Review of TNC monitoring and evaluation Plan provided for the 'Bring back the fish' project

Prepared for Noosa Shire Council

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Acronyms

MER	Monitoring, Evaluation and Reporting
TAG	Technical Advisory Group
TNC	The Nature Conservancy
USC	University of the Sunshine Coast

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Executive Summary

Noosa Shire Council and The Nature Conservancy (TNC) have signed a three-year Partnership Agreement that sets a bold vision for an innovative and regionally significant alliance to improve the health and resilience of the Noosa River, and the industries and local communities that rely on its long-term wellbeing.

Under the terms of the Partnership Agreement, TNC is leading the Bring Back the Fish project that will pilot the restoration of oyster reefs within the Noosa River estuary, to improve environmental health, engage the Noosa community in conservation and support economic and community wellbeing.

TNC has prepared a Project Plan and Monitoring, Evaluation and Reporting (MER) Plan that has been presented to Council. Council has requested a peer review of the plan. This report is provided to Council to address the review requirements as specified:

1. Briefly comment on the appropriateness of the goals of the project in relation to the stated focus of the partnership (the first four dot points identified on p4 of the Project Management Plan), identifying any major gaps. There are 11 goals listed in the MER component of the plan (page 68-73).
2. An assessment of the effectiveness of the proposed indicators and monitoring methods to effectively measure the success of the stated Goals and Objectives of the plan.
3. Any further recommendations or suggestions for improvement to the Monitoring & Evaluation Plan, including any further monitoring that might support determination of achieving success in the project.
4. Provide recommendations for long-term monitoring of the stated Goals and Objectives of the project, beyond the end of the current agreement term on 30 September 2022.

Appropriateness of project goals to the focus of the Partnership

The oyster reef restoration project is an appropriate project to commence collaborative restoration activities under the Partnership agreement. The project will contribute to all of the focal areas of the Partnership (but particularly focal area 1).

Effectiveness of the proposed indicators and monitoring methods

A good practice MER checklist was developed based on a number of reference documents. Twenty criteria were then used to test the effectiveness of MER planning and design, monitoring, evaluation and reporting components.

Sixteen good practice criteria were found to be met. Four of the criteria were partly met or unclear, but none of these raised any significant concerns with the MER plan.

Overall, the review concludes that the MER plan is robust and comprehensive, and the proposed indicators and monitoring methods likely to be effective. The MER Plan obviously reflects TNC's experience with similar oyster restoration projects in Australia and overseas.

Recommendations:

1. **Resolve conflicting terminology and different versions of MER framework.**

There are some inconsistencies in terminology between the Project Plan and the MER Plan. In particular, the terms goals and objectives are used differently each document, and as used in the MER Plan have multiple versions with some differences. This may simply reflect the timing and evolution of both documents. We recommend that the relationship between the documents are clarified, that the terminology is modified to avoid confusion and multiple versions rationalised.

2. **Incorporate recommendations for longer term monitoring as part of the final project report.**

Legacy is the extent to which project impacts will continue over time after funding ceases (Roberts et al., 2018). The Project Plan and MER Plan don't explicitly address legacy but there is evidence that legacy has been considered in the overall project design. Monitoring of project legacy (impacts) should be addressed by incorporating recommendations for ongoing monitoring as part of the final project report, when the performance of the current project and its MER are known and future resources and capability understood.

3. **Consider further development of socio-economic monitoring and assessment methods.**

Biophysical and ecological monitoring and assessment methods are well established and clearly described in the MER Plan The monitoring and assessment methods provided for the socio-economic target are fairly generic and could be further developed. If socio-economic outcomes are important then the project should engage someone with appropriate skills to further develop this component of the MER Plan.

4. **Collect, maintain and store provenance records of any species introduced to the site**.

It is good practice for the provenance records of any species introduced to the site to be kept, if oyster spat or mature oysters are translocated from elsewhere (directly or via a nursery).

5. **Evaluate the partnership and share learnings**

The Partnership agreement aspires to demonstrate a 'leading example' of a collaborative alliance that 'achieves superior outcomes'. As well as learning about oyster restoration, the project should also evaluate, and reflect on the learnings about the Partnership itself. Partners should contract a third party to facilitate a partnership evaluation near the end of the current project (June 2022). Findings should inform future partnering arrangements between Noosa Council and TNC, and may also be helpful to other organisations considering similar arrangements.

Longer-term monitoring, beyond the life of the current project.

The objectives and design of future monitoring efforts beyond the current three-year project will depend upon:

- The success of the project (whether ecological and other targets have been met);
- The likely trajectory of ecological measures beyond that time (whether restored oyster beds are still developing, stabilised or at risk);
- Whether additional oyster restoration sites or relevant estuarine management activities are planned or ongoing;
- Whether the partnership with TNC is expected to continue; and
- The availability of resources, scientific and community monitoring capacity.

