Noosa *Oyster Ecosystem Restoration Project*

Restoration and conservation of shellfish reefs in the Noosa River

Six monthly Report No. 2

Report prepared by: The Nature Conservancy

Reporting Period: September 2020 to February 2021

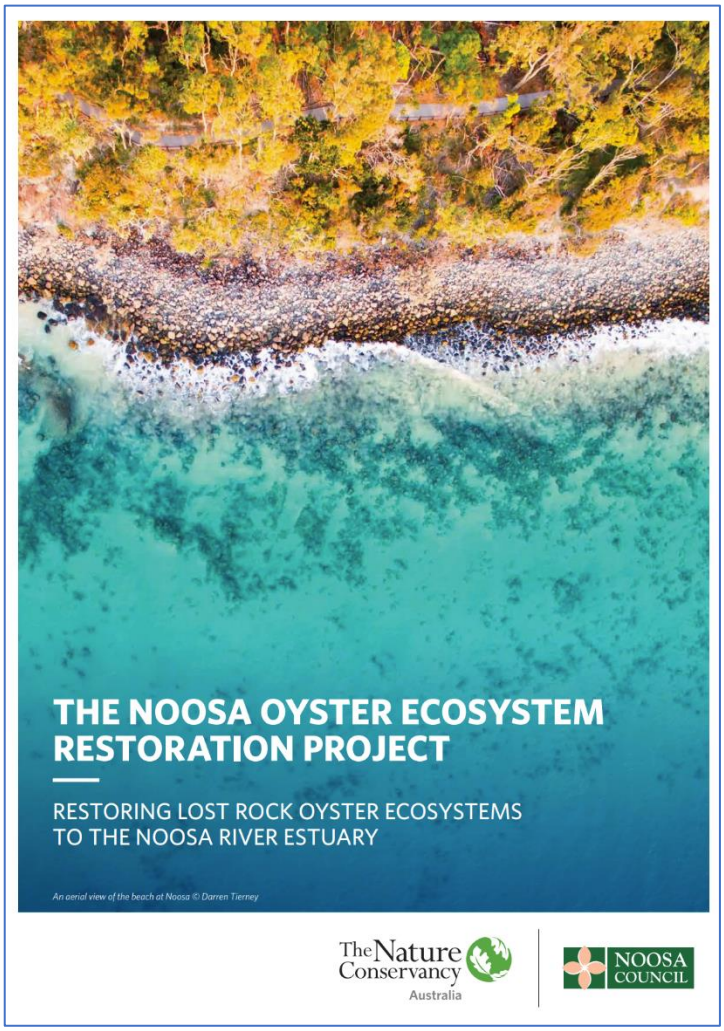


Figure 1. Cover of the new project brochure

This project was made possible by The Nature Conservancy, Noosa Shire Council, The Thomas Foundation and Australian Marine Conservation Society. The project is located on Kabi Kabi Sea Country.

Contents

Version/Date	Issued as	Author	Approved
V1	For review	TNC	28.02.2021

Purpose and scope

The purpose of this report is to provide an update on overall performance and progress of the project: *Noosa Oyster Ecosystem Restoration Project*; a partnership between The Nature Conservancy (TNC), Noosa Shire Council (NSC) and the community of the Noosa shire.

The governance arrangements for the Project are defined in the *Alliance and Funding Agreement* between The Nature Conservancy and Noosa Shire Council, which was executed on the 25th July 2019.

This report pertains to the period of 22nd of August 2020 and 28th of February 2021

Report Log
Six Monthly Report 1 – 28th July 2019 to 28th of February 2020
Annual Report – 28th of July 2019 to the 21st of August 2020.
Six Monthly Report 2 - 22nd August 2020 to 28th of February 2021

Background

Over the last four years, Noosa Shire Council (NSC), The Nature Conservancy (TNC) and a range of stakeholders have worked together to build a deeper understanding of the environmental significance and long-term sustainable management options for the Noosa River. This has included:

Noosa River Expert Workshop, Powerhouse Museum, 2014
A two-day workshop, hosted by TNC on behalf of The Thomas Foundation and Noosa Parks Association, comprising 12 academic and NGO estuary scientists. The workshop identified 14 conservation activities that could lead to a healthier Noosa River, with oyster reef restoration listed as a priority action in addition to prawn restocking and Kin Kin sediment management. These activities (including further scoping studies) were later jointly funded by NSC Noosa Parks Association, The Thomas Foundation and the Noosa Biosphere Reserve Foundation.

TNC Oyster Restoration Scoping Study, 2015
TNC and Ecological Service Professionals Pty on behalf of NSC and others undertook a short, five month ecological assessment to quantify oyster densities across 11 intertidal and subtidal sites within the estuary. The study confirmed high densities of oyster recruitment particularly around Weyba Creek, the main channel around Tewantin, and in the narrow channel between Goat Island and Noosa North Shore. The project recommended installing a number of pilot reefs for further assessment.

University of Queensland Historical Ecology of the Noosa Estuary fisheries, 2015
Ruth Thurston from the University of Queensland undertook a historical ecology study on behalf of TNC and NSC in the Noosa River estuary to develop an understanding of historical fisheries productivity, including oysters. The study confirmed oyster reefs used to exist in the estuary and were commercial harvested in the early 1900s. Fish populations were also significantly larger in the past than they are today.

University of Sunshine Coast, Bring Back the Fish, 2018-2020
A three year study which installed a series of experimental 'reef units' consisting of coir bags filled with oyster shell at 15 sites across the estuary. The project studied the structural integrity, oyster recruitment, fish and invertebrate community assemblages and human interactions with the reefs. This project collected important ecological information that will support the final design and implementation of reef restoration in this Project.

NSC-TNC Partnership Agreement and Contract 2019

NSC and TNC, in addition to other organizations with an interest in the River's sustainability (including Noosa Parks Association, The Thomas Foundation and Noosa Biosphere Reserve Foundation), through a series of dialogue and presentations to Noosa Shire Council, have recognized the strategic priorities of both organizations and of others would be more effectively served through a formal partnership, rather than on an individual project basis. This agreement led to the development of *this* Project, and associated contract between NSC and TNC, and is the main delivery mechanism of the TNC-NSC Partnership.

Noosa River Plan, 2020

The completion of the Noosa River Plan by NSC in 2020 will identify current and future threats and management interventions to abate identified threats within the Noosa River estuary. The Plan will identify the strategic alignment of oyster reef restoration to the long-term health and resilience of the Noosa River estuary. The Noosa River Plan will support the delivery of the Noosa Environment Strategy.

TNC Project Management Plan 2020

The TNC Project Management Plan including Communications Plan and Monitoring, Evaluation and Reporting (MER) Plan have been drafted and shared with Noosa Shire Council. The Plan is in the process of being finalized.

Project overview

Past research projects demonstrated that the Noosa River estuary held the promise of sufficient oyster recruitment and survival, and invertebrate colonization, at a number of locations to make the estuary a viable place to pursue an oyster reef restoration project at scale.

The primary objective of the *Noosa Oyster Ecosystem Restoration Project* ("The Project") is to construct and restore shellfish ecosystems to the Noosa River estuary. These oyster ecosystems will be here for the benefit of nature and for people.

Historically, oyster-dominated ecosystems were prolific throughout the Noosa River estuary. These ecosystems (beds and reefs) were created predominantly by Sydney rock oysters (*Saccostrea glomerata*) which formed three-dimensional infrastructure in the river and attracted a myriad of species and their associated ecosystem functions.

The oyster ecosystems added extensive 'natural infrastructure' to the estuary and provided the estuary with a range of environmental services including:

- Providing complex habitats for marine species such as fish, invertebrates, corals, ascidians, encrusting sponges and algae, and reef communities
- Filtering sediment and pollution
- Aiding bank stabilization and protection
- Providing complex vertical and horizonal living spaces, and feeding grounds, for a multitude of intertidal and marine creatures, which are today important for marine and coastal tourism activities such as fishing, diving and bird watching.

This project aims to restore oyster ecosystems in the Noosa River and with them, the multitude of benefits to people and nature they provide.

Project partners and governance

This Partnership commenced on 25 July 2019 and will run for three years and three months, with the outcomes of the Partnership to be reviewed in July 2022. The total operating budget is $2.4M, inclusive of $1.2M from The Nature Conservancy (TNC), which includes $200,000 from the Australian Marine Conservation Society (AMCS), and $1.2M from NSC. Project management will be led by TNC in partnership with NSC and the Noosa community (see Figure 2). A Technical Advisory Committee will oversee scientific and technical aspects of the project and include representatives from TNC, NSC, State Government, Kabi Kabi and other experts as required. The governance arrangements for this Project are defined in the *Alliance and Funding Agreement* between TNC and NSC as executed on the 25th July 2019.

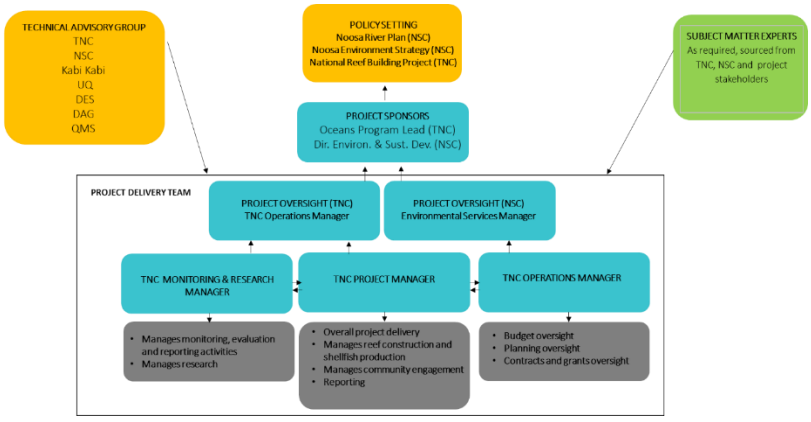


Figure 2. Project Delivery Team, including Project Sponsors, Technical Advisory Group and Subject Matter Experts.

Conservation deliverables

The Project principally delivers the following conservation initiatives:

1. Restoration of Noosa's oyster ecosystems at practical and agreed locations.
2. Engagement of the Noosa community and local businesses in meaningful volunteering and marine education opportunities.
3. Exploration of the potential to restore seagrass habitats in Lake Cooroibah (and potentially elsewhere) to reduce sediment resuspension and increase invertebrate and fish biomass in the estuary (to be delivered as part of Objective two and five).
4. Provision of technical advice to Noosa Shire Council (NSC) in identifying opportunities for sustainable commercial and recreational fisheries in the Noosa River.

