Summary

• **market-based solution**
  - Innovative, *market-based solution* offering a new way to improve the quality of water entering the Great Barrier Reef
  
• **land management projects to improve water quality**
  - Response to the emerging consensus that a *market-mechanism* to incentivise water quality improvements across catchments of the Great Barrier Reef was **urgently needed**
  
• **generate a tradeable unit of pollutant reduction**
  - Enables land managers to undertake projects that **improve water quality through changes in land management**
  
• **Generate a tradeable unit of pollutant reduction or ‘Reef Credit’**
  - A Reef Credit represents a *quantifiable volume of nutrient, pesticide or sediment* prevented from entering the Great Barrier Reef catchment.
  
• **quantifiable, audited volume of nutrient, pesticide or sediment reduction**
  - Reef Credits conceived and being developed within the **Major Integrated Projects** for roll-out across all GBR catchments.
  
• **Terrain, GreenCollar and NQDT partnership focused on developing the Reef Credits system** (with additional funding support from Qld Govt and NAB). Partnership with Winrock (US) to develop architecture.
Benefits

- Clear and robust rules to ensure water quality improvements credited are real, additional and permanent.
- Farmers and land managers earn diversified and regular income over 10-25 year time frames.
- Research and knowledge linked to on-ground practice through peer reviewed methods designed to suit local conditions.
- Attracts diverse investment from government, corporate and philanthropic sources.
- Investors buy verified water quality outcomes when they are delivered and audited.
- A single administrative platform with independent, transparent and accountable governance oversight to achieve water quality improvement.
- Delivers consistent measurement and monitoring tools to track progress toward water quality targets across the entire Reef.
- Funds Projects designed to suit local conditions, agribusiness requirements and land manager’s plans.
- Complements other key services such as extension, agribusiness, catchment management and other ecosystem services.
A ‘Reef Credit’ represents a quantifiable volume of nutrient, pesticide or sediment reduction that has been prevented from entering the GBR catchment.

Reef Credits are issued to projects that reduce the amount of sediments, nutrients or pesticides flowing onto the Great Barrier Reef.

These Reef Credits are then sold to buyers with an interest in protecting the Great Barrier Reef.

To ensure that pollutant reductions are quantifiable, projects are undertaken in accordance with approved methodologies.

To ensure that the actual pollutant reduction is being achieved, projects are audited and payments made based on achievements.

Farmers and land managers can earn Reef Credits by undertaking projects.
How the market works?

Project -> Registry
- Verified pollutant reduction converts to Reef Credits

Registry -> Buyer
- Reef Credits are potentially transferred to buyers

Buyer purchases Reef Credits from Project
• **Guide** – Overview and Context setting

• **Standard** – scheme principles, rules and safeguards

• **Registry** – where reef credit transactions are recorded (and transacted)

• **Governance** – independent oversight of the standard, registry, methodologies and trades

• **Methodologies** – approved ways of undertaking projects that provide verifiable pollutant reductions

• **Projects (sellers)** – activities that conform to an approved methodology

• **Buyers** – purchasers of Reef Credits (e.g., Govt, Offsets, Corporate, Philanthropic)

• **Engagement & communications** – building awareness and opportunity to participate in Reef Credits
Reef Credit

Governance

Members and Partners
Advocacy, Support, Endorsement of Scheme Components

Board
Reef Credit Scheme (Not-for-profit limited by guarantee)

Secretariat
Delegated administration of the Reef Credit Scheme

Technical Advisory Committee
Technical Support on Standard and Methodologies
Process Overview

1. Project Validation and Registration
   - Proponent selects Project
   - Secretariat validates Project against Standard
   - Validated Project Registered

2. Project Implementation and Crediting
   - Implement Project against Methodology
   - Commence monitoring
   - Estimate Reef Credit Generation

3. Project Verification and Certification
   - Independant Verification
   - Verification based on Methodology
   - Confirms Reef Credit Quantity

4. Reef Credit Issuance
   - Credits issued to Proponent Registry Account
   - Reef Credit tracked by unique serial number
   - Verification required each time Reef Credits issued

5. Sale and Retirement of Reef Credits
   - Proponent advises Secretariat of sale of Reef Credits
   - Secretariat transfers Reef Credits to Buyer account
   - Buyer retires Reef Credit to claim pollutant reduction
Consultation and Design Process
Steps so Far

- Feasibility tested in Wet Tropics MIP
- Qld government funding support for Architecture
- Ongoing consultation
- Winrock International Options Paper
- Pilot Projects negotiated
- Draft Standard and Guide