Recommendation 2 above suggests that the final report include a set of recommendations for longer-term monitoring (e.g. in the phase 2 technical report). TNC, as the project manager, will be best placed to make those recommendations at that time, using the information, models and other decision support tools available from the Noosa project and other, related TNC restoration projects.

1 Introduction

Noosa Council entered into a three-year partnership with The Nature Conservancy (TNC), starting on 25 July 2019, with the primary project aim to restore oyster reefs in the Noosa River. The scope of the partnership is outlined within the Alliance & Funding Agreement, which identifies clear outputs for the Bring Back the Fish Project that is being implemented under the partnership agreement.

Project Deliverable 5 (of the partnership agreement) is that *A Project Implementation Plan presented to Noosa Council by TNC in conjunction with Council officers for its approval*. This was reported to the Ordinary Meeting of Noosa Council on 16 July 2020. The result was the following Council resolution:

> *"Approve the Project Management Plan (provided as Attachment 1 to the report) as meeting the requirements of the Project Implementation Plan outlined in the Alliance & Funding Agreement subject to Council appointing an independent scientific expert to provide a review of the project's Monitoring Evaluation and Reporting Plan. The review is to include an assessment of the effectiveness of the methodology, project's goals, measures, outputs and outcomes within the context of ecological restoration and the terms of the three year contract, and recommendations (if any) for improvement to be included in the Monitoring and Evaluation Plan."*

As a result of this resolution, Noosa Council approached Eberhard Consulting to undertake and independent review of the monitoring, evaluation and reporting plan. This document reports the results of that review.

2 Background

2.1 Noosa and TNC Partnership

The scope of the partnership between Noosa Council and the TNC is outlined within the Alliance & Funding Agreement (Noosa Shire Council and The Nature Conservancy, 2019). The focus of the Partnership is to:

- "Improve the health and resilience of Noosa's marine and estuarine environment through innovative restoration and coastal resilience projects;
- Capitalize on the expertise of The Nature Conservancy's global networks and experience (through knowledge brokering, mentoring, study tours and access to subject matter experts) to improve Noosa River management and strengthen the long-term social, environmental and economic health and resilience of the Noosa River and surrounding marine environment;
- Demonstrate a leading example of a replicable, environmentally-focused, collaborative alliance that achieves superior outcomes for the environment and local communities compared to existing river and marine management models; and,
- Increase government (State and Federal), private, industry and community support for restoration and conservation-focused activities that improve the long-term social, economic and environmental health and resilience of the Noosa River and surrounding marine environment." (Noosa Shire Council and The Nature Conservancy, 2019, p. 19)

The Partnership agreement will be reviewed after three years (July 2022). The total operating budget is $2.4M, inclusive of $1.2M from TNC and $1.2M from Noosa Council, with the expectation that TNC will raise additional funds to support further oyster bed restoration.

An Executive Level Forum from each party is responsible for the cooperative arrangements under the agreement. A Technical Advisory Group (TAG) (including independent experts) has been established to advise on the shellfish restoration project.

The agreement commits to the restoration of oyster reefs in the lower estuary, and technical support for the Noosa River Plan. Schedule A to the agreement sets out a series of objectives, deliverables (outputs), timeframes, measures and delivery responsibilities. Each objective is further developed in the project management plan for the Bring Back the Fish Project (The Nature Conservancy, 2020).

2.2 Bring Back the Fish Project

The goal of the Bring Back the Fish Project ('the project) is to:

> *"improve the environmental health of the Noosa River Estuary through active restoration and conservation activities that engage the Noosa Community in meaningful conservation and support economic and community wellbeing" (The Nature Conservancy, 2020, p. 10)*

The Project has a number of objectives, each with multiple activities. The primary objective is the restoration of shellfish ecosystem, initially at two locations and then (subject to successful establishment at these sites) at other locations throughout the estuary. The objectives described in the Project Plan (paraphrased details in brackets) are as follows:

- A-1 Project establishment and management (project governance, management, communication and reporting);
- A-2 Site selection (identify restoration sites for phase 2 and 3);
- A-3 Community engagement (strengthen community interest, support and participation);
- A-4 Oyster ecosystem restoration; and
- A-5 Noosa River Plan (provide technical and expert support to Noosa Council).

The Project Plan notes (on pg. 9) that more recent dialogue between TNC and Noosa Council has identified additional initiatives to explore potential for seagrass restoration in Lake Cooroibah, and opportunities for sustainable commercial and recreational fisheries in the Noosa River. These additional activities will incorporated into the current objectives (A2 and A2).

