HEALTHY RIVERS TO REEF PARTNERSHIP
MACKAY-WHITSUNDAY

Program Design for the Mackay-Whitsunday 2016 Report Card

Regional Report Cards Technical Working Group

June 2017

Mackay-Whitsunday Healthy Rivers to Reef Partnership

Acknowledgements

The 2016 Program Design was prepared by the Technical Officer of the Mackay-Whitsunday Healthy Rivers to Reef Partnership with significant support from the Regional Report Cards Technical Working Group. It was reviewed and endorsed by the Reef Independent Science Panel and endorsed by the Mackay-Whitsunday Healthy Rivers to Reef Partnership.

Executive Summary

Report cards have become an increasingly utilised communication tool for aquatic ecosystem health monitoring programs in Australia and around the world, enabling complex, systematically collected scientific information from multiple sources to be summarised and communicated in a way that enables broad understanding and encourages discussion. In Queensland, report cards are generally developed through partnership arrangements which involve collaborations between government, research, industry, and community organisations.

The Mackay-Whitsunday Healthy Rivers to Reef Partnership (the Partnership) was established to develop a report card for the Mackay-Whitsunday region. The region covers from Home Hill in the north to Flaggy Rock Creek in the south, including the freshwater and marine environment (to the eastern boundary of the Great Barrier Reef Marine Park). The report card provides a holistic picture of the ecosystem health in the region, supports ongoing management programs, and aims to be consistent with other report card programs across Queensland. The key audience for the report card is the general public. Currently there are a multitude of different programs and projects collecting and reporting on data from the Mackay-Whitsunday region. The Partnership and the associated report card aim to integrate these data.

This document has been created as a framework to guide the development of the Partnership and associated report card, with technical reports to provide further support. Initially, the Partnership established a vision for the program, which was then used to define the objectives for the Partnership and for the report card. The objectives for the report card, along with identification of regional drivers and pressures relevant to the Mackay-Whitsunday region, were used to shortlist the indicators to be used in the report card. In the future, the indicator data will be compared against targets sourced from a variety of already existing documentation for the region to show progress toward long-term targets. The report card is produced annually, which will allow a comparison of trends over time.

Information on the region, data sources, linkages with other programs, and reporting zones for the report card are all contained within this document. This document provides the overarching indicators, indicator categories and indices that are used to report on the environmental condition of freshwater basins, estuaries, inshore and offshore marine environments, along with social, economic, and cultural reporting. Additionally, the report card provides a score on the stewardship activities occurring across a range of sectors (horticulture, grazing, sugarcane, ports, industry, aquaculture, tourism, and urban).

This document also provides overarching information on the scoring methods, data management used by the Partnership, the use of independent reviews to ensure the science is robust and transparent and the future scope of the Partnership.

This document is reviewed annually following the release of the report card, to identify any required changes or amendments for improvement to the program and the report card.

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Acronyms and Abbreviations

ABS	Australian Bureau of Statistics
CAG	Paddock to Reef program Coordination Advisory Group
DARTS	Data Recording Tool for Science
DEE	Australian Department of Energy and Environment
DEHP	Queensland Department of Environment and Heritage Protection
DNRM	Queensland Department of Natural Resources and Mines
DPSIR framework	Drivers-Pressures-State-Impact-Responses framework
GBR	Great Barrier Reef
GBRMPA	Great Barrier Reef Marine Park Authority
GBRWHA	Great Barrier Reef World Heritage Area
GHHP	Gladstone Healthy Harbour Partnership
GIS	Geographic information system
ICHD	Indigenous Cultural Heritage Database
ISP	Independent Science Panel
LGA	Local Government Area
NERP	National Environmental Research Program
NQ	North Queensland
NRM	Natural Resource Management
PAR	Photosynthetically active radiation
RCL	Reef Catchments Limited
Reef Plan	Reef Water Quality Protection Plan 2013
Reef 2050 Plan	Reef 2050 Long-Term Sustainability Plan
RIMMReP	Reef Integrated Modelling, Monitoring and Reporting Program
SELTMP	Social and Economic Long Term Monitoring Program
SEQ	South-East Queensland
SKIP	Science Knowledge and Information Provision
SSIMR	Spatial and Scientific Information Management for Reef
TORG	Mackay-Whitsunday-Isaac Traditional Owner Reference Group
TWG	Regional report cards Technical Working Group
WQIP	Water Quality Improvement Plan

Terminology

For the purposes of the Partnership and the report card, the term "waterways" refers to freshwater creeks and rivers, estuarine environments and wetlands within the five nominated basins, and the inshore and offshore marine environment.

A healthy ecosystem is defined as "an ecological system which is healthy and free from distress if it is stable and sustainable – that is, if it is active and maintains its organisation and autonomy over time and is resilient to stress"[1].

1 Introduction

1.1. Purpose of the Program Design

The Program Design document has been produced as a framework to guide the Partnership in the development of the Mackay-Whitsunday Healthy Rivers to Reef 2016 report card. Separate technical reports provide further support with detailed methodologies and results for the report card.

This document is reviewed annually following release of the report card, to identify any required changes or amendments for improvement to the program and the report card.

1.2. Mackay-Whitsunday Healthy Rivers to Reef Partnership

The Mackay-Whitsunday Healthy Rivers to Reef Partnership (the Partnership) has come together with a shared vision for *healthy rivers and Reef contributing to a prosperous and iconic region where people visit, live, work and play.* Launched in 2014, the Partnership is a collaboration between community, Traditional Owners, farmers and fishers, industry, science, tourism, natural resource management (NRM) groups and government who recognise that more can be delivered by working together.

The Partnership provides the platform for the development of the annual Mackay-Whitsunday report card for waterway health, which reports on the condition of the region's freshwaters through to the offshore marine waters and Reef. The report card uses the best independent science and integrates a range of Great Barrier Reef-wide (GBR) and regional monitoring programs to measure waterway health in an environmental, social, economic and cultural context. By drawing on information from existing monitoring programs, duplications and gaps can be identified, and more easily communicated information provided to the community in a cost effective way.

The Partnership has released two report cards, 2014 pilot report card and the 2015 report card. This program design is intended to guide the development of the 2016 report card, expected to be released in October 2017.

[1] Costanza (1992). Toward an operational definition of ecosystem health. Chapter 14 in *Ecosystem Health: New goals for environmental management*. Ed. Costanza R., Norton BG, and Haskell BD. Island Press.

1.3. Report cards

Report cards have become an increasingly utilised communication tool for aquatic ecosystem health monitoring programs in Australia and around the world. Report cards enable complex, systematically collected scientific information from multiple sources to be summarised and communicated in a way that enables broad understanding and encourages discussion. They also enable a broad understanding of the complexity and range of influences on catchment condition and aquatic health from a range of activities.

In Queensland, a well-established annual report card for aquatic ecosystem monitoring exists in South-East Queensland (SEQ) and, more recently, for the Fitzroy River, Gladstone Harbour and Wet Tropics waterways. These report cards are generally developed through partnership arrangements which involve collaborations between government, research, industry, and community organisations. There is also a GBR-wide report card program (referred to in this document as the GBR report card) specifically designed to report on changes in reef health and progress towards targets as a result of efforts to reduce agricultural runoff.

1.4. The Mackay-Whitsunday region

Geographically the region covered by the Partnership and the report card is from Home Hill in the north to Flaggy Rock Creek in the south, including the freshwater and marine environment (Figure 1). This includes the Don, Proserpine, O'Connell, Pioneer and Plane basins, eight estuaries and the coastal and marine area to the eastern boundary of the GBR Marine Park. Three local government areas (LGAs) are covered in the geographic scope of the region: Mackay Regional Council, Whitsunday Regional Council and a portion of the Isaac Regional Council. There are currently two regional natural resource management (NRM) bodies which cover this region, North Queensland (NQ) Dry Tropics and Reef Catchments Limited (RCL). The area is rich in natural resources, which underpin community lifestyles and a range of industries.

