together the federal, state, territory and local governments to guide the development of new approaches to regulate, fund and manage nature conservation.

2.2.3 Queensland Policies and Legislation

The Queensland Government has enacted several pieces of legislation and strategies for the protection of wetland, including the:

¹⁰ Convention on Biological Diversity, *Convention Introduction* (Web Page, 16 January 2012) <<https://www.cbd.int/intro/>>.

¹¹ World Heritage Convention, *The World Heritage Convention* (Web Page) <<https://whc.unesco.org/en/convention/>>.

- *Planning Act 2016*, which aims to facilitate ecological sustainability by providing a legal framework for land use planning, development assessment and dispute resolution in Queensland.
- *Environmental Protection Act 1994 and associated regulations*, which aims to achieve ecologically sustainable development in Queensland.
- *Marine Parks Act 2004 and the Fisheries Act 1994*, which protects important marine and estuarine areas in Queensland through the declaration and management of marine parks and fish habitat areas.
- *Nature Conservation Act 1992*, which safeguards Queensland's diverse range of protected animals and plants.
- *Vegetation Management Act 1999*, which regulates the clearing of native vegetation in Queensland.
- *Coastal Protection Management Act 1995*, which supports the protection and management of the coasts, coastal resources and biodiversity and minimises the impacts of coastal hazards.
- *Strategy for the conservation and management of Queensland's wetlands (1999)*, which aims to avoid any further loss or degradation of natural wetlands, ensuring a comprehensive and adequate representation of wetlands in protected areas, ensuring the management and use of wetlands is ecologically sustainable and developing community awareness about the values and benefits that wetlands provide.
- *Reef 2050 Plan* is the Australian and Queensland Government's overarching framework for protecting and managing the Great Barrier Reef and includes a number of catchment management activities to achieve this (e.g. protection of wetlands).
 - *Reef 2050 Water Quality Improvement Plan (Reef 2050 WQIP)* sits underneath the Reef 2050 Plan and seeks to improve the quality of water flowing from the catchments adjacent to the Great Barrier Reef.
 - *Wetlands in the Great Barrier Reef Catchment Management Strategy* sets out to enhance wetlands extent, values and ecological processes and contribute to the health and resilience of the Great Barrier Reef ecosystem. It supports the Reef 2050 framework.

2.3 Wetlands in the Great Barrier Reef Catchments Management Strategy 2016-2021

The Wetlands of the Great Barrier Reef Catchment Management Strategy 2016-2021 (Strategy) sets out a framework for the improved management of the wetlands in the Great Barrier Reef catchments. The Strategy was developed after the Great Barrier Reef Water Science Taskforce's Final Report included recommendations relating to wetlands, including extending regulations to protect natural wetlands and riparian areas. The Final Report also stated the importance of treatment systems to remediate sediment and nutrient run-off and named wetland and riparian restoration as an important element in protecting water quality.

The vision of the Strategy is to enhance the extent, values and ecological processes of wetlands and contribute to the health and resilience of the Great Barrier Reef ecosystem. Its purpose is to provide

a range of objectives and activities to improve wetlands management that aligns with the Australian and Queensland governments initiatives, including targets in the Reef 2050 Plan.

The Strategy builds on the achievements of the Queensland Wetlands Program and recognises wetlands are vital to the health of the Great Barrier Reef. The Strategy reflects the whole-of-system catchment management framework approach of the Queensland Wetlands Program. The Strategy includes five themes, these are:

- 1) Improved information
- 2) Planning
- 3) On-ground management
- 4) Communication and education, and
- 5) Evaluation, review and improvement.

Each theme has a goal, and each goal has multiple objectives with current and proposed activities to achieve these objectives. The activities are funded and delivered through various agencies, programs and initiatives.

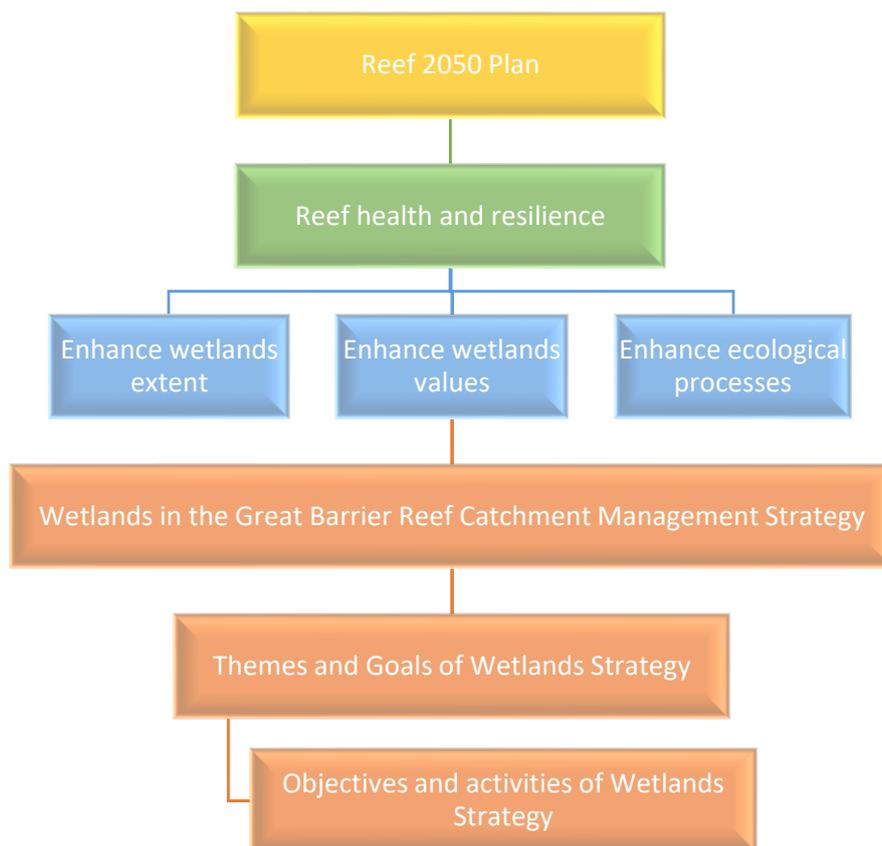
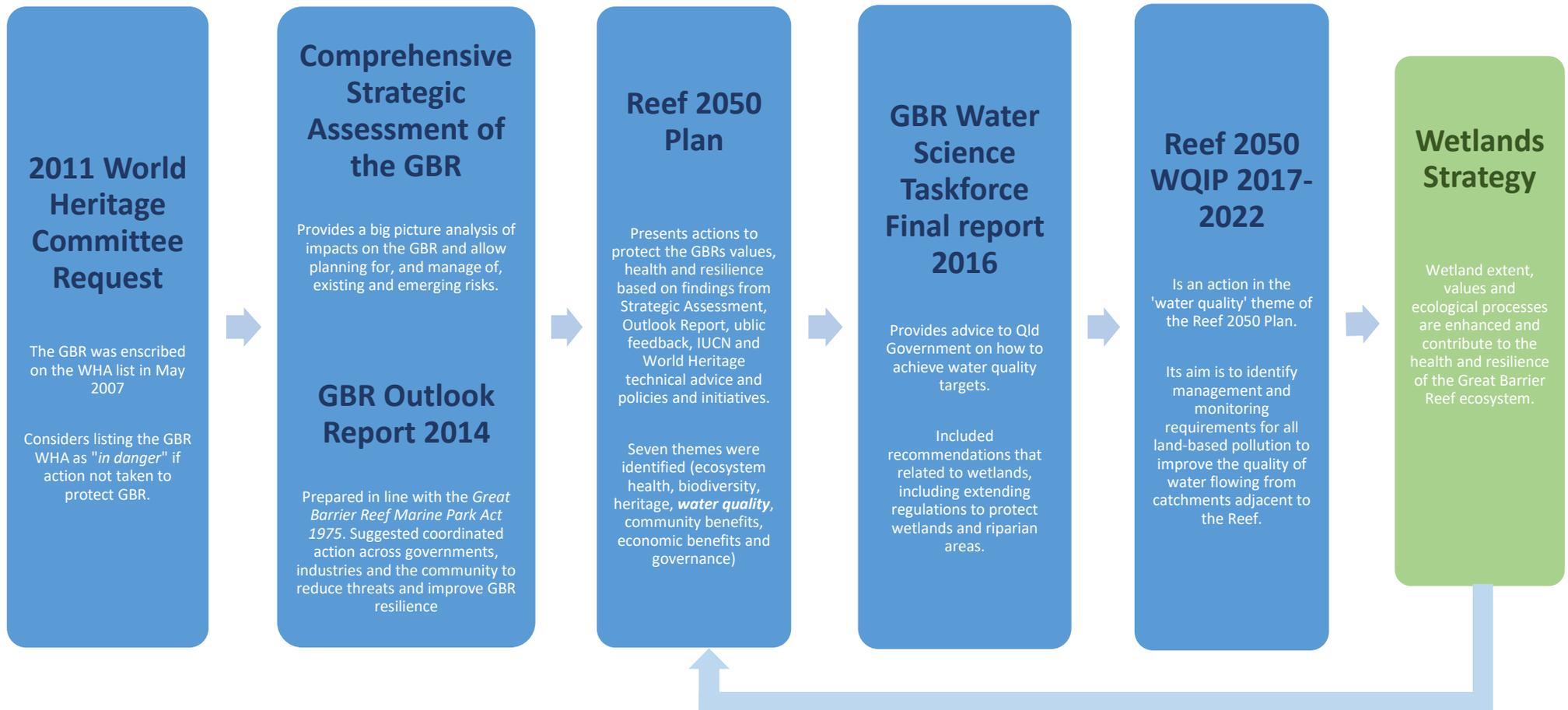


Figure 1: Conceptual representation of how the Wetlands Strategy supports Reef 2050 Plan.

Figure 2. Overview of how the Wetlands Strategy fits into the Reef 2050 Plan framework.



2.4 Evaluation objectives and scope

This report contains the outcomes of an independent evaluation of the Strategy. The evaluation was conducted between January and August 2021 by the Environmental Policy and Legislation team in the Queensland Department of Environment and Science (DES).

The objectives of the evaluation were to build a better understanding of the appropriateness, effectiveness and efficiency of the Strategy by answering questions such as:

- The extent to which implementing the Strategy has contributed towards achieving the Reef 2050 Plan’s target for wetlands in the GBR.
- The extent to which the Strategy has met its Purpose and Vision
- Whether the Strategy appropriately and effectively achieved its Purpose - this would include:
 - The extent to which the Strategy’s Themes were appropriate for achieving the intended Purpose and Vision
 - The extent to which the Objectives were appropriate to achieving the theme’s goal
 - The extent to which the Activities and Deliverables were appropriate for achieving the Objectives.
 - The extent to which the Activities and Deliverables were implemented.
- Whether the identification and engagement of partners and stakeholders was appropriate
- Whether the engagement method with stakeholders and partners on the Strategy was effective
- Were the governance arrangements supporting the Strategy appropriate and effective and efficient?
- Were the resources allocated to the Strategy appropriate and, of those resources allocated, were they effectively utilised?
- What are the highlights, strengths, threat and considerations for the next iteration of the Strategy?

It is intended that the findings from this evaluation be considered by the Wetlands team located in Environmental Policy and Planning (EPP, DES) (hereafter Wetland team) in developing the next iteration of the Strategy to ensure it is achieving its Purpose and Vision in the most appropriate, effective, and efficient way. This will help to build stronger outcomes for wetlands in the GBR. Recommendations on the future direction of the Strategy will also be presented throughout the document and summarised in the ‘Conclusions’ section.

2.5 References and key terms used in the Strategy

References in relevant sections can be found in the footnotes and a glossary of common terms used in this report are available on the *WetlandInfo* website: [Glossary of technical terms \(Department of Environment and Science\) \(des.qld.gov.au\)](https://des.qld.gov.au/glossary-of-technical-terms).

3 Evaluation Method

3.1 Overview

The evaluation took place over seven months from January to August 2021. Multiple data sources were used to assess the appropriateness, effectiveness and adequacy of the Wetlands Strategy. The data from these sources was reviewed and analysed, and the results are documented in Chapter 4 of this report.

3.2 Evaluation Data

The evaluators used three data sources to undertake the evaluation of the Strategy. These three sources are:

- A desktop analysis of information available and information provided in a PowerBI dashboard.
- Recordings and minutes from semi-structured interviews.
- Results of an online evaluation survey.

The data in the desktop analysis and interviews primarily came from the Wetlands team and members of the “GBR Wetlands Network”. The GBR Wetlands Network is a group of key stakeholders who manage, research or influence wetlands management in Queensland. This group is run by the Wetlands team, and more explanation is provided in the governance section below. The survey was sent to approx. 110 people which included stakeholders outside these groups.

3.2.1 Desktop analysis

The evaluators undertook a desktop analysis of the information available on wetlands and the Strategy. This helped inform Section 2 of this report and supplement the results discussed in Section 4. The information considered included:

- Wetlands in the Great Barrier Reef Catchments Management Strategy 2016-2021
- Reef 2050 Plan
- Reef Water Quality Report Cards
- Reef 2050 Water Quality Improvement Plan
- Wetland*Info* website.

A PowerBI dashboard was also used in analysis. The dashboard linked to a large database of information on the objectives, activities and their associated deliverables. The dashboard was provided to the evaluators by the Queensland Wetlands team to assist with the evaluation. The data within the database was collected from people undertaking activities under the Strategy and entered by the Wetlands team between August 2020 and April 2021. The information in the database was entered so that each theme was linked to its corresponding objectives, and each objective with its related activities, and each activity with its associated deliverables. The dashboard was provided to the evaluators to assist with the evaluation as it allows easy interrogation and display of the data in the database.

Each deliverable input into the database was input with information including:

- Project Stage
- Proportion Completed
 - 0-25%
 - 25-50%
 - 50-75%
 - 75-100%
- Information on the project, including examples and detail of activities
- Project Partners.

3.2.2 Semi-structured Interviews

Representatives from the GBR Wetlands Network were invited by the Wetlands Team to participate in semi-structured interviews with the aim of gathering data to populate the PowerBI database and evaluate the Strategy. Interviewees included representatives from NRM bodies, researchers, and community groups. Eleven interviews were conducted by the Wetland team over two months in early 2021, with each interview lasting approximately two hours. The interviewees were sent the questions prior to the interview so that they were not put on the spot and could gather all necessary data to support their responses. The interviewer from the Wetlands team explained why the interviews were taking place and what the results would be used for. Interviewees had the option to remain anonymous if they did not want their identity disclosed. An evaluation team member sat in on most of the interviews, and in all cases received the recording and meeting minutes from each interview session. Where further evaluation data needed to be collected and where time permitted, at the end of the interview session, the Wetlands team member left the session to allow the evaluators to ask supplementary evaluation questions. The interview questions for these stakeholders can be found in Appendix 2.

During the month of August 2021, the evaluation team also interviewed four staff members from the Department of Environment and Science who were involved with the Strategy in one form or another. This was important to ensure the evaluation incorporated both an internal and external perspective of the Strategy. The interview questions for these team members can be found in Appendix 3.