The Project Plan specifies a set of deliverables, with timeframes, measures and responsible parties identified. Table 1 below provides a summary version of the project objectives and deliverables.

Table 1. Project objectives and deliverables

Objectives		Deliverables[1]	
A1	Establish effective project governance, management, communication and reporting sufficient to successfully implement shellfish restoration project	A1.1	Establish Technical Advisory Group (TAG)
		A1.2	Appoint Project Manager
		A1.3	Project Implementation Plan and MER Plan
		A1.4	Participate in public forums
		A1.5	Annual project reports & final report

[1] Deliverables have been paraphrased for brevity. For full description, refer to Table 1 in the Project Plan pg. 10-15

Objectives		Deliverables[1]	
		A1.6	Six monthly progress reports
A2	Identify suitable restoration sites for Phase II and Phase III and appropriate shellfish substrate design and configurations that minimize estuary-user conflict whilst optimizing rehabilitation	A2.1	Shellfish restoration suitability model
		A2.2	Permitting
		A2.3	Community consultation
A3	Strengthen community interest, support and participation in Noosa River restoration by establishing a community volunteering program to support oyster restoration	A3.1	Community consultation to identify volunteering opportunities
		A3.2	Establish volunteering program
A4	Restore oyster ecosystems across the lower estuary	A4.1	Restore two sites
		A4.2	Restore multiple additional sites
		A4.3	MER study
A5	Provide technical and expert support to Noosa for planning, implementation and evaluation associated with appropriate elements of the Noosa River Plan and other coastal and marine management plans	A5.1	Workshop with Noosa Council
		A5.2	Technical review x 5
		A5.3	Study tours x 3
		A5.4	Conservation planning
		A5.5	Access to TNC networks
		A5.6	Promote project at conferences
		A5.7	Promote project for further support

2.3 Monitoring, Evaluation and Reporting (MER) Plan 2020-2022

The MER Plan is embedded within the Project Plan, and provides substantial additional detail, including:

- Project team and project governance;
- Targets, goals and objectives;
- Indicators and data collection methods and responsibilities; and
- Evaluation metrics and reporting commitments.

Project targets, goals and objectives presented in the MER Plan are outlined in Table 2 overleaf.

Table 2. Project targets, goals and objectives[2]

Targets	Goals		Objectives	
ECOLOGICAL TARGET: To re-establish a self-sustaining population of S. glomerata that will create a resilient reef consisting of diverse biological communities, fish populations and their interactions.	1	Within the timeframe of the project build a resilient structure for the "Living Shellfish Ecosystem	1	Deploy substrate to meet tolerance outlined in design and project outputs
	2	Within the timeframe of the project create a self-sustaining shellfish population	2	Demonstrate survival of target shellfish
			3	Demonstrate natural recruitment of target shellfish
			4	Demonstrate a density of target shellfish similar to pre- defined reference system
	3	Within the timeframe of the project demonstrate the creation of habitat that benefits fish	5	To demonstrate more fish post ecosystem restoration
	4	Within the timeframe of the project demonstrate that construction of the reef enhances marine biodiversity	6	To demonstrate an increase in biodiversity
	5	Monitor water quality to demonstrate that construction of the reef enhances marine ecological health	7	Explore the capacity for the developing ecosystem to reduce water turbidity
SOCIO-ECONOMIC TARGET: To create opportunities for the local community, recreational users and businesses in the Noosa	6	Within the timeframe of the project demonstrate the benefit of shellfish reefs to local economy	8	To qualitatively demonstrate benefits to the local economy
			9	To demonstrate delivery of jobs
	7	Within the timeframe of the project engage the community in long-term stewardship of the shellfish reef	10	Demonstrate engagement by the local community
			11	Demonstrate media engagement

[2] These are taken from the MER Plan Annex 1 pages 68-73, noting that there are inconsistencies with the summary table provided in Annex 2, page 74 (and Figure 6 of the Project Plan pg.32).

Targets	Goals		Objectives	
Shire through shellfish reef restoration.	8	Within the timeframe of the project improve knowledge, education and practical skills in marine restoration for practitioners, users and community members	12	Demonstrate improved knowledge and education for individuals in marine restoration
			13	Demonstrate improved practical skills for individuals to undertake marine restoration
			14	Demonstrate involvement opportunities for community members to undertake marine restoration
PROJECT EFFICIENCY TARGET: To deliver the project on time and within budget and additional funding is leveraged to support project deliverables	9	Demonstrate responsible fiscal management throughout the project	15	Financial investment been leveraged
			16	Project delivered within budget
	10	Demonstrate Technical Advisory input throughout the project	17	Demonstrate effective technical advice provided throughout project
			18	Restore each site to meet environmental conditions set in approvals
	11	Demonstrate effective project management throughout project delivery	19	Demonstrate timely and effective project management and delivery

2.4 Scope of Review

The purpose of this scope is to engage a qualified person to undertake a peer review of the plan, and provide feedback in writing to Noosa Council, that meets the requirements of this Council resolution. The review is to focus primarily on the Monitoring & Evaluation component only, which is pages 53-83 of the overall Project Management Plan. The first component of the scope listed below does require an understanding of the broader project.