Work sequence

The Project is split into three work packages, or phases, to reduce ecological and financial risks through the application of an adaptive management framework whereby learnings from previous phases are included in future phases to consider prior learning and minimize risk:

1. *Optimal design and siting* (2020) which includes pre-planning to determine the optimal design, locations and most cost effective method of reef restoration;

2. *First site implementation* (2020-2021) which will construct full sized oyster beds at two sites in the estuary to test initial restoration methods and designs; and,

3. *Full restoration* (2021-2022) which restore oyster beds at all suitable (and approved) sites within the estuary.

Progress against deliverables

Considerable progress has been made since the 21st of August 2020. TNC has achieved the following:

- Facilitated the Community Engagement Workshop
- Facilitated 9 Public Information Sessions
- Partnered with 3 local restaurants in the Shuck Don't Chuck oyster shell recycling project
- Completed an estuary-wide seagrass survey
- Established a water quality monitoring project with NICA
- Established an oyster gardening project with NICA, with a grant agreement for this under development
- Established an agreement with Noosa and District Landcare (NDL) re indigenous youth engagement
- Entered negotiations with Noosa Environment Hub (NEH), Noosa Biosphere Community Association (NBCA), Tewantin Bushcare (TB) and Noosa Parks Association (NPA) to resource partner projects
- Completed bathymetric surveys of 4 restoration sites
- Completed habitat mapping of 4 restoration sites
- Engaged project engineers to support restoration design process
- Held workshop with Maritime Safety Queensland to refine safety plans
- Drafted the project implementation plan and site management plan to support permitting process
- Drafted permits

The project is now finalising engineering and permit applications, implementing the Shuck Don't Chuck shell recycling program with restaurants and wholesalers, starting water quality monitoring, finalizing arrangements for resourcing community partnership projects including oyster gardening, and seeking to contract an oyster hatchery to provide additional local oysters to augment the restoration process.

Unforeseen issues arising and project adaptation

High level of community enthusiasm to be involved in the project but limited local capacity to take the lead on developing initiatives, even though TNC has offered to resource these. TNC responded by increasing its capacity to support local groups with developing and resourcing proposals by engaging a new casually employed Community Outreach Officer. This position will become a full-time role in the next reporting period.

High level of summer boating traffic on the Noosa River estuary, and bouts of poor weather and inappropriate tides, posed several technical challenges for the projects contracted bathymetric mapping consultants. Vessels were often moored in survey sites or generated waves which made underwater surveying challenging. Spring tides, needed for surveying, often occurred at night or during the day when heavy boat traffic was present on the estuary. These issues were recently resolved, and maps provided to the project team and project engineers for analysis.

Complexities in the permitting process have also caused delays. This is the first time this kind of restoration has been proposed for Queensland, and so the engineering and site management plans need to be very sophisticated. The project team has liaised extensively with agencies and engineers to develop the best submission possible; it has been time consuming. Working in this small, extremely busy estuary with many interests required consideration of multiple factors to do with maintaining public access, ensuring the project does not interfere with river users, and that the sites selected for restoration have the best possible chance of recovery. This process is not reaching its final stages and submissions will be made soon.

Total progress to date

Table 1 presents the project workplan including deliverables, outcomes, tracking indicator, total progress to date and significant comments on progress to date.

Table 1: Total Progress to Date

Deliverables	Measurable outcomes	Timeframe	Progress	Total progress to date and notes
(A1.1) A Technical Advisory Group (TAG) is established to provide project oversight. This will include a clear terms of reference (ToR) and consist of representatives from key stakeholders (NSC, TNC, Kabi Kabi and at least two other independent parties).	1 Technical Advisory Group with TOR established	30 April 2020	Achieved	Terms of Reference (ToR) for the TAG finalised Inaugural meeting held 13 May 2020. Second meeting held 20 August 2020. Intersessional work undertaken with TAG. TAG meeting 3 planned for March 2021 to review permit documentation
(A1.2) Appointment of dedicated project manager who is a marine biologist with extensive project management experience, for the term of the Agreement.	1 Project Manager appointed	31 January 2020	Achieved	Craig Bohm appointed by TNC as Marine Coordinator for South East Queensland, based in Noosa. Position commenced 29 January 2020.
(A1.3) A Project Implementation Plan detailing at a minimum: A detailed risk assessment associated with the project. A communications and media plan, outlining media protocols, opportunities and the role of TNC and NSC. A monitoring, evaluation and reporting plan which identified ecological and social monitoring programs, how they will be reported on and how	1 Project Implementation Plan completed and endorsed by Noosa Council 1 Detailed Risk Assessment included 1 Communications and Media Plan completed 1 Monitoring, Evaluation and	31 December 2019	Achieved Achieved Achieved Achieved	The project implementation plan was endorsed by Noosa Shire Council as the 'Project Management Plan' at its *Ordinary Meeting* held 16 July 2020. The Project Management Plan included a detailed risk assessment, Communications and Media Plan and Monitoring, Evaluation and Reporting (MER) Plan. The MER Plan was then reviewed by an independent consultant and the recommendations responded to and adopted by TNC.

this will fed back into the project.	Reporting Plan completed			
(A1.4) Participation and delivery of public education and engagement forums and media statements	3 community engagement forums facilitated 3 media statements released	30 June 2022	On track On track	Project presentation given at Noosa Council's Community Environment and Sustainability Forum – 25/11/2020 Project presentation give at the Bribie Island Research Station – Oyster Research and Development Meeting – 16/12/2020 Facilitated Noosa Community Engagement Workshop - 18 participants 7/12/20 (see report below) Facilitated 9 Public Information Sessions – 28 participants 14/12/20 (see report below) 1 media statement: Noosa Public Information Sessions (see media section of this report) 2 media articles: Noosa Today – Back from the Brink – 15/12/20 Sunshine Coast Daily – Back from the Brink – 15/12/20 Social media posts Public information sessions – 16, 561 hits. *Previous reporting periods:* Project manager and team have met with more than 70 stakeholder groups to talk with them about the project and to secure their in-principle support. See: "Stakeholder Engagement" section of this report.

				2 Noosa *Enviroforum* seminars held in November 2019 with TNC Chief Scientist, Pr. Hugh Possingham and Dr Chris Gillies. 1 media statement: **200301 - The surprising history of Queensland's oyster reefs revealed** The statement details Aboriginal use (inc. Kabi Kabi) and historical harvest of oysters in SE Queensland was published in February 2020. 2 project-related publications: **2020 Thurston et al - Charting Two Centuries of Transformation in a Coastal Social-ecological System - A Mixed Methods Approach - SE Queensland** **2020 Gillies et al - Conservation Status of Oyster Reef Ecosystem of Southern and Eastern Australia - Global Ecology and Conservation** 1 TNC-orchestrated interview between the project manager and *Noosa Today* 1 positive media story in *Noosa Today:* **200708 Noosa Today - Oysters for the river not the menu**
(A1.5) Annual project reports and final report each of which address, at a minimum: Activities undertaken during the subject financial year, status and progress against	3 six monthly status updates submitted to Noosa Council	First Report: 31 January 2020	Achieved	This report is the second six monthly update to be submitted to Noosa Council. *Submitted previously:* Six Monthly Report 1 – 28th July 2019 to 28th of February 2020

deliverables, budget progress, income and expenditure, report against monitoring and evaluation program and measurable outcomes and outline of proposed upcoming works/activities for future period.	3 annual reports submitted to Noosa Council	For each annual report - yearly	On track	Annual Report – 28th of July 2019 to the 21st of August 2020
(A2.1) Oyster reef restoration suitability model incorporating physical parameters of oysters and public and industry usage, access etc. to identify priority sites for restoration.	1 Habitat suitability model developed which incorporates industry, Kabi Kabi and public interests	30 June 2020	Achieved	Habitat Suitability Model + Restoration Suitability Model further refined and presented below in this report. *Previously reported:* 1 restoration suitability model developed as well as associated habitat suitability model and socio-economic suitability models. **200820 Noosa Restoration Suitability Model Report** 1 associated presentation developed **200820 Noosa Restoration Suitability Model Presentation** 1 restoration suitability model, which includes socio-economic information from river stakeholders, has also been developed and presented to the Noosa TAG.
(A2.2) Obtain necessary State Government permits/authorities including particular resource allocation authority, for oyster reef restoration	1 set of 'all' relevant state permits for oyster reef restoration in the Noosa River secured 1 set of 'all' relevant local government	31 December 2020	In process	Permits drafted Project Implementation Plan and Site Management Plan to support permit applications developed Engineering specifications and certifications pending delivery in March.

	permits for oyster reef restoration in the Noosa River secured			Submission of permit applications to authorities to follow finalization of engineering.
(A2.3) Community, industry and stakeholder consultation sufficient to gain majority support for reef restoration locations.	1 set of engagement records provided to Noosa Council of public and stakeholder consultations, including one-on-one meetings, open forums, media, etc. 1 written permit secured from Noosa Council formally allowing the project to construct reefs.	31 December 2020	Achieved	The project has met with more than 70 key stakeholders to date in one-on-one meetings. Most meetings have occurred since February 2020 when the project manager was appointed. See "Stakeholder Engagement" section of this report for details. In December 2020, TNC facilitated 9 Public Information Sessions at "The J" in Noosa junction. 38 people attended. See further on in this report for details.
(A3.1) Community, industry and stakeholder consultation to identify most appropriate community volunteering opportunities (e.g. shell recycling, oyster gardens, oyster watch, video monitoring).	1 consultation completed 1 + volunteering opportunities identified	31 December 2020	Achieved	TNC facilitated a community engagement workshop on the 7th of December 2020 at the offices of Noosa Shire Council to identify the most appropriate community volunteering opportunities. 18 people participated. See report below for further details.
(A3.2) Establish at least one community volunteering program identified from the above process which takes into account current and future resources, management and interest.	1 + volunteering program defined and implemented *Record of volunteer hours dedicated to community volunteering programs, such as: shell recycling, oyster gardens, oyster watch, video monitoring.*	31 December 2020	On track	TNC has established 3 community partnerships established with local restaurants. They now supply the project with oyster shell under the *Shuck Don't Chuck* project banner. The restaurant partners are: - Noosa Yacht and Rowing Club - Noosa Habour Fish Market

				- Grenny's Noosa by the River TNC has established a water quality monitoring project with the Noosa Integrated Catchment Association (NICA) TNC has established an oyster gardening project with NICA, who will lead oyster gardening activities with 20 households/businesses/groups TNC has helped Ozfish Noosa Chapter refine a remote underwater video monitoring trial project and community awareness priorities for the Noosa River. TNC is negotiating a schools and indigenous project with Noosa Biosphere Community Association (NBCA) and Kabi Kabi. TNC is working with Noosa Environment Hub NEH) to establish a senior secondary school curriculum-based project TNC is working with Tewantin Bushcare and others, to establish a foreshore demonstration project at Tewantin TNC has partnered with Noosa and District Landcare (NDL) to provide training opportunities for Kabi Kabi Youth once oyster beds are laid.
(A4.1) Restoration at two sites (approx. 40m-50m shore length per site) which test reef design and construction and oyster growth and survival.	1 approval from Noosa Council secured to restore 2+ trial restoration sites in the Noosa River estuary	30 June 2021	Behind schedule	Planned for Summer 2021. Originally forecast for Autumn 2021.