3.2.3 Evaluation Survey

An online evaluation survey was prepared and sent to approximately 110 individuals identified by the Wetlands team as relevant stakeholders. Stakeholders sent the evaluation survey differed from those that participated in the semi-structured interviews. The stakeholders were drawn from a stakeholder list provided by the Wetland team and included project managers, researchers, project officers, local government officers, industry representatives, landholders, Traditional Owners and community groups. Thirteen stakeholders completed the evaluation survey, which was lower than expected. It should be noted that the survey platform was a new platform being implemented by the Queensland Government and participants did experience a few issues during its initial release, this may have resulted in fewer surveys being completed than initially expected. The majority of the evaluation survey questions were presented with yes/no/unsure options, and survey participants were asked to provide examples in most cases. The survey questions can be found at Appendix 4.

3.3 Evaluation Methodology

The evaluation of the Strategy was carried out by officers from the Environmental Policy and Legislation team, Department of Environment and Science (i.e. the evaluators). The data taken from a desktop analysis of published information, semi-structured interviews with a range of stakeholders, and an evaluation survey developed by the evaluators, was used to evaluate various aspects of the effectiveness, appropriateness, efficiency and achievements of the Strategy i.e. to consider the questions posed in Section 2.4 of this report.

In general, a “program logic” type approach was used to assess the Strategy. A typical program logic model is a schematic representation that describes how a program is intended to work by linking individual activities with outputs, intermediate impacts and longer-term outcomes. Program logic aims to show the intended causal links between the activities that sit under a program, with their contribution to achieving the higher order objectives and/or outcomes.

In this instance, the principles of program logic were used as a framework to critically analyse each part of the strategy, to see whether the structure and elements of the Strategy reflected causal links, and to determine whether the individual aspects of the strategy (e.g. objectives, themes etc) would contribute to achieving the intended Purpose and Vision. Assessment of the logic links and of the possible contribution was undertaken in both a vertical and horizontal manner. This included considering, for example, whether achieving an individual objective would contribute towards achieving the goal for that theme (vertical assessment), and whether, combined, if all objectives were achieved, would the goal be reached (horizontal assessment).

The assessment of each part used various combinations of the data available. In some cases, it was most efficient for the evaluators to draw conclusions based on their desktop analysis. However, where possible, data was drawn from all relevant sources to contribute to the conclusions of the assessment. This process is outlined in the following sections.

3.3.1 Strategy’s contribution to Reef 2050 Plan targets

To determine whether the Strategy contributed to the targets of the Reef 2050 Plan, the evaluators considered the relevance to, and possible contribution of, the Strategy to the Reef 2050 Plan’s targets for wetlands in the GBR. The evaluators assessed the relevant information documents outlined above, as well as considering the PowerBI dashboard, responses from interviewees, and the outcomes of the evaluation survey to achieve this.

3.3.2 Strategy achieving its Purpose and Vision

To determine whether the Strategy achieved its Purpose and Vision, the evaluators first looked at sources of information about the biophysical health of wetlands in the GBR catchment including: *WetlandInfo*, the wetland extent results in the Reef Water Quality Report Cards from 2017 and 2018, and the 2019 GBR Outlook Report. The evaluators also looked at the Reef 2050 Plan, in particular the specific relevant targets. Questions were asked during interviews and in the survey to see whether stakeholders considered the vision and purpose to be met. The Strategy itself and PowerBI dashboard were also considered as part of this analysis to determine whether the purpose had been met.

3.3.3 Appropriateness of the Themes, Goals, Objectives and Activities

The appropriateness of the themes, goals and objectives were assessed by reviewing data from all three sources.

The evaluators started this part of the assessment by considering whether there were any gaps or additional themes that needed to be reflected to ensure the purpose and vision could be met. To support their assessment, the evaluators asked also interviewees whether they considered the themes appropriate, and whether there were any other themes needed to be included in the strategy so that the vision could be met.

Each theme was then considered individually by the evaluators, using the questions in Section 2.4 for reference. The evaluators assessed the relevance, connection and appropriateness of the goals against the themes by considering whether all parts of the theme were reflected in the goal.

The evaluators used the program logic approach outlined above to consider the appropriateness of each individual objective, specifically considering whether each objective was relevant for the theme/goal and whether meeting that objective would contribute towards achieving the goal of the theme.

The evaluators also considered the appropriateness of the activities and deliverables proposed against each of the objectives including - whether the activity relevant for the objective, and would undertaking that activity contribute towards achieving the objective. Stakeholders were asked questions to determine whether there were activities they undertook in relation to wetlands management that were not reflected in the Strategy.

In considering the level of impact and delivery under the Strategy, the evaluators also considered the extent to which the activities and deliverables were implemented. The evaluators used the PowerBI dashboard, desktop analysis of available information, responses from interviewees and the outcomes of the evaluation survey to achieve this. Firstly, the PowerBI dashboard was used to determine the overall completeness of activities against each objective. The relevant data from the interviews and survey was then considered to determine the depth, breadth and number of activities being completed against the objectives mentioned in the Strategy.

3.3.4 Appropriate and effective engagement of stakeholders and partners

To assess whether the stakeholders and partners engaged under the Strategy were appropriate, and the engagement methods effective, the following data were reviewed:

- feedback provided by stakeholders through the evaluation survey and
- feedback provided by stakeholders during the interviews.

3.3.5 Appropriateness of governance framework

To assess whether the governance framework supporting the Strategy was appropriate and effective, the following data were reviewed:

- feedback provided by stakeholder through the evaluation survey.
- feedback provided by stakeholders (including departmental staff) during the interviews.

- desktop assessment to determine whether there were records of the Wetlands Governance Group supporting monitoring and reporting of projects under the Strategy.

3.3.6 Appropriate allocation and use of resources

To assess the appropriateness and effectiveness of the resources allocated to achieving the Strategy, the evaluators gathered information on the funding allocated against achievement of the Strategy, and the funding allocated to achieving activities under the Reef 2050 Plan as a whole. In addition, the evaluators considered the interviewees (internal and external) and survey participant responses relating to the resource available for wetland program management activities as well as wetland management activities.

4 Evaluation Results

4.1 Structure of the Strategy

Regarding the Strategy's structure, survey participants and interviewees felt that the Strategy was *"a clear articulation of the State's goals"*, easy to implement as it *"has specific goals and activities targeting each goal"* and is *"easy to understand..."*. No one identified 'missing' Themes. There were several suggestions around additions for specific activities, but the majority of activities recommended fit under the current activities in the Strategy.

4.2 Contribution of the Strategy towards Reef 2050 Plan targets

The evaluation considered the extent to which implementing the Strategy established the actions needed to contribute to the wetlands target in the Reef 2050 Plan (appropriateness and effectiveness).

Reef 2050 Plan notes that *"wetlands are a key ecosystem that contributes to the health and resilience of the Reef"*¹². There is only one target EHT3 in the Reef 2050 Plan that includes reference to wetlands. Target EHT3 aims to ensure *"there is no net loss of the extent, and a net improvement in the condition, of natural wetlands and riparian vegetation that contribute to Reef resilience and ecosystem health"*. One of the actions listed to achieve target EHT3 is action MTR EHA7: *"The implementation of the Wetlands in the Great Barrier Reef Catchment Management Strategy"*. In considering whether the Strategy has successfully contributed to achieving target EHT3 in the Reef 2050 Plan, the evaluation found that the Strategy was successful. This is because the development and implementation of the Strategy has occurred and was listed as a key action that contributed towards achieving this target in the Reef 2050 Plan.

When considering the Strategy itself - the Reef 2050 Plan¹³ states that the Strategy will outline an integrated approach to catchment and coastal environment management that considers the multiple values of wetlands and the role they play in ecosystem health of the World Heritage Area. The Reef 2050 Plan¹⁴ also explains that the Strategy *"provides a whole-of-system framework for catchment management and the protection, maintenance and restoration of wetland systems. This framework will help prioritise investment to enable sustainable management of the wetland and coastal ecosystems."*

With regards to whether the Strategy outlined an integrated approach to whole-of-catchment and coastal environment management, an analysis of the Purpose and Vision (See section 4.2) has found that this was also generally successful. Together the Strategy's Vision and Purpose aligned with target EHT3 and with the Reef 2050 Plan's explanation of what the Strategy would achieve (i.e. sustainable management of wetlands and coastal systems that contribute to the health and resilience of the GBR ecosystem). On the point of whether the Strategy has helped to prioritise investment to enable sustainable management of wetlands and coastal

¹² Reef 2050 Plan (2018), page 51.

¹³ Reef 2050 Plan (2018), page 21.

¹⁴ Reef 2050 Plan (2018), page 21.

Evaluation Report – Wetlands in the GBR: Management Strategy ecosystems, responses received from stakeholders (who were aware of the Strategy) generally answered ‘yes’. Examples of the responses received were:

“[The Strategy helped] by guiding research projects”

“We consider the Strategy in planning research activities in order to contribute to the desired outcomes”.

“[The Strategy] provides a government commitment to those actions, a strategic approach and possibly helps gather funding for on-ground activities”

“[The Strategy provides]... good guidance to wetlands managers and stakeholders about why wetland management is important for the GBR and what the overall goal is”

Considering all the information and data discussed above, it can be said that the Strategy has contributed in-principle towards achieving the relevant Reef 2050 Plan target.

To ensure the Reef 2050 Plan target on wetlands can be met, ensuring adequate resources to enable implementation of the Strategy is key. The Strategy as a document will not be able to contribute to achieving the Reef 2050 Plan target without the people and funds to drive the activities required to meet the Strategy’s goals and achieve on-ground, biophysical outcomes.

4.3 Achievement of Wetlands Strategy Vision and Purpose

The evaluation considered the extent to which the Strategy met its Vision and Purpose.

4.3.1 Vision of the Strategy

The Vision of the Strategy is that *“wetland extent, values and ecological processes are enhanced and contribute to the health and resilience of the Great Barrier Reef ecosystem.”*

In 2019, the Outlook Report¹⁵ (GBR Outlook Report (2019)) highlighted that *“the scientific evidence is clear: initiatives that will halt and reverse the effects of climate change at a global level and effectively improve water quality at a regional scale are the most urgent to improve the Region’s long-term outlook”*. The GBR Outlook Report (2019) notes that sediment loads continue to contribute to the poor state of many inshore coastal and marine ecosystems.

The importance of freshwater wetlands is reflected in new Queensland Government catchment targets requiring no net loss of wetland extent, and a net improvement in the condition of natural wetlands and riparian vegetation that contribute to the Reef’s resilience and ecosystem health¹⁶. Since 2009, little additional removal of freshwater wetlands has been recorded; 81 per cent of the pre-European extent is estimated to remain in the Catchment¹⁷.

Approximately 630,600ha of natural wetlands, 75,500ha of modified wetlands and 167,800ha of artificial or highly modified wetlands were mapped in the Great Barrier Reef catchment in 2017. There was a loss of 556 ha (less than 0.1%) of natural wetland extent across the Great Barrier Reef between 2013 and 2017. Of this 310 ha of natural wetland extent was lost to infilling or clearing and 247 ha was lost to modification. Wetland losses also occurred in

¹⁵ Great Barrier Reef Marine Park Authority 2019, *Great Barrier Reef Outlook Report 2019*, GBRMPA, Townsville (‘GBR Outlook Report 2019’) [GBRMPA ELibrary: Great Barrier Reef Outlook Report 2019](#)

¹⁶ GBR Outlook Report 2019, page 71.

¹⁷ GBR Outlook Report 2019, page 71.

Evaluation Report – Wetlands in the GBR: Management Strategy reporting periods 2001-2005, 2005-2009 and 2009-2013. Rates of wetland loss between 2013 and 2017 have decreased relative to the previous reporting periods in the Fitzroy and Mackay Whitsunday regions, and have increased in the Burdekin, Wet Tropics and Burnett Mary regions. Cape York region recorded no loss¹⁸.

The Strategy's Vision is an aspirational, long-term, biophysical outcome. It does not have an "end state" but rather reflects a continual process of improving ecological outcomes for wetlands. While the activities within the Strategy aim to contribute to improving biophysical outcomes, the ability to directly attribute the contribution of a specific activity in the Strategy to this outcome is near impossible. This sentiment was reflected by Queensland Government employees interviewed as part of the evaluation. Further, the Strategy does not have the ability to wholly affect these biophysical parameters in a positive or negative way – rather it just contributes to better outcomes. The biophysical outcomes for wetlands and the GBR are affected by a wide array of factors, such as State and Federal government legislation, policy, plans, individual decisions on projects etc. As a key example, from our understanding the biggest impact on the GBR is climate change, which is completely outside the scope of this Strategy and the Strategy alone cannot influence.

There are continuing threats to the GBRs biophysical health, which need addressing through a variety of means. The evaluation found that the Strategy, to the best of its ability, has achieved its Vision, by identifying a range of activities that will contribute to enhancing the values and ecologically processes of wetlands and coastal ecosystems (e.g. integrating wetland management and protection measures into key pieces of legislation).

4.3.2 Purpose of the Strategy

The Purpose of the Strategy is *"to provide a range of objectives and activities to improve wetlands management that aligns with Australian and Queensland government initiatives, including targets in the Reef 2050 Long Term Sustainability Plan"*.

Reef 2050 Plan notes that wetlands 'are a key ecosystem that contributes to the health and resilience of the Reef'¹⁹. The relevant target (EHT3) is: "there is no net loss of the extent, and a net improvement in the condition, of natural wetlands and riparian vegetation that contribute to Reef resilience and ecosystem health." Reef 2050 suggests that this will be achieved by implementing the *Wetlands in the Great Barrier Reef Catchments Management Strategy 2016–2021*.

In undertaking the analysis, the evaluation considered whether achieving this Purpose is within the sphere of control of the Strategy. The Strategy can, and does, outline a range of objectives and activities aimed at improving the management of wetlands in the GBR catchment that aligns with the relevant target in the Reef 2050 Plan.

The Strategy does set several Objectives and Activities that aim to improve the management of wetlands in the GBR catchment. Section 4.3 of this report provides greater analysis on this, however, generally it was found that the Objectives and Activities positively contributed to

¹⁸ Wetland Extent (Results), Reef Water Quality Report Card 2017 and 2018, Reef 2050 Water Quality Improvement Plan, page 5.

¹⁹ Reef 2050 Plan, 2018, page 51.

Evaluation Report – Wetlands in the GBR: Management Strategy achieving the five Themes, which in turn contributed to improving the management of wetlands in the GBR catchment.

When survey participants were asked if they felt the Strategy had contributed to better management of wetlands in the GBR, they answered ‘yes’. Examples of the reasoning provided by survey participants were that the Strategy had “defined, specific and measurable targets to achieve, and has achieved or is on track to achieving most of them” and had “drawn attention to the importance of wetlands management in the GBR”.

In order to achieve the Purpose, the objectives and activities to improve wetlands management were laid out under five themes:

1. Improving wetlands information for decision making and action.
2. Wetland planning arrangements.
3. On-ground activities to protect, manage and rehabilitate wetlands.
4. Education, communication and capacity building.
5. Monitoring, evaluation, reporting and improvement.

Based on the data provided in the PowerBi dashboard and stakeholder responses, the Purpose of the Strategy has been determined to be met. Further the Purpose of the Strategy is considered appropriate and in general, the Strategy has effectively and efficiently met. This conclusion was based on the fact that the Strategy’s Purpose was to provide objectives and activities to improve wetlands management, and the Themes outlined a range of objectives and activities that together are considered the types of matters required to improve wetlands management. This sentiment was also largely reflected by interviewees who deemed the Purpose of the Strategy to have been met.