The review should consist of the following components;

1. Briefly comment on the appropriateness of the goals of the project in relation to the stated focus of the partnership (the first four dot points identified on p4 of the Project Management Plan), identifying any major gaps. There are 11 goals listed in the MER component of the plan (page 68-73).
2. An assessment of the effectiveness of the proposed indicators and monitoring methods to effectively measure the success of the stated Goals and Objectives of the plan.
3. Any further recommendations or suggestions for improvement to the Monitoring & Evaluation Plan, including any further monitoring that might support determination of achieving success in the project.
4. Provide recommendations for long-term monitoring of the stated Goals and Objectives of the project, beyond the end of the current agreement term on 30 September 2022.

3 Review methods

A simple monitoring and reporting checklist was developed as an assessment framework. The checklist drew on reference materials for good practice monitoring, evaluation and reporting, including:

- National standards for the practice of ecological restoration in Australia (Standards Reference Group SERA, 2018);
- National Natural Resource Management Monitoring, Evaluation, Reporting and Improvement Framework (Australian Government, 2009); and the
- Queensland Reef Water Quality Program Evaluation Framework (Roberts et al., 2018).

The checklist includes 20 questions that have been used to judge the adequacy and likely effectiveness of the monitoring, evaluation and reporting plan provided by TNC.

Two documents form the primary source of evidence for the review:

- Bring Back the Fish Project Management Plan 25th July 2019 to 30th September 2022 (which includes the MER Plan) (The Nature Conservancy, 2020); and
- Alliance & Funding Agreement between Noosa Shire Council and The Nature Conservancy (Noosa Shire Council and The Nature Conservancy, 2019).

The completed checklist (Appendix A) documents the assessment process and supports the findings and recommendations presented in the following sections.

3.1 Limitations

This review was conducted over a period of about three days. It is heavily reliant on the key documents provided by Noosa Council (particularly the Project Management Plan). The reviewer is independent of the project so free from conscious or unconscious bias, but also not familiar with the project details. The review

takes a broad view of the overall monitoring and reporting plan, comments on its effectiveness and makes recommendations to improve or complement this work. In this way, the review seeks to add value to the work already undertaken by TNC.

4 Findings

This section presents the review findings, addressing the first two components of the project brief: the appropriateness of the project goals to the focus of the Partnership, and the likely effectiveness of the proposed monitoring and evaluation methods.

4.1 Appropriateness of project goals to the focus of the Partnership

The Partnership agreement sets a bold vision for an innovative and regionally significant alliance to improve the health and resilience of the Noosa River, and the industries and local communities that rely on its long-term wellbeing.

Four focal areas are identified[3]:

1. Health and resilience of Noosa's marine and estuarine environment, through innovative restoration and coastal resilience projects;
2. Improve Noosa River management by engaging with the expertise of TNC's global networks and experience;
3. Demonstrate a collaborative alliance that achieves superior outcomes to existing management models; and
4. Increase government, private, industry and community support for conservation and restoration activities etc.

There is some confusion in the hierarchy of goals and objectives in the Project plan and MER plan (where those terms are used in several different ways). The review brief specifies the goals as those presented in the MER Plan (and reproduced as Table 2 above). The 11 goals clearly articulate how the Bring Back the Fish Project will deliver ecological, socio-economic and project efficiency targets associated with the oyster reef restoration project.

The oyster reef restoration project is an appropriate project to commence collaborative restoration activities under the Partnership agreement. The project will contribute to all of the focal areas of the Partnership (but particularly focal area 1). Oyster reef restoration was prioritised at an expert workshop held in 2014, and is a good fit with TNC's expertise and international networks.

The oyster reef restoration project is the core of the document hierarchy of Partnership agreement, Project Plan and MER Plan. Focal area 3, the alliance itself, is enacted by the restoration project, but is not explicitly evaluated. Later recommendations (as part of the MER review) suggest that the partners should also actively consider how they will assess, evaluate and learn about the partnering initiative itself.

[3] The focus areas are paraphrased. The full text is provided in the section 2.1

4.2 Effectiveness of the proposed indicators and monitoring methods

A good practice MER checklist was developed based on a number of 'good MER practice' reference documents. Twenty criteria were then used to test the effectiveness of MER planning and design, monitoring, evaluation and reporting components presented in the Project Plan and MER Plan. .