- **March 2017** – Feasibility as part of Major Integrated Project design
- **Mid 2017** – Qld Government committed support to funding Secretariat for start phase
- **October 2017** – Interim Steering Committee established to coordinate development of Reef Credit Program
- **Mid 2017 – March 2018**
  - Targeted meetings with key stakeholders to solicit input to draft standard documentation
  - Work commenced on draft methodologies and identification of pilot sites (See next section for details)
- **February 2018** – Tender process held to seek expressions of interest to develop Options Paper for the Reef Credit program
- **May 2018**
  - Program Coordinator for Secretariat appointed
  - Winrock engaged to develop Options Paper
- **September 2018** - Final options paper completed in
- **October 2018** - Draft Reef Credit Standard and Reef Credit guide completed
<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
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<tbody>
<tr>
<td>30th October 2018</td>
<td>Presentation of draft Reef Credit Standard and Program Guide to key stakeholders</td>
</tr>
<tr>
<td>12 November 2018</td>
<td>Launch of website</td>
</tr>
<tr>
<td>Throughout November 2018</td>
<td>Public Consultation on draft Reef Credit Standard and Program Guide Commences</td>
</tr>
<tr>
<td>12 December 2018</td>
<td>Public Consultation on draft Reef Credit Standard and Program Guide Concludes</td>
</tr>
<tr>
<td>Throughout December 2018</td>
<td>Peer review of four foundation methodologies:</td>
</tr>
<tr>
<td>Mid December 2018</td>
<td>Presentation of Finalised Reef Credit Standard and Program Guide</td>
</tr>
<tr>
<td>Throughout December 2018</td>
<td>Targeted stakeholder briefings on draft Reef Credit Standard and Program Guide</td>
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Draft Standard and Guide
Main Features of the Standard

- Scope and application
- Project rules
  - General eligibility requirements
  - Project requirements
  - Validation
  - Credit calculation and project implementation
  - Project registration
  - Verification
  - Project certification and credit issuance
  - Ongoing verification, tracking and transfer of credits
- Methodology requirements
  - General
  - Applicability conditions
Key Conclusions from Options Paper

- **Registry**
  - Develop basic or user queries solution. Develop registry operating procedures and explore ability to build in house
  - Establish POI requirements – adopt similar approach to CFI

- **Auditing**
  - Develop risk adverse approach to auditing

- **Project Cycle**
  - Develop centred approach to validation – focus on eligibility criteria being met
  - Four foundation methodologies for beta phase
  - Centralised approach to project registration with scope for board to delegate to Secretariat
  - Standardised methodologies during the beta phase
  - Centralised credit issuance
  - Vintaging – allow credits to be valid for 3 years and require retirement within 12 months of sale
  - Double accounting – limited risk and addressed through methodologies
  - Require proof of ownership as in CFI
  - Additionality - Restrictive approach with focus on financial additionality – adapt existing tests
  - Baselines – business as usual with absolute targets
  - Uncertainty – deductions and calculations must be included in methodologies. Secretariat to maintain table of required deductions for levels of uncertainty and level after which credits not issued
  - Validation conducted by secretariat and verification conducted by third party approved auditor
### DIN Methodologies

<table>
<thead>
<tr>
<th>Catchments</th>
<th>No. of potential pilot projects engaged</th>
<th>No. of potential pilot projects assessed</th>
<th>Total project area (Ha)</th>
<th>10yr DIN reductions for assessed projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIP Basins</td>
<td>17</td>
<td>7</td>
<td>5,624</td>
<td>&gt;180,000</td>
</tr>
<tr>
<td>Other Catchment</td>
<td>14</td>
<td>8</td>
<td>1,101</td>
<td>&gt;37,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
<td><strong>15</strong></td>
<td><strong>6,725</strong></td>
<td><strong>&gt;217,000</strong></td>
</tr>
</tbody>
</table>

*includes 9 wetlands

### Sediment Methodologies

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<thead>
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<th>Catchments</th>
<th>No. of potential pilot projects engaged</th>
<th>No. of potential pilot projects assessed</th>
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</thead>
<tbody>
<tr>
<td>MIP Basins</td>
<td>3*</td>
<td>1</td>
</tr>
<tr>
<td>Other Catchments</td>
<td>4*</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

*sites refers to areas with multiple gully interventions
Methodology Update

Foundation Methodologies

1. Method for accounting reduced nutrient run-off through fertiliser management
2. Method for accounting reduced nutrient run-off through the establishment of wetland systems
3. Method for accounting sediment run off through gully restoration management
4. Method for accounting reduced sediment run-off through improved grazing practice
• Initial consultation on appropriate methodology priorities through MIP design process

• Established technical working group late 2017 for first scoping workshop on methodology elements

• Follow up held in mid 2018 workshop to present proposed draft methodologies outlines

• TropWater and Griffith University engaged to assist in finalising drafts for public consultation and peer review

• Drafts currently being prepared for peer review

• Public consultation on methodologies to follow end of public consultation on standard – targeting December 2018
Method for accounting reduced nutrient run-off through fertiliser management
Reef Method for accounting reduced nutrient run-off through fertiliser management – main components

1.1 Establish Eligibility

The project area must include land that has been under cultivation for the baseline period and has been treated with nitrogen based fertiliser to improve crop yield during the baseline period. The baseline period is equal to 7 years prior to project start.
1.2 Baseline Scenario – Establish N Application Rate

Establish baseline N application rate as average fertiliser use for 7-year period prior to project start for each paddock or, in the absence of paddock-scale data across all paddocks.