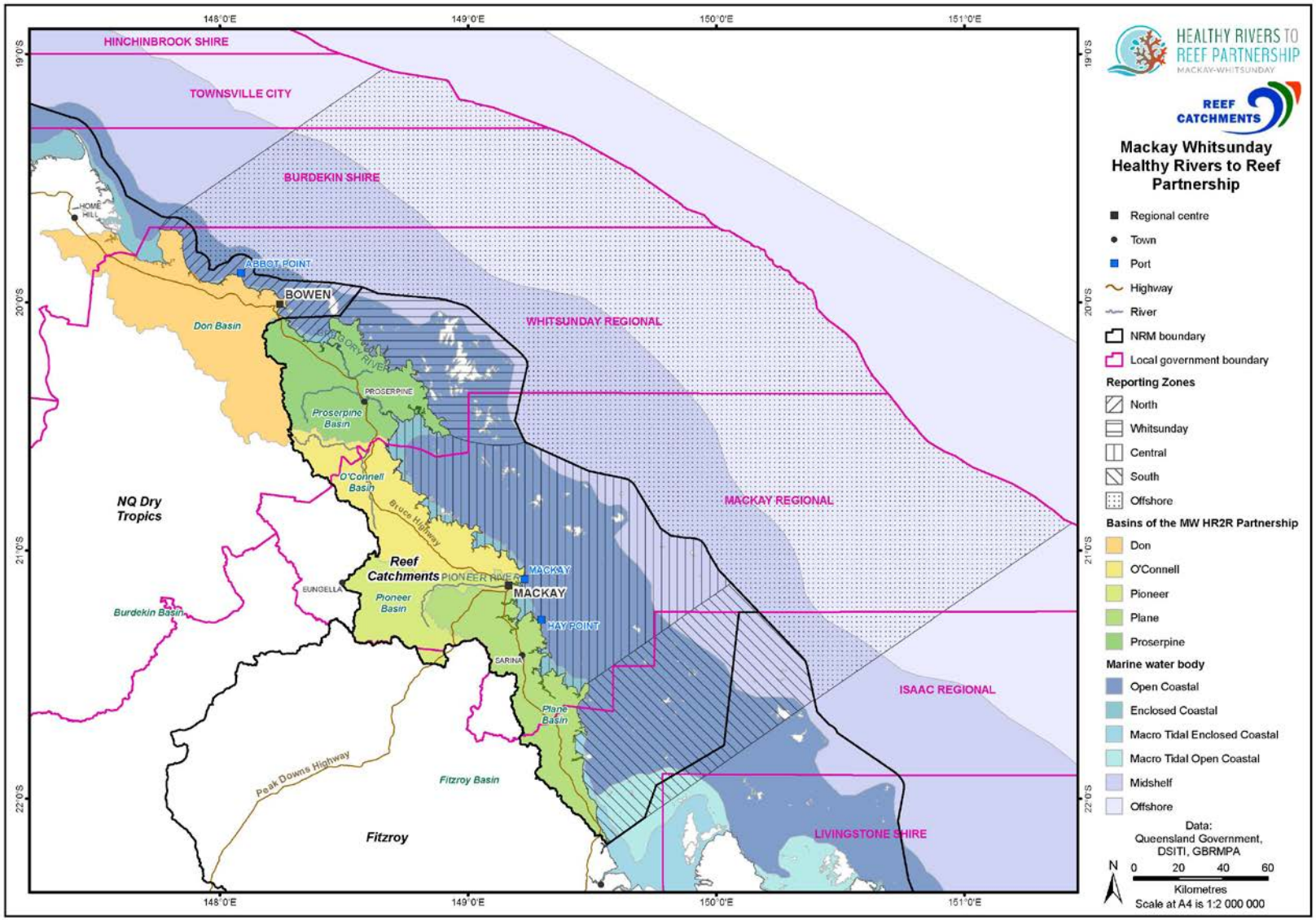

Figure 1. Geographic extent of the Mackay-Whitsunday Healthy Rivers to Reef Partnership and the reporting zones of the report card.

1.5. Linkages with other programs

The Mackay-Whitsunday report card is relevant to both GBR-wide and regional plans and links with state, regional and local programs and reporting. Some of the key plans and strategies and how they are linked to the Mackay-Whitsunday report card are outlined below.

1.5.1 Reef 2050 Long-Term Sustainability Plan (DEE[2] and DEHP[3])

The Reef 2050 Long-Term Sustainability Plan (Reef 2050 Plan) has direct links to the Partnership because it stipulates that regionally-based implementation plans will be important to address locally significant risks and to encourage community participation. The Reef 2050 Plan covers all aspects of the Reef's environment including its natural and physical attributes, heritage values as well as its social, economic and cultural aspects. Water Quality Action 23 (WQA23) in the Reef 2050 Plan explicitly commits to the Partnership (WQA23. *Expand 'nested' integrated water quality monitoring and report card programs at major ports and activity centres (e.g. Gladstone), in priority catchments (e.g. Mackay Whitsundays) and Reef-wide, to guide local adaptive management frameworks and actions.*)

The Reef Integrated Modelling, Monitoring and Reporting Program (RIMMReP) is being developed to support over half of the actions identified in the Reef 2050 Plan. The Great Barrier Reef Marine Park Authority (GBRMPA) is taking the lead in developing RIMMReP. The Partnership's staff and Chair are working closely with various RIMMReP Working Groups to ensure that future report cards, where possible, are taken into consideration during the design of specific RIMMReP indicator programs. The regional report cards Technical Working Group (TWG) have been specifically nominated to provide input to RIMMReP's Catchment and Estuaries Working Groups in conjunction with the Paddock to Reef program Coordination Advisory Group (CAG), who are responsible for aspects relating to water quality outcomes from the Reef 2050 Plan.

1.5.2 Reef Water Quality Protection Plan 2013 (DEE and DEHP)

The Reef Water Quality Protection Plan 2013 (Reef Plan) is a joint commitment of the Australian and Queensland governments to improve water quality in the GBR through collaborative projects and partnerships that improve land management in GBR catchments. Measuring and reporting on progress towards Reef Plan's goals and targets is undertaken through the Paddock to Reef Program. The annual production of the GBR report card (also known as Reef Plan report card) is produced to communicate this progress. The Partnership links with this work area by reporting on water quality and ecosystem health at a regional scale, aligning where possible with GBR report card scoring methods.

Currently the Reef Water Quality Protection Plan is under review. The updated plan will include new catchment scale targets and will be titled the Reef Water Quality Improvement Plan. The review is expected to be completed by the end of 2017.

[2] DEE: Australian Department of Energy and Environment
[3] DEHP: Queensland Department of Environment and Heritage Protection

1.5.3 Mackay Whitsunday Water Quality Improvement Plan

The revised Mackay-Whitsunday regional Water Quality Improvement Plan (WQIP), whose development was led by RCL, identifies the main issues impacting the region's waterways and the marine environment from land-based activities. It identifies and prioritises management actions that will halt or reverse the trend of declining water quality within the region. The Partnership will utilise the environmental condition information and consider objectives from the WQIP to ensure consistency for management priorities, environmental values, and ecologically relevant targets.

1.5.4 Other Regional Partnerships

The Partnership is one of a number of similar regional initiatives including:

- Healthy Waterways[4] who were formed in 1999 and have released annual report cards for South East Queensland since 1999;
- Fitzroy Partnership for River Health[5] who were formed in 2012 and have released five report cards to date;
- The Gladstone Healthy Harbours Partnership[6] who were formed in 2013 and have released three report cards to date; and,
- The Wet Tropics Healthy Waterways Partnership[7] who were formed in 2016 and released their pilot report card in December 2016. The Wet Tropics program design was modelled closely on the Mackay-Whitsunday program design and, at the end of 2016, the Wet Tropics TWG and Mackay-Whitsunday TWG amalgamated to form the regional report cards TWG. The regional report cards TWG now provides concurrent and consolidated advice to guide the development of both the Mackay-Whitsunday and Wet Tropics report cards.

The National Waterway Report Card Network (the Network) comprises members of these partnerships, as well as members from other similar initiatives from around the country. The Network meets regularly either by phone or in person.

2 Development of the annual report card

2.1 The developmental process

The general process that was undertaken by the Partnership to develop the annual report card is shown in Figure 2. After the Partnership established its vision for the program, the Partnership and report card objectives were defined. Guided by the Partnership's objectives, report card objectives and the guiding Drivers-Pressures-State-Impact-Response (DPSIR) framework, appropriate indicators were identified to report on the state of ecosystem health for the region's waterways. The Partnership intends to set associated regional targets in subsequent years such that the report card will transition to include progress toward long-term targets.

[4] http://hlw.org.au/
[5] http://riverhealth.org.au/
[6] http://ghhp.org.au/
[7] http://wettropicswaterways.org.au/

Following the production of the 2015 report card the Partnership undertook a management response workshop to discuss the key learnings of the report card, identify priority areas for filling knowledge gaps and facilitate collaboration between the Partners on management actions. It is intended that a similar workshop will be held following the release of the 2016 report card and into the future, and will transition into a more targeted "Management Response to the Report Card".

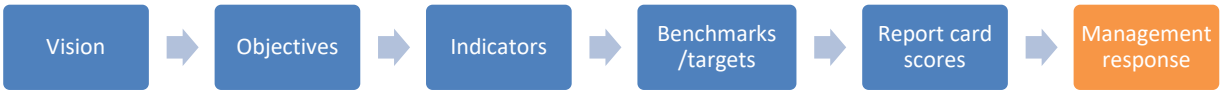

Figure 2. Process of the Partnership from the development of the vision to the production of a report card with scores, including using scores to inform a management response.