4.4 Contribution of the Themes, Goals, Objectives and Activities

The next sub-sections will evaluate the extent to which:

- a) the Themes were appropriate for achieving the Strategy’s purpose.
- b) the objectives were appropriate for achieving the goal of the Theme.
- c) the activities were appropriate to the objectives and were delivered.

Overall, a common topic raised by the Wetland team was that, moving forward, they would like to see climate change, First Nations people and the social-ecological dimension woven throughout the Strategy. The evaluators agree with this suggestion and believe such additions will ensure the Strategy remains contemporary and continues to include important aspects that are relevant for the management, protection and rehabilitation of wetlands in the GBR region.



Figure 3: Themes of the Strategy

4.4.1 Theme 1: Improving wetlands information for decision making and action

This section will evaluate how Theme 1 of the Wetlands Strategy has improved wetlands information for decision making and action. The Wetlands Strategy proposes that scientifically robust information is needed to effectively understand and manage all aspects of wetlands. Knowing where wetlands are, the different types of wetlands, how they function and support different values is crucial to maintaining the health of the Great Barrier Reef.

4.4.1.1 Appropriateness of goal

The Theme 1 goal aims to ensure information is available for evidence-based decision making and action. The theme, goal and objectives are generally aligned. The goal is deemed appropriate for Theme 1 and clearly articulates the aim of this section.

4.4.1.2 Appropriateness of objective

Theme 1 includes 13 objectives, which aim to achieve the goal of improving wetlands information for decision making and action. The desktop analysis indicated that the objectives were primarily achieved through the creation of guidelines and the updating of *WetlandInfo*. The evaluation also found that the Theme 1 objectives are generally appropriate for achieving the goal. However, in some cases, it was not clear from the onset how the objectives linked to the Theme, this at times required further analysis. Table 1 below provides a more detailed discussion on which objectives the evaluators believe would benefit from minor amendments to make it clear from the onset how they align with the goal of Theme 1. In a couple of cases e.g. 1.3, 1.4, 1.5 the objective appears to be a higher order outcome (managing wetlands to best practice standards) than the goal of the theme (improved information). Using a program logic approach, the objectives should contribute to the goal, not the other way around.

Table 1. Analysis of appropriateness of Theme 1 objectives

Objective number	Objective	Discussion
1.2	Improvements to ecological processes and environmental values of wetlands are known	<p>The goal of Theme 1 centres around ensuring information is available to support evidence-based decision making and action.</p> <p>It was not clear on reading this objective 1.2 and the associated activity what exactly they meant and how they fit. The objective could be read as being related to on-ground activities, that are in theme 3. The activity was monitoring and reporting which is under theme 5.</p> <p>It is recommended that objective 1.2 be re-phrased to ensure it is clear how this objective aligns with Theme 1. E.g. Is it about improving the information available? If so, it could be rephrased to <i>Improved information on ecological processes and environmental values of wetlands are made available.</i></p>
1.3	Wetlands and other coastal ecosystems are managed from a whole-of-catchment perspective.	<p>The goal of Theme 1 centres around ensuring information is available to support evidence-based decision making and action.</p> <p>Upon initial analysis, it was not clear how objective 1.3 aligned with Theme 1. Initially it appeared that objective 1.3 would be better placed under Theme 3, which relates to on-ground activities to protect, managed and rehabilitate wetlands. This is because it did not result in improving the provision of information but was instead the outcome of having better information. However, upon further analysis it became clear that this objectives' activities did align with the goal of Theme 1.</p> <p>It is recommended that objective 1.3 be re-phrased to ensure it is clear how this objective aligns with Theme 1 e.g. could be rephrased to <i>improving information on how to manage wetlands and other coastal ecosystems from a whole-of-catchment perspective.</i></p>
1.4	Wetlands are managed to best practice standards	<p>The goal of Theme 1 centres around ensuring information is available to support evidence-based decision making and action.</p> <p>Upon initial analysis, it was not clear how objective 1.4 aligned with Theme 1. Initially it appeared that objective 1.4 would be better placed under Theme 2, which relates to updating and maintaining planning arrangements to improve the management and protection of wetlands. However, upon further analysis it became clear that this objectives' activities did align with the goal of Theme 1.</p> <p>It is recommended that objective 1.4 be re-phrased to ensure it is clear how this objective aligns with Theme 1 e.g. could be rephrased to <i>up-to-date information is available to ensure wetlands are managed to best practice standards.</i></p>
1.5	Deliver value for money investments,	<p>The goal of Theme 1 centres around ensuring information is available to support evidence-based decision making and action.</p>

	encourage collaboration and avoid duplication in wetlands-related projects	<p>Upon initial analysis, it was not clear how objective 1.5 aligned with Theme 1. Initially it appeared that objective 1.5 would be better placed under Theme 3 (on-ground activities) or Theme 4 (education, communication and capacity building). However, upon further analysis it became clear that this objectives' activities did align with the goal of Theme 1.</p> <p>It is recommended that objective 1.4 be re-phrased to ensure it is clear how this objective aligns with Theme 1 e.g. could be rephrased to <i>information is available to support value for money investments and collaboration, but avoid duplication in wetland-related projects.</i></p>
1.7	Wetlands used by shorebirds and other waterbirds are managed with best available data and information.	<p>The goal of Theme 1 centres around ensuring information is available to support evidence-based decision making and action.</p> <p>Upon initial analysis, it was not clear how objective 1.7 aligned with Theme 1. Initially it appeared that objective 1.7 would be better placed under Theme 3, which relates to on-ground activities to protect, managed and rehabilitate wetlands. However, upon further analysis it became clear that this objectives' activities did align with the goal of Theme 1.</p> <p>It is recommended that objective 1.7 be re-phrased to ensure it is clear how this objective aligns with Theme 1 e.g. could be rephrased to <i>information is available to ensure wetlands used by shorebirds and other waterbirds are managed with the best available data and information.</i></p>
1.8	Applied research addresses wetland knowledge gaps and assists management	<p>The goal of Theme 1 centres around ensuring information is available to support evidence-based decision making and action.</p> <p>Upon initial analysis, it was not clear how objective 1.8 aligned with Theme 1. However, upon further analysis it became clear that this objectives' activities did align with the goal of Theme 1.</p> <p>It is recommended that objective 1.8 be re-phrased to ensure it is clear how this objective aligns with Theme 1 e.g. could be rephrased to <i>research is encouraged, and the outputs made available, to address wetland knowledge gaps and assist with wetland management.</i></p>
1.9	The role of natural and artificial wetlands in water quality improvement are understood and incorporated into relevant Reef initiatives	<p>The goal of Theme 1 centres around ensuring information is available to support evidence-based decision making and action.</p> <p>Upon initial analysis, it was not clear how objective 1.9 aligned with Theme 1. However, upon further analysis it became clear that this objectives' activities did align with the goal of Theme 1.</p> <p>It is recommended that objective 1.9 be re-phrased to ensure it is clear how this objective aligns with Theme 1 e.g. could be rephrased to <i>information is made available on the role of natural and artificial wetlands in water quality improvement.</i></p>

<p>1.10</p>	<p>Barriers to fish passage are managed to improve ecosystem health.</p>	<p>The goal of Theme 1 centres around ensuring information is available to support evidence-based decision making and action.</p> <p>Upon initial analysis, it was not clear how objective 1.10 aligned with Theme 1. However, upon further analysis it became clear that this objectives’ activities did align with the goal of Theme 1.</p> <p>It is recommended that objective 1.10 be re-phrased to ensure it is clear how this objective aligns with Theme 1 e.g. could be rephrased to <i>‘information is made available on managing barriers to fish passage’</i>.</p> <p>Alternatively, or as well as, this objective could be moved to Theme 3 to support implementation of on-ground activities that improve the health of wetlands.</p>
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4.4.1.3 Appropriateness and delivery of activities

The Strategy includes 21 current and proposed activities under Theme 1, which are briefly described on page 13 of the Strategy. Based on a desktop analysis conducted as part of this evaluation, it was found that 80 activities and 110 deliverables were associated with Theme 1. Of the deliverables allocated to this Theme - 22 were completed, 30 were deemed to be ongoing, 34 were tracking their milestones and the remainder were in the preliminary/proposal phase. Examples of deliverables completed under this Theme include the intertidal and subtidal ecosystem mapping for Central Queensland, litter and illegal dumping information being made available in *WetlandInfo*, and making wetlands data available in QGlobe. The evaluation found that the activities noted against this Theme aligned with the Theme 1 goal and the current and proposed activities listed on page 13 of Strategy.

An important component to delivering the goal of this Theme was the consolidation of information into a knowledge base delivered through *WetlandInfo*. *WetlandInfo* is a website that provides comprehensive and diverse information about managing, protecting, enjoying, and conserving wetlands in Queensland. The website has been designed for multiple users with differing understandings of wetlands (e.g. information sheets for students, practical management options for farmers, and scientific information for land managers). Between 30 June 2020 and 29 July 2021, *WetlandInfo* received a total of 589,690 visits. This equated to on average 1,500 visits a day and 12,300 visits per week demonstrating its importance for providing wetlands information to the broader community²⁰. Many stakeholders also mentioned the engagement and assistance they received from the Wetlands team as being a useful information tool about wetlands in Queensland.

The evaluation found that 100% of survey participants use *WetlandInfo* for a range of different reasons (e.g. to gather information relevant to development assessments, research that has been carried out, mapping data and to determine the value of certain wetlands to obtain funding). One survey participant went so far as to say that the wetlands information published by the Queensland Government was some of the best in Australia, perhaps even the world. In addition, *WetlandInfo* was consistently mentioned as a tool used by

²⁰ Personal Communication, N. Jones (EPPB, DES) on 29 July 2021.

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interviewees to get up-to-date information on wetlands in Queensland. An interview participant, external to government, noted how valuable *WetlandInfo* was for their work, in particular the mapping data available. This same participant felt that *WetlandInfo* provided the appropriate level of information to assist them in managing wetlands in their region. Another survey participant explained the value of having staff from the Wetlands team visit and explain how to navigate *WetlandInfo* and obtain data from this platform relevant to their region.

WetlandInfo is undoubtedly supported by all stakeholders involved and was looked to as the key source of data relating to wetlands in Queensland. While it contains a huge array of information, some specific data gaps were identified. For example, one interview participant said that they were unaware of any data available on best practice standards relating to the management of invasive species (e.g. feral pigs) in the Cape York region, which was one of the greatest wetland management challenges in this region. Collation of data, or encouraging research, on region-specific invasive species management may be of benefit to *WetlandInfo* to help address any actual or perceived knowledge gaps that may exist. The evaluators did note that *WetlandInfo* includes significant information related to feral pig management, that the GBR Wetlands Network Group received an update from the National Feral Pig project and that a Feral Pig Forum was held in 2020.

Another interviewee suggested there was a lack of information currently available on groundwater modelling and monitoring. They stated the information that is available on *WetlandInfo* was helpful, but more research and carefully consolidation of research in this space was needed to make sure they have all the knowledge required to adequately manage wetlands. The same interviewee suggested that more information and data be collated, and research encouraged, to fill information gaps that exist relating to the impacts of hypoxic water entering ecosystems after a large rain event.

A survey participant noted that more information and data were required to fill the knowledge gaps that exist relating to the economic value of wetlands to fisheries productivity (i.e. in the same way we do for seagrass and coral habitats) and to individual fish species (e.g. Barramundi is a high value species, but information on its supra-littoral use of wetland habitat is poorly understood). Other survey participants suggested including mapping data that highlights wetland restoration potential to help focus management activities and identify degraded wetlands that have potential to be used as an offset through remediation. Whilst this information would not be appropriate for the Strategy due to its fluid nature, such information would be a benefit to the *WetlandInfo* platform as it would be easier to keep updated and appears to be the best way to engage with relevant stakeholders.

The stakeholders above raised specific information needs relevant for their work. The evaluators recommend that research gaps in wetlands management are identified and prioritised more broadly, using a much wider range of information. If the above information gaps or others are deemed an important issue more generally, where this type of work sits under existing objectives, an activity should be added to the relevant objective to specifically highlight the information gap or research need, to encourage work in that area.

4.4.1.4 Theme 1 Summary

The goal of Theme 1 was to ensure that information is available for evidence-based decision making and action. This evaluation found that the objectives and activities were generally appropriate for this Theme and resulted in a large number of activities being carried out to work towards improving wetlands management. As mentioned above, it is recommended that the objectives in Theme 1 be reviewed to provide clarity on their alignment with the Theme 1 goal. It is recommended that any specific research needs be considered when developing the next strategy. It may be useful to highlight areas of focus or interest in the Strategy if there are particular information gaps that need filling. This could be by adding activities specifically designed to fill the information gap. Ideas that were proposed during the evaluation included: consolidating information on, and encouraging, groundwater modelling and monitoring research in the GBR catchment; looking at the impacts of hypoxic water entering ecosystems after a large rain event; information on wetland restoration and developing potential and region-specific best practice standards for invasive species management. *WetlandInfo* may also benefit from information on mapping data that highlights wetland restoration potential and degraded wetlands that have potential to be used as an offset through remediation and focus stakeholder actions.

4.4.2 Theme 2: Wetland planning arrangements

This section will evaluate Theme 2 of the Strategy to determine whether strategic direction into statutory and non-statutory planning arrangements has been provided to protect, manage and enhance wetlands. Understanding the importance of wetlands in the Great Barrier Reef catchment and the values they support will assist with planning for the protection, management and rehabilitation of wetlands.

4.4.2.1 Appropriateness of goal

The Theme 2 goal is stated as funding, non-statutory and statutory planning arrangements being in place to protect, management and enhance wetlands. This suggests that a component of this goal is related to funding programs to protect, manage and enhance wetlands. However, upon further inspection of the Theme 2 objectives and activities, this does not appear to be correct. The objectives and activities under Theme 2 solely relate to the integration of wetlands into planning instruments, such as legislation and other policy documents, to assist with planning for their protection, management and rehabilitation – they do not relate to the provision of funding. For this reason, it is recommended that the goal be amended to provide clarity that this Theme relates to integrating information on wetlands into strategic planning instruments to protect, manage and enhance wetlands. Whilst the provision of funding does not make up a component of this goal, this goal's outcome may assist stakeholders in identifying where to focus investment to achieve the most effective outcomes for wetlands.

4.4.2.2 Appropriateness of objectives

Theme 2 includes nine objectives, which aim to contribute to providing strategic direction into planning arrangements to protect, manage and enhance wetlands in the GBR catchment. These nine objectives are generally in alignment with achieving the goal and are appropriate for the Theme. Taken together, and considering the other activities in the Strategy, these objectives are comprehensive and only require minor amendment. Table 2 below provides a

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detailed discussion on the objective that would benefit from a minor amendment to make it clear from the onset how it aligns with the aim of Theme 2.