Sixteen of those criteria were found to be met. Four of the criteria were partly met or unclear, but none of these raised any significant concerns with the MER plan. Details of the assessment are provided as Appendix A.

The four criteria that were considered to be partly met or unclear are:

7 Are the proposed indicators and monitoring methods clearly described? Met for biophysical and ecological indicators. Qualitative methods for social indicators could be improved.

9 If any species are introduced to the site, will provenance records be kept? Unclear.

15 Are assessment methods identified or described? Met for biophysical and ecological indicators. Assessment methods for socio-economic indicators could be improved.

20 Are processes in place to identify and share learnings into future partnership and beyond? Partially met. The partnering process and outcomes should also be evaluated.

Six recommendations are made to improve the MER Plan.

Overall, the review concludes that the MER plan is robust and comprehensive, and the proposed indicators and monitoring methods likely to be effective. The MER Plan obviously reflects TNC's experience with similar oyster restoration projects in Australia and overseas.

5 Recommendations

We offer the following recommendations to Noosa Council and TNC for their consideration in moving forward with the Bring Back the Fish project. The recommendations were developed in response to the review findings (Appendix A).

5.1 Recommendations or suggestions for improvement to the Monitoring & Evaluation Plan

Recommendation 1. Resolve conflicting terminology and different versions of MER framework.

There are some inconsistencies in terminology and relationship between the Project Plan and its MER Plan. This may simply reflect the timing and evolution of both documents. The MER Plan should:

- Clarify the relationship between the MER Plan, the Project Plan and the Partnership Agreement (the MER Plan appears to address A1-A4 but not A5 in the Project Plan
- Modify the terminology between the Project Plan and the MER Plan to remove confusion. Table 3 highlights that that some terms (goals and objectives in particular) are used inconsistently between the Project Plan and the MER Plan. There are many versions of project terminology that can be adopted. What is desirable is that the Project Plan and MER Plan use a consistent terminology that allows the relationship between the Project Plan and the MER plan to be clear and unambiguous.
- Rationalise the multiple versions of goals and objectives that occur in the Project and MER Plan (Annex 1, Annex 2 and Figure 6) (refer footnotes below).

Table 3. Suggested changes to terminology

Document	Current terminology (# of items)	Alternative terminology	Explanation
Project Plan	Project goal (1)	Project goal	An overarching project goal is appropriate.
	Objectives (5)	Project phases or elements	These are operational elements or phases of the project
	Deliverables (21)	Deliverables or outputs	Outputs of the project activities.
	Measurable outcomes (27)	Measures	These are not outcome measures, but output measures.
MER Plan	Targets (3)	Targets	The targets are clear and helpful. They could also be considered outcomes.
	Goals (11)[4]	Objectives	Steps on the way to the targets / outcomes, achieved in the life of the project
	Objectives (19)[5]	Performance measures	More detail on measures and assessment.
	Indicators	Indicators	

Recommendation 2. Incorporate recommendations for longer term monitoring as part of the final project report.

Legacy is the extent to which project impacts will continue over time after funding ceases (Roberts et al., 2018). The Project Plan and MER Plan don't explicitly address legacy but there is evidence that legacy has been considered in the overall project design. Monitoring of project legacy (impacts) should be addressed by incorporating recommendations for ongoing monitoring as part of the final project report, when the performance of the current project and its MER are known and future resources and capability understood.

Recommendation 3. Consider further development of socio-economic monitoring and assessment methods if desired.

Biophysical and ecological monitoring and assessment methods are well established and clearly described. The monitoring and assessment methods provided for the socio-economic target are fairly generic. Evaluation of qualitative socio-economic data is not described, and many of the socio-economic indicators have no clear benchmarks (e.g. knowledge, skills and educational objectives). Measures such as the number of community events, number of attendees, and number of groups engaged are suitable output measures, but don't assess community awareness, use and satisfaction, for example.

The degree of effort expended on socio-economic monitoring and assessment should reflect the priority that Noosa Council and TNC place on the socio-economic outcomes of the project, and what can be learnt from that. If community engagement and outcomes are considered important then I recommend the

[4] 11 goals are listed in Annex 1 of the MER (pg. . .69-73) but only 10 goals are shown in figure 6 of the Project Plan (pg.32)

[5] 19 objectives are listed in Annex 1 of the MER (pg. 69-73) but only 13 are shown in Annex 2 (pg.74) and 15 are shown in figure 6 of the Project Plan (pg. 32)

project engage someone with appropriate skills to further develop this component of the MER Plan. If that work proceeds it should complement the SEQ Report Card measures of satisfaction and beneficial use of the Noosa River.