	2+ sites recovered with at least overall 80 m shore length of reef constructed			
(A4.2) Restoration across multiple further sites, as determined by habitat suitability modelling and outcomes of community consultation.	1 approval from Noosa Council secured to restore an additional 2+ sites as agreed to by stakeholders, in the Noosa River estuary 2+ additional sites recovered with at least an overall additional 600m^2 surface area of established oyster reef, constructed in the Noosa River estuary.	30 June 2022	On track	The project is working to secure approvals for all restoration sites and expects all work to be complete under this contract on schedule.
(A4.3) Monitoring and evaluation study for both pilot and full restoration sites. Monitoring to include oyster metrics, invertebrates and fish use (detailed in MER plan).	1 related reef monitoring program established 2 six monthly status reports submitted 2 annual monitoring and evaluation report cards	As required	Established On track On track	The Monitoring, Evaluation and Reporting (MER) Plan is in place. Water quality monitoring has commenced with local partner, NICA. Trials of Remove Underwater Video techniques is due to commence with local partner, Ozfish. Full site monitoring will commence in Spring 2021.

	produced and published			
(A5.1) Run workshop with Noosa Council to identify ongoing focus areas for TNC support.	1 workshop facilitated	31 March 2020	Achieved	2019 workshop held between TNC and NSC and discussions resulted in the development of the Alliance and Funding Agreement. TNC and NSC communicate weekly on areas of mutual interest and support.
*(A5.2) Provide technical/peer review on minimum five plans/reports/studies if requested by Noosa Council.	5 + peer review reports submitted to Noosa Council during the three-year term of this Agreement, if requested by Noosa Council. *If Noosa Council requests a peer review, TNC will provide a minimum of 3 experts who are qualified in the relevant area of expertise for Noosa Council consideration and Noosa Council's acceptance of 1 expert for the peer review.*	30 June 2022	On Track	When requested
*(A5.3) Facilitate a minimum of three study tours of relevant sites in line with objectives and scope of the program in Australia/US if requested by Noosa Council (flights and incidentals covered separately by Noosa Council, accommodation and in country travel covered by this Grant).	3 + study tours facilitated during the three-year term of this Agreement, if requested by Noosa Council.	30 June 2022	On hold	Study tour 1 was in planning for 2020 but has been placed on hold due to COVID-19 travel restrictions. The study tour schedule will be revisited by TNC and NSC once COVID-19 travel restrictions have been eased or lifted.
*(A5.4) Review and feasibility of opportunities for sustainable commercial and recreational fishing management options for the Noosa River.	1 Conservation Action Plan developed, as required	30 June 2022	On track	Detail to be agreed between parties

	1 set of Community Workshops facilitated, as required.			
*(A5.5) Facilitate access to TNC conservation networks and researchers if requested by Noosa Council.	1+ new formal networking connections facilitated to assist Noosa Council with ongoing and future marine conservation activities* ** As and if requested by Noosa Council*	30 June 2022	On track	When requested
(A5.6) Promote Noosa Council's Noosa River Plan and shellfish restoration project in at least one national and one international conference.	1+ presentations given at national conference/s over 3 years 1+ presentations given at international conference/s over 3 years	30 June 2022	When able	All relevant conferences are currently suspended or cancelled due to COVID-19. The Noosa River Plan will be promoted once finalised.
(A5.7) Promote Noosa Council's Noosa River Plan and shellfish restoration project to corporate, philanthropic and state/federal government audiences to establish further support for conservation activities that support the Noosa River Plan	1+ New corporate/ government/ philanthropic alliances formed 1+ New in-kind support/financial funding contributions secured	30 June 2022	On track	TNC has secured additional funds to extend oyster ecosystem restoration work in the Noosa River under the new ReefBuilder program. A formal announcement regarding the funding amount was imminent at the time of writing. TNC sits on the Department of Environment and Science (DES) Oyster Reef Restoration and Adaptation Working Group, which aims to advise a new policy framework for oyster restoration. TNC formed a relationship with the Department of Agriculture

				and Fisheries for the purpose of progressing the Noosa project. TNC is formally discussing funding proposals with the Queensland Government to support oyster restoration work.
(A5.8) Assess feasibility of seagrass restoration in Lake Cooroibah as a method of reducing sediment resuspension and increasing invertebrate biodiversity	1 Habitat mapping report, habitat suitability model, PhD study or similar output completed and presented to Noosa Council	30 June 2022	On track	TNC contracted Ecological Service Professionals Pty Ltd to develop a map of seagrass beds in the Noosa River estuary including in Lake Cooroibah. The field work is complete, data sets submitted, and the final report is pending. The report will be given to council and presented to stakeholders in the next reporting period. TNC is negotiating a seagrass restoration research project in Lake Cooroobah with the Central Queensland University.

Community engagement

Public information sessions

On Monday the 14th of December 2020, TNC facilitated 9 public information sessions about the Noosa Oyster Ecosystem Restoration Project. The purpose of the event was to:

- Inform the Noosa community about the project
- Seek further local endorsement for the project
- Seek specific feedback and endorsement for the oyster restoration sites presented (Tewantin, Goat Island, Noosa Sound East, Noosa Sound West and Weyba Creek A and B)
- Gain feedback as to further oyster ecosystem restoration opportunities in the Noosa River estuary

The public information sessions were promoted widely via TNC's sophisticated social media outreach system. In response, 132 people viewed the project on the TNC Website and on social media the event received 16,561 hits (Table 2).

Table 2: Media hits

TNC Website		
Date	**Page title**	**Page views**
27 Nov to 13 Dec	Events page: Noosa info sessions	132

Social Media		
Date	**Type**	**Reach**
27 Nov to 13 Dec	Facebook event	5,472
3-Dec	Facebook event post	4,569
27 Nov to 1 Dec	Facebook event advertisement	2,907
3 Dec to 13 Dec	Facebook event post advertisement	3,613
TOTAL HITS		**16,561**

TNC also put out a media release (Appendix 1) to all news outlets. The project team also notified local stakeholders and encouraged them to promote the sessions widely.

After the event, TNC secured articles in the Noosa Today and Sunshine Coast Daily on the 15/12/20 (see *Media* section).

Community Participants

28 community members attended the sessions (9 females, 19 males). A further 5 individuals confirmed for evening sessions but did not appear, and another 4 people called TNC with information queries about the project and expressed that they supported the project but could not attend.

Participants List

1. Peter Thompsett
2. Wayne Carlson
3. Bruce Hallett
4. Richard Howard
5. David Jones
6. Prue Mcgowan
7. Patrick Lloyd
8. Bruce Davidson
9. Jennifer Marohasy
10. Peter Morris
11. Alana Morris
12. Alana Roland
13. Alison Cooper
14. Sharon Wright
15. Roland Hill
16. Wesley Manson
17. John Lobb
18. Peter Riley
19. Greg Sheen
20. Amelia Lorentson
21. Trevor Clarey
22. Judith Still
23. Craig Doolan
24. Rex Halvorson
25. Tom Wegener
26. Lloyd Gamble
27. Maureen Riggs
28. Clent Kempsal

Community feedback

Some 17 participants of the 28 participants were formally interviewed. In summary, 15 of 17 respondents expressed unequivocal support for the project and its plans. 2 respondents expressed lingering concerns that were unresolvable on the day. Of the 28 participants, we estimate that 24 of 28 participants expressed strong support for the project and for the projects plans.

This support echoes the outcomes of virtually all 70+ one-on-one meetings the project has held with stakeholders in the past 12 months and represents a fantastic result.

From the public information sessions, four participants however, expressed strong objections to the project, objections which were unreconcilable at the time. Two of these participants raised matters unrelated to the project

(access to historic water quality data + the projects potential contribution to the spread of 2378 Tera-chloro-dibenzo-dioxin). Another participant strongly objected to the project having linkages to the Noosa Parks Association. The fourth participant raised concerns about a raft of issues relating to oyster abundance, river health, project partners and the results of past river management actions. Although TNC invested heavily in this individual, looking to find some common ground or agreement, the participant remained unconvinced about the project's relevance.

A full report is provided separately.

Community engagement workshop

On Monday the 7th of December 2020, TNC facilitated a community engagement workshop with key Noosa River stakeholders. The objective of the workshop was to discuss opportunities for piloting community-based education, volunteering and citizen science activities in 2021 that complement the project. These activities will be led by project partners and supported, where resources allow, by TNC.

A summary of the meeting outcomes is presented below. TNC wishes to thank Noosa Shire Council for hosting this event.

Participants
John News - Noosa Community Biosphere Association
Dalia Mikhail - Noosa Environmental Education Hub
Richard Howard - Noosa Integrated Catchment Association
Bruce McConkey - Noosa Integrated Catchment Association
Nick Hluszko - President of the Noosa North Shore Association Inc.
Chris Massoud - Commercial fishing family
Ben Broadfoot - Ozfish - Noosa Chapter
Peter Hunnam - Tewantin Bushcare
Michael Gloster - Noosa Parks Association
Bryan Walsh - Noosa Parks Association
Bruce Davidson - Recreational fisher's interest
Jady Smith - Noosa Biosphere Reserve Foundation
Craig Doolan - Noosa Shire Council
Callum Dittes - The Nature Conservancy
Helen Bowyer - The Nature Conservancy
Craig Bohm - The Nature Conservancy
Simon Branigan - The Nature Conservancy
Tom Wagner - Noosa Shire Council (workshop walk in)
Also invited:
Brian Warner - Kabi Kabi Nation
Juanita Bloomfield - Tourism Noosa

The workshop participants discussed these topics enthusiastically, identifying project areas that best fit their interests and expertise, and which could be explored in further detail. Table 3 summarises the state of play with these partnerships.