Table 2. Analysis of appropriateness of Theme 2 objectives

Objective number	Objective	Discussion
2.4	Up-to-date information is available for listed Ramsar wetland sites.	<p>The aim of Theme 2 centres around ensuring wetlands planning arrangements are in place.</p> <p>Upon reading objective 2.4, it appears this objective would be better located under Theme 1, which relates to making information available for evidence-based decision making. In addition, the activity associated with this objective (i.e. update and publish Ramsar Information Sheets for all listed sites) would also be better suited to Theme 1. It is recommended that objective 2.4 be moved to Theme 1.</p> <p>Alternatively, if the Ramsar Information Sheets do influence or contribute to planning arrangements, the objective could be re-worded to clarify this.</p>

4.4.2.3 Appropriateness and delivery of Activities

The Strategy includes 11 current and proposed activities under Theme 2, which are briefly described on page 15 of the Strategy. Based on a desktop analysis conducted as part of this evaluation, 41 activities and 53 deliverables were associated with Theme 2. Of the allocated deliverables – 15 had been delivered, 14 were tracking their milestones and 13 were ongoing. The remainder were in the preliminary/proposal phase. Examples of some of the deliverables for this Theme included legislative review and gap analysis for wetlands rehabilitation and research, incorporating wetlands into acquisitions of protected areas in the GBR catchment and including wetlands under the Queensland offset framework.

A key component of Theme 2 was providing strategic direction on planning instruments to ensure wetlands were protected, managed and enhanced. An example of an action that contributed towards achieving the goal of Theme 2 was the creation of the statutory *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*. This policy re-located environmental values for water and wetlands into a single policy document to increase the efficiency of decision making under the *Environmental Protection Act 1994* and other statutory and non-statutory instruments. The wetland environmental values prescribed in this policy relate to the processes and components that support the biological integrity of wetland, the biological diversity within and between wetlands, and the biological diversity of wetland types. This is a huge achievement for wetlands in Queensland, and given the complexities associated with creating and amending policies, this is a very commendable action.

Further, majority of stakeholders interviewed were able to provide examples of how their organisation developed and/or implemented statutory and non-statutory plans and

Evaluation Report – Wetlands in the GBR: Management Strategy strategies with the aim of protecting, managing and enhancing wetlands. Although this is a great outcome for wetlands in the GBR catchment, it is not clear whether these activities were prompted by the Strategy itself or another mechanism (e.g. funding availability or priorities of the day).

Three survey participants did note, however, that they considered the Strategy when planning research activities and support management direction, which demonstrates how the Strategy facilitates and guides activities aimed at protecting, managing and rehabilitating wetlands in the GBR catchment. In addition, one interviewee noted that they regularly use the Strategy to assist with applications to secure funds for wetlands-related activities. Securing such funding allowed them to undertake wetland protection and restoration activities in their region that they otherwise would not have been able to do. The evaluation found that the activities noted against this Theme aligned with its aim and the current and proposed activities listed on page 15 of the Strategy.

4.4.2.4 Theme 2 Summary

The aim of Theme 2 was to ensure that information was integrated into planning instruments to help protect, manage and enhance wetlands in the GBR catchment. The evaluation found that the objectives and activities generally aligned with the aim of Theme 2. As mentioned above, it is recommended that the Theme 2 goal be amended to ensure it wholly aligns with the aim of the theme and its underlying objectives and activities (i.e. that it doesn't relate to funding wetland programs and activities). In addition, it is recommended that objective 2.4 be reviewed and either removed or amended to make it clear how it aligns with this Theme.

4.4.3 Theme 3: On-ground activities to protect, manage and rehabilitate wetlands

This section will evaluate how Theme 3 of the Strategy has implemented on-ground activities to protect, manage and rehabilitate wetlands. Critical to this theme is improving wetland management and reducing risk to wetlands through a combination of 'on ground' regulatory and compliance activities and the adoption of best practice 'on ground' activities when undertaking physical works e.g. reducing barriers to fish passage or wetland repair.

4.4.3.1 Appropriateness of goal

The goal of Theme 3 is to encourage the implementation of on-ground activities that improve the health of wetlands and enhance their contribution to Reef resilience through statutory and non-statutory mechanisms. This goal generally aligns with the Theme however, depending if the recommendations below are taken up, it may need to be revised for the new Strategy. Either way, it is proposed that it's not necessary to refer to statutory and non-statutory mechanisms as this does not 'value add' to the Theme title. The discussion provided in this Theme refers to enhancement of on-ground management through "consistent prioritisation of wetland investment; greater funding for on-ground activities, including restoration of wetlands; and identifying incentives for wetland management on private land". This funding/investment theme is important but isn't reflected in the goal and only in one objective, however many activities refer to funding.

4.4.3.2 *Appropriateness of objectives*

Theme 3 had nine objectives. It is the opinion of the evaluators that three of the nine objectives may fit better under other themes in the Strategy. These objectives have been provided and discussed in Table 3 below.

It is suggested that during the Strategy remake, these objectives are reviewed and either moved into a theme that aligns better with their intent, or expanded and/or reworded so that it is clear how they align and contribute to Theme 3.

Table 3. Theme 3 objectives that may sit better under different themes in the Strategy

Objective number	Objective	Discussion
3.1	Wetland’s compliance activities are enhanced	<p>The focus of Theme 3 centres around supporting “on-ground activities” to protect, manage and rehabilitate wetlands in the GBR.</p> <p>While the regulatory objective and activity arguably fits under this theme it could be considered as quite disparate as all other objectives refer to physical works such as restoration of wetlands.</p> <p>It is suggested to consider whether this objective could fit under another theme. If it remains, this item may need rewording to ensure the relevance for this theme is clear.</p>
3.3	Land managers understand the connection between their actions and the health of wetlands, catchments and the Great Barrier Reef.	<p>The focus of Theme 3 centres around supporting “on-ground activities” to protect, manage and rehabilitate wetlands in the GBR. In contrast, objective 3.3 centres around continuing to develop education and communication initiatives for land managers on the importance of wetlands.</p> <p>Whilst communication material is an important component of wetland protection, objective 3.3 may be better placed under Theme 4 which focuses on education, communication and capacity building. It is therefore suggested that objective 3.3 be moved to Theme 4 or expanded to make it clear how it fits under Theme 3.</p>
3.9	Wetlands in protected areas and/or Ramsar sites maintain their ecological character.	<p>As discussed above, the focus of Theme 3 centres around supporting “on-ground activities” to protect, manage and rehabilitate wetlands in the GBR. The activity under objective 3.9 proposes to ‘implement wetland management planning that is in accordance with legislation and international conventions, agreements, and partnerships’.</p> <p>It is recommended to make it clear that this activity refers to undertaking on-ground activities in accordance with planning to make it clearly fit under Theme 3.</p>

4.4.3.3 *Appropriateness and delivery of activities*

Based on the desktop analysis, 59 activities and 72 deliverables were allocated against Theme 3. Of the deliverables allocated – 11 have been delivered, 28 were listed as ongoing and 22

Evaluation Report – Wetlands in the GBR: Management Strategy were listed as tracking their milestones. The remainder were in the proposal/preliminary stages. Considering the objectives proposed it is reasonable that the majority of the activities and deliverable are ongoing or tracking milestones. The activities proposed are broad and long-term initiatives that will genuinely require ongoing work and will continue to be necessary to achieve the goal.

As was discussed above, a number of the objectives and their activities align with other themes and therefore the examples provided are the same or similar to those under other themes (1 and 4). However, the types of activities that overlap such as information provision and capacity building of managers, are core activities to enable on-ground activities to occur and protect, manage or rehabilitate wetlands, therefore they are relevant to this theme.

Examples of deliverables in this theme included the establishment of early detection systems to identify wetland breaches and regional NRM groups undertaking on-ground training and capacity building to develop the skill of on-ground managers.

Interviews indicated many physical on-ground activities have been conducted to support the rehabilitation, restoration and improved management of wetlands. The activities discussed during interviews included: aquatic and terrestrial weed control, stock management, fencing to exclude cattle, culling or control of feral animals (pigs), projects to remove barriers to fish passage, earthworks to rehabilitate wetlands and restore riparian areas, fire management. Signage, walkways and bollards were also identified as on-ground activities.

While the priority varied by region, there were many examples of these activities being undertaken by the organisations interviewed, particularly NRM bodies and university researchers. For example, an interviewee from the Cape York region mentioned a key on-ground activity has been fencing to exclude cattle. In some cases, once cattle and pigs are removed, the wetlands do not need active rehabilitation to restore function. Performing these types of on-ground activities met the objective to enhance management of threats, such as choking of waterways by aquatic weeds or trampling of stream banks by feral cattle (meeting objective 3.6).

Removing fish barriers was identified as a major stream of work for many organisations working in central Queensland. One NRM group reported they have abated 27 barriers in their basin. Another NRM group is planning to remove 18 barriers over 25 km of waterways by June 2023. These types of examples demonstrate the achievement of objective 3.4.

As will be described as part of the analysis under Theme 4, interviewed stakeholders described delivering a number of communication and engagement activities. These activities included providing information and educational resources for landholders, as well as running workshops, 'shed meetings', extension work and engagement via specific projects. Stakeholders reported that many of these activities have been found to be successful in positively influencing behaviour change. It was noted in particular that demonstrating the improvement over time to landholders via data or maps was very important to support continued behaviour change.

Interviewees also provided examples of innovative approaches being used. One NRM group undertook a trial of using aquatic weeds as a composted product to improve soil health and

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soil water holding capacity on agricultural land. The project not only benefited the landholder, but the prawn farm downstream reported improved water quality.

One interview participant suggested that the Strategy would benefit from more case studies of successful on-ground activities that has contributed to wetlands outcomes in the GBR (e.g. weed control, revegetation, construction of new wetlands and fish ladders). While the Strategy may benefit from some case studies, we note a huge amount of this information is already available on the *WetlandInfo* webpage. The Strategy could perhaps mention that *WetlandInfo* provides information on on-ground activities occurring in the GBR region, or include hyperlinks to the relevant *WetlandInfo* webpages.

Acknowledging the recommendation to move up to three of the objectives to other Themes, it is recommended that other more relevant objectives are determined to support the achievement of this Theme's goal.

In terms of what those new objectives may be, identifying funding sources, and effectively and successfully arguing for funding for on-ground activities, is a critical component of being able to deliver this goal. The funding of wetlands projects was identified as an issue by many stakeholders. This should include consideration of what is needed for wetlands managers to be more competitive when arguing for funds. For example – does the strategy need to support more effective grant writing, or the development of a business case for investment in wetlands, or further work to quantify wetlands values and benefits, or in identifying funding streams? It is recommended to develop a number of objectives and associated activities to support wetlands stakeholders at state, regional and local levels to more effectively make their case for funding their on-ground projects.

A note in regard to objective 3.7. This objective refers to protecting wetlands through acquisition, and the activity is to explore an acquisition fund. The desktop analysis and interview information indicated that this objective has not had significant progress towards its achievement. There was limited data available on this objective in the PowerBI dashboard and an acquisition fund was not mentioned by stakeholders interviewed or surveyed.

However, the development of a new Strategy, along with the latest advancements in incentives to manage wetlands on private land (e.g. LRF, proposed Blue Carbon Initiatives), does provide opportunities to re-consider what objectives and activities relating to funding may be appropriate. It is recommended Objective 3.7 and its activities should be reviewed and updated as part of the above considerations in future iterations of the Strategy.

Another option in regard to considering new objectives would be to draw out the key threats to be managed into individual activities (rather than grouping together under objective 3.6). This would reflect the large amount of work most organisations dedicate to these activities and also provide a higher level of visibility and accountability for different threats.

4.4.3.4 Theme 3 Summary

The goal of this theme, which was to implement on-ground activities, is critically important to achieving improved wetlands management. It was clearly demonstrated that a range of activities are being delivered throughout Queensland against objectives under this Theme, for example addressing fish passage and managing a large range of threats. There were also

many examples provided of successful communication and engagement activities that enabled, supported or reflected the on-ground activities.

As discussed above it is recommended to review and refresh the objectives for this Theme. Some of the objectives allocated to this Theme appeared to align better with other Themes listed in the Strategy. It is recommended to consider adding new objectives and activities in relation to funding on-ground activities and to better represent the specific and considerable work undertaken to manage specific each of the threats to wetlands e.g. invasive species.

4.4.4 Theme 4: Education, communication and capacity building

This section will evaluate how Theme 4 of the Strategy has implemented education, communication and capacity building activities to encourage protection and best practice management of wetlands. The Strategy proposes education, communication and capacity building are key components of a program to encourage protection and best practice management of wetlands. This Theme reflects many of the communication, engagement and education activities organisations undertake.

The evaluation found that Theme 4 overlaps with Theme 1 in regard to information provision, and with Theme 5 in terms of promoting and communicating outcomes. It is noted that Theme 4 is strongly centred around stakeholder engagement activities and some objectives directly mention or allude to ‘collaboration’ and ‘partnerships’. This aspect may be useful to consider when revising this Theme during the Strategy remake. For this reason it is recommended that this point be considered during the Strategy remake, in terms of whether the term ‘communication’ would be better replaced with ‘engagement’ to wholly reflect the objectives listed under this theme.

4.4.4.1 Appropriateness of goal

The Theme 4 goal aims to improve stakeholder awareness of the value of wetlands and the management tools available. The theme, goal and objectives are generally aligned. It is noted that Theme 2 is broad, focussing on “education, communication and capacity building”. However, when considering the goal it appears to only represent a sub-set of the potential theme outcomes. The goal focuses on ‘improving awareness’, which arguably does not fully reflect the intended outcomes of education and capacity building activities (i.e. the application of those learnings).

As one important example, there has been a lot of work to improve how organisations work with Traditional Owners, with many organisations now using innovative and empowering engagement practices. The description of the activities against objective 4.6 in regard to engagement with Traditional Owners should be reviewed and enhanced to reflect the more modern and effective current practices. The evidence provided through interviews and the survey on the vast suite of activities delivered and the outcomes achieved indicate the goal for this theme has been achieved.

4.4.4.2 Appropriateness of objective

Theme 4 includes 10 objectives, which aim to achieve the goal of improving stakeholder awareness of the value of wetlands and the management tools available. The evaluation found that the objectives are in alignment with achieving the goal and are appropriate for the

Evaluation Report – Wetlands in the GBR: Management Strategy theme. Taken together, and considering the other activities in the Strategy, these objectives are comprehensive and no particular gaps were identified. A small amount of overlap was identified in Objective 4.2 with Theme 1, but as information is a building block for achieving the goals of the theme, it was considered appropriate to maintain this objective.

The objectives for this Theme are considered appropriate and no major changes are proposed. A review of the activities under this theme, in conjunction with relevant stakeholders, is recommended.

4.4.4.3 Appropriateness and delivery of activities

There were 17 overarching activities identified in the Strategy, noting that some activities had multiple aspects. In general, the activities proposed are considered appropriate to delivering the goals of the theme. Based on a desktop analysis, 71 activities and 85 deliverables were allocated to Theme 4. Of the deliverables allocated – 18 have been delivered, 29 are tracking against their milestones and 23 are ongoing. The remainder are in the proposal/preliminary phase. Examples of the deliverables in the theme include the delivery of the litter and illegal dumping framework on *WetlandInfo*, the holding of Walking the Landscape workshops and the delivery of Ramsar Management Advisory Groups. The desktop analysis indicated that the activities allocated to this Theme aligned with its goal and the current and proposed activities listed in the Strategy.

The interviews supported the outcomes of the desktop analysis and provided many examples of the wide range of activities that are being delivered under this theme. For many organisations, communication, education and engagement with stakeholders make up their core activities. Interview participants described delivering communication and education activities through online information, social media, field days, signage and posters, publications, presentations, newsletters, workshops and direct extension. Some had dedicated visitor centres as well as resources they can mobilise to educate the community. Interviewees noted it was important to ensure any communication messaging was targeted. University researchers said their technical reports were published online. *WetlandInfo* was mentioned as a brilliant central database, noting that it was only as good as the information uploaded into it and that it needed to continue supporting the momentum for everyone to do that. It was noted that the changes in digital technology is a game changer in how organisations communicate and that this provides exciting opportunities.