Recommendation 4. Collect, maintain and store provenance records of any species introduced to the site. It is good practice for the provenance records of any species introduced to the site to be kept, if oyster spat or mature oysters are translocated from elsewhere (directly or via a nursery). Refer to the National standards for the practice of ecological restoration in Australia (Standards Reference Group SERA, 2018, p. 22).

Recommendation 5. Evaluate the partnership and share learnings

The Partnership agreement aspires to demonstrate a 'leading example' of a collaborative alliance that 'achieves superior outcomes'. The Project Plan, through regular reporting cycles, includes processes for reflecting on the implementation of the oyster restoration project.

In addition to the oyster restoration project, Objective A5 within the Project Plan includes a range of actions to support Noosa Council, promote the project and develop conservation plans. A5 is not currently considered within the MER Plan (which is focussed on the oyster restoration) but actions will be reported (Table 1).

As well as learning about oyster restoration, the project should also evaluate, reflect, learn and share about the partnership arrangements – including the activities described in Objective A5, but also more broadly, to assess and reflect on the partnering process and outcomes. We recommend that the partners contract a third party to facilitate a partnership evaluation near the end of the current project (July 2022). Findings should inform future partnering arrangements between Noosa Council and TNC, and may also be helpful to other organisations considering similar arrangements.

5.2 Recommendations for long-term monitoring of the stated Goals and Objectives of the project, beyond the end of the current agreement term on 30 September 2022.

Monitoring of project legacy (impacts) should be addressed by incorporating recommendations for ongoing monitoring as part of the final project report, when the performance of the current project and it's MER are known and future resources and capability understood (refer Recommendation 2 above). Monitoring efforts beyond the current three-year project will depend upon:

- The success of the project (whether ecological and other targets have been met);
- The likely trajectory of ecological measures beyond that time (whether restored beds are still developing, stabilised or at risk);
- Whether additional oyster restoration sites or relevant estuarine activities are planned or ongoing;
- Whether the partnership with TNC is expected to continue; and
- The availability of scientific and community monitoring capacity and resources.

Recommendation 2 above suggests that the final report include a set of recommendations for longer-term monitoring. Bagget et al. (2014, 2015) recommend a set of four oyster reef metrics three water quality variables for all oyster restoration projects. Monitoring objectives will be determined by the factors above, however. TNC, as the project manager, will be best placed to make those recommendations at that time, using the information, models and other decision support tools from the Noosa project and other TNC restoration projects.

6 References

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Appendix A: MERI review checklist

#	Prompt	Notes	Source of information	Assessment and recommendations.
Planning and design				
1	Are the project goals/objectives SMART? (Strategic, Measurable, Appropriate, Realistic and Time bound)	There is some confusion in terminology between the Project Plan and the MER Plan. The Project Plan described five project objectives (A1-A5) (pg. 18). Table 1 (pg. 10-15) provides a series of deliverables (or outputs) that relate to each of the five objectives. This section of the project document is very operationally focussed. The project deliverables are clear and meet SMART criteria but are at the level of outputs. The MER Plan provides additional detail in relation to Phase II of the oyster restoration project, which seems to address objectives A1-A4. Objective A5 relates to TNC providing technical and expert support to Noosa Council's Noosa River Plan, and is not addressed in the MER Plan. The MER Plan also lists goals and objectives, but used in a different way. The goals and objectives listed in the MER are SMART.	Project Plan Pg. 10-15, 18. 32 MER Plan Pg. 68-74	Generally met. **Clarify and align terminology between Project Plan and MER Plan (Recommendation 1).**
2	Is there an explicit program logic or similar that clearly identifies: • Outputs;	There is not an explicit program logic but the use of the MER terminology for TNC shellfish restoration projects (based on the Open Standards for the Practice of Conservation)[6] are reasonably	MER Plan pg.59	Met

[6] https://cmp-openstandards.org

#	Prompt	Notes	Source of information	Assessment and recommendations.
	• Outcomes (biophysical, ecological, community engagement); and • Impacts (environmental, social and economic)	consistent with the program logic approach adopted by Australian Natural Resource Management programs[7] • Outputs have been identified in the Project Plan (as deliverables). • Outcomes are identified as objectives in the MER Plan. • Impacts are identified in both the targets and goals of the MER Plan.		
3	Are there any underpinning assumptions or potential externalities/disruptions/risks that should be considered further (e.g. monitored)?	A comprehensive operational risk assessment is provided in the Project Plan. The MER Plan proves an assessment of reputational risks associated with the restoration project. No specific biophysical, ecological or socio-economic risks are identified in the Project Plan or MER Plan. It is reasonable to assume that these risks have been considered and addressed through the following activities: TNC Restoration Scoping Study (2015); USC experimental trials (2018-20); Other TNC oyster restoration experiences in Australia and internationally; and Oversight of the TAG and additional experts.	Project Plan. Table 10. Pg. 40-44 MER Plan Pg. 51	Assumed to be met.
4	Have project legacy issues been identified and addressed (including	Legacy is extent to which project impacts will continue over time after funding ceases (Roberts et al., 2018). The Project Plan and	Project Plan and	Largely met.