Table 3: Community Partnerships Update

Project area	Objective	Partnership	Status

Shuck Don't Chuck	Engage local businesses in the project	3 restaurants participating in supplying local oyster shell to the project as Shuck Don't Chuck partners: - Noosa Yacht and Rowing Club - Noosa Habour Fish Market - Grenny's Noosa by the River	Restaurants enthusiastically collecting, washing and storing shells. Contractor engaged to collect shell from restaurants on a fortnightly basis.
	Collect oyster shells to add to oyster beds and for use in oyster gardening	Partnerships with Resource Recovery Australia, Cleanaway and Mooloolaba Fish Market -	12 tonnes of oyster shell is now curing at the Doonan Solid Waste Facility following strict biosecurity protocols
Water quality monitoring	Improve resolution of water quality data sets at the oyster restoration sites	Noosa Integrated Catchment Association (NICA) to provide water quality information at the oyster restoration sites	Partnership established Monitoring sites established Pre-restoration substrate deployment monitoring has commenced
Oyster gardening	Engage local households, businesses and/or groups in the project Improve public knowledge about shellfish restoration	Noosa Integrated Catchment Association (NICA) to implement oyster gardening, beginning with a pilot phase, then review and consideration of upscaling, if practical	Partnership established Grant agreement under negotiation
Indigenous inclusion	Support the aspirations of Kabi Kabi Nation Benefit from traditional knowledge	Noosa and District Landcare to involve indigenous youth in hands-on or on-water actions Endorsement from Kabi Kabi elders and permission to integrate traditional knowledge in project-related products	Partnership established Events to be planned on an ongoing basis.
Schools participation	Engage local schools in the project Improve public knowledge about shellfish restoration	Noosa Environmental Hub to integrate Sunshine State High School into the project Noosa Biosphere Community Association to carry out school activities and indigenous river awareness actions with Tewantin schools	Partnership established Project refinements being made Grant agreements under negotiation
Tewantin Demonstration Site	Provide a focus site for community education activities and access to one of the oyster restoration sites	Tewantin Bushcare to lead the development of a oyster restoration demonstration site at Tewantin including revegetation actions,	Partnership established Project planning still in progress

		interpretive material and community activities	
Fish habitat monitoring	Bring Noosa's underwater life and the value of habitat diversity to life in the public realm, particularly to fishers	Ozfish – Noosa Chapter Ozfish to use Remote Underwater Video (RUV) techniques to seek out and record marine species diversity Ozfish to also help test RUV techniques at different river locations and promote the importance of marine habitats and restoration to its members and public	MoU in place Scope of work developed Ozfish has equipment and is being supported technically by TNC On-ground actions pending

Broader River Context

During the workshop, participants also discussed the wider river management context of the Noosa oyster project.

The participants made many interesting points. Some of these are captured below:

- The Noosa River needs a common narrative, a narrative which all people can understand, are familiar with and support.
- The contribution of the oyster restoration project, and associated projects, to the health and resilience of the Noosa River, will only be realised once we have all agreed on a clear vision for the river and have defined tangible management objectives and targets against which the contribution of projects can be measured.
- The oyster project is but one of a number of projects which contribute to river health and resilience. Work on sediment management in the catchment, riparian zone protection and restoration works along the shorelines and water quality/stormwater management actions, for example, also contribute.
- Oyster ecosystems are important but so are seagrass and mangrove ecosystems. The health and functioning of the estuarine ecosystem in its entirety should be considered. Oyster ecosystem restoration is but one component that should be addressed.
- The river needs to be biodiverse, productive and our uses of it, sustainable.
- The project provides an opportunity to further reconciliation efforts with Traditional Owners, this is particularly so at the Tewantin restoration site, which is of deep cultural significance to the Kabi Kabi people.

Participant feedback:

"Some of these people haven't spoken for 20 years…amazing!"

"How did you ever get this particular group of people to meet. Great effort?"

"Good to see things slowly coming for the project and seeing some shared views on river management staring to come through."

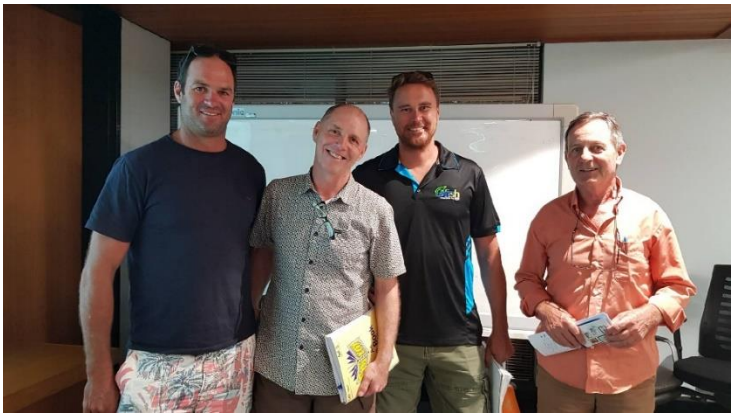


Figure 3: Workshop participants enjoy a paparazzi moment during the workshop

From left to right (facing): Chris Masoud (Commercial Fisher), Craig Bohm (Project Manager), Ben Broadfoot (Ozfish), Bryan Walsh (Noosa Parks Association)

Communication products

A. Project brochure

The project brochure has been well received with over 200 copies already distributed (Figure 4).

Figure 4: Project brochure

B. Frequently Asked Questions

TNC compiled responses to a set of Frequently Asked Questions (FAQ), that the project team compiled using feedback from more than 70 one-on-one meetings with Noosa stakeholders and direct feedback from the Public Consultation Forums (Figure 5). This information now appears on the TNC website. The Community Outreach Officer is now working to make this important information source widely available.

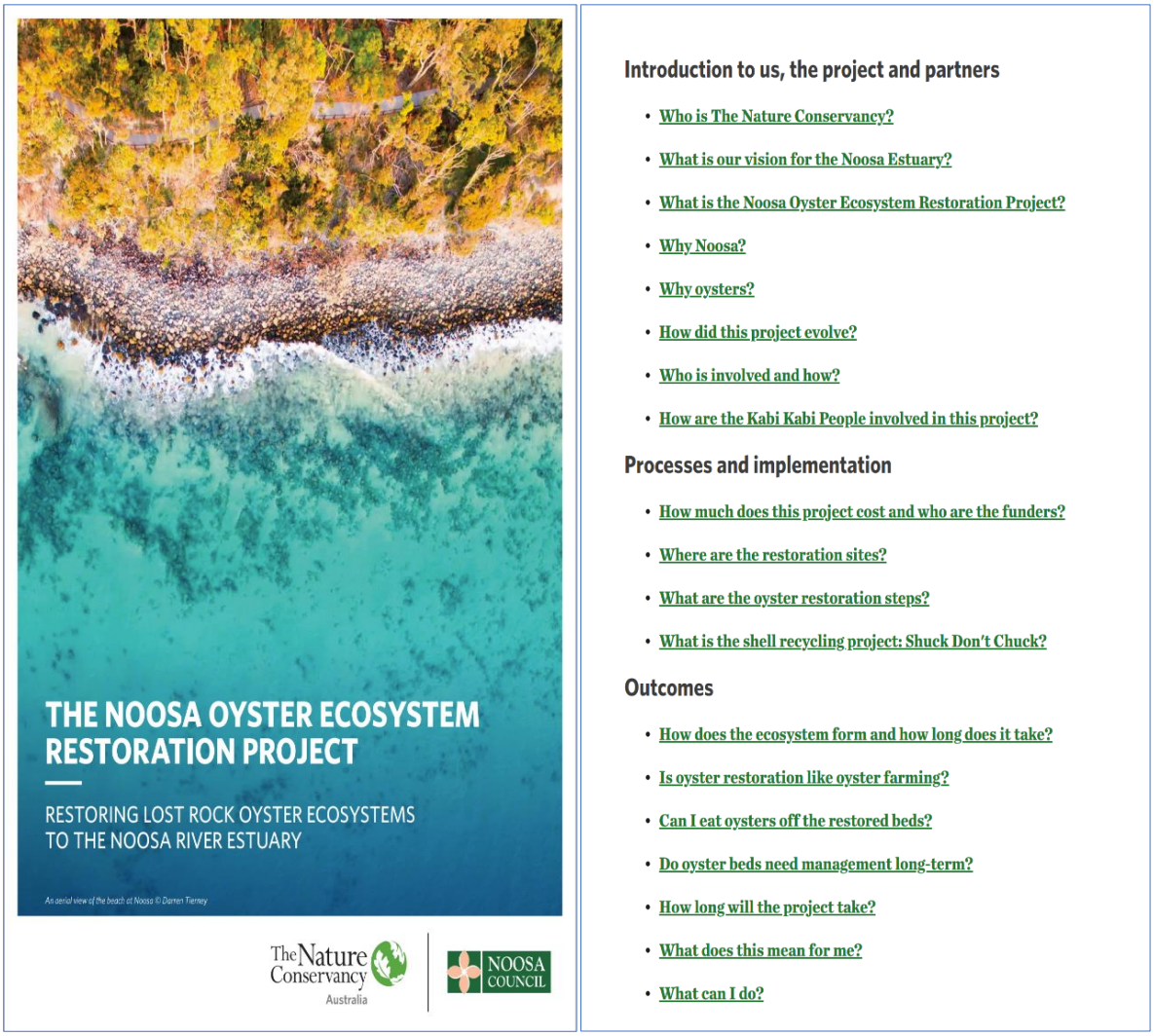
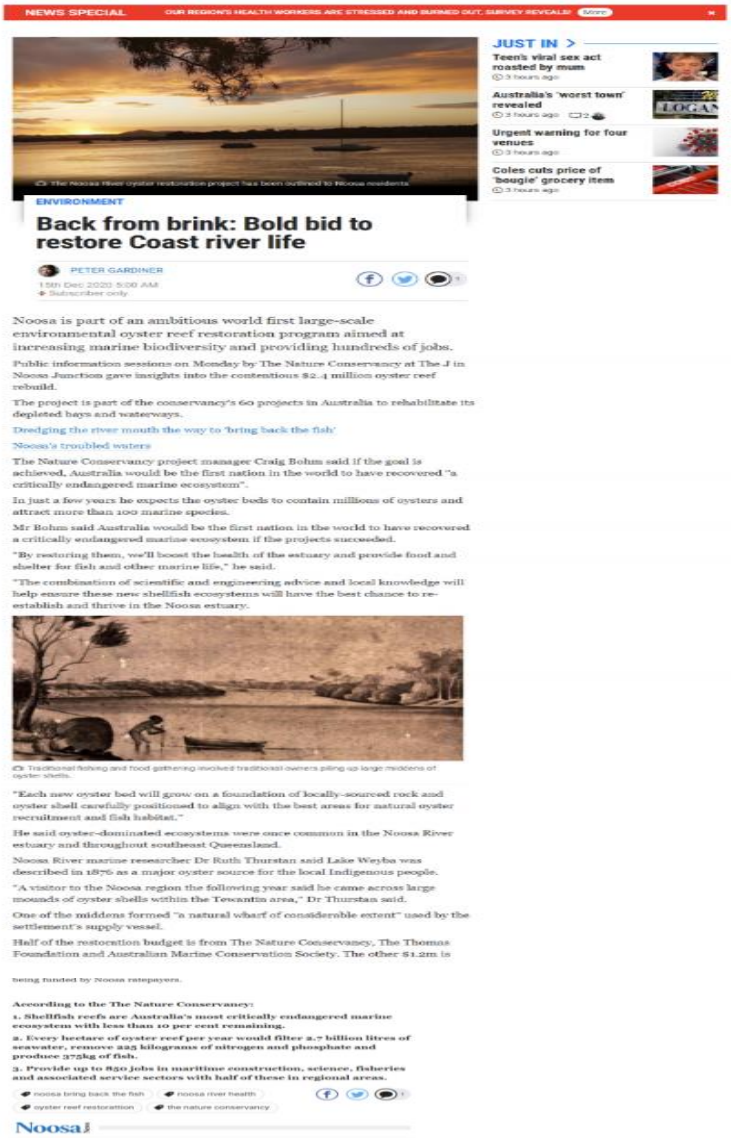