2.2 Vision and objectives of the Partnership

The Partnership's vision is for "*Healthy rivers and Reef contributing to a prosperous region where people visit, live, work, and play"*. The primary objectives of the Partnership are:

- Communicate information effectively and at a relevant scale to the broader community on waterway health issues with scientific integrity, independence and transparency;
- Support decision making for management activities and interventions, model outcomes and report on effectiveness of those interventions;
- Be specific to the Mackay-Whitsunday region and consistent with other regional waterway report cards including SEQ, Gladstone and Fitzroy;
- Provide effective, coordinated, strategic and transparent investment to ensure cost effective development of an annual report card and associated catchment improvement solutions;
- Consolidate and integrate outputs from ambient and event monitoring programs as well as different modelling platforms;
- Provide scientific information that may assist in improving or maintaining the environmental, social and economic values of the Don, Proserpine, O'Connell, Pioneer and Plane basins, rivers and adjacent GBR Marine Park;
- Inform planning and delivery activities of the Partners in response to the findings of the report card;
- Provide scientific information to feed into planning activities of NRM bodies, councils, and other partners; and
- Build upon, complement and enhance existing efforts of members.

The Partnership aims to ensure local community and heritage values (e.g. recreational use and Traditional Owner values) of the region, relevant to the waterways and marine environment, are recognised and incorporated in the report card. By collaboratively producing and releasing a report card for the region that incorporates ecological, social, economic, cultural, and stewardship reporting, local communities will be provided with an understanding of the current condition of their waterways and ecosystem health and the linkages with management practices.

Additionally, the Partnership aims to use the report card process to engage meaningfully with Traditional Owners regarding the protection of heritage and culturally significant sites for waterways and ecosystem health in the Mackay-Whitsunday region.

2.3 Report card objectives

In supporting the Partnership's vision, the main purpose of the report card is to bring together the best available information for the evaluation of the condition of the region's waterways in terms of their environmental, social, cultural, and economic values. An assessment of the region's ecosystem health and how this is reflected in the region's prosperity, is achieved by assessing a range of key indicators representative of these values.

The over-arching objectives for the report card from the Partnership's Memorandum of Understanding are:

- Confirm a long term approach to the management of the region's waterway and marine issues in a holistic manner;
- Communicate information effectively and at a relevant scale to the broader community on waterway health issues with scientific integrity, independence and transparency;
- Support decision making for management activities and interventions, model outcomes and report on effectiveness; and
- Be specific to the Mackay-Whitsunday region and consistent with other regional waterway report cards including SEQ, Gladstone and Fitzroy.

To meet these objectives, the Partnership aims to (through the use of the annual report card) assess and report regularly on the environmental, social, economic, cultural, and stewardship health and condition, relevant to the waterways within the Mackay-Whitsunday region. This report card will provide local communities with the latest available information about the current condition of their waterways and ecosystem health, and help to leverage on-ground management practices.

The specific report card objectives (below) are focused around assessing the current *state* of the region and will move towards reporting on progress toward targets. This will in turn allow identification of any trends over time and will assist in evaluating the success of management *responses* that are implemented. All objectives of the report card are linked to the natural environment. Further, the objectives were chosen so that the report card (and selected indicators) assess and address factors affecting the values of the community as they relate to the health of the waterways. Over time the Partnership will use the annual report cards to provide insight into the trends in water quality and ecosystem health and the corresponding social, cultural, and economic changes.

As data gaps from earlier report cards progress towards inclusion in the report card, objectives may evolve from those listed below.

2.3.1 Environmental objectives

- Assess the quality of water entering and within the freshwater ecosystems, estuaries, and the GBR against agreed benchmarks to track changes over time;
- Assess indicators of freshwater, estuarine, and marine aquatic and associated biodiversity ecosystem structure, function (including connectivity), and resilience; and
- Report on the state of pressures acting upon the water quality and ecosystem health in the region's waterways.

2.3.2 Cultural objectives

- Report on trends in Indigenous cultural heritage sites and values;
- Report on trends in non-Indigenous cultural heritage sites and values; and
- Report on trends in Indigenous and non-Indigenous connection to the region's coastal lands and waterways.

2.3.3 Social objectives

- Provide local communities with the latest available information about the current condition of their waterways and ecosystem health and the link to on-ground management practices;
- Gauge the stewardship of key industries and communities in the region, as they relate to the waterways;
- Monitor trends in use of coastal land and adjacent waterways in the region;
- Monitor trends in how the community values coastal land and adjacent waterways in the region and the level of importance placed upon the region's waterways;
- Understand how changes in key social, cultural, economic, and environmental values affect local community's quality of life;
- Assess and monitor the local community's perception of the health of the waterways in the region; and
- Assess the values and importance the local community places upon the waterways in the region and the relation to their quality of life.

2.3.4 Economic objectives

- Report on the direct economic benefits of industries that depend upon the presence of healthy waterways in the region;
- Assess the values and importance the local community places upon the waterways in the region and the relation to their quality of life; and
- Calculate and monitor the local economy associated with healthy waterways in the region and ecologically sustainable development in the region.

2.4 Guiding framework

The DPSIR model[8] guided the development of the report card. This is expanded from the drivers, pressures, state and response framework used in the two preceding report cards, which was

[8] European Environment Agency 1999. *Environmental indicators: Typology and overview*. Technical report No 25.

adapted from the pressure-stressor-response framework used in many Queensland water monitoring programs[9]. The DPSIR model now forms the basis of the RIMMReP, currently under development, and is used in other similar regional report cards such as the Fitzroy Basin report card.

The framework in Figure 3 shows the DPSIR model and relationships between regional drivers (such as human-induced economic and population growth, as well as climate), human-exerted pressures, the state of the environment that is a by-product of the pressures exerted upon it and the impacts of this state. Additionally, the framework indicates the levels and aspects that can be influenced by management activities (responses) undertaken in response to pressures and the state of the environment. Such management responses are undertaken with the intent to prevent, reduce, or mitigate pressures and/or environmental damage.

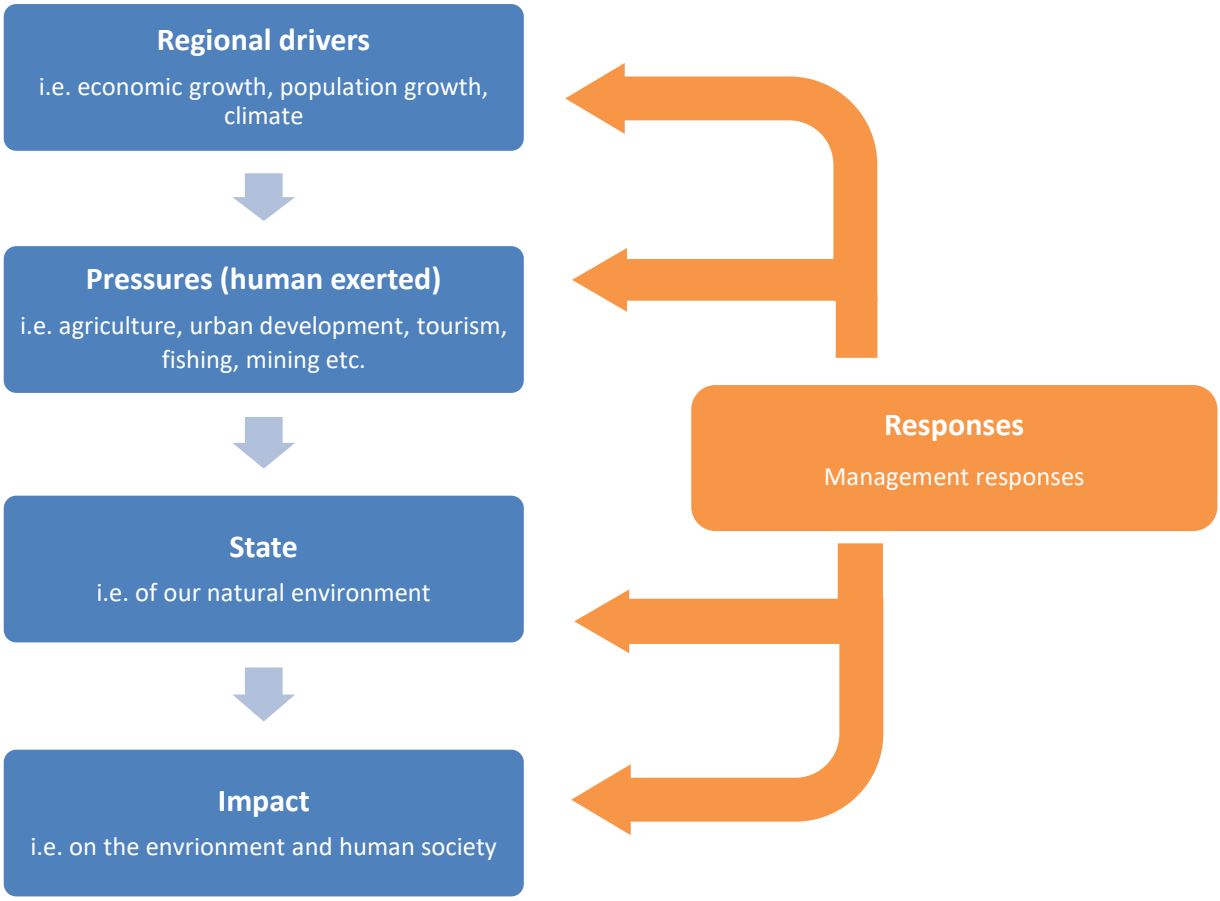

Figure 3. Drivers, pressures, state, impact and responses framework used to guide the indicator selection for the Mackay-Whitsunday region.