[7] https://www.mdba.gov.au/sites/default/files/archived/proposed/NRM-MERI-Framework.pdf

#	Prompt	Notes	Source of information	Assessment and recommendations.
	monitoring where appropriate) e.g. site management, ongoing monitoring, knowledge and skills transfer post the current project?	MER Plan don't explicitly address legacy but there is evidence that legacy has been considered in the overall project design through: • Partnering arrangements with Noosa Council (A5); • Engagement and capacity building with community volunteers (A3); • Scientific support (prior projects, current project roles, TAG oversight) (various); and • Promotion of the project for ongoing support and funding (A5.7). Monitoring of project impacts beyond the life of the current project has not been addressed. This is best addressed by incorporating recommendations for ongoing monitoring as part of the final project report, when the performance of the current project and its MER are known and future resources and capability better understood.	MER Plan (various)	**Monitoring of project legacy (impacts) should be addressed by incorporating recommendations for ongoing monitoring as part of the final project report, when the performance of the current project and its MER are known and future resources and capability better understood (Recommendation 2).**
5	Have appropriate national and international standards for the project and its MER been identified	The Project Plan commits to meeting a range of best practice standards including: Restoration guidelines for shellfish reefs (Fitzsimons et al., 2019); National standards for the practice of ecological restoration in Australia (Standards Reference Group SERA, 2018); International principles and standards for the practice of ecological restoration (Gann et al., 2019); Best practice oyster restoration and the Society for Ecological Restoration (SER) global guidelines; Open Standards for the Practice of Conservation (Conservation Measures Partnership, 2013); and	Project Plan and MER Plan (various)	Met

#	Prompt	Notes	Source of information	Assessment and recommendations.
		A guide to data management in ecology and evolution (British Ecological Society, 2014). In addition, project documentation references a number of TNC standard operating protocols and methods including the following: Methodology for habitat suitability modelling; Oyster habitat restoration monitoring and assessment handbook (Baggett et al., 2014); and *Shuck don't Chuck* for shell recycling.		
6	Is there a formal MERI plan that documents measures, evaluation and reporting, including timing and responsibility?	Yes. The MER plan is comprehensive. Refer specifically to Annex 1 which describes indicators, monitoring methods, assessment metrics, benchmarks, frequency, timing and responsibilities.	MER Plan, Annex 1 pg. 52-88.	Met
Monitoring				
7	Are the proposed indicators and monitoring methods clearly described?	Mostly yes. Refer to Annex 3. Ecological methods are well established and clearly described. Socio-economic methods are fairly generic.	MER Plan, Annex 3, pg. 75-82	**Met for biophysical and ecological indicators. Qualitative methods to understand community awareness, use and satisfaction are not clearly described but could be developed (Recommendation 3).**
8	Will restoration and engagement activities be logged and reported?	Yes. Project output measures are clearly described in Table 1 (Project Plan) and are included draft reporting template (Annex 5). Quantitative measures of engagement activities (e.g. number of	Project Plan Table	Met

#	Prompt	Notes	Source of information	Assessment and recommendations.
		presentations, number of volunteers etc) are included in Annex 1 (MER Plan).	1, pg 10-15, Annex 5 MER Plan, Annex 1 pg. 52-88.	
9	If any species are introduced to the site, will provenance records be kept?	It's not entirely clear whether the project will rely on natural recruitment or whether juvenile native oysters will be pre-seeded onto recycled shells in a hatchery before deployment or adult stock will be translocated. If hatchery stock are used it's not clear to the reviewer where that will be sourced from (it may be local). Regardless, it is good practice for the provenance records of any species introduced to the site to be kept.	Project Plan, pg. 54, 77	Unclear. **Recommendation 4. If any species, including oyster stock, are introduced to the site from elsewhere, provenance records should be kept.**
10	Do the indicators track progress to the project objectives outcomes and targets?	Yes outcome measures are being tracked.	MER Plan, Annex 1 pg. 52-88.	Met
11	Has baseline ecosystem monitoring been undertaken?	Yes. Previous investigations include TNC Oyster Restoration Scoping Study and USC experimental project 2018-2020 that collected important ecological information.	Project Plan Pg. 8	Met
12	Has an appropriate ecological reference condition system or conceptual framework been identified?	The nearest known reference rock oyster system is in Moreton Bay. In the absence of a suitable local reference site, the project will use an interim target reference system, based on an ecological model of the rock oyster ecosystem developed using research[8] and local monitoring results.	Project Plan pg. 31 MER Plan pg. 63	Met

[8] Refer McLeod et al. (2019) and MacAfee et al. (in review).