Figure 5: Project Frequently Asked Questions

Media

A. Project in the News

The project secured media articles in the Sunshine Coast Daily and Noosa Today after the Public Information Sessions in December 2020 (Figure 6). The project enjoyed a significant online media presence as a result of advertising for the Public Information Sessions (Table 4) with Your Community giving the project a little extra profile (https://www.facebook.com/YourCommunity4565/) (Figure 7).



NEWS SPECIAL OUR REGION'S HEALTH WORKERS ARE STRESSED AND BURNED OUT, SURVEY REVEALS!

JUST IN >

Teen's viral sex act roasted by mum

Australia's 'worst town' revealed

Urgent warning for four venues

Coles cuts price of 'bougie' grocery item

ENVIRONMENT

Back from brink: Bold bid to restore Coast river life

PETER GARDINER

Noosa is part of an ambitious world first large-scale environmental oyster reef restoration program aimed at increasing marine biodiversity and providing hundreds of jobs.

Public information sessions on Monday by The Nature Conservancy at The J in Noosa Junction gave insights into the contentious $2.4 million oyster reef rebuild.

The project is part of the conservancy's 60 projects in Australia to rehabilitate its depleted bays and waterways.

Dredging the river mouth the way to 'bring back the fish'

Noosa's troubled waters

The Nature Conservancy project manager Craig Bohm said if the goal is achieved, Australia would be the first nation in the world to have recovered "a critically endangered marine ecosystem".

In just a few years he expects the oyster beds to contain millions of oysters and attract more than 100 marine species.

Mr Bohm said Australia would be the first nation in the world to have recovered a critically endangered marine ecosystem if the projects succeeded.

"By restoring them, we'll boost the health of the estuary and provide food and shelter for fish and other marine life," he said.

"The combination of scientific and engineering advice and local knowledge will help ensure these new shellfish ecosystems will have the best chance to re-establish and thrive in the Noosa estuary.

"Each new oyster bed will grow on a foundation of locally-sourced rock and oyster shell carefully positioned to align with the best areas for natural oyster recruitment and fish habitat."

He said oyster-dominated ecosystems were once common in the Noosa River estuary and throughout southeast Queensland.

Noosa River marine researcher Dr Ruth Thurstan said Lake Weyba was described in 1875 as a major oyster source for the local Indigenous people.

"A visitor to the Noosa region the following year said he came across large mounds of oyster shells within the Tewantin area," Dr Thurstan said.

One of the middens formed "a natural wharf of considerable extent" used by the settlement's supply vessel.

Half of the restoration budget is from The Nature Conservancy, The Thomas Foundation and Australian Marine Conservation Society. The other $1.2m is being funded by Noosa ratepayers.

According to the The Nature Conservancy:

1. Shellfish reefs are Australia's most critically endangered marine ecosystem with less than 10 per cent remaining.

2. Every hectare of oyster reef per year would filter 2.7 billion litres of seawater, remove 225 kilograms of nitrogen and phosphate and produce 375kg of fish.

3. Provide up to 850 jobs in maritime construction, science, fisheries and associated service sectors with half of these in regional areas.

noosa bring back the fish | noosa river health | oyster reef restoration | the nature conservancy

Noosa

Figure 6: Example of print media secured

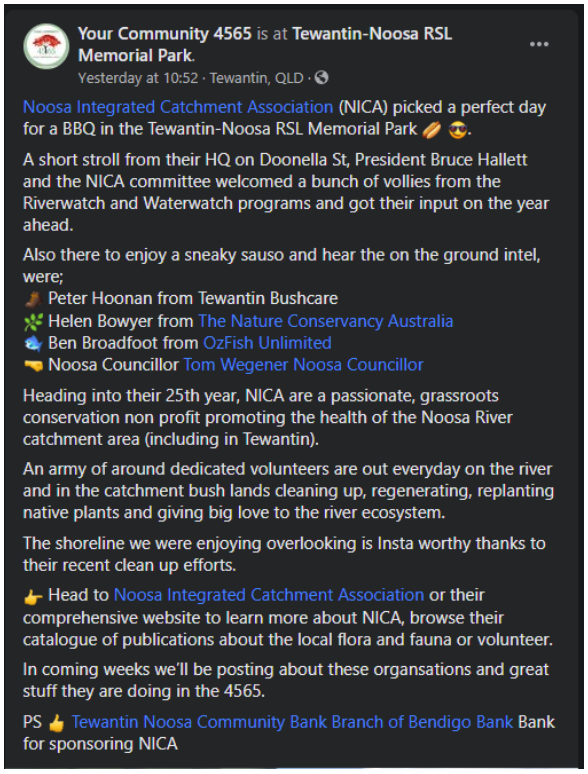


Figure 7: Online media presence in Tewantin

A summary of social media exposure is presented in Table 4.

Table 4: Social media secured

TNC Website		
Date	**Page title**	**Page views**
15-Mar-20	Media release: The surprising history of Queensland's oyster reefs revealed	127
27 Nov to 13 Dec	Events page: Noosa info sessions	132
Social Media		
Date	**Type**	**Reach**
27 Nov to 13 Dec	Facebook event	5,472
3-Dec	Facebook event post	4,569
27 Nov to 1 Dec	Facebook event advertisement	2,907
3 Dec to 13 Dec	Facebook event post advertisement	3,613
TOTAL		**16,820**

Technical outputs

Restoration suitability model

The project used a standardized habitat suitability indices and geospatial decision support tools to confirm the suitability of the Noosa River estuary for oyster ecosystem restoration. Known environmental and biological criteria were compared with physical parameters of the estuary (i.e. bathymetry, salinity, temperature, dissolved oxygen,). Areas of the estuary which are suitable for oyster restoration were then rated for their suitability and presented, geospatially (Figure 8). This work was completed in the previous reporting period, but new data sets recently made available from authorities, namely Unity Water, has enabled us to upgrade the model with more refined water quality information.

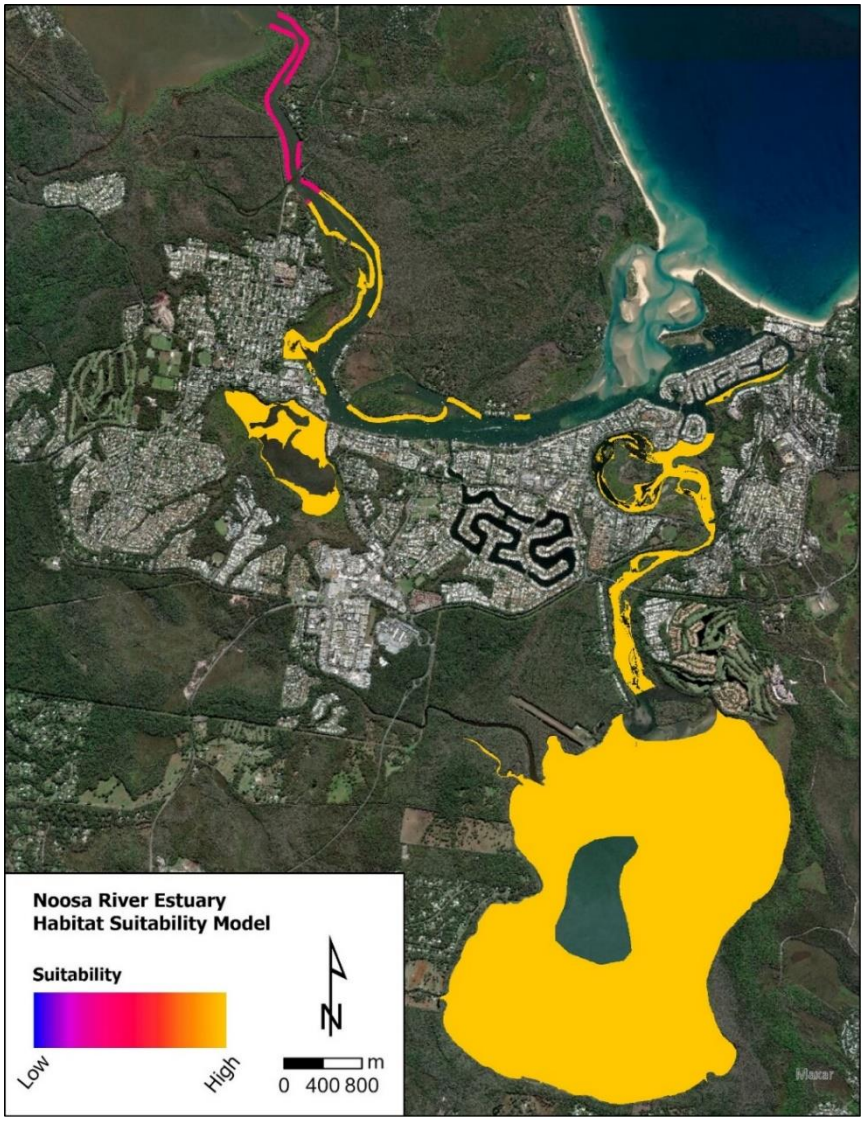


Figure 8: Habitat suitability

The project team then overlayed the ecological considerations, logistical constraints, and details of the built infrastructure and human uses of the Noosa River to the model (i.e. proximity to seagrass and rocky reef, proximity to extant and historic oyster reefs, alluvial sands, small craft channels, tidal works, moorings, foreshore access, in-water urban utilities).