Education and communication activities have changed dramatically since the development of the Strategy in 2015, with the use of social media and technology broadly maturing and enabling enhancement and greater reach in engagement practices. It is recommended that the activities in Theme 4 be reviewed to ensure they reflect the most recent technological advancements and the education and engagement activities now most typically used.

One interviewee from a regional NRM body described a broad range of communication and engagement activities their organisation undertakes. These activities included providing online information and a weekly bulletin, running or attending community events and field days, developing targeted resources and running workshops for landholders. These engagement mechanisms were considered successful, with evidence supporting greater uptake of improved practices and a high level of engagement. It was also noted by one

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interviewee that providing the results of projects back to landholders raises awareness and contributes to people caring about wetlands.

This same interviewee described delivering training focused on Traditional Owners, to build their capacity to become independent managers. Another interviewee described training of local Aboriginal people working on-country. Another interviewee, a university researcher, described examples of their activities engaging Traditional Owners as partners in educational projects ‘from Day 1’ and reported extremely positive engagement outcomes in doing so. These were excellent examples of a type of activity that delivers on multiple objectives and the goal of this Theme. It was noted that based on the examples provided by multiple stakeholders the description of the activities against objective 4.6 in regard to engagement with Traditional Owners may not reflect current practices. Whilst objective 4.10 aims to explore new partnerships to enhance collaborations that result in improved wetlands management and may capture Traditional Owner engagement, making this activity clearer in Theme 4 is recommended.

Partnerships were seen by many as critical to delivering improvements and projects. Evidence was provided of many engagement, collaboration and partnership building activities occurring in the wetlands space across wide networks. One individual said they have partnership and relationship building “written into their KPIs” and their organisation has dedicated staff to supporting partnerships. Many of the interviewees and survey participants described large networks they are part of and use to increase awareness of wetlands management issues and engagement on wetlands management practices as part of their everyday work. Many interviewees noted that they had been able to establish partnerships through the GBR Wetlands Network. One interviewee noted that with the support of the Wetlands team, they had been able to deliver Walking the Landscape workshops which promoted collaboration and best practice management.

The actions taken in this regard do appear to have been effective in contributing to the goal of increased awareness. Many of the survey respondents said they thought their community knew about the importance of wetlands in protecting the Great Barrier Reef. A university researcher said that there has been a slow but positive response to the hard work done on wetlands and they are now getting more traction on wetlands work.

4.4.4.4 Theme 4 Summary

The goal of Theme 4 was to ensure information was available for evidence-based decision making and action. This evaluation found that the objectives and activities were generally appropriate for this Theme and resulted in a large number of activities being carried out to work towards improving wetlands management. As discussed above, it is recommended that Theme 4 be amended to replace the term ‘communication’ with ‘engagement’ to better reflect the objectives listed under this theme. In addition, it is recommended that the Strategy incorporates and references the use of social media and other technologies to promote education, communication and capacity-building amongst stakeholders. Finally, partnerships with stakeholders, including traditional owners, was seen as a critical component of delivering improvements and projects relating to wetland management, protection, and rehabilitation. The evaluation demonstrated the many collaboration, engagement and partnership-building

Evaluation Report – Wetlands in the GBR: Management Strategy activities currently occur in the wetlands space, so it is therefore recommended that future versions of the Strategy wholly reflect the great engagement activities that do occur.

4.4.5 Theme 5: Monitoring, evaluation, reporting and improvement

This section will evaluate whether Theme 5 of the Strategy has implemented effective monitoring, evaluation, reporting and improvement process to improve wetland management. The Strategy notes this theme will assist with monitoring targets of the *Reef Water Quality Improvement Plan 2017-2022* and the *Reef 2050 Long-term Sustainability Plan*. The Strategy also notes that ‘a longer-term evaluation of progress is essential to monitor change for those trends that take time to detect, as well as identifying emerging issues. Critical to this process is the identification of benchmarks from which to measure impacts and suitable indicators to track change’.

4.4.5.1 Appropriateness of goal

The Theme 5 goal aims to ensure an adaptive management approach is used and incorporates monitoring, evaluation, reporting and improvement (i.e. MERI framework) to improve wetland management. The theme, goal and objectives are generally in alignment. The Theme 5 goal is generally appropriate to this Theme. Including reference to all components of the ‘MERI’ framework is considered appropriate and necessary as part of achieving this goal. The only comment on the Theme 5 goal is that it could be unclear who is expected to be implementing the adaptive management approach (i.e. whether it is, for example, individual wetlands managers or the State).

4.4.5.2 Appropriateness of objective

Theme 5 includes five objectives, which aim to monitor, evaluate and report on aspects of wetland management, including undertaking 5 yearly reviews of this Strategy. When considering the premise and intent of this goal is to implement an adaptive management approach to improve wetland management, the objectives are generally appropriate and reflect a commitment to monitoring and reporting, as well as using that data to assess effectiveness of management initiatives. Considering whether all parts of the goal are supported, it is noted that currently there isn’t an objective that refers to using the results of monitoring and evaluation to change practice where needed (i.e. there is no objective that clearly supports the “improvement” component mentioned in the Theme 5 goal).

The objectives could more comprehensively support the goal if they included the entire MERI process needed to achieve adaptive management. This Theme could be improved by adding objectives and activities that support action in regard to the ‘improvement’ part of the MERI process, in order to improve wetland management practices.

As an example, during interviews it was raised that citizen science initiatives such as Seagrass Watch and Wetland Health do collect monitoring data, however, the information was not always fed back into considering how land is managed. The responsibility for individual initiatives is not within the remit of the Strategy or the Wetlands team, however the Strategy could highlight the importance of achieving “improvement” in management through including a broader objective around adaptive management practices, with supporting information provided on *WetlandInfo* on how this can be achieved.

The Strategy identifies that it is critical to identify “benchmarks from which impacts can be measured as well as suitable indicators to track change”. However, the objectives or activities do not reflect the use of benchmarks. It may be that it’s the terminology that is inconsistent and that relevant benchmarks have already been identified and are in use. If so, this should be reflected in the next iteration of the Strategy.

Survey participants were not sure that the current monitoring identified in the Strategy would be effective in identifying trends, changes and emerging issues for wetland management. As a minor point, some objectives should be amended to ensure the same, active tense is used for all objectives e.g. instead of “Monitoring the effectiveness...” change to “Monitor the effectiveness...”.

4.4.5.3 Appropriateness and delivery of activities

Based on a desktop analysis, 34 activities and 45 deliverables were allocated to Theme 5. Of the 45 deliverables allocated against activities in this Theme – 7 have been delivered, 12 are tracking against their milestones and 19 are ongoing. The remainder (7) are in the proposal/preliminary phase. For this Theme, it makes sense that almost half of deliverables are ongoing as monitoring, reporting etc is generally an ongoing activity.

Examples of the deliverables in this Theme include shorebird monitoring activities, preparing project performance reports for the governance group and the reporting of wetlands extent change. The activities delivered against this Theme generally align with its goal and the objectives, however, the below observations should be considered.

In terms of the types of activities identified, there is a strong focus on monitoring and reporting. Monitoring is an important aspect of most wetland projects, for example for baseline studies to track the impact of individual projects, or to be able to inform reporting against the Reef 2050 Plan. The monitoring activities that are supported by the Strategy are critically important to contributing to reporting frameworks including Paddock to Reef, Reef 2050 Plan, and around Ramsar convention requirements.

An NRM stakeholder stated that on-ground monitoring is important to understand wetland changes (e.g. dry-downs). Other interview participants noted the importance of monitoring to understand the baseline condition of wetlands, and to inform modelling. Examples were provided by many interviewees of comprehensive monitoring programs occurring in their regions. The WetCAT tool was mentioned multiple times in interviews as an important and useful tool to support wetland management. The focus on monitoring activities is therefore considered reasonable.

NRM stakeholders gave examples of how using monitoring data to show results of projects was effective in community engagement, to demonstrate achievement and to convince people of positive outcomes. However, this stakeholder said that budgets for monitoring the effects of interventions (e.g. structures such as fish passages) can be tight, especially in the long term. Other stakeholders voiced frustrations that the results of monitoring are not considered in funding decisions (e.g. the ability of wetlands to process dissolved inorganic nitrogen, phosphorus and nitrogen and improve water quality for the GBR has been proven however funding is prioritised for other water quality improvement initiatives).

As noted above, the Strategy has identified that it is critical to identify benchmarks and suitable indicators. These activities are not reflected in the list of activities in the Strategy, however, interviews indicated that work to develop indicators and targets were occurring in some regions. Further, the Strategy does not include any activities that reflect the ‘improvement’ component of this Theme (other than investigating opportunities to improve monitoring methods themselves). Many interviewees did, however, describe practices of continual improvement and so while activities haven’t been specified in the Strategy, wetland managers are undertaking ‘improvement’ activities in practice.

Most people interviewed noted the importance of reporting publicly, and variously published information in annual reports, journal articles, their own report cards, as well as contributing to broader government initiatives, such as the Paddock to Reef reporting framework.

In regard to evaluating the success of programs in improving outcomes for wetlands, many interviewees said evaluation was an important aspect of their work. This work was seen as useful to demonstrate changes to stakeholders, particularly those who had participated in the programs. There was an acknowledgement by many stakeholders, from universities to NRM groups, that evaluation processes can always be improved. Many interviewees had strong personal interest in evaluation and look to improve their evaluation practices, and that of their organisations. Some stakeholders said they don’t do any formal evaluation. Evaluation is critical to provide the evidence base that wetland management interventions and activities are contributing to improved outcomes. It is important that resources and support for evaluation is part of the Strategy to demonstrate these positive outcomes and the benefits of wetlands, especially in contributing to achieving Reef 2050 targets i.e. the purpose of the Strategy.

4.4.5.4 Theme 5 Summary

The goal of Theme 5 was to ensure that an adaptive management approach incorporated effective monitoring, evaluation, reporting and improvement to improve wetlands management. The objectives and activities identified generally align with the goal of the Theme and are important to achieving the higher order goals of the strategy such as contributing to the *Reef Water Quality Improvement Plan 2017-2022* and the *Reef 2050 Long-term Sustainability Plan*. As discussed, it is recommended that the Theme 5 goal undergo minor amendments, this may provide greater clarity on who the goal is directed at, for example if ‘all projects and all levels of government’ were specified as needing to implement this approach.

As discussed above, Theme 5 could be improved by adding objectives and activities that support actions relating to the ‘improvement’ component of the MERI framework. Whilst monitoring, evaluation and reporting are important components for wetland management, using this information to action improvements is equally important. Building on the importance many stakeholders put on evaluation, the Strategy could more clearly link the use of evaluation into the improvement of programs and policies, as well as the Strategy itself.

In addition, the Strategy and stakeholders have identified that it is critical to identify benchmarks and suitable indicators for wetlands, however, such activities are not reflected in the list of activities in the Strategy. These indicators and benchmarks will be important to identifying trends, changes and emerging issues for wetlands management. Identifying the

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right benchmarks will also enable the Wetlands team to evaluate the effectiveness of the Strategy in achieving its purpose of contributing to the Reef 2050 Plan targets. It is recommended that clarifying or identifying a key set of benchmarks and/or indicators would help improve the ability to track management performance and outcomes for wetlands in the GBR catchment, and their impact on the GBR itself.

4.5 Stakeholder engagement and partnerships

The evaluation also considered whether the partners and stakeholders identified and engaged under the Strategy were appropriate, and whether the engagement strategies were effective. The evaluation found that the Wetlands team engaged with a wide array of stakeholders and partners to communicate and track actions being carried out under the Strategy. Stakeholders and partners included representatives from academia, natural resource management groups, citizen science and community groups, the Australian Government, consultancies, Traditional Owners, Queensland Government, Local Government, conservation groups, green groups and industry groups. The evaluation deemed the stakeholders/partners engaged by the Wetlands team as appropriate for the activities and deliverable identified.

The Wetlands team engaged with the abovementioned stakeholders and partners through a range of methods. Examples of engagement methods used are:

- phone and email
- project-specific and region-specific working groups
- Walking the Landscape workshops
- project steering groups
- regional stakeholder meetings
- development and release of information sheets, and
- the maintaining and updating of *WetlandInfo*.

As discussed in section 4.3.1, *WetlandInfo* receives on average 1,500 visits a day, which equates to approximately 12,300 visits per week. *WetlandInfo* was deemed a key communication, education and engagement tool used by the Wetlands team to provide information on wetlands in Queensland. The evaluation found that 100% of survey participants use *WetlandInfo* for a range of different reasons (e.g. to gather information relevant to development assessments, research that has been carried out, mapping data and to determine the value of certain wetlands to obtain funding). This demonstrates the importance and effectiveness of this platform for engaging stakeholders/partners.

Several interviewees also mentioned the engagement and assistance they receive from the Wetlands team as being a useful information tool about wetlands in Queensland. In particular, one survey participant explained the value of having staff from the Wetlands team visit and explain how to navigate *WetlandInfo* and obtain data from this platform relevant to their region. It also appears that the Wetlands team spend a great deal of time liaising and assisting stakeholders with all aspects of wetlands management, which is commendable given the small size of this team.

When survey participants were asked whether they felt the community in their region understood the importance of wetlands in protecting and improving the outstanding universal value of the GBR, about 70% of participants answered 'yes'. This demonstrates that

Evaluation Report – Wetlands in the GBR: Management Strategy stakeholder engagement activities are largely successful as a community understanding of the importance of wetlands is one of the key steps in achieving the Purpose of the Strategy (i.e. improve wetlands management).

Whilst it was clear that many stakeholders and partners used *WetlandInfo*, attended various working groups, carrying out a huge number of wetlands-related activities and had good engagement with the Wetland team, many survey participants and interviewees stated that they had “*never heard of the Strategy*” or “*did not even know the Strategy existed*”. This is concerning given the group of stakeholders contacted were identified as key stakeholders in wetlands management activities in Queensland. While some may have unaware of the Strategy, taking a closer look at survey participants responses, it appeared many were carrying out activities that contribute to the achieving the Strategy’s vision even without this knowledge.

To increase knowledge of and buy-on for the Strategy, it is recommended that more work be done in the engagement space to educate stakeholders and partners about how their activities are contributing to achieving the overall Purpose and Vision of the Strategy and the importance of a whole-of-catchment management approach.

Queensland Government employees mentioned the need to raise the profile of wetlands, wetlands-related activities and the Strategy to drive better outcomes for wetlands in Queensland. This included raising the profile of the Strategy as a key delivery mechanism for outcomes in the Reef 2050 Plan, and recognition of the great outcomes being achieved by stakeholders that work in the GBR space, including the federal government and NGOs that fund lots of work related to the GBR.

Both of these outcomes could be supported through the development of a communication strategy that provides strategic communication objectives and standardized messaging aimed at raising the profile of wetlands and the Strategy with key stakeholders (e.g. messaging on the contribution of wetlands to the outstanding universal values of the Reef, through water quality improvement and providing vital habitat for reef species at various stages of their lifecycle). The communication strategy could include a detailed plan outlining who should be engaged, the specific information they should be provided, when the information should be provided and what communication tools should be used to deliver the information.