The N application rate for the initial 3 years of the baseline period will be fixed at regulatory standard in force at the time. If N application rate for any year exceeds regulation then the application rate for that year will be fixed at regulation rate (i.e. no crediting for reductions that are in violation of regulation). Fallow blocks in the baseline period will have N application rate set to 0 unless fertiliser was applied to a fallow crop.
1.3 Project Scenario

Implement management actions to reduce fertiliser application relative to baseline. Record fertiliser application for each paddock for the reporting year. Fallow blocks may be set to zero unless fertiliser is applied (e.g. green fallow). The reporting year must span same duration as the annual duration established in the baseline period (e.g. July – June).

Reef Method for accounting reduced nutrient run-off through fertiliser management – main components
Reef Method for accounting reduced nutrient run-off through fertiliser management – main components

1.4 Accounting – convert N reduction to DIN reduction at end of catchment

Calculate the difference in Nitrogen (dN) application for the project area, i.e. Sum of (N application rate for each paddock x Area of each paddock). If the dN is negative, i.e. less than baseline average, the proponent may be eligible to receive Reef Credits. To determine the volume of Reef Credits the dN must be converted to DIN by applying a correction factor (TBD).
1.5 Convert DIN load reduction to end of catchment load reduction

A delivery ratio based on the project area location will then be applied to the project site DIN reduction to determine the end of catchment DIN reduction (DIN delivery ratio table or map provided by catchment modellers). Until the TN->DIN correction factor and delivery ratios are determined a value of $0.17TN = 1RC$. 1 RC = 1 kg DIN reduction.
Reef Method for accounting reduced nutrient run-off through fertiliser management – main components

1.1 Crediting Period

10 years
Method for accounting reduced nutrient run-off through the establishment of wetland systems
1.1 Establish Eligibility

Eligible project areas must be located in a sub-catchment which is designated a significant source of Dissolved Inorganic Nitrogen under the Catchment Loads Monitoring program at less than 50m in elevation and mapped as flood prone, alluvial, tidal or beach ridges. They must be located in an area of intensive (nitrogen application) agricultural production or adjacent to or draining such an area and be designated as having significant connectivity to the Great Barrier Reef.

N.B. Criteria under review led by TropWater
Method for accounting reduced nutrient run-off through the establishment of wetland systems

1.2 Baseline Scenario – Establish N Application Rate

In the absence of a wetland the baseline N reduction is considered to be zero.
Currently investigating Assessment criteria to determine wetland typology and design principles
1.3 Project Scenario

Project activities must establish or restore wetlands that:

- Provide at least 3 to 5 days detention time for a 30mm rain event.
- Comprise at least 2% of the area of the upstream drainage zone.
- Provide appropriate macrophyte and vegetation types and zones to facilitate nutrient uptake.

Include sediment basins and high flow bypass capacity where appropriate.

*Note that these criteria are under review*
1.4 Accounting – convert N reduction to DIN reduction at end of catchment

Land-use change from intensive agriculture the reduction in N application is set to be 88 kg ha\(^{-1}\) (i.e. the average N surplus of sugarcane). The N uptake capacity of the wetland is conservatively set to be 93 kg ha\(^{-1}\). The total N reduction for establishment of the wetland is therefore 181 kg ha\(^{-1}\).

*Note that these criteria are under review – uptake capacity will be monitored and adjusted over time.*
Method for accounting reduced nutrient run-off through the establishment of wetland systems

1.1 Crediting Period

25 years
Method for accounting sediment run-off through gully restoration management
Reef Method for accounting sediment run-off through gully restoration management – main components

1.1 Establish Eligibility

The project area must include gullies that satisfy the location and typology requirements of the Gully Toolbox.

1.2 Baseline Scenario

The baseline sediment and nutrient yields are determined based upon the Gully area and Gully catchment area defined with spatial data specs and tolerance such as aerial LIDAR or drone derived photogrammetry
1.3 Project Scenario

Management strategies that can be implemented are dependent upon the type of gullies. The rehabilitation strategy won’t be prescribed, however will need to comply with the generally acceptable approaches under the Reef Trust Gully Toolbox and other guidelines as deemed acceptable by the GBR Sediment Working Group.
Reef Method for accounting sediment run-off through gully restoration management – main components

1.4 Accounting

The accounting framework will incorporate:

- Future trajectory assessment in the absence of intervention
- Monitored load reductions
- Rainfall for the monitoring period

1.5 Convert DIN and FSS load reduction to end of catchment reduction

A Sediment Delivery Ratio Determination method can be implemented if sufficient data is collected to determine with a high degree of confidence

1 Reef Credit = 356kg FSS reduction
Reef Method for accounting sediment run-off through gully restoration management – main components

1.6 Crediting Period

25 years