2.5 Conceptual diagram

Following the development of the Partnership vision and objectives for the Partnership and report card, existing conceptual diagrams were reviewed to assist in identifying pressures in the region and prioritise potential indicators. A new conceptual diagram for the Mackay-Whitsunday region was

[9] Produced by Department of Natural Resources and Mines, 2013

then developed for the Partnership (Figure 4), utilising and adapting existing conceptual diagrams to accurately show the drivers, pressures, impacts, and responses in the Mackay-Whitsunday region.

Figure 4. The conceptual diagram of the key drivers, pressures, and ecological processes in the Mackay-Whitsunday region that a report card can provide information on.

2.5.1 Current drivers and pressures in the region

The three high level regional drivers in the Mackay-Whitsunday region are:

- Climate (including climate change and variability);
- Population growth; and
- Economic growth.

The current pressures in the Mackay-Whitsunday region range from those occurring on an international level to Reef-wide to localised regional pressures. Such pressures include:

- Urban, coastal, and industrial development;

- Cyclones and episodic events (including drought and flood events);
- Port development and shipping;
- Agricultural development;
- Fishing and hunting (recreational, commercial, and traditional);
- Tourism and recreational use;
- Litter;
- Water quality:
  - Diffuse sources (agriculture and urban)
  - Point source (urban and industrial);
- Changes to natural freshwater flow regimes; and
- Invasive species (flora and fauna) associated with waterway, wetland, and marine health.

2.5.2 State of the natural environment and resulting impacts

The state of the natural environment (Figure 3), due to the existing pressures (relevant to the waterways) in the region, are varied. It should be noted that a time-lag often exists between the time of the pressure and the time the effect is seen on the state of the environment and these are not always linear relationships. Additionally, in many environmental situations there is what is referred to as a "tipping point", whereby an environment can cope with (or adapt to an alternative state) pressures, until the tipping point is passed. Pressures, therefore, are also heavily influenced by the historical situation. The state resulting from current pressures in the region includes:

- Poor water quality in freshwater environments (increased concentrations of nutrients, pesticides, and sediment);
- Poor water quality in the marine environment (increased concentrations of nutrients, pesticides, and sediment);
- Decreased vegetation and habitat in the freshwater, wetland and estuarine environments;
- Reduced stability of stream banks and coastal dunes;
- Reduced connectivity throughout the waterways system, including barriers for aquatic species;
- Increased occurrence and extent of terrestrial and marine litter; and
- Reduction or reduced function of marine habitats.

The impacts of such changes in the state of the environment can be on the environment and on human society, including:

- Increased erosion, sedimentation and runoff in waterways;
- Increased occurrence and extent of pest and weed species;
- Declines in populations of key fauna species, seagrass and coral communities;
- Reduction in community satisfaction of local waterways;
- Impacts on businesses such as tourism and commercial fishing; and
- Change to spiritual value of cultural sites.

2.5.3 Response to pressures

A range of responses to impacts in the region have currently been undertaken or are planned to be undertaken. As with the effects of the pressures, the responses do not necessarily have a linear result and will have time-lag impacts. Responses can be targeted at different points in the causal sequence. Such responses include:

- Land use and management practice change. The 2015 GBR report card provides information on the number of landholders (for grazing, sugarcane, and horticulture) that have adopted improved land management practices for each NRM area;
- Targeted reduction in nitrogen, sediment, and pesticides entering the GBR for each NRM area;
- Development of stewardship frameworks for different industries, by region and GBR-wide (including grazing, sugarcane, horticulture, urban, etc.);
- Development of the Reef Plan, its review, and all associated management responses; and
- Other NRM body works such as systems repair works – creek and wetlands, fishways, revegetation, coastal/dune repair projects, Landcare works, working with Traditional Owners, community involvement and education projects.

2.6 Roles and responsibilities during report card production

Overall, the Mackay-Whitsunday report card program is managed through the Partnership (currently 22 organisations) and the Management Committee. The Executive Officer and Technical Officer progress the day-to-day operation of the Partnership and the report card development.

The development of the report card is guided by the technical working group (TWG) and all aspects of the methodology and scoring approach is reviewed by the Reef Independent Science Panel (ISP).

Refer to the Governance Charter for explanations of the relationship and responsibilities of the different groups.

2.6.1 Independent science review

To ensure robustness of data and scientific rigour for the Mackay-Whitsunday report card, the ISP is utilised. The ISP fulfil an independent review function at key points along the report card development. The ISP operate within the scope of a specifically established Terms of Reference.

The ISP will be involved in the following components of the report card:

- Review of the Partnership program design;
- Review of selected indicators to be assessed;
- Review of scoring method to be used in the report card;
- Review of the mock up report card;
- Review of data synthesis results and interpretation; and
- Review of the final report card and technical reports.

3 The Mackay-Whitsunday report card

3.1 Frequency of report cards

The Partnership aims to undertake an annual assessment and production of a regional report card. To date, the report card has been published annually in October. Subsequent report cards will be adaptable and expandable.

3.2 Preceding report cards

The Mackay-Whitsunday Healthy Rivers to Reef Partnership 2014 pilot report card was released in October 2015. The pilot report card assessed a range of environmental indicators across a freshwater to marine gradient, which encompassed major rivers and their tributaries, estuarine, inshore marine and offshore marine zones. The report card also included an assessment of community values within the region, as well as stewardship assessments of the region's major industries. One of the key messages from the 2014 pilot report card was that despite the large body of monitoring programs being undertaken in the region to date, there were still major gaps in the region's environmental, social, economic, cultural and stewardship assessments.

Released in October 2016, the 2015 report card was the first full report card. The focus in this report card was to review and improve on current reporting and scoring and to expand on reporting. The 2015 report card reported on fish barriers in freshwater basins and estuarine waters, fish community health in freshwater basins, water quality in the central inshore marine zone, cultural heritage and urban stewardship.

Subsequent report cards will focus on consolidating and streamlining the process for the development of the annual report card. This will involve coordinating data management from current assessments, aligning assessments and reporting with new and current programs, and where possible filling data gaps. The latter is critically important to the development of a comprehensive understanding of the health of the region's waterways and adjacent area of the GBR and to inform GBR-wide initiatives from a regional level. As the data gaps are filled, the report card will better highlight priority areas for investment on new, innovative and enhanced management activities aimed at the improvement of the region.

3.3 Report card scope

The scope of the report card was considered in both the short and longer term (Table 1). As new information becomes available it is anticipated the scope of the report card will be expanded.

Table 1. Scope of the report card in the short term and potential expansions to be included in the subsequent years.

	Short term	Longer term
EXTENT	Inshore existing (four zones)	Initiate monitoring programs where data gaps exist, such as the southern inshore zone
	Include offshore (one zone)	
	Five identified freshwater basins	Assess effectiveness of moving to finer scale reporting (priority sub-basins)
	Some estuaries	Broaden to include more estuaries
INDICATORS	Basins – water quality, habitat and fish	Include condition assessment for riparian and wetland indicators (currently extent only), invasive weeds indicator Add groundwater, saltwater intrusion, micro contaminants/metals Identify targets and measure progress Expand spatial data sets for water quality and fish
	Estuaries – water quality, habitat and fish	Include condition assessment for riparian and mangrove/saltmarsh indicators (currently extent only), include fish indicator Identify targets and measure progress
	Marine – water quality and habitat (coral and seagrass) and fish	Include fish indicator Identify targets and measure progress
CONTEXT	Environmental	Review representation of regionally relevant values and pressures and address gaps
	Stewardship and management effectiveness – urban, horticulture, grazing, sugarcane, aquaculture, ports, industry, tourism	Fishing and community stewardship assessments Continual development and improvement of reporting
	Social and economic values of waterways, associated with the Great Barrier Reef World Heritage Area (GBRWHA)	Fill in gaps regarding freshwater values
	Cultural values of waterways	Build upon cultural values and knowledge across the region

3.4 Geographic scope of the report card

The area included within the scope of the Partnership and the report card is from Home Hill in the north, down to Flaggy Rock Creek in the south (Figure 1), including both the freshwater and marine environments. Two regional NRM bodies cover this region - NQ Dry Tropics cover Home Hill to Edgecumbe Bay (covering the Don Basin), while RCL is the NRM body covering the southern region from Edgecumbe Bay to St Lawrence in the south (covering the Proserpine, O'Connell, Pioneer and Plane Basins) (Figure 1).

The NRM bodies have split their regions into workable sub-catchments for the purposes of assessing and implementing land management change. RCL differentiated their region into 33 catchment management areas in the 2008 WQIP based on hydrological boundaries, and land use and management. The Don Basin includes four sub-catchments and is the southern-most area covered by NQ Dry Tropics (the entire NQ Dry Tropics NRM region is comprised of 52 sub-catchments).