The communication strategy could help manage where there might be key communication gaps, for example include specific strategies to involve state and federal government agencies where the profile of the Strategy needed to be raised. Having such a strategy in place would ensure consistent messaging is being broadcast about the Strategy, allow for review of communication tactics that aren’t working and to fill any communication gaps that may not have been obvious at the onset of the project.

4.6 Governance

The evaluation also considered whether the governance arrangements supporting the Strategy were appropriate. The Strategy states that it is a whole-of-government managed program that sits within the Department of Environment and Science (i.e. Queensland Government). The Strategy was produced by the Wetlands team, which is formally overseen by a governance group. The governance group is responsible for reviewing the administration

Evaluation Report – Wetlands in the GBR: Management Strategy of projects under the program, as well as supporting the monitoring and evaluation of the Strategy. The Strategy states that the governance group is composed of ten members from:

- Queensland Regional Natural Resource Management Groups Collective.
- Local Government Association of Queensland.
- Department of Environment and Heritage Protection²¹.
- Great Barrier Reef Marine Park Authority.
- Department of Natural Resources and Mines²².
- Department of National Parks, Sports and Racing²³.
- Department of Agriculture and Fisheries.
- Department of Science, Information Technology and Innovation²⁴.

Interviews with those responsible for implementing the Strategy gave the evaluators insight into the governance process more broadly. As a result of a previous evaluation conducted, the governance group was expanded from the original agencies to include non-government organisations (e.g. Local Government Association). This was to ensure there was representation from all major stakeholder groups implementing components of the Strategy. Such a move to expand the governance group to capture all relevant stakeholders is commendable, and relationships with these key stakeholders should continue to be developed. Where specific buy in is needed, consideration of specific engagement strategies may be useful to increase awareness of the Strategy and the outcomes it is achieving.

The governance group meets every six months to discuss the implementation of the Strategy. The Strategy coordinator prepares a report for the governance group, which includes information on what has been achieved in the past six month, risks, constraints, limitations, and future opportunities. Meeting minutes are taken at each meeting and saved internally as a record. There are also several other wetlands-related forums with stakeholders to help raise the profile of wetlands, coordinate projects and provide support to regional stakeholders as needed. In this regard, the governance group and the other stakeholder groups can be said to have achieved the governance objectives in the Strategy.

The evaluation was unable to find any public reporting process on the Strategy and the activities occurring under it. Public reporting of this nature is not necessarily common practice for strategies such as this, however, given it has been created under the Reef 2050 Plan and significant reporting occurs in that space, it may also be beneficial for this document. Given the Strategy is a public document that aims to increase focus on, and drive good outcomes for wetlands, providing more visibility on progress against the Strategy could be an effective tool as part of the communications strategy to increase the Strategy's profile. The evaluators understand there is work being done by the Great Barrier Reef Marine Park Authority to develop a Reef 2050 Integrated Monitoring and Reporting Program (RIMREP) and to consider options for reporting progress against the Reef 2050 Plan. It could be worthwhile for the Wetlands team to be involved in and possibly contribute to this work in terms of wetlands

²¹ Now Department of Environment and Science.

²² Now Department of Resources.

²³ Now Department of Environment and Science.

²⁴ Now Department of Environment and Science.

Evaluation Report – Wetlands in the GBR: Management Strategy monitoring and reporting, to see if these avenues could be used for mutually beneficial outcomes.

From the interviews and surveys completed, it appears that many stakeholders are carrying out activities that contribute to achieving the Purpose of the Strategy but it wasn't clear if these activities were being carried out for the Strategy or for another driver. It also appears that each organisation has their own internal project tracking and reporting systems, which were not integrated into a larger Strategy database. Many stakeholders stated that they do try and feed this information back through to the Wetlands team when possible, however, due to how busy they are this doesn't happen often.

Many interviewees noted their engagement with the GBR Wetlands Network. The GBR Wetlands Network was said to be an important way of engaging with other wetlands managers, sharing information and keeping up with projects progress. The Wetlands team confirmed that the GBR Network group contributed towards achieving the Strategy, and as such the evaluators see this forum as an opportunity raise the profile of the Strategy by reinforcing how their joint efforts contribute towards achieving its Purpose.

One survey participant suggested developing a wetlands database, which includes health, trends, threats and management direction for all wetlands in Queensland regardless of their size. Whilst the evaluators appreciate this would require a significant outlay of resources, which do not appear to be available, such a database would be extremely helpful for tracking and prioritising wetland management in the GBR catchment (similar to how Reef catchment health is tracked and reported). Several interviewees and survey participants also suggested more information be included in the Strategy on how the Strategy aligns with policies and legislation at the varying levels of government. Inclusion of such information would help position the Strategy, and wetland management more broadly, within the policy and legislative environment within which it exists.

4.7 Resourcing

The evaluation considered whether the resources allocated to achieve the Purpose and Vision of the Strategy were appropriate and effective. The Reef 2050 Plan²⁵ states that *“wetlands are a key ecosystem that contributes to the health and resilience of the Reef.”* In this regard, it is expected that sufficient resources and funding be allocated to program management and wetland management activities to ensure wetlands are protected and enhanced in the GBR catchment. There are 1.5 FTEs attributed to designing, implementing, coordinating, monitoring, reviewing, reporting on, and organising governance around the Strategy. The Wetlands team have proven the ability to undertake the functions described above, however over the next year these FTEs will have to develop and consult on the new strategy as well.

It is important to consider resourcing in context. The evaluators note that this Strategy was only created six years ago as the first GBR-specific wetland strategy to support the Reef 2050 Plan and Reef WQIP objectives. The broader set of reef water quality improvement initiatives deployed in Queensland have been in place for decades, with structures, processes and funding mechanisms strongly embedded in government and NGO organisations and broad knowledge and acceptance of their role in improving water quality. As a much newer Strategy,

²⁵ Reef 2050 Plan, page 51.

it is understandable that the ability of the Strategy to support the targets of Reef 2050 Plan and Reef WQIP needs to be demonstrated and understood before it can become more generally accepted and its utility acknowledged. This evaluation is an important piece of evidence in that regard.

In 2020 there was \$270.1 million²⁶ allocated over five years to implement the Queensland Reef Water Quality Program. The Wetlands team receive \$200,000 per year to implement the Strategy. This money is intended to cover the coordination of the strategy and contribute towards activities under the required to achieve the Purpose of the Strategy. These funds typically cover the Strategy Coordinators wage, some maintenance and updating of *WetlandInfo* and other wetland management activities (e.g. targeted research and ‘Walking the Landscape’ workshops).

Coordinating the Strategy is deemed an extremely important task as it ensures that stakeholders efforts are organised under a whole-of-system values-based framework to avoid duplicative and redundant projects. It also helps pull together all the work that is occurring across the GBR region to demonstrate how each activity is contributing to achieving the Purpose and Vision of the Strategy. For this reason, if additional funding was allocated against the wetland management activities component of this project, additional funding would also need to be allocated to the program management component to ensure sound coordination of the Strategy continues.

A common theme amongst survey participants and interviewees was that there isn’t enough investment in wetland protection, management and rehabilitation in Queensland. Survey participants and interviewees comments included:

“The strategy is aspirational and important, but needs more investment to make it happen”

“While strategies are an important component to framing the issues and actions to ensure in the long-term stability of habitats, there needs to be a greater ... funding towards on-ground enhancement and rehabilitation of wetlands”.

“Wetlands receive minimum funding compared to what other areas receive.”

“Wetlands are under-funded and under appreciated by most Reef-related activities and policies”

“Funding is ad-hoc (therein lies the problem), not long-term.”

Stakeholder feedback suggests more funding would assist wetlands management and ensure the extent, values and ecological processes of wetlands are enhanced and contribute to the health and resilience of the GBR ecosystem. Wetlands are recognised as being a critical component for maintaining the OUV of the GBR as well as for providing important ecosystem services (e.g. improve water quality). The allocation of funding to reef-related initiatives should reflect the criticality and contribution of wetlands to enhancing the health and resilience of the GBR ecosystem.

The Queensland Government is currently operating in a context of a multi-year ‘savings and debt reduction plan’ - resources and funding are tight. While further funding may be required, such a request is likely to be more persuasive if the Wetlands team identifies the business

²⁶ Allocated over five years to 2025-2026.

Evaluation Report – Wetlands in the GBR: Management Strategy case and/or specific outcomes of additional funding in order to determine where the additional funds should go and what the additional funding aims to achieve. For example, it may be useful to identify specific research needs or particular projects that could benefit from additional funding.

It is also important to demonstrate the benefits of funding wetland projects in terms of both local outcomes and maintaining the OUV of the GBR. One pathway could be to set up or clarify a set of measurable benchmarks that relate to targets in Reef 2050 Plan. By demonstrating the ability of wetlands-related projects to produce positive outcomes against relevant targets, there will be an evidence base to build a case for additional funding on. Any further resources provided for project delivery will likely need to include additional staff resources to support the necessary stakeholder engagement, contractual negotiations etc to deliver the additional projects.

As appropriately highlighted by one survey participant, however, *“wetlands should not be protected as a by-product of protecting the reef as they have their own intrinsic values that need protecting and enhancing. The funding model needs flipping on its head, with money funnelled into protection and enhancement of wetlands for the wetlands benefit with a side benefit of better water quality for the reef rather than the other way round.”*

With regards to whether the resources available were used effectively, the evaluation found that they were. There are a huge number of activities occurring in the GBR region aimed at improving the extent, values and ecological processes of wetlands. With the small amount of funding available a lot has been achieved (See section 4.3).

5 Conclusions

5.1 Highlights and strengths of the Strategy

One survey participant from a university said, “The Queensland Wetland Program is one of the best in Australia and arguably globally”.

When considering the Strategy as a whole, key strengths include providing a clear link to the Reef 2050 Plan, providing clear Goals, Objectives and Activities, and drawing attention to the importance of action on wetland management. Many stakeholders felt that there was inherent value having the Strategy nested in Reef 2050 Plan. The ability to link projects or activities back to such a powerful higher-level driver is important for being able to argue for funding and demonstrate the relevance and alignment of certain activities they carry out.

Another strength is the identification of clear Themes, Goals and Activities that have been determined to contribute to improved wetlands management. The Strategy provides a framework that can be used by stakeholders to identify and align projects, for example one researcher said they use it when developing funding applications. This researcher also noted that having this framework ‘stops random projects getting up’, which is a concern as failed projects undermine the otherwise good work occurring in this space.

Survey participants noted the Strategy was clear and easy to understand, with specific objectives and activities targeting each goal. One stakeholder said that the Strategy provides good guidance to wetlands managers and stakeholders about why wetland management is important for the GBR and what the overall goal is. The evaluation found that the Wetlands team engaged the appropriate stakeholders in delivering this Strategy and that *WetlandInfo* was an invaluable and effective platform for delivering information on wetlands to the wider community.

WetlandInfo was itself identified as a clear strength of the Strategy, being deemed ‘the platform’ to put wetlands related information. The evaluation concluded that the use and importance of *WetlandInfo* was a strong and consistent theme of the Strategy. With the fast pace of information exchange, maintaining a single point of truth or reference will continue to be important.

5.2 Threats to the Strategy

When considering the Strategy as a whole, a number of threats to successfully achieving the Purpose of the Strategy were also identified. Several interviewees noted that some organisations still aren’t recognising the role wetlands can play in improving the water quality of the GBR.

Another threat to the successful achievement of the Strategy is the ability to keep it relevant and agile and reflect changing management practices. The ability to keep a document relevant is a threat to most static documents. However, given *WetlandInfo* is kept updated in relation to components of the Strategy, this goes a long way in avoiding this threat. In addition, a static document may also be beneficial for providing some organisations with certainty, which is useful for planning and consistency of work programs.

The lack of funding around wetland management activities was also consistently mentioned by stakeholders as a threat to successfully achieving the Purpose of the Strategy. It was found that investment is low and there are issues with funding availability for wetland projects – one university survey participant said that the Strategy was “*under-funded and under-appreciated by most Reef-related activities and policies*”, another said that “*wetlands receive minimum funding compared to what other areas receive.*”

In addition, another survey participant admitted they didn’t know how much funding was received for such activities but that the funding that was received was ‘*definitely worth it and should be maintained or increased*’. Unfortunately because many of the organisations carrying out the on-ground activities are time poor, they can only prioritise activities that they have been funded for. The evaluation recommends that the QWP, review the funding available for actions under the Reef 2050 Plan and where possible, advocate for more money to be allocated to achieving the Purpose and Vision of this Strategy, given the important role wetlands plays in enhancing the health and resilience of the GBR.

5.3 Considerations for the next Strategy

5.3.1 Structure and contents of Strategy

Overall the structure and content of the Strategy were found to be logical and clear. The Strategy may, however, benefit from applying an approach similar to a program logic to help better structure and align the Goals, Objectives and Activities to the relevant Theme. The evaluation found that several Objectives listed under a particular Theme would be better placed under other Themes within the Strategy (See section 4.3). The use of a program logic style approach when developing the next Strategy is likely to join any missing links that were not obvious to the evaluator and provide better alignment of Objectives with relevant Themes.

Survey participants suggested some other improvements could include:

- more information on challenges and linking these with information gaps to encourage scientific collaboration.
- explanatory diagrams linking the strategy within national and international strategies, such as Reef Plan 2050 would be useful.
- more in-depth case studies.

5.3.2 Supporting investment in wetlands

It is very clear that wetlands are inherently valuable ecological habitats and provide a range of ecosystem services, and direct and indirect benefits for humans, such as recreation. The ability to make a convincing ‘business case’ for the protection and management of wetlands clearly links to the ability to get funding from government, investors, research grants, charitable organisations and other institutions.

It was identified that specifying objectives that could be used in developing persuasive funding proposals at state, regional and local levels would enhance the Strategy and the outcomes achieved. For example, the Strategy could include activities around quantifying the value of wetlands for use in a cost-benefit analysis (e.g. wetlands contribution to fisheries, or the money wetlands save local governments by buffering the shoreline from erosion).

Relevant activities that could help wetlands managers and stakeholders demonstrate the value of wetlands and their benefits and more effectively make their case for funding their on-ground projects would also need to be identified, such as support tools or information.

This should include consideration of what is needed for wetlands managers to be more competitive when arguing for funding. For example, does the Strategy need to support more effective grant writing, or the development of a business case for investment in wetlands, or further work to quantify wetlands values and benefits, or in identifying funding streams?

It is noted that in the Reef 2050 Plan, under section 4.7 (Biodiversity), that the Queensland Wetlands Program is reported as one of the foundational programs and activities. Objective B05 within this section is “*reef habitats and ecosystems are managed to sustain healthy and diverse populations of indicator species across their natural range.*” It may be useful to consider whether an action should be identified by the Wetlands team that links the activities under the Program to achieving the objectives in the Reef 2050 Plan.

The Reef Water Quality Improvement Plan 2017-2022 (WQIP) suggests it will deliver water quality improvement through implementing “the Queensland Wetlands Program to deliver wetlands tools and *WetlandInfo* to support on-ground management of wetlands.” It may be useful in determining activities under the next Strategy that can be feed into the next version of the WQIP.

5.3.3 Strategy Governance

While it seems that a lot of positive wetlands management activities are occurring in the GBR region, governance and oversight of these activities is not wholly clear. It was not clear to the evaluators whether the governance group mentioned on page 23 of the Strategy were a group created especially to oversee and review the Strategy, or whether they were a group created for another purpose but also covered off on the Strategy. The frequency with which the governance group met (if at all), and whether any findings from these meetings should be publicly available was also unclear.