These parameters were then allocated 'exclusion criteria', to create buffers and minimize potential interactions with river uses (e.g. distances from tidal works, foreshore access points, moorings, submarine cables, main channels). The exclusion criteria where determined in consideration of regulated distances applied to vessels (e.g. distances from moorings) and on practical consideration of river uses (e.g. access to foreshores from the river, distances from navigation channels) and position of utilities (cables, pipes) (Table 5). This later work was undertaken in close liaison with Maritime Safety Queensland (MSQ).

This work was a major undertaking involving the compilation of multiple-data sets, collaboration with multiple agencies and then negotiations where there were no buffers for restoration works identified in the regulations.

The tabulated results were then entered into the restoration suitability model and presented spatially (Figure 9).

Table 5: Restoration suitability parameters and criteria for Sydney rock oyster ecosystems in the Noosa River

PARAMETER	ENVELOPE	CRITERIA (more suitable = 4, less = 0)	Rationale	Source
Seagrass proximity	10m - 500m	Areas within 10-500m buffer =4; all other areas =2	Connectivity to other structured habitats increases diversity. Two metre buffers included to mitigate damage to complex ecosystems but ensuring connectivity.	(Duncan et al. 2019) confirm with engineers
Rocky reef proximity	2m - 500m	Areas within 5-500m buffer =4; all other areas =2	Connectivity to other structured habitats increases diversity. Two metre buffers included to mitigate damage to complex ecosystems but ensuring connectivity.	
Extant oyster ecosystems proximity	Within 250 m	Within 250m = 4; all other areas = 2	Connectivity to other structured habitats increases biodiversity. Connection to other oyster reefs increases meta-population connectivity, successful reproduction and oyster recruitment. Two metre buffers included to mitigate damage to extant oyster ecosystems but ensuring connectivity.	(Boor et al. 2018, Guy et al. 2018, Duncan et al. 2019)
Historical oyster ecosystem proximity	Within 250 m	Within 250m = 4; all other areas = 2	Sites which have historically supported oyster ecosystems are generally thought to be able to support future oyster ecosystems.	(Gillies 2018)

Alluvial Sands	Exclusion area	Within exclusion area = 0, all other areas = 4	Alluvial sands are relatively or mobile and generally offer unsuitable substrates for restoration work	Agreed with TNC restoration scientists
Small craft channels	+ 10 m buffer	Areas within buffer = 0; all other areas = 4	Creates 20 m buffer with centre as per Maritime Safety Queensland Beacon to Beacon suggested passage. Allows for adequate restoration site area at narrow sections of the estuary while maintaining safe navigational passage. In relative, restoration sites will be closer to shorelines to avoid boating interactions.	Agreed with MSQ
Tidal Works (pontoons, jetties, boat ramps)	+ 30 m buffer	Within 250m = 4; all other areas = 2	Favours restoration sites closest to access points. Included as a way of reducing cost of substrate deployment. 30 m buffer included to reduce chance of damage to restored oyster beds, vessels, and for the safety of workers.	Agreed with MSQ
Moorings	+ 30 m buffer	Within 30 m = 0, all other areas = 4	Ensures safe distance to eliminate chances of damage to moored vessels or restored oyster beds.	Agreed with MSQ
Foreshore Access	+ 10 m buffer	Within exclusion area = 0, all other areas = 4	Areas excluded to maintain high level of public access to foreshore. 10 m adjacent buffer included for ease of vessel access.	Agreed with MSQ
In-water urban utilities (submarine cables & pipelines)	+ 5 m buffer	Within exclusion area = 0, all other areas = 4	Ensures safe distance to eliminate chances of damage to submarine cables and pipelines.	Proposed to Unity Water and Telstra
In-water urban utilities (cross-river cable barges, ferry terminals, etc.)	+ 30 m buffer	Within exclusion area = 0, all other areas = 4	Avoid existing infrastructure	Agreed with MSQ

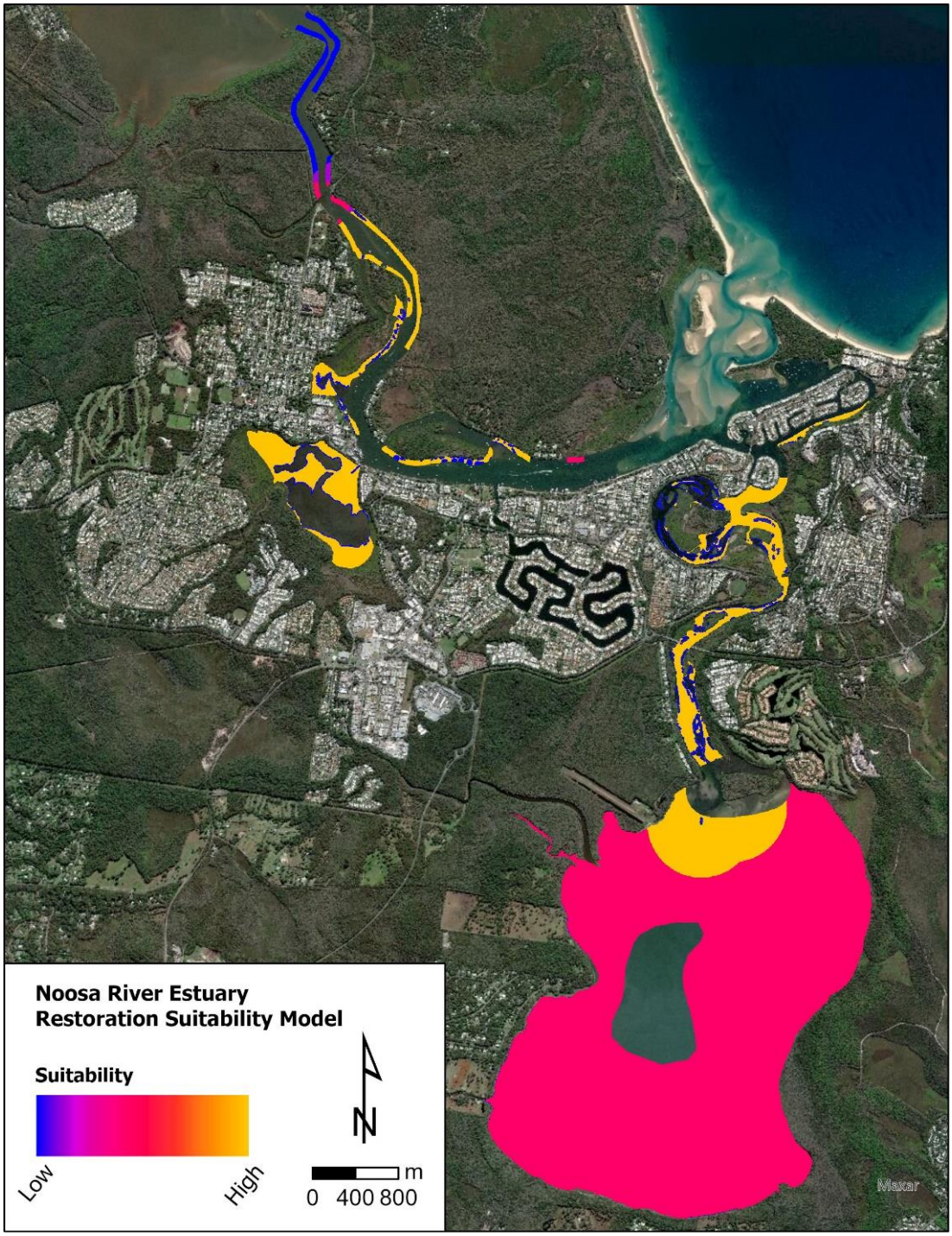


Figure 9: Restoration Suitability Model

Restoration zones

The project has delineated restoration zones in the estuary. These zones show where restoration could successfully occur, once all other exclusions are considered. These zones are proposed for permit.

The project has defined five (5) restoration zones in the Noosa River estuary. The restoration zones are:

1. Main Channel
2. Noosa Sound
3. Weyba Creek
4. Lake Weyba
5. Lake Donella

The criteria for defining the five zones is presented in Table 6. Restoration zones are presented in Figure 10.

Within these zones, in an adaptive management way, selects highly suitable restoration sites. The sites are were detailed bathymetric modelling occurs and restoration substrate configurations (or modules) are matched to the character of the site against the engineering criteria.

Table 6 – Criteria for the determination of oyster ecosystem restoration zones

Parameter	Zone Criteria	Rationale
Habitat Suitability Model	Must be suitable or highly suitable for oyster survival	Oyster ecosystem restoration can only occur in areas of the river where habitat parameters permit oyster survival.
Restoration Suitability Model	Must be suitable or highly suitable against ecological, social use and regulatory parameters	Oyster ecosystem restoration must occur in relative proximity to other estuarine ecological features and processes, without impacting on existing habitats, social uses or government regulations. These include exclusions: Around seagrass, mangrove and saltmarsh habitats to eliminate chances of damage to the existing ecosystem. Around navigation channels, moorings, boat ramps, pontoons and jetties to ensure the safety of river users and mitigate potential damage to restored oyster beds. In areas adjacent to public and private foreshore access so as not to impact river use.
Additional zone criteria	Within 50 m from shore in 20 knot and unrestricted speed areas.	Ensures safe working distance in high speed areas to minimise chances of damage to vessels or restored oyster beds.
Seagrass	Not within 10m of seagrass	Ensures minimal disturbance to existing seagrass beds while maintaining habitat association with oyster beds
Mangroves and other identifiable aquatic habitats	Not within 5m of mangroves or other identifiable aquatic habitats	Ensures minimal disturbance to existing mangrove trees other identifiable habitats while maintaining habitat association with oyster beds