Waterways in the Don Basin are ephemeral, flowing for short periods of time during intense periods of rainfall from December to March, but remain dry for most of the year. In contrast, the creek systems in the Mackay-Whitsunday region receive higher annual rainfall and usually flow year-round. The coastal freshwater wetlands within the Don Basin are also mostly ephemeral or seasonal.

For the purposes of the report card, the freshwater and marine environments were differentiated into regions that, as far as practicable, align with how other initiatives (such as Reef Plan, NRM WQIPs, etc.) report and present information.

The marine environment for the report card includes the receiving waters identified in the 2014-2021 Mackay-Whitsunday WQIP and the marine environment from the NQ Dry Tropics region that is relevant to the Don Basin. The inshore area is more influenced by river discharges and run-off than the offshore area, so the inshore and the offshore area are reported on separately.

The freshwater component (including wetlands) of the report card reports on the five basins. In subsequent years, it may be possible to split the freshwater environment into the sub-catchment management areas as determined by the two NRM bodies. Additionally, data is collected for eight estuaries across the report card area. The inshore zone is broken into four separate areas from the north to the south of the region, while the one offshore area is considered one zone (Figure 1 and Table 2).

Table 2. Reporting zones and justification for boundaries.

Zone	Environment	Determination of zones
Don Basin	Freshwater	All freshwater zones are based on the boundaries of the corresponding basins, as determined by the Queensland Department of Natural Resources and Mines (DNRM).
Proserpine Basin	Freshwater	
O'Connell Basin	Freshwater	
Pioneer Basin	Freshwater	
Plane Basin	Freshwater	
Inshore zones		Inshore zones include enclosed coastal, open coastal and mid-shelf waters
North	Inshore Marine	Including enclosed coastal, open coastal and mid-shelf waters, the North zone extends as far north as Cape Upstart. It does not include Upstart Bay as the Bay is heavily influenced by the event outputs from the Burdekin River and the Burdekin River basin is outside of the scope of this report card.
Whitsunday	Inshore Marine	Including enclosed coastal, open coastal and mid-shelf waters, the Whitsunday zone encompasses the Whitsunday Coast from Hideaway Bay south to Cape Conway and includes the islands referred to as the "Whitsunday Islands", down to, and including, Thomas Is. Repulse Bay was excluded from this zone due to the heavy influence from the Proserpine River, with the sediment in Repulse Bay tending to stay within Repulse Bay and only flowing north during significant event conditions. Regional advice was that Repulse Bay should be included in this zone as residents consider it part of the 'Whitsunday region'. However its inclusion may confound water quality results/scores when aggregated, given the differences between the hydrodynamics/mixing of the Proserpine River and the rest of the region.
Central	Inshore Marine	Including enclosed coastal, open coastal and mid-shelf waters, the Central zone extends from Cape Conway in the north down to Cape Palmerston. This area does not have any distinct patterns to further separate out any areas, and is fairly similar ecologically.
South	Inshore Marine	Including enclosed coastal, open coastal and mid-shelf waters, the South zone extends from Cape Palmerston down to the southern part of the Plane basin, at St Lawrence. This zone captures the influence from the adjacent land and also the influences from the more southern Broadsound area. Historical aerial imagery shows that the influences from Broadsound repeatedly track north, but then track out toward the mid-shelf from Cape Palmerston.
Offshore	Offshore Marine	The offshore zone extends from the State jurisdiction boundary to the eastern boundary of the GBRMP and includes offshore and mid-shelf waters. The offshore zone is separated from the inshore zone by the Capricorn channel, but there is no variation offshore to reason a split north to south.

3.5 Reporting period for the report card

The 2016 report card, to be released in October 2017, will include all available relevant water quality data from July 1st 2015 to June 30th 2016. The naming protocol for the report card is such that it is dated to reflect the main environmental data. There will always be a lag period between when the data is collected and when the data can be used, due to validation and confirmation processes to ensure the data is of high quality and reliability.

The release date for future report cards may vary. Currently it is necessary that the release date of the Mackay-Whitsunday report card takes into account the release of other data and report cards (such as GBR report card, which is released in September each year) to ensure the most up to date information is incorporated. The Partnership is working with data providers to explore options for an earlier release date for the report card.

4 Method for developing report card scores

The method for assigning scores for the report card were developed with the assistance of personnel who have experience in this field. Specific considerations were given to:

- How the current state will be assessed;
- The actual meaning of the final score; and
- Ensuring the report card is comparable with other report cards and programs.

The development and final scoring methods are contained within separate technical papers.

4.1 Scoring categories

Ordinal categories are used for the Mackay-Whitsunday report card. They are easy to understand and are aligned with other report cards and methods. The Mackay-Whitsunday report card uses the following five-point grading system: Very Good (A), Good (B), Moderate (C), Poor (D) and Very Poor (E). These grades are evenly distributed within a 0 to 100 scoring range, which reflects the GBR report card approach to scoring (Table 3).

Table 3. Grades and scoring range.

Grade	Scoring range
A: Very Good	81-100
B: Good	61-80
C: Moderate	41-60
D: Poor	21-40
E: Very Poor	0-20

To promote the effectiveness of the Report Card as a communication tool, descriptions of grades for environmental indicators have been developed. Descriptions that apply to indicators that measure condition of water quality and ecosystem health across all environments (basins, estuaries, inshore marine and offshore marine) are provided (Table 4) as well as descriptions that apply to indicators that measure habitat extent for basins and estuaries (Table 5).

Table 4. Descriptions of environmental condition for water quality and ecosystem health indicators.

Grade	Definition of environmental conditions
A: Very Good	Conditions frequently meet guidelines or reference values and the majority of critical habitats are intact.
B: Good	Conditions generally meet guidelines or reference values and most critical habitats are intact.
C: Moderate	Some conditions do not meet guidelines or reference values and critical habitats are usually impacted.
D: Poor	Conditions often do not meet guidelines or reference values and most critical habitats are impacted.
E: Very Poor	Most conditions do not meet guidelines or reference values and most critical habitats are severely impacted.

*Reference values are determined from reference sites that are subject to minimal/limited disturbance[10].

Table 5. Descriptions of habitat extent indicators for basins and estuaries (wetlands, riparian vegetation and mangrove and saltmarsh).

Grade	Habitat extent
A: Very Good	Habitat extent is at or very close to pre-development levels
B: Good	Habitat extent is close to pre-development levels
C: Moderate	Habitat extent is moderately departed from pre-development levels
D: Poor	Habitat extent is strongly departed from pre-development levels
E: Very Poor	Habitat extent is severely departed from pre-development levels

4.2 Confidence measures

The report card includes qualitative confidence measures with the scores for each indicator to show the confidence in the data (and thereby confidence in the subsequent score). The approach used by the GBR report card has been adopted by the Mackay-Whitsunday report card with each indicator in each reporting zone assessed individually (i.e. the five basins, eight estuaries, four inshore marine zones and one offshore marine zone). Expert opinion is sourced during the review of results in each year, to ensure the report card results accurately represent the scientific understanding and knowledge of the region, with a focus on that reporting year.

[10] DEHP (Department of Environment and Heritage Protection) 2009. Queensland Water Quality Guidelines, Version 3, ISBN 978-0-9806986-0-2.

4.3 Existing targets

Numerous targets for a wide range of parameters already exist in the Mackay-Whitsunday region as defined for this program. Programs and documents that present targets include WQIPs, water quality guidelines, DEE and DEHP programs, NRM Plans, the Reef 2050 Plan, GBR water quality guidelines, etc. Targets and progress towards targets will not be reported in the 2016 report card.

Existing endorsed and recognised targets will be incorporated and utilised in subsequent report cards. It will be critical to avoid having different targets for the same parameters. This will also ensure the Mackay-Whitsunday report card aligns with existing programs and supports all programs rather than duplicating efforts and creating complexity.

When developing an assessment for progress to targets consideration will need to be given to:

- Long-term targets and the ability to provide a score for the trend toward achieving the long-term target; and
- Incorporation of existing targets for the area.

Consideration needs to be given to establishing how the existing targets will be incorporated into the report card and scoring method, and how they will be reported against.

5 Mackay-Whitsunday report card indicators

5.1 Determination of report card indicators

The overall aim of the report card is to assess the current condition of the region and to transition towards assessing trends over time towards long-term targets and objectives.

The development of the report card began with the identification of the vision and objectives for the program, followed by determination of current pressures in the region and listing a range of potential indicators that could be used to assess those pressures. These potential indicators were then assessed to see whether they supported the program objectives and could be used to report on pressures within the region. Some indicators were missing from current monitoring programs and remain under development to be included in subsequent years. Additionally, the selected indicators needed to consider the community values in the region.

Each indicator was then prioritised based on whether:

- It is clearly linked to an objective of the report card;
- It could easily be used to provide a report card score; and
- Other programs and report cards used this indicator.

