

Noosa Oyster Ecosystem Restoration Project

Education and Community Engagement activities in the Noosa Region

Report Number: 2

Report prepared by: NICA Oyster Gardening Program team

Reporting Period: 28th February 2022 – 16th September 2022



Figure 1: Rock oysters growing on a bridge pylon in the Noosa River Photo by Craig Bohm

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

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1. Purpose and Background

The purpose of this report is to provide a project update for the period of 28th February 2022 – 16th September 2022. The Nature Conservancy (TNC) has partnered with the Noosa Integrated Catchment Association, Inc. (NICA) to facilitate oyster gardening in the Noosa River. Rock oysters (*Saccostrea glomerata*) grow on various structures in the Noosa River estuary (Figure 1). Oyster gardening is an activity whereby local households grow out local oysters, provided by the project, in baskets, or 'oyster gardens' suspended from jetties.

The volunteer gardeners care for the gardens, keep citizen science records of their experience and learn a lot about oysters and oyster restoration in the process. Once the juvenile oysters are large enough to survive on their own, they are seeded onto the oyster reef patches in the project's restoration sites. These oysters will help kick start ecosystem recovery.

2. Project overview

The project provides a unique opportunity for local households, businesses, commercial operators, not-for-profit organisations and schools in the Noosa region to become 'oyster gardeners', growing juvenile rock oysters to adult size in baskets suspended into the water column from jetties and piers.

The oyster gardeners will provide essential support in the maintenance and monitoring of the oyster gardens, from juvenile to adult size ready to be seeded onto the restored oyster reefs. TNC will then deploy the adult oysters onto the rocky oyster restoration substrates as part of the *Noosa Oyster Ecosystem Restoration Project*, to supplement the oyster recolonisation process. The *Noosa Oyster Ecosystem Restoration Project* plans to restore rock oyster ecosystems to the Noosa River estuary.

In Phase 1 of the project, NICA has been actively designing program materials, building and trialing oyster baskets and engaging residents, schools and community groups around the project. NICA has also been active supporting project coordinator, TNC across a range of activities critical to delivery of the overall restoration project including providing ecological services (water and fauna monitoring), preparing recycled oyster shell, supported researchers and aligned community groups in their project activities and interests. The formal oyster gardening program and deployment of oyster baskets to registered gardeners, NICA's primary program objective, will launch once TNC provides the oyster shell seeded with oyster spat to NICA. This will occur in November 2022.

In February 2022, NICA commenced a trial of its recycled oyster baskets using only recycled shell at three locations along the Noosa River. Deployment of the trial baskets provided NICA with an opportunity to test the integrity of the basket design in actual conditions, optimize maintenance and monitoring protocols and assess initial wild oyster recruitment within the baskets. Whilst the trial is only due to conclude in October 2022 early indications suggest the baskets retain excellent structural integrity and have been successful in recruiting wild oysters within the estuary. NICA will shortly document those outcomes and learnings. Three baskets from the trial were recently displayed at the Project Launch ("Shellabration") for the benefit of attendees.

In addition to its work on the oyster gardening program, NICA has worked closely with researchers from Griffith University's Australian Rivers Institute including PhD candidate Marina Richardson to better understand genetic lineages amongst the Noosa River's remaining wild oysters and ecosystem assemblages within NICA's trial baskets. NICA has identified and provided Marina with multiple sites along the river to conduct her research and assisted in oyster extraction at these sites.

With baskets tested and ready, kits and manuals printed, and a collection of eager residents ready to participate, NICA looks forward to Phase 2 and the formal launching the program and deployment of oyster gardens around the estuary in the near future.

3. Volunteer Contributions

To date, a total of 11 NICA volunteers have contributed 252 in-kind hours toward the oyster gardening program itself. Per Volunteering Queensland and Australian Tax Office guidelines (\$44 per hour), that equates to a total in-kind contribution of \$11,088 toward the project.

NICA's in-kind contribution excludes the volunteer hours contributed by the small cohort of oyster gardeners currently engaged in the oyster basket trial and the considerable contribution of NICA volunteers toward activities external to its oyster gardening program mandate including preparing and washing oyster shell, periodic ecological monitoring and the extensive support provided to aligned community groups.

4. Summary of activities

Table 1 presents a summary of NICA's activities throughout the project per Grant milestones.