#	Prompt	Notes	Source of information	Assessment and recommendations.
13	Are arrangements for data storage and management clear?	The MER Plan commits to following good practice standards as outlined in the British Ecological Society's (2014) guide. No further detail provided. See below for longer term housing and access.	MER Plan pg. 67	No details but commitment to comply with standards.
14	Will the data be accessible to the scientific community and the public through an open access databases such as Atlas of Living Australia (https://www.ala.org.au)	Data and information will be openly shared, proactively released, licensed to promote re-use and housed on the Australian Ocean Data Network (https://portal.aodn.org.au)	MER Plan pg. 67	Met
Evaluation				
15	Are assessment methods identified or described?	A Before-After-Control-Impact (BACI) design with two adjacent control sites for each location (one for seagrass and one for sandy substrate). The evaluation of biophysical and ecological measures is well described and will incorporate basic statistics, time series, comparative analysis and restoration scores. Evaluation of qualitative socio-economic data is not described, and many of the socio-economic indicators have no clear benchmarks (e.g. knowledge, skills and educational objectives).	MER Plan pg. 63-65	Met for biophysical and ecological measures. **Assessment methods for socio-economic indicators could be further developed if desired. Refer recommendation 3.**
16	Have key project decision points and their information needs been identified?	Yes. The project is split into 3 distinct phases to allow adjustment: Phase 1 external experimental project to test viability and local responses[9]; Phase 2 shellfish reef restoration at 2 sites[10]; and	MER Plan pg. 55-56	Met

[9] Completed by the University of the Sunshine Coast prior to this project.

[10] The focus of the Project Plan and MERI (and this review).

#	Prompt	Notes	Source of information	Assessment and recommendations.
		Phase 3 additional restoration activities, subject to phase 2 results, availability of additional sites and community licence[11]. The MER Plan addresses Phase 2. Annual and six-monthly project reporting. The annual project report is prepared by TNC, endorsed by the TAG, and presented to NSC for approval.	Project Plan Table 1, pg. 10-15	
17	Is an independent party evaluating the project?	Evaluation of the Queensland Reef Water Quality Program recommends independent evaluation as highly desirable for large projects ($500K-$10M) or projects of medium risk (Roberts et al., 2019). An independent evaluation is not proposed for this project. A Technical Advisory Group (TAG) has been established. The role of the TAG includes providing expert advice to support project implementation. The TAG provides a degree of independent oversight of the project's implementation and its evaluation.	MER Plan pg. 57	Sufficient.
Reporting				
18	Are reporting commitments to project partners and investors clear (what, when, how)?	Yes, 6-monthly, annual and final project reports are specified in the Project Plan. Table 1 specifies the content of the reports and a process for the TAG and then Noosa Council to review and endorse the report. A reporting template is provided as Annex 5.	Project Plan Table 1, pg. 10-15 MER Plan pg. 83-88	Met
19	Are reporting commitments to community stakeholders clear (what, when, how)?	27 groups of project stakeholders from government, the community, private sector and research organisations have been identified. A Project Communication Plan is included as Appendix 1.	Project Plan pg. 16 Project Plan pg. 47-50	Met

[11] To be considered after the completion of phase 2.

#	Prompt	Notes	Source of information	Assessment and recommendations.
		Attendance at community and partner events, engagement and consultation and media engagement will all be tracked and reported.	MER Plan pg. 71	
20	Are there processes in place to identify and share learnings into future partnership work and beyond (including other shellfish restoration projects)?	The Project Plan, through regular reporting cycles, includes processes for reflecting on the implementation of the oyster restoration project. The Partnership agreement aspires to demonstrate a 'leading example' of a collaborative alliance that 'achieves superior outcomes'. Objective A5 within the Project Plan includes a range of actions to support Noosa Council, promote the project and develop conservation plans. A5 is not currently considered within the MER Plan (which is focussed on the oyster restoration) but actions will be reported on (Table 1). As well as learning about oyster restoration, the project should also evaluate the partnership to support learning and improvement.	Project Plan pg. 13-15 Pg. 4 Pg. 10	Partially met. Processes to build on TNC's networks and experience, and promote Noosa River Plan and the restoration project are addressed in the Project Plan (objective A5) but are not part of the evaluation plan. **The partnering process should also be evaluated and learnings shared. Refer recommendation 5.**