Additionally, indicators needed to be:

- Indicative of what the Partnership is trying to protect (or a good ‘proxy’);
- Sensitive to change;

- SMART (specific, measurable, assignable, realistic, timely);
- Of strong scientific and conceptual basis - i.e. indicators based on well-defined or validated cause-and-effect chains linking human-related pressures to ecosystem response if possible;
- Signals that can be measured in simple, cost-effective ways with available resources, and analysed in a fashion that allows unambiguous interpretation;
- Well-established regarding links with specific management objectives and responsive to related management actions; and
- Easily communicated and understood by stakeholders and/or the target audience.

A review of indicators used in other similar programs (Gladstone Healthy Harbour Partnership, Fitzroy Basin Partnership, SEQ Healthy Waterways and the GBR report card) was also conducted to determine which parameters were deemed to be most suitable as report card indicators.

5.2 Indicators for the report card

There are a large number of existing monitoring programs in the region with differing purposes. The environmental indicators for which data was available were compared to the list of desired indicators for the Mackay-Whitsunday report card. Environmental indicators were available for freshwater, estuarine, wetland, and marine systems, as well as land management practices. Specific indicators included water quality parameters; water flow rates, rainfall, and hydrology information; flora and fauna assessment data; land use, extent and modification; and habitat and connectivity assessments.

The environmental indicators are assessed and their condition scored. The environmental indicators are grouped into categories, which are in turn aggregated into an 'index'. Together one or more index provides an overall score for a reporting zone. The condition of the indicator, indicator category, index and zone is collectively displayed in a 'coaster' (Figure 5). For example, an index (e.g. water quality) is made up of indicator categories (e.g. nutrients) which is made up of one or more indicators (e.g. particulate nitrogen). Presentation of the coasters in the report card can be with or without the outer ring (i.e. indicator categories).

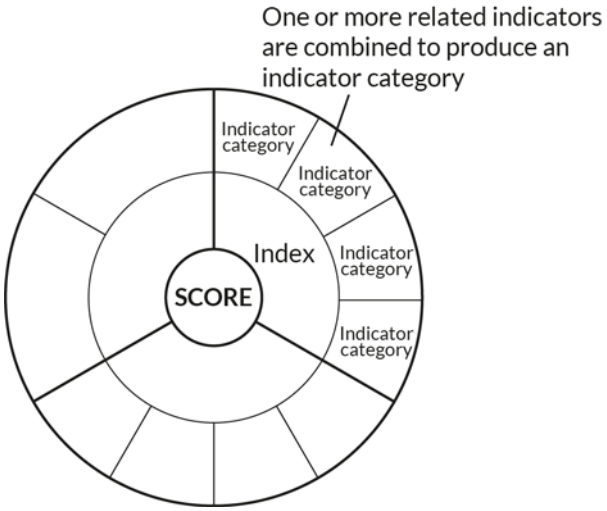

Figure 5. Example of terminology used for defining the level of aggregation of indicators and how they are displayed in the coasters in the report card.

The following subsections present the indicators that will determine the score for each environmental reporting zone, the frequency of reporting and an example coaster. Reporting on human dimensions, including stewardship and cultural heritage, is also described in subsequent sections.

Based on the availability of data, some indicators, indicator categories or indices may not be reported at this time (and will appear grey in coasters), with the aim to infill them in the future. Additionally, other indicators such as photosynthetically active radiation (PAR) for marine zones and invasive weeds for freshwater basins may be built into the report card when data is available or an appropriate method for scoring these indicators is developed.

It should be noted that any indicators that are not assessed annually will be presented in every report card, with annotated information on the date limitations or constraints of the data. These will act as “constants” in the report card scores. These indicators are monitored less frequently, reflecting that they change over longer periods of time.

Further detail on the indicator selection (including how the selected indicators relate to pressures relevant in the Mackay-Whitsunday region) and scoring methods will be available in separate technical reports.

5.3 Environmental condition

5.3.1 Freshwater basins

The report card will provide a score for the environmental condition of the five freshwater basins. The basin scores will be based on three indices (water quality, habitat and hydrology and fauna), broken down into the indicator categories and indicators shown in Table 6 and Figure 6. Selection of indices and indicators were also based on volume of available data and whether guideline values existed for relevant indicators.

Table 6. Indicators used to determine a score for the environmental condition of each freshwater basin.

Index	Indicators categories: indicators	Frequency of reporting
Water quality	Sediment: TSS*	Annually
Water quality	Nutrients: DIN, FRP	Annually
Water quality	Pesticides: ms-PAF for priority PSII herbicides	Annually
Habitat & Hydrology	In-stream habitat modification: Fish barriers; Impoundment Length	4 yearly (fish barriers); 4 yearly (impoundment)
Habitat & Hydrology	Flow: (TBC)	Annually
Habitat & Hydrology	Extent of riparian ground cover	4 yearly
Habitat & Hydrology	Extent of freshwater wetlands	4 yearly
Fauna	Fish: PONSE; Proportion pest fish	3 yearly

*Availability of data means TSS is used in freshwater reporting but turbidity is used in estuarine reporting.

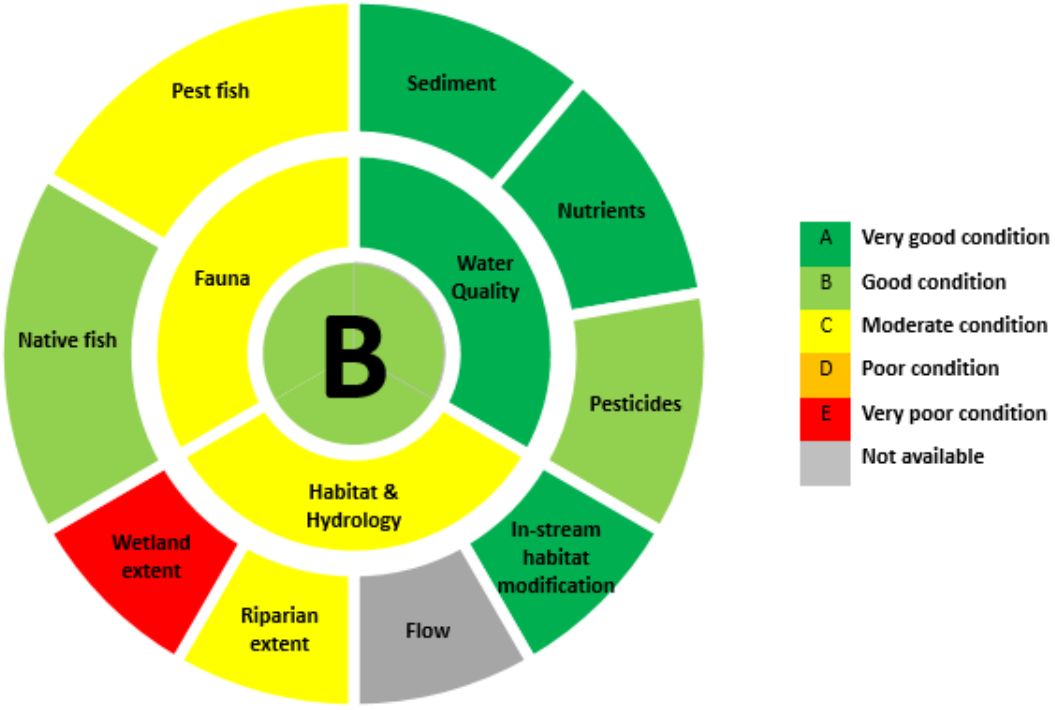

Figure 6. Example coaster and indicators for the five freshwater basins.

5.3.2 Estuarine

The report card will provide a score for the environmental condition of eight estuaries. Each estuary score will be broken down into three indices (water quality, habitat and hydrology and fauna), determined using the indicator categories and indicators shown in Table 7 and Figure 7.

Table 7. Indicators used to determine a score for the environmental condition of each estuary.

Index	Indicators categories: indicators	Frequency of reporting
Water quality	Phys-chem: Turbidity*; DO	Annually
Water quality	Nutrients: DIN (constructed from NOx and ammonia); FRP	Annually
Water quality	Chlorophyll *a*	Annually
Water quality	Pesticides: ms-PAF for priority PSII herbicides	Annually
Habitat & Hydrology	Flow: (TBC)	Annually
Habitat & Hydrology	Riparian vegetation extent	4 yearly
Habitat & Hydrology	Mangrove and saltmarsh extent	4 yearly
Habitat & Hydrology	Fish barriers (between freshwater and marine environments)	4 yearly
Fauna	Fish: (TBC)	Annually

*Availability of data means TSS is used in freshwater reporting but turbidity is used in estuarine reporting.