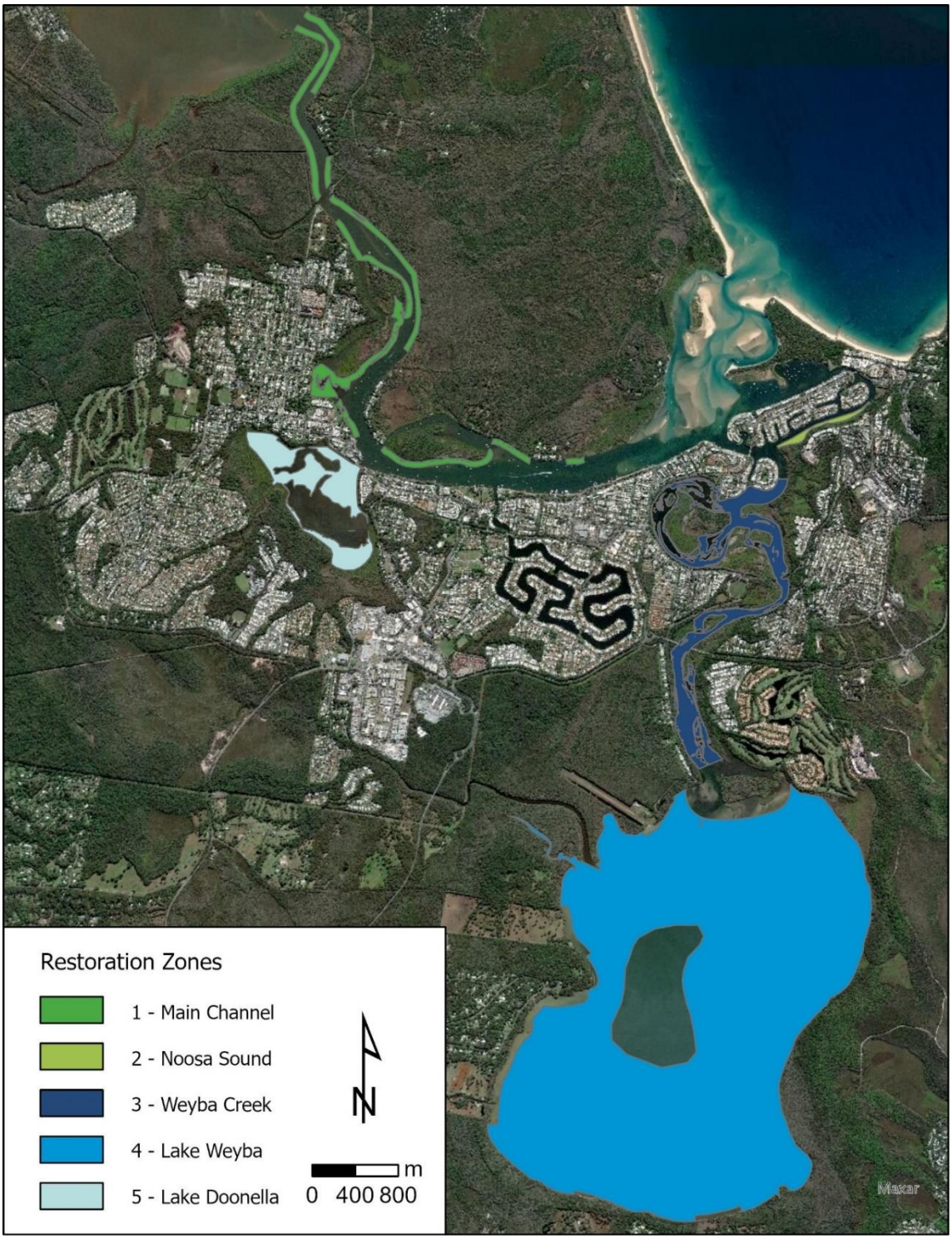


Figure 10: Restoration zones

Bathymetric mapping

TNC contracted Northgroup Consulting to undertake bathymetric mapping and three-dimensional laser scanning of four planned restoration sites – Tewantin, Goat Island, Noosa South (East) and Noosa Sound (West). These complex maps guide the placement of the rocky restoration substrates. The bathymetry of the Tewantin restoration site is given below as an example (Figure 11).

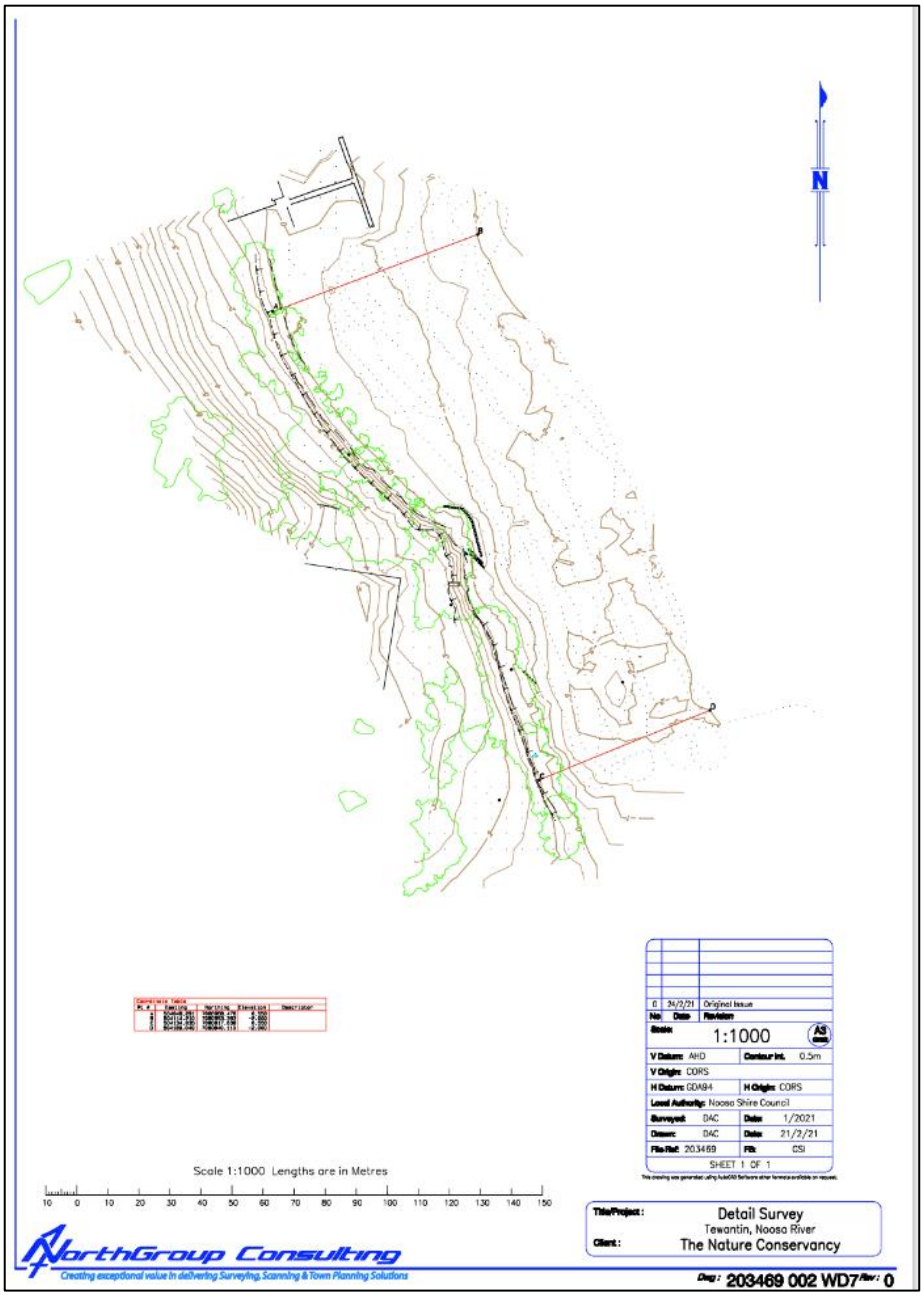


Figure 11: Tewantin bathymetric map

Habitat mapping

TNC contracted Ecological Service Professionals (ESP) to map marine habitats within our four primary restoration sites at Tewantin, Goat Island, Noosa South (East) and Noosa Sound (West), as well as in Weyba Creek (which will need further investigation). Habitats included seagrass beds, mangroves, remnant oyster beds and rocky reefs. This information is overlayed with the bathymetry data at a restoration site to guide the placement of the restoration substrates in that site.

Seagrass mapping

TNC contracted Ecological Service Professionals (ESP) to undertake a full survey of seagrass communities across the Noosa River estuary, and to carry out an historical analysis of the changes in seagrass coverage. ESP has provided the seagrass maps to TNC in digital format. The final report is pending and will be presented once received.

Restoration permits

TNC has engaged Integrated Coastal Management (ICM) to provide technical engineering advice and to provide engineering specifications to support the permits.

The project is seeking three types of permits:

1. Development approval – tidal works – all of government
2. Fisheries Allocation Authority (RAA) – Department of Agriculture and Fisheries (DAF) - to restore oyster beds in Fish Habitat Areas (FHAs)
3. General Fisheries Permits – for oyster gardening and the deployment of oysters and oyster shell onto the oyster beds

The project has developed a detailed Implementation Plan and Site Management Plan for the restoration works, which will be submitted with the development applications. The plans will be supported by a series of technical drawings, engineering specifications, rectifications tables and Registered Professional Engineers of Queensland (RPEQ) certifications.

The next step in the process is to present the draft submissions to all authorities for feedback prior to their formal submission to the Queensland government and Noosa Shire Council in the coming weeks.

Construction

Construction will commence in summer 2020-21 to coincide with the peak spawning period of Sydney rock oysters in the Noosa River estuary. Until then, the team will focus on securing permits, implementing the wide range of community engagement projects, establishing contracts for construction works and monitoring, and establishing baseline monitoring.

Project finances

The financial reporting period is 1 July 2020 till 31 December 2020.

This section details the project finances. Table 7 presents project expenditure across five activity codes:

1. Reef Building
2. Hatchery and seedling
3. Reef integrity and performance assessment
4. Community engagement, volunteering and media
5. Project management

To the 31st December 2020, the project has spent 35 percent of the total project budget. This amount does not include outstanding contract payments to consultancies with NorthGroup, Ecological Service Professionals and Integrated Coastal Management. These final payments will be made in the next reporting period.

Considerable savings have been made in the following areas:

- Data analysis and restoration suitability mapping – achieved in-house rather than outsourcing.
- Office space and equipment and sundry costs – project manager is working from home office.
- Technical assessments – project manager and in-kind contributions from experts.
- Travel, training and conferences – COVID-19 impact.