It is recommended the next Strategy provide more clarity around the governance group, and how exactly the community is to know whether they have been successful in meeting their objectives (i.e. review the administration of projects under the Strategy, and support monitoring and reporting on the Strategy). It was not clear to the evaluators that key stakeholders were aware that their activities contributed to achieving the Purpose and Vision of the Strategy, so perhaps better communication may assist in ensuring they are aware of how valuable their work is to delivery of the Strategy and to the broader community.

While it was acknowledged that activities being delivered may change over the five-year time period of the strategy, it is considered that it may be best to keep the Strategy static. However, communication on outcomes could be enhancement by making reporting more agile, possibly through public publishing of data using the PowerBI database, to show actual achievements against the objectives and goals. The PowerBI dashboard was a great tool to get an understanding of the progress made and the specific types of activities that were occurring against each Objective. It is recommended that the database goes through a quality control process to make it more intuitive for the user and ensure all data is accurate.

5.3.4 Process for development

A concern identified, which was not so much a weakness of the Strategy, but perhaps an engagement opportunity around the Strategy, was that some interviewees and survey participants noted that they did not use the Strategy as they did not know it existed. Of the stakeholders that did know and use the Strategy, they expressed the benefit it provided their organisation in securing funding and guiding regional priorities – it would be great if more stakeholders were using the Strategy in this way.

Interviews with key stakeholders during the evaluation indicated a wealth of knowledge exists with regards to wetlands and their best practice management. There is a great opportunity to use the GBR Wetlands Network to develop the next Strategy. The outcomes of engaging stakeholders in developing the next version of the Strategy would be far reaching, including increased awareness and education of the Strategy as well as stakeholder buy-in and a new Strategy where the end users find it useful and can see their work reflected within.

A number of advancements have occurred in regard to both engagement practices and the type and use of technology since the Strategy was developed. This opens up opportunities to reflect the most recent advancements and practices in the new Strategy. This may be particularly relevant for the Objectives relating to engagement with Aboriginal and Torres Strait Islander peoples. It was clear from the evaluation that the Wetlands team already carry out great work in this space, it is recommended this great work be wholly reflected in the Strategy. In addition, it is recommended that the Strategy reflect the technological advancements that have occurred since its creation and include reference to social media platforms and other web-based mechanism to reach a broader range of stakeholders.

5.3.5 Recommendations for the next iteration of the Strategy

The Strategy has met its Purpose and continues to be a useful tool for government and stakeholders alike. The Themes appear to cover the key actions needed to be undertaken to improve wetland management in the GBR region and address the target of the Reef 2050 Plan. The evaluation found that a huge number of activities have been, and are continuing to be, delivered against the Themes Objectives. The activities were a mix of on-ground activities to help manage wetlands as well as information and integration style activities, which is a huge win for wetlands in the GBR catchment.

It is recommended that the next iteration of the Strategy:

- is developed in a consultative manner, ensuring involvement and input from key stakeholders e.g. Wetlands Program governance group, GBR Network members and relevant government agencies at local, state and Federal levels.
- maintains the structure of the Strategy as it clearly articulates goals in an easy-to-interpret manner.
- maintains the Themes in general, however, note recommendations for review above.
- maintain the level of detail provided for each Objective and Activity included in the Strategy.
- reviews the placement of individual objectives and activities as highlighted in the results section above, to ensure they are in alignment with the relevant Theme.
- continues to support that *WetlandInfo* is maintained as the primary information sharing and education platform.

- weave climate change, First Nations engagement and socio-ecological dimensions throughout the Strategy to ensure it remains contemporary.
- Enhance individual Themes by considering:
 - the inclusion of new objectives and activities to Theme 3 in relation to funding on-ground activities to better represent the work undertaken to manage threats to wetlands.
 - the inclusion of new engagement methods and models based on the changing times (e.g. social media and other web-based platforms).
 - the inclusion of information that demonstrates the breadth of engagement activities that currently occur in the wetlands space, particularly with Aboriginal and Torres Strait Islander peoples.
 - Including ‘improvement’ related objectives and/or activities to ensure all components of the ‘MERI framework²⁷’ are wholly reflected in Theme 5 to better achieve the Theme Goal.
 - the inclusion of objectives and/or activities that support the setting of clear benchmarks and suitable indicators for wetlands in the GBR catchment to help more accurately identify trends, changes and emerging issues for wetlands management.

The evaluation also identified other actions the Wetland team may consider:

- considers the creation of a communication strategy to set clear objectives, create an engagement plan and develop standardized messaging to help raise the profile of the Strategy and the importance of wetlands to the Reef.
- consider how reporting on the Strategy could be made available to support communication, education and on-ground outcomes.
- creating a location on *WetlandInfo* that highlights priority research and restoration areas to help stakeholders focus investment, action and research.
- ensuring key government officials (State and Federal) are included in the development of the next Strategy to increase ‘buy-in’ and help create strong links to the Reef 2050 Plan.
- ensuring the QWP reviews the funding available to achieve targets under the Reef 2050 Plan to determine whether more money should be allocated to achieving the Purpose and Vision of this Strategy (i.e. given the important role wetlands plays in enhancing the health and resilience of the GBR).

²⁷ MERI – Monitoring, evaluation, reporting and improvement.

6 Appendices

Appendix 1: Themes and how they are to be achieved

Theme 1. Improving wetlands information for decision making and action		
	Objective	Current and proposed activities
1.1	Information on the location, type and extent of wetlands (including groundwater requirements) is available and changes are monitored and reported.	Continue to map and report on changes in extent of wetlands. Extend Groundwater Dependent Ecosystem mapping to all Great Barrier Reef catchments. Improve the scale and key attributes of wetland mapping.
1.2	Improvements to ecological processes and environmental values of wetlands are known.	Monitor and report on ecological processes and environmental values of wetlands.
1.3	Wetlands and other coastal ecosystems are managed from a whole-of-catchment perspective.	Undertake the Whole-of-catchment management framework and Walking the Landscape processes. Update aquatic conservation assessments for all Great Barrier Reef catchments. Redevelop and encourage use of a decision support tool to improve management decisions and prioritisation.
1.4	Wetlands are managed to best practice standards.	Promote best practice wetlands management tools and guidelines.
1.5	Deliver value for money investments, encourage collaboration and avoid duplication in wetlands-related projects.	Maintain a system to report historic and new on-ground works for wetlands management.
1.6	Information on wetlands is publicly accessible to inform decision making and action.	Continue to deliver information through the <i>WetlandInfo</i> web portal.
1.7	Wetlands used by shorebirds and other waterbirds are managed with best available data and information.	Update information on migratory and other waterbirds to help inform decision making and management action. Continue to collaborate on the conservation of shorebirds and other waterbirds.

1.8	Applied research addresses wetland knowledge gaps and assists management.	<p>Consolidate scientific data and information into easy to use formats.</p> <p>Form partnerships to address research needs including knowledge gaps.</p> <p>Investigate how pollutants move through groundwater and impact wetlands.</p>
1.9	The role of natural and artificial wetlands in water quality improvement are understood and incorporated into relevant Reef initiatives.	<p>Encourage research into the role of natural and artificial wetlands in water quality improvement.</p> <p>Incorporate best information on wetlands into Reef initiatives.</p>
1.10	Barriers to fish passage are managed to improve ecosystem health.	Consolidate mapping of barriers to fish passage and guidance on best management.
1.11	The extent and type of intertidal and subtidal habitats are known.	Conduct and make available mapping of intertidal and subtidal habitats of high risk ecosystems.
1.12	The ecological character of Ramsar wetlands is maintained, and changes detected.	Promote research and monitoring to assist to identify the ecological character of Ramsar wetlands and detect change.
1.13	Tools are available to mitigate the impacts of climate change on wetlands.	Updated tools to integrate wetlands and climate change in the context of resource planning, management and ecosystem repair to enable effective site based wetland decisions.

Theme 2. Wetland planning arrangements

	Objective	Current and proposed activities
2.1	Water allocations consider and maintain wetland values and services.	Continue to identify wetland values in catchment-based water allocation and management planning processes.
2.2	Natural and near natural wetlands and riparian areas are consistently protected under legislation.	Extend legislation to protect natural and near natural wetlands and riparian areas in all Reef regions.
2.3	Wetlands and whole-of-catchment management are incorporated into strategic planning and funding initiatives.	<p>Continue to include wetlands management in Natural Resource Management Plans and Water Quality Improvement Plans.</p> <p>Encourage other relevant plans and policies to include wetland management objectives.</p>
2.4	Up-to-date information is available for listed Ramsar wetland sites.	Update and publish Ramsar Information Sheets for all listed sites.

2.5	Wetlands are protected through formal planning mechanisms.	Review the State Planning Policy, coastal planning and local government planning schemes to assess planning controls for Great Barrier Reef wetlands and amend as required.
2.6	Wetlands are recognised in protected area planning and management.	Continue to include wetlands management principles in protected area planning.
2.7	Incorporate wetlands into nature refuges and other voluntary conservation measures.	Continue to consider wetlands in nature refuges and other voluntary conservation arrangements.
2.8	Offset provisions are used to strengthen wetlands management.	Strengthen offset provisions for wetlands by expanding provisions to additional catchments. Consider options that include direct benefit management plans to guide offset investments.
2.9	Maintain and enhance connections to improve reef ecosystem health and resilience.	Include connections to improve reef ecosystem health and resilience in planning, legislative and policy initiatives.
Theme 3. On-ground activities to protect, manage and rehabilitate wetlands		
Objective		Current and proposed activities
3.1	Wetlands compliance activities are enhanced.	Continue and enhance compliance activities that contribute to the protection and management of wetlands, including riparian areas.
3.2	Wetland values are enhanced through targeted, coordinated and effective rehabilitation/restoration initiatives.	Continue to collaborate with key stakeholders, including NRM groups to prioritise on-ground works. Encourage use of existing decision support tools and the Whole-of-system catchment management framework to target effort for wetland rehabilitation/restoration.
3.3	Land managers understand the connection between their actions and the health of wetlands, catchments and the Great Barrier Reef.	Continue to develop education and communication initiatives for land managers on the importance of wetlands.
3.4	Wetlands are connected for improved environmental outcomes and address barriers to fish passage.	Develop, fund and implement measures to enhance connections, including removal of barriers via restoration/rehabilitation for projects to improve wetland and broader reef ecosystem health and resilience.

3.5	Innovative approaches to wetland and coastal ecosystem repair are in place.	Long term funding of wetland and coastal ecosystem repair is achieved through application of innovative options, such as trialling innovative restoration techniques. Explore incentives, such as stewardship payments, to achieve ecosystem restoration and rehabilitation of wetlands.
3.6	Wetland values and services are enhanced through management of threats.	Develop, fund and implement management programs that address threats such as climate change, invasive species and land-based runoff. Actions are monitored and reported to inform future on-ground works.
3.7	Natural wetlands that significantly contribute to improved Reef water quality and/or wetland conservation are protected through acquisition.	Explore an acquisition fund to identify areas that significantly contribute to improved Reef water quality or conserve high priority wetlands and explore an acquisition fund, including consideration of management of these wetlands.
3.8	On-ground managers are skilled in best available wetland management techniques.	Undertake on-ground management training to build capacity and meet specific needs.
3.9	Wetlands in protected areas and/or Ramsar sites maintain their ecological character.	Implement wetland management planning that is in accordance with legislation and international conventions, agreements and partnerships.
Theme 4. Education, communication and capacity building		
	Objective	Current and proposed activities
4.1	Wetland visitors, residents and industry appreciate wetlands and actions they can take to conserve wetlands.	Continue to prepare and promote educational material and activity programs for managers, schools, tertiary institutions, industry, community groups, and other relevant sectors. Publish a book promoting wonderful wetlands of Queensland.
4.2	Wetlands information is available online.	Continue to provide wetland information through the WetlandInfo web portal. Wetlands management information is available on other relevant websites including federal and local government, NRM groups, other non-government organisations and industry.
4.3	Wetlands education is available at strategically located sites.	Provide wetlands interpretation material and education centres with the best available information.

4.4	Innovative approaches are used to deliver key messages on wetlands.	Explore new message delivery mechanisms that assist wetland conservation including social media to broaden audience coverage.
4.5	Collaborative partnerships promote wetlands best practice management.	Continue the Great Barrier Reef Wetlands Network to build connections between wetland decision makers and managers. Continue regional and local wetlands networks to implement wetlands management activities. Establish stakeholder advisory groups for Ramsar listed sites to collaborate on management activities.
4.6	Traditional Owners' cultural and spiritual values and traditional uses of wetlands are incorporated into wetlands initiatives.	Engage with Traditional Owners to share information on indigenous use and values of wetlands. Consult with Traditional Owners on wetland-related initiatives.
4.7	Tourism and recreational use of wetlands is encouraged.	Explore opportunities for promoting public access to wetlands, including online information on wetlands to visit. Ensure access to and use of wetlands does not impact on wetland values.
4.8	Communities are aware of wetlands and their values through robust citizen science.	Promote citizen science initiatives that contribute to the protection, maintenance and enhancement of wetland values. Create a sense of community responsibility and ownership.
4.9	Build capacity amongst people delivering wetland management and information services.	Establish networks, training and education initiatives to improve the capacity of policy makers, environmental managers and others delivering information, wetland tools and extension activities.
4.10	Explore new partnerships to enhance collaborations that result in improved wetlands management.	Expand the Queensland Wetlands Program Governance Group to include other key partners not represented. Establish a high level multi-disciplinary technical reference group to provide direction and technical support for wetland management initiatives.
Theme 5. Monitoring, evaluation, reporting and improvement		
	Objective	Current and proposed activities
5.1	Monitoring the effectiveness of management initiatives on wetlands.	Continue to monitor baseline data and indicators of wetlands to measure change resulting from management interventions.

5.2	Monitoring, reporting and evaluation of wetland targets.	<p>Continue to monitor and report on wetland targets in the Reef 2050 Long Term Sustainability Plan.</p> <p>Report through Reef Water Quality Protection Plan report cards and State of the Environment Queensland.</p> <p>Investigate opportunities for more efficient and cost effective monitoring methods to report on the conditions of wetlands.</p>
5.3	Obligations for reporting through international agreements, conventions and partnerships are fulfilled.	Continue to deliver state jurisdictional reporting as required under the Ramsar Convention and bilateral migratory bird agreements.
5.4	Meet objectives and milestones of wetlands projects.	Record and report on milestones and targets for wetlands projects.
5.5	Assess the effectiveness of the Wetlands in the Great Barrier Reef Catchments Management Strategy.	Undertake five yearly reviews of the Wetlands in the Great Barrier Reef Catchments Management Strategy, including consideration of relevant research findings and contemporary issues.