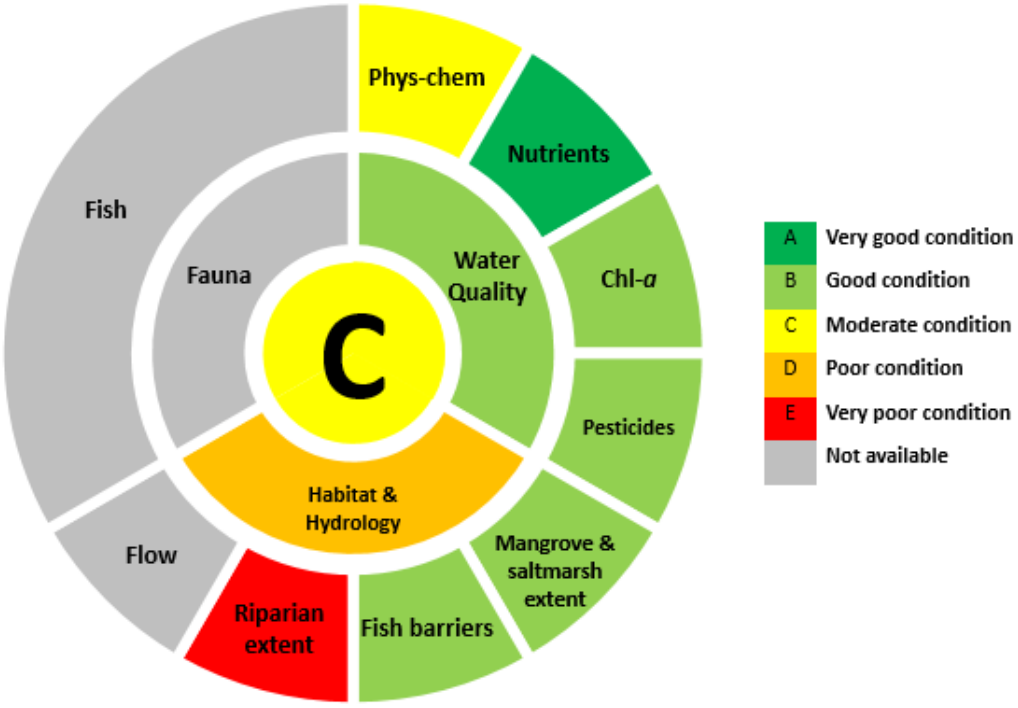

Figure 7. Example coaster and indicators for the eight estuaries.

5.3.3 Inshore marine

The report card will provide a score for the environmental condition of the inshore marine area (including enclosed coastal, open coastal and mid-shelf waters), differentiated into four reporting zones. Each score will be broken down into four indices (water quality, coral, seagrass and fish), determined using the indicator categories and indicators shown in Table 8 and Figure 8.

Table 8. Indicators used to determine a score for the environmental condition of the inshore marine environments.

Index	Indicators categories: indicators	Frequency of reporting
Water quality	Nutrients: NOx, PN and PP	Annually
Water quality	Chlorophyll-*a*	Annually
Water quality	Water clarity: TSS; secchi; turbidity	Annually
Water quality	Pesticides (PSII-HEq)	Annually
Coral	Composition	Annually*
Coral	Coral change	Annually*
Coral	Coral juvenile density	Annually*
Coral	Macroalgae cover	Annually*
Coral	Coral cover	Annually*
Seagrass	Abundance (% cover/biomass^)	Annually^
Seagrass	Reproductive effort	Annually
Seagrass	Tissue nutrient status	Annually
Seagrass	Meadow area^	Annually^
Seagrass	Species composition^	Annually^
Fish	Species 1 – status and abundance	Annually
Fish	Species 2 – status and abundance	Annually
Fish	Species 3 – status and abundance	Annually

*Each AIMS coral survey site is monitored every two years, with monitoring of sites alternating between the years, thus coral condition is reported as a two-year rolling mean based on the most recent data for all sites.
^Indicators are developed from data collected by the Queensland Ports Seagrass Monitoring Program (QPSMP)

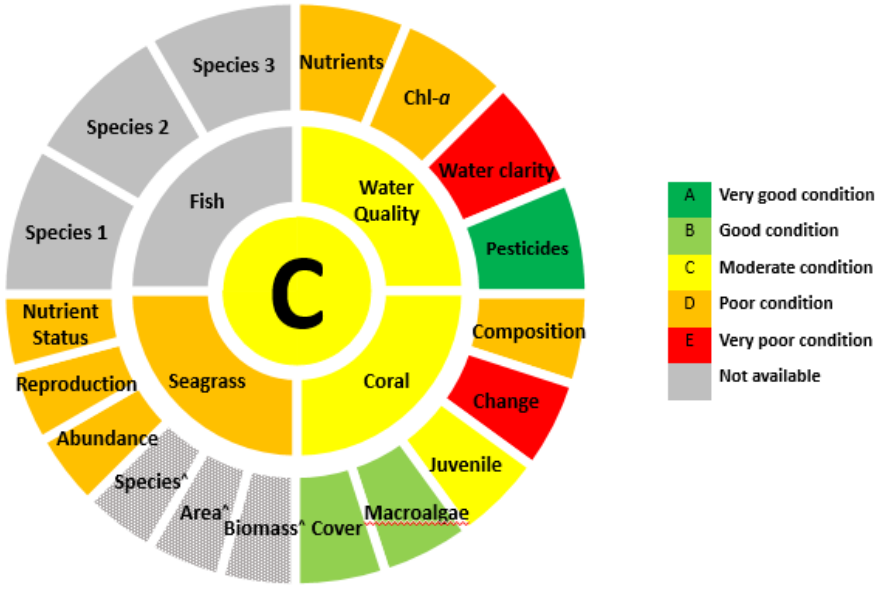

Figure 8. Example coaster and indicators for the four inshore marine zones. Note: where indicated (^) seagrass indicators are developed from data collected by the Queensland Ports Seagrass Monitoring Program (QPSMP).

5.3.4 Offshore marine

The report card will provide one score for the environmental condition of the offshore marine area. The score will be broken down into three indices (water quality, coral and fish), determined using the indicator categories and indicators shown in Table 9 and Figure 9.

Table 9. Indicators used to determine a score for the environmental condition of the offshore marine environments.

Index	Indicators categories: indicators	Frequency of reporting
Water quality	Chlorophyll *a*	Annually
Water quality	Sediment (TSS)	Annually
Coral	Coral change	Annually*
Coral	Coral juvenile density	Annually*
Coral	Coral cover	Annually*
Fish	Species 1 – status and abundance	Annually
Fish	Species 2 – status and abundance	Annually
Fish	Species 3 – status and abundance	Annually

*Each AIMS coral survey site is monitored every two years, with monitoring of sites alternating between the years, thus coral condition is reported as a two-year rolling mean based on the most recent data for all sites.

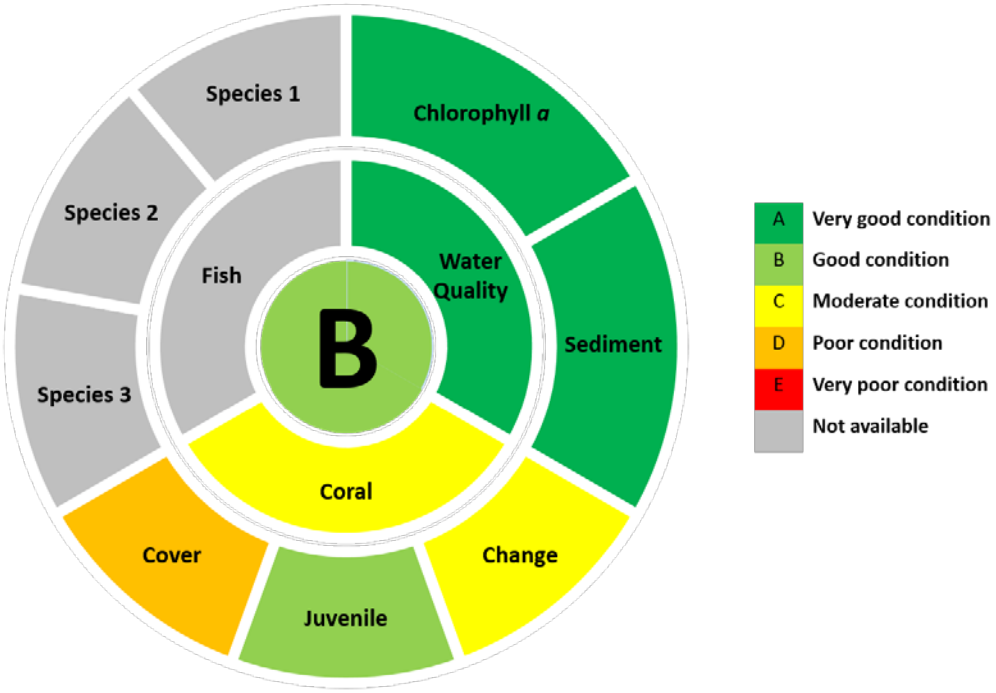

Figure 9. Example coaster and indicators for the offshore marine zone.