Contracts

- NorthGroup Pty Ltd – Bathymetric and intertidal surveys at oyster restoration sites ($13,200) – final outputs submitted. Ffinal payment pending
- Ecological Service Professionals Pty Ltd - Seagrass and habitat mapping contract ($42,592) – draft outputs submitted. Final report pending.
- Integrated Coastal Management Pty Ltd – Engineering advice and RPEQ certifications ($37,290) – draft outputs pending.
- Resources Australia Ltd - Oyster shell transport contract to wholesalers and restaurants (up to approx. $30,000 over 2.5 years) – ongoing.
- Casual support – Callum Dittes (technical assistant), Helen Bowyer (community outreach assistant)

Table 7: Total project expenditure

PROJECT COSTS	Total Budget	FY20 reported number	FY21 Exp, Jul-Dec 2020	Total Expenditure	Remaining budget
Reef Building Bathymetric, hydrological assessments, oyster bed engineering, rock and shell material procurement, construction and engineering assessments.	861,982	100,915	92,049	192,964	669,018
Hatchery and seeding Procurement of oysters, hatchery/farmer engagement, shell transport, recycled shells collection, permitting, record keeping and reporting.	293,332	29,575	60,368	89,943	203,389

Reef integrity and performance assessment Pre-substrate deployment site assessments (bottom ecology, surface profiles, oyster densities, vulnerable habitats mapping (e.g. seagrass), river uses analysis (e.g. boating, fishing), data analysis, WHS and safety plans, operational equipment, periodic reports.	580,289	24,325	95,551	119,876	460,413
Community engagement, volunteering and media Community engagement products, engagement coordination, sub-contractor identification, contracting and management, volunteer briefings, volunteer recruitment, stakeholder meetings, personal protective equipment, media statements, media management and education material production and distribution.	424,397	177,722	87,763	265,485	158,912
Project Management Production of Project Management Plan, Monitoring Evaluation and Reporting Plan, Communications Plan, project risk assessments, plan and risk refinements and revisions, government permitting, legal, technical science support	240,000	102,017	73,378	175,395	64,605
Total expenditure	**2,400,000**	**434,554**	**409,110**	**843,664**	**1,556,336**

Next steps – 6 months

The steps planned for the next six months of the project include:

- Meet with permitting agencies and submit permit applications
- Secure partnership with a shellfish hatchery to support oyster seeding
- Contract construction company (with work to commence in late spring)
- Roll out community partnership projects
- Expand community information products and outreach with these
- Extend media presence
- Refine project signage with MSQ and NSC
- Identify further restoration sites and commence detailed analysis
- Progress seagrass research
- Develop project newsletter
- Support river management actions (by agreement)

Appendix 1: Goals, objectives and deliverables of the project

Project Goal	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.			
Objectives	**Deliverables**	**Expected completion date (from 1 July 2019 unless otherwise stated)**	**Measurable outcomes**	**Party responsible for Deliverable**
A-1 Project establishment and management **Establish effective project governance, management, communication and reporting sufficient to successfully implement shellfish restoration project**	(A1.1) A Technical Advisory Group (TAG) is established to provide project oversight. This will include a clear terms of reference and consist of representatives from key stakeholders (NSC, TNC, Kabi Kabi and at least two other independent parties).	3 months from appointment of Project Manager	Terms of reference for the TAG developed, TAG is established and at least one meeting held. Evidence of Kabi Kabi involvement.	TNC TNC
	(A1.2) Appointment of dedicated project manager who is a marine biologist with extensive project management experience, for the term of the Agreement.	6 months	Appointment of Project Manager to oversee the Project.	TNC
	(A1.3) A Project Implementation Plan detailing at a minimum: A detailed risk assessment associated with the project. A communications and media plan, outlining media protocols, opportunities and the role of TNC and NSC. A monitoring, evaluation and reporting plan which identified ecological and social monitoring programs, how they will be reported on and how this will fed back into the project.	6 months	A project implementation plan produced by TNC and approved by NSC. Approval for the plan (if acceptable) provided in writing by NSC by no later than two months after delivery.	TNC TNC & NSC

Project Goal	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.			
Objectives	Deliverables	Expected completion date (from 1 July 2019 unless otherwise stated)	Measurable outcomes	Party responsible for Deliverable
	(A1.4) Participate in public forums to provide the Noosa community opportunities to learn about the project and TNC.	Ongoing for the duration of the project	Participate in at least three public presentations/forums in the first 12 months (ideally within first 9 months) with the purpose to provide the Noosa community opportunities to learn about the project and TNC. Participate in at least six public presentations/forums in years 2 and 3, with the purpose to provide the Noosa community opportunities to learn about the implementation and outcomes of the project. A minimum three media statements throughout duration of project	TNC TNC TNC & Noosa Council
	(A1.5) Annual project reports and final report each of which address, at a minimum: Activities undertaken during the subject financial year, status and progress against deliverables, budget progress, income and expenditure, report against monitoring and evaluation program and measurable outcomes and outline of proposed upcoming	For each annual project report - Yearly For the final report – 30th September 2022	An annual project report (and, when applicable, final report) is prepared and produced by TNC, endorsed by Technical Advisory Group, and delivered by TNC to Noosa Council, within 60 days of the end of each financial year during the term of the Agreement. The annual report (and, when applicable, final report) in Measurable Outcome 9 is presented	TNC TNC & NSC

Project Goal	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.			
Objectives	Deliverables	Expected completion date (from 1 July 2019 unless otherwise stated)	Measurable outcomes	Party responsible for Deliverable
	works/activities for future period.		to Noosa Council by TNC in conjunction with Noosa Council officers for its approval for endorsement within 90 days of the end of each financial year during the term of the Agreement, and (if acceptable) approved by Noosa Council.	
	(A1.6) 6 monthly status and progress reports which address, at a minimum: Progress against deliverables and monitoring and evaluation report. 6 monthly financial statements including a statement of Project income/funding and expenditure	6 monthly	6 monthly status and progress reports, and financial statement, are produced, endorsed by the Technical Advisory Group, and provided to NSC, within 30 days of end of each six (6) month period. Reports and financial statements due at the end of the financial year may be included with annual reports and the final report.	TNC
A-2: Site selection Identify suitable restoration sites for Phase II and Phase III and appropriate reef design that minimize estuary-user conflict whilst optimizing reef rehabilitation	(A2.1) Oyster reef restoration suitability model incorporating physical parameters of oysters and public and industry usage, access etc. to identify priority sites for restoration.	12 months	Habitat suitability model which incorporates industry, Kabi Kabi knowledge and public interests.	TNC
	(A2.2) Obtain necessary State government permits/authorities including particular resource allocation authority, for oyster reef restoration	18 months	Outcomes: (a) Obtain all required State government permits/authorities for installation of oyster reefs. (b) Obtain all required Local government	13(a) - TNC 13(b) – NSC

Project Goal	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.			
Objectives	Deliverables	Expected completion date (from 1 July 2019 unless otherwise stated)	Measurable outcomes	Party responsible for Deliverable
	Obtain necessary local government permits/approvals including in particular fisheries development approval for oyster reef restoration		permits/approvals for installation of oyster reefs are obtained.	
	(A2.3) Community, industry and stakeholder consultation sufficient to gain majority support for reef restoration locations.	18 months	Records of public and stakeholder consultation, including one-on-one meetings, open forums, media, etc.	TNC
A-3 Community engagement Strengthen community interest, support and participation in Noosa River restoration by establishing a community volunteering program to support reef restoration	(A3.1) Community, industry and stakeholder consultation to identify most appropriate community volunteering opportunities (e.g. shell recycling, oyster gardens, oyster watch, video monitoring).	18 months	Records of public and stakeholder consultation, including one-on-one meetings, open forums, media, etc.	TNC & Noosa Council
	(A3.2) Establish at least one community volunteering program identified from the above process which takes into account current and future resources, management and interest.	18 months	Record of volunteer hours dedicated to community volunteering programs, such as: shell recycling, oyster gardens, oyster watch, video monitoring.	TNC & NSC
A-4 Reef restoration Restore oyster reef ecosystems across the lower estuary	(A4.1) Restoration at two sites (approx. 40m-50m shore length per site) which tests reef design and construction methods and oyster growth and survival.	24 months	At least two (2) sites with at least overall 80m shore length of reef restored, and being actively monitored.	TNC
	(A4.2) Restoration across multiple sites, as determined by habitat suitability modelling and	36 months	In addition to the two pilot sites, a number of sites comprising a minimum of a further	TNC

Project Goal	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.			
Objectives	Deliverables	Expected completion date (from 1 July 2019 unless otherwise stated)	Measurable outcomes	Party responsible for Deliverable
	outcomes of community consultation.		aggregated 600m^2 surface area of restored oyster reef in the Noosa River estuary.	
	(A4.3) Monitoring and evaluation study for both pilot and full restoration sites. Monitoring to include oyster metrics, invertebrates and fish use (detailed in MER plan).	Ongoing for duration of project, at least 6 monthly	Annual monitoring and evaluation report card with 6 monthly status reports to be provided.	TNC
A-5 Noosa River Plan 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) Run workshop with NSC to identify ongoing focus areas for TNC support.	9 months	Workshop completed.	TNC & NSC
	*(A5.2) Provide technical/peer review on minimum five plans/reports/studies if requested by Noosa Council.	Ongoing for duration of project	Minimum 5 peer review reports completed during the three-year term of this Agreement, if requested by NSC. If NSC requests a peer review, TNC will provide a minimum of 3 experts who are qualified in the relevant area of expertise for NSC consideration and Noosa Council's acceptance of one expert for the peer review.	TNC
	*(A5.3) Facilitate a minimum of three study tours of relevant sites in line with objectives and scope of the program in Australia/US if requested by Noosa Council (flights and incidentals covered separately by Noosa Council, accommodation	36 months	Minimum three individuals on study tours completed during the three-year term of this Agreement, if requested by Noosa Council.	TNC & NSC

Project Goal	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.			
Objectives	Deliverables	Expected completion date (from 1 July 2019 unless otherwise stated)	Measurable outcomes	Party responsible for Deliverable
	and in-country travel covered by this Grant).			
	*(A5.4) Develop a Conservation Action Plan for specific issues (not yet determined) relevant to the Noosa Estuary (including community workshops) if requested by Noosa Council.[1]	36 months	Conservation Action Plan and Community Workshops completed as required.	TNC & NSC
	*(A5.5) Facilitate access to TNC conservation networks and researchers if requested by Noosa Council.	Ongoing for duration of project	A number of new contacts/networks to assist Noosa Council with ongoing and future marine conservation activities.	TNC
	(A5.6) Promote Noosa Council's Noosa River Plan and shellfish restoration project in at least one national and one international conference.	36 months	Presentation to at least one national and one international conference.	TNC & NSC
	(A5.7) Promote Noosa Council's Noosa River Plan and shellfish restoration project to corporate, philanthropic and state/federal government audiences to establish further support for conservation activities that support the Noosa River Plan.	Ongoing for duration of project	A number of new corporate/ government/ philanthropic alliances and new in-kind support/financial funding contributions.	TNC & NSC