Appendix 2: Semi-structured external stakeholder interview questions

Goal	Objective	Questions
Theme: Improving wetlands information for decision making and action		
Information is available for evidence-based decision making and action	Wetlands and other coastal ecosystems are managed from a whole-of-catchment perspective.	<p>What specific projects or activities do you implement with a whole-of-catchment focus ('WOC' e.g., coordinated as part of the whole catchment, such as Walking the Landscape, Aquatic Conservation Assessment (ACA) and management prioritisation)?</p> <p>Do you think there is enough information available to support your organisation to manage wetlands from a whole of catchment perspective? Do you have access to this information?</p>
	Wetlands are managed to best practice standards.	<p>What information on best practice methods, tools or guidelines does your organisation use/promote to ensure that wetlands are managed to best practice standards, such as using a values-based approach, or applying whole-of-catchment (WOC) understanding. Do you use any of the existing tools on <i>WetlandInfo</i>? Do you think that there is enough information available to support your organisation to manage wetlands to best practice standards?</p>
	Deliver value for money investments, encourage collaboration and avoid duplication in wetlands-related projects.	<p>Which organisations or groups does your organisation work with to encourage collaboration, cost-effective delivery of projects, and avoid duplication in wetlands-related projects?</p> <p>Do you provide your project information into either - a database / the Wetlands Project Search Tool / or both? If so, how is your project information stored (e.g. if not the Wetlands Project Search Tool, what software)?</p> <p>Do you think there is enough of /the right type of information available to support your organisation to deliver value for money investments?</p> <p>Do you think there is enough information available to encourage your organisation to</p>

		<p>collaborate with other organisations/groups to support wetland management?</p> <p>Do you think there is enough information available to avoid duplication in wetland-related projects?</p> <p>Do you have a process in place for evaluating the cost-effectiveness of projects and outcomes?</p>
Theme: Wetland planning arrangements		
<p>Funding, non-statutory and statutory planning arrangements in place to protect, manage and enhance wetlands</p>	<p>Wetlands and whole-of-catchment management are incorporated into strategic planning and funding initiatives</p>	<p>Does your organisation develop and/or implement any non-statutory or statutory plans and strategies to protect, manage or enhance wetlands or encourage WOC management? What kind?</p> <p>What on-ground funding programs do you have involving wetlands? Do you allocate specific funding to achieving outcomes for wetlands and to enable WOC management? Are you provided specific funding to achieve wetlands outcomes?</p>
Theme: On-ground activities to protect, manage and rehabilitate wetlands		
<p>Implementation of on-ground activities that improve the health of wetlands and enhance their contribution to Reef resilience through statutory and non-statutory mechanisms</p>	<p>Wetland values are enhanced through targeted, coordinated and effective rehabilitation/restoration initiatives.</p>	<p>Does your organisation participate in wetland rehabilitation, management and restoration initiatives? If so:</p> <ul style="list-style-type: none"> - What are they? - How do you ensure that your activities are undertaken from a whole-of-system, values-based approach? - How do you decide which activities to undertake? - Do you assess projects against their contribution to reef resilience? Why/Why not? - How do you evaluate the outcomes of initiatives? <p>Do you coordinate your initiatives with other organisations/groups to deliver them?</p>

	<p>Land managers understand the connection between their actions and the health of wetlands, catchments and the Great Barrier Reef.</p>	<p>What education and communication tools/initiatives does your organisation/group use to ensure that land managers understand the connection between their actions and the health of wetlands, catchments, and the Great Barrier Reef?</p> <p>Do you think your initiatives/projects have resulted in behavioural change or a better understanding from land managers of the connection between their actions and the health of the Reef (please explain/provide examples)?</p>
	<p>Wetlands are connected for improved environmental outcomes and address barriers to fish passage.</p>	<p>Does your organisation address barriers to fish and other biota passage through wetland rehabilitation and restoration to enhance the connection of wetlands? If so, what activities/programs does your organisation undertake to address these issues (explain/examples)?</p>
	<p>Innovative approaches to wetland and coastal ecosystem repair are in place.</p>	<p>What innovative approaches (including ecosystem service improvement incentives, such as stewardship payments, LRF, offsets, etc.) have you used to repair wetland and coastal ecosystems?</p> <p>Have you trialled any innovative techniques and what were they? What was the aim and outcome? Do you think this improved the health of wetlands and enhanced Reef resilience (explain)?</p>
	<p>Wetland values and services are enhanced through management of threats.</p>	<p>What programs or activities does your organisation use that aim to protect wetlands values and services by managing threats to wetlands (e.g. climate change, invasive species)? How do you monitor their effectiveness? What services do you concentrate on? What tools do you use to identify those services? How do you prioritise threats?</p>
	<p>On-ground managers are skilled in best available wetland management techniques.</p>	<p>Does your organisation/group offer any training or provide any information to on-ground managers to help skill them in the best available wetland management techniques? If so, how do you do this?</p>

Theme: Education, communication and capacity building		
Improved stakeholder awareness of the value of wetlands and the management tools available	Wetland visitors, residents and industry appreciate wetlands and actions they can take to conserve wetlands.	<p>Does your organisation/group provide the public with communication / educational materials on the importance of wetlands and the actions they can take to conserve wetlands in their area? Who is the target audience? How are is this message delivered?</p> <p>Do you think your education efforts are effective in increasing knowledge of wetland conservation actions in those stakeholders?</p>
	Wetlands information is available online.	<p>Does your organisation have information about wetlands available online (e.g. websites, online comms tools such as social media/newsletters)? How can this information be accessed by the public?</p> <p>Do you link to <i>WetlandInfo</i> online resources? Do you use <i>WetlandInfo</i> resources?</p>
	Wetlands education is available at strategically located sites.	Where can the public access wetlands education information (e.g. online only, offices, education centre, signage / posters etc.)?
	Innovative approaches are used to deliver key messages on wetlands.	What approaches does your organisation/group use to deliver key messages on wetlands (e.g. social media, field days / case study demonstrations of innovative projects, video, apps, links to catchment stories etc.)?
	Collaborative partnerships promote wetlands best practice management.	How does your organisation leverage connections/partnerships within the GBR Wetlands Network and/or with other organisations to promote collaboration and wetland best practice management?
	Traditional Owners' cultural and spiritual values and traditional uses of wetlands are incorporated into wetlands initiatives.	How does your organisation engage with Traditional Owners and/or incorporate their cultural and spiritual values into wetland initiatives? Can you provide successful examples and suggestions for better engagement with Traditional Owners?

	<p>Communities are aware of wetlands and their values through robust citizen science.</p>	<p>What citizen science initiatives does your organisation run citizen science initiatives to explore the nature, extent and processes of wetlands, and /or enhance awareness of their services and values (Seagrass Watch, Reef Check, MangroveWatch, Wader Study Group)?</p> <p>What feedback does your group provide to citizen scientists that helps them see how their work is being used for ongoing management? Has this sense of community responsibility and ownership contributed towards the protection, maintenance or enhancement of wetlands values?</p>
	<p>Build capacity amongst people delivering wetland management and information services.</p>	<p>Does your organisation have initiatives aimed at building the capacity of policy makers, environmental managers and others delivering information, wetland tools and extending the reach of wetlands activities?</p> <p>Are there specific projects or activities that you can provide as an example?</p>
	<p>Explore new partnerships to enhance collaborations that result in improved wetlands management.</p>	<p>Does your organisation actively explore and build new partnerships (including strategic partnerships) for collaboration related to improved wetlands management? How do you do this?</p>
<p>Theme: Monitoring, evaluation, reporting and improvement</p>		
<p>An adaptive management approach incorporating effective monitoring, evaluation, reporting and improvement is implemented to improve wetland management</p>	<p>Monitoring the effectiveness of management initiatives on wetlands.</p>	<p>What baseline data and indicators does your organisation use to monitor the effectiveness of wetland management and rehabilitation initiatives (the Reef/Wetlands Monitoring Projects, WetCAT, etc.)?</p> <p>Does your organisation report/ share the findings of their initiatives? If so, how and with who is this information shared?</p> <p>Does your organisation evaluate your initiatives to ensure that they are effective, efficient and appropriate for achieving the outcomes of wetland management? If better ways of doing things are found through the evaluation, are these implemented (please explain)?</p>

Additional Evaluation questions

Question theme	Question
Achievement of the Reef 2050 Plan’s objective	<ol style="list-style-type: none"> 1. Do you think the Wetlands Strategy has contributed to better management of Wetlands in the GBR? 2. Do you think the Wetlands Strategy contributes to the protection, maintenance and restoration of wetlands systems? 3. <i>Do you have thoughts on how to better align the Wetlands Strategy with Reef 2050 objectives?</i>
Purpose and vision of the Wetlands Strategy	<ol style="list-style-type: none"> 1. Do you think your projects under the Wetland’s Strategy have positively contributed to improving the health and resilience of the GBR ecosystem? <ol style="list-style-type: none"> a. PROVIDE EXAMPLES 2. Do you think that your projects have contributed to improved wetlands management in Queensland? <ol style="list-style-type: none"> a. PROVIDE EXAMPLES 3. <i>Have your projects under the Wetlands Strategy contributed to:</i> <ol style="list-style-type: none"> a) <i>Enhancing wetland extent</i> b) <i>Enhancing wetland values</i> c) <i>Enhancing ecological processes of wetlands in the GBR catchment?</i>
Strategy themes and objectives	<p>Considering the 5 current themes...</p> <ol style="list-style-type: none"> 1. Is there any current theme that needs more attention or resourcing in order to improve outcomes for wetlands in the GBR? 2. Are there any other themes needed to be included to enhance the extent, vales and ecological processes of wetlands in the GBR catchment?
Activities/objectives	<ol style="list-style-type: none"> 1. Are the activities your organisation undertakes reflected in the GBR Wetlands Strategy? 2. Are there other activities you undertake to improve wetlands management that could be reflected in the GBR Wetlands Strategy?
Stakeholders	<ol style="list-style-type: none"> 1. Do you think the Wetlands Strategy was easy to engage with (e.g. was it easy to understand and determine what activities you could carry out to contribute to achieving the purpose of the wetlands strategy)? 2. Was the appropriate support provided by the Wetlands Team to you to help you complete your activities/ deliverables/ project?

	<p>3. Through the Wetlands strategy, were you provided with connections to other stakeholders that helped you achieve you goals?</p>
<p>Governance</p>	<ol style="list-style-type: none"> 1. Do you believe the GBR Wetlands Network Group is effective and efficient at supporting better management of wetlands in Qld? 2. Can the strategy, systems, processes be improved to support you to more efficiently deliver projects? 3. Do you think adequate systems are in place to effectively monitor, evaluate and report of on-ground activities to ensure they are meeting project milestones?
<p>Other</p>	<ol style="list-style-type: none"> 1. Can you think of any improvements that could be made to the Wetlands Strategy to better manage wetlands in the GBR Catchment (explain)? <ol style="list-style-type: none"> a. Solutions or examples 2. What is the biggest benefit or positive thing about the GBR Wetlands strategy? 3. What do you believe are the key learnings and the key factors for success when developing future Wetlands Strategies?

Appendix 3: Internal team interview questions

Question theme	Question
General	What was your role in the Wetlands Strategy?
Achievement of the Reef 2050 Plan’s objective	Do you think the Wetlands Strategy has contributed towards achieving the wetlands-related target (i.e. there is no net loss of the extent, and a net improvement in the condition, of natural wetlands and riparian vegetation that contribute to Reef resilience and ecosystem health)?
	Do you have thoughts on how to better align the Wetlands Strategy with Reef 2050 objectives (if necessary)?
	In your opinion, how well is the Strategy reflected in or taken up by other Reef-related activities and policies?
Purpose and Vision of the Wetlands Strategy	Do you think that the Purpose and the Vision of the Wetlands Strategy have been achieved (i.e. wetland extent, values and ecological processes are enhanced and contribute to the health and resilience of the Great Barrier Reef ecosystem <u>AND</u> to provide a range of objectives and activities to improve wetland management)?
Strategy Themes and Objectives	Considering the 5 current themes: <ul style="list-style-type: none"> 3. Do the 5 themes remain appropriate? 4. Is there any current theme that needs more attention or resourcing in order to improve outcomes for wetlands in the GBR? 5. Are there any other themes needed to be included to improve the Strategy’s effectiveness i.e. to enhance the extent, values and ecological processes of wetlands in the GBR catchment?
Impact of Strategy	How does the Strategy drive planning and/or strategies within your work unit or organisation?
Stakeholder engagement	Do you think right stakeholders have been involved in implementing the Strategy?
Resourcing available	What resources are currently allocated to achieving the purpose and vision of the Strategy (approximately)? Do you think that the resources allocated to achieving the Strategy’s vision/purpose are appropriate?
Governance arrangements	Please explain the governance group (e.g. how often they meet, their objectives, whether they report progress etc). Do you believe the governance group has met its role as stated in Strategy?
	What are some of the strengths of the governance arrangements? What are some of the weaknesses of the governance arrangements?

Strengths, Learning and improvements	Can the Strategy, systems, processes be improved to more efficiently deliver projects? Do you think adequate systems are in place to effectively monitor, evaluate and report of on-ground activities against the Strategy?
	Can you think of any improvements that could be made to the Wetlands Strategy to better manage wetlands in the GBR Catchment (explain)? Please provide and solutions or examples.
	What is the biggest benefit or positive thing about the GBR Wetlands strategy?
	What do you believe are the key learnings and the key factors for success when developing future Wetlands Strategies?

Appendix 4: Online evaluation survey questions

Question theme	Questions
General	In what capacity were you involved in the Strategy?
	How would you rate your involvement in the Strategy?
Impact of Strategy	Do you use the <i>Wetlands in the Great Barrier Reef Catchments Management Strategy 2016–21</i> (the Strategy)?
Theme 1 - Improving wetlands information for decision making and action	Do you use <i>WetlandInfo</i> ?
	How do you think the information published by the Queensland Government about wetlands could be enhanced to help improve positive outcomes for wetlands (e.g., improved availability, increased synthesis of available information, etc.)?
Theme 2 - Wetland planning arrangements	Does your work unit or organisation develop non-statutory or statutory plans and strategies to protect, manage or enhance wetlands?
	How does the Strategy drive planning and/or strategies within your work unit or organisation?
	Do you think the Strategy, or work under the Strategy, has been successful in ensuring wetlands contribution to the GBR’s OUV is reflected in reef related policies?
Theme 3 - On-ground activities to protect, manage and rehabilitate wetlands	Does your organisation undertake any of on-ground activities to protect, manage and rehabilitate wetlands?
	In your opinion, how well is the Strategy reflected in or taken up by other Reef-related activities?
	Do you think the Strategy supports on-ground activities to protect, manage and rehabilitate wetlands?
Theme 4 - Education, communication and capacity building	Do you think that threats to wetland values and services are adequately understood by wetland managers within Queensland?
	Do you think that the community you work within (e.g. LGA, region) know about the importance of wetlands for protecting and improving the Outstanding Universal Value (OUV) of the Great Barrier Reef?
Theme 5 - Monitoring, evaluation, reporting and improvement	Are the current monitoring arrangements in the Strategy effective in identifying trends, changes and emerging issues for wetland management?
	Does the Strategy adequately support monitoring, reporting, and evaluation of wetland targets as outlined in the Reef 2050 Plan and Reef Water Quality Improvement Plan (WQIP)?
Governance	Are the governance arrangements supporting the Strategy appropriate, effective, and efficient?
Resourcing	Do you think that the resources allocated to achieving the Strategy’s objectives/purpose are appropriate? For example, is funding adequate?
Strengths, Learning and improvements	What would you like to see from the next version of the Strategy?
	How could the next iteration of the Strategy be made more fit-for-purpose for planning guidance of your work unit or organisation?
	Is there any area of wetland management that needs more structure, direction, effort, prioritisation to support the Great Barrier Reef’s Outstanding Universal Value (OUV)?

	Are there any ways that you can think of that the Strategy could better support your work?
	Do you have any other comments that you would like to make on the Strategy?