6 Human dimensions

6.1 Stewardship reporting

Stewardship is an important aspect to include in the report card and is defined as 'responsible and sustainable use and protection of water resources, waterways and catchments to enhance the social, cultural, environmental, and economic values of the region'. Assessing stewardship provides information on the management efforts that are implemented by different sectors/industries within the region that provide benefits to ecosystems, such as improved land management practices. While management efforts within a sector/industry are commonly influenced by regulation, voluntary and innovative actions that exceed requirements of regulation are a major focus of the stewardship assessments for the report card.

Stewardship activities that are assessed have a direct link to the water quality in the region (albeit, not necessarily immediate). Stewardship reporting can be used to demonstrate how on-ground activities (*responses* undertaken by landholders in the region), impact water quality (the *state* of the natural environment).

Stewardship reporting assists in meeting various Partnership and report card objectives. In particular, the stewardship information aids the environmental report card objective to report on the *pressures* acting upon the water quality and ecosystem health in the region's waterways. Additionally, reporting on the stewardship levels assists with the following Partnership objectives:

- Communicate information effectively and at a relevant scale to the broader community on waterway health issues with scientific integrity, independence and transparency; and
- Support decision making for management activities and interventions, model outcomes and report on effectiveness of those interventions.

In the report card, the extent that each sector operates under different environmental management practice levels is used to report stewardship. Environmental management practice levels are defined by available water quality risk frameworks or management frameworks. Such frameworks are currently available for grazing, sugarcane, horticulture, aquaculture, ports, industry, tourism and urban industries. Assessment of stewardship of the fishing industry and community is intended for inclusion in future report cards. These frameworks form the basis of reporting.

Within the agricultural industry, grazing, sugarcane and horticulture stewardship will be reported as the area (%) under different management practice levels and displayed graphically (Figure 10).

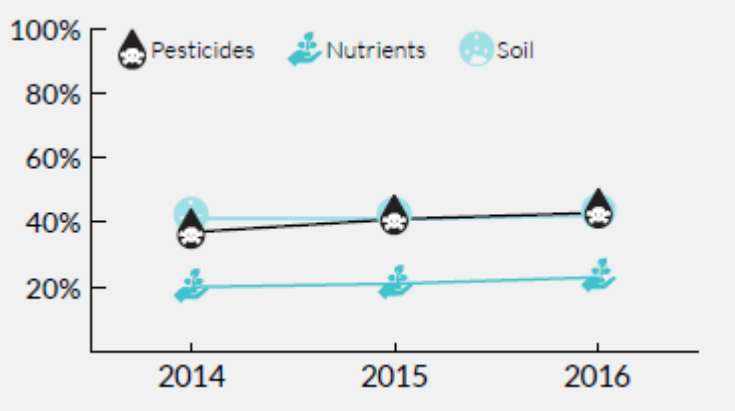

Figure 10. Example of stewardship display for agricultural industries.

The remaining non-agriculture sectors/industries are reported based on the percent of the sector/industry operating at each management practice level. A review of non-agricultural stewardship reporting has been undertaken since the release of the 2015 report card. This review will not be complete in time to incorporate review recommendations into the 2016 report card, thus non-agricultural stewardship will be reported based on the same approach used in the 2015 report card. It is expected that review recommendations will be incorporated into subsequent report cards.

6.2 Cultural Heritage

In 2015 the Gladstone Healthy Harbour Partnership (GHHP) and the Gidarjil Land and Sea Rangers pioneered an innovative new approach to cultural heritage monitoring through the development of cultural heritage indicators, an Indigenous Cultural Heritage Database (ICHD) and an annual sites monitoring program.

The Partnership followed a similar approach to monitor cultural heritage relevant to the region's waterways for the 2015 report card. The existing regional Traditional Owners Reference Group (TORG) was instrumental in progressing this indicator. Working with external consultants, Terra Rosa, the TORG recorded and reported on the condition of significant cultural heritage places through on-ground assessment, panoramic 360 degree imagery and geographic information system (GIS) data. Three areas in the region were reported in the 2015 report card: Hook, Whitsunday and South Molle Islands, Cape Hillsborough and St Helens.

The Partnership will continue to work with the TORG to expand reporting across the region and will work towards a mutually aggregable reporting cycle.

6.3 Social and Economic

In the 2014 pilot report card an assessment of social and economic indicators was undertaken. Data for this assessment was solely drawn from the GBR Social and Economic Long Term Monitoring Program (SELTMP) including the National Environmental Research Program (NERP) 10.1 and 10.2 projects (which also largely aligns with the GHHP report card). These studies include a multitude of

survey data which was extracted for the relevant post codes in the Mackay-Whitsunday reporting region. However, this only presented information relevant to the GBRWHA and was not relevant to freshwater environments.

For the 2015 report card, contextual data from the pilot report card was reported. This approach will be replicated for the 2016 report card. A repeat of SELTMP was initiated in mid-2017, which will include consideration of freshwater systems for the first time. This new data will be used in subsequent report cards and will provide an updated and more complete understanding of the social indicators as they relate to waterways in the Mackay-Whitsunday region.

Economic data relating to major industries reported in stewardship assessments will be presented as contextual information. Data will be drawn from the latest national census, the Australian Bureau of Statistics (ABS) and other data sources.

7 Program management

7.1 Data sharing and management

It is important that steps be taken to ensure data is available and accessible to inform the development of the report card. The Spatial and Scientific Information Management for Reef (SSIMR) system for data management is being utilised to manage the data used in the report card. SSIMR has two data management tools:

- DARTS: Data Recording Tool for Science; and
- SKIP: Science Knowledge and Information Provision.

DARTS will be used to capture, import, export, store and manage the report card data. This system is currently being set up. All data files and technical documents used to develop the report card are stored in SKIP. This means all relevant data can be made available in a timely manner, will be stored securely and labelled correctly under an agreed naming convention, with required metadata to meet standards.

Where data is made available to the Partnership that is not intended for public release, the data owner reserves the right to enter into a data sharing agreement with the Partnership to maintain data confidentiality.

7.2 Management response to the report card

Coinciding with the release of the 2014 pilot report card and the 2015 report card, the “Activities Spotlight” was released. This highlighted the management activities relevant to waterway improvement that were being undertaken by the Partners. With the release of the 2015 report card the “Future Directions” document was also released which outlines the Partnership’s priorities for improving the report card.

Following the release of the 2015 report card a management response workshop was undertaken by the Partnership. This allowed for the discussion of key learnings from the most recent report card, identified priority areas for filling knowledge gaps in the future and facilitated collaboration between the Partners on management actions. It is intended that this workshop will continue to be held following the release of the report cards and will transition into a more targeted "Management Response to the Report Card". The Management Response will be developed by the Partners as a tool to put the findings of the report card into action, and the document will be the responsibility of the Partnership. The Management Response will be the integral component to meet the Partnership objective, to inform planning and delivery activities of the Partners in response to the findings of the report card.

The Management Response is being developed separately to the report card and program design.

8 Future program

The 2016 report card and subsequent report cards seek to expand and incorporate more monitoring and data. Projects identified to provide new data have been prioritised by the Partnership based on anticipated timelines, methodology development and funding arrangements (Table 10). It is expected that new opportunities will arise and/or new limitations will be identified such that projects and their prioritisation will change over time.

In subsequent years the Partnership intends to set regional targets associated with indicators, such that the report card will transition to include progress toward long-term targets.

Table 10. Technical projects in order of prioritisation for progression based on criteria including anticipated timelines, methodology development and funding arrangements. A score is provided for each criteria and when added together a final score is provided. Higher scores indicating projects that are a higher priority for progression.

Indicator reporting (Existing or New)	Project	2016 RC 2016/17 FY	2017 RC 2017/18 FY	2018 RC 2018/19FY	Existing indicator and zone	New indicator (existing methodology) 2	New indicator (develop methodology) 1	Existing indicator (new zone) 2	Existing indicator (improve current data) 1	Co-funded 1	Cooperation across regional report cards 1	Data will be collected within an existing program 1	In-kind contribution 1	Led and implemented by RIMMReP or Taskforce	Staff capacity to pursue project 2	Score
E	Freshwater fish community health															
N	Freshwater and Estuarine flow						1			1	1	1			2	6
N	Marine coral macroalgae (central)							2		1		1			2	6
N	Offshore coral change metric (improved)								1	1	1	1			2	6
N	Marine debris								1		1	1			2	5
N	Southern inshore water quality							2		TBC					2	4
N	Southern inshore coral							2		TBC					2	4
N	Southern inshore seagrass							2		TBC					2	4
N	Invasive Weeds						1				1	1				3
N	Ground water						1				1	1				3
N	Condition of habitat indicators (currently extent only)						1				1					2
N	Inshore and offshore fish						1									1
N	Estuarine fish						1									1
N	Community stewardship						1									1
N	Fisheries stewardship						1									1
N	Enhanced freshwater monitoring								1							1
N	Enhanced ms-PAF monitoring in estuaries								1							1

NB Colours in columns three, four and five show whether the indicator will be reported (■) in the relevant report card, whether there is uncertainty (■) around when indicators will be reported or NA (■). Uncoloured cells in these columns mean indicators will not be reported.