Table 1: Oyster Garden program deliverables and milestones

Deliverables	Measurable outcomes	Timeframe	Progress	Total progress to date and notes
1 project officer appointed, work plan and budget prepared.	Prepared.	30-Sep-21	Completed.	All tasks completed upon signing.
1 training event	Completed.	1-Dec-21	Completed. A second training event to be held closer to deployment.	NICA hosted an event at Tewantin Marina with TNC and NCBA to provide an update to existing oyster gardeners and explain additional details on what maintenance and monitoring is involved.
20 sets oyster gardening kits	Prepared.	1-Dec-21	Completed	NICA has prepared 68 recycled oyster baskets ready for deployment. NICA has prepared 20 oyster gardening kits including the Gardening Manual, monitoring reports and PPE ready for deployment.
1 interim technical report	Submitted.	28-Feb-22	Completed	Submitted 31 March 2022.
1 oyster gardening basket trial	Commenced.	28-Feb-22.	In process.	Prepared and deployed 10 oyster baskets at 3 locations around the Noosa River to assess basket integrity, maintenance protocols wild oyster recruitment.
20 oyster gardeners registered (signed agreement)	Identified	-	In process.	NICA has engaged over 20 prospective oyster gardeners at numerous locations around the Noosa River. NICA will formally register and induct oyster

				gardeners closer to program launch.
1 media event	Completed.	7-Sep-22	Completed	NICA actively participated in preparations for and conduct of the “Shellabration” project launch including hosting 3 trial oyster baskets for viewing by event participants on the day.
1 set of data records	Prepared.	15-Sep-22	Prepared.	NICA has developed and tested a GIS data layer using ArcGIS to capture all registered oyster gardener and site details per DAF permit requirements. NICA has also prepared a detailed set of on and off-line monitoring records. NICA will assist and collate all records once seeded baskets are deployed.
1 batch of oysters deployed onto oyster reefs.	-	-	To be undertaken.	NICA intends to undertake this activity, as directed by TNC, within 6-12 months of deploying seeded oyster gardens to registered gardeners.

Participant Workshops or training activities

Table 2 presents a summary of selected NICA’s engagement and training activities throughout the project.

Table 2: Summary of Participatory Activities

Date	What was the activity	Who was there	Outcomes
15-Sep-21	NICA basket building “pop up” workshop	NICA Oyster Gardening team, Jolie May (EE Hub), members of public. Attendees > 15.	“Pop-up” workshop on Gympie Terrace foreshore showcasing oyster baskets in preparation. Fielded multiple walk-up conversations with interested members of the public.
18-Oct-21	NICA Members Presentation	NICA members, Member of State Parliament (Sandy Bolton MP), Noosa Councillors. Attendees > 40.	Presentation and Q&A session on the Oyster Gardening program, how it fits into the Noosa River Rock Oyster Restoration project and its alignment to NICA’s strategy and on-river priorities. Engaging session including multiple Q&A including from dignitaries present. Social media followed.
1-Dec-21	Workshop and information session	Community groups: OzFish, Noosa EEHub, Noosa Fish Headz, oyster gardeners, Deputy Mayor/Cr Frank Wilkie, TNC. Attendees > 25.	In conjunction with TNC and NCBA, provided an update to registered and interested oyster gardeners about the program, it’s aims and activities. Also provided an opportunity for local community groups to learn

			more about the project and how to get involved.
25-Mar-22	Oyster Restoration Project Presentation	TNC, NICA, NPA Friday Forum participants (35+).	As an addendum to TNC's presentation, NICA provided a brief overview of the oyster gardening program at the NPA Friday Forum event.
26-Apr-22	Oyster Research Collaboration	NICA, TNC, Griffith University	Worked with researchers from Griffith University on key research activities in the Noosa River and conducted examination of trial oyster baskets.
17-May-22	Oyster Gardening Demonstration	NICA, TNC, CSIRO	Demonstrated oyster gardening basket trail and initial learnings to representatives from CSIRO.
28-Jun-22	Holiday Schools Program	EE Hub, NCBA, NICA	NICA hosted an event for school's participants at this EE Hub-organised event.
17-Jul-22	Rural Futures Program	NICA, community participants, > 20 participants.	NICA hosted an oyster gardening information and demonstration event for participants at Landcare Pomona.
Multiple events.	School's events and presentations	NCBA, EEH, schools.	NICA has provided both contractors and volunteers to delivery engaging content to schools all ages. NICA has provided trial oyster baskets for participants to view during these events.
11-Aug-22	Oyster Restoration Film Content.	TNC, NICA	NICA contractors and volunteers assisted TNC in the production of this content and engagement with gardeners to deliver a thoughtful, engaging film update on the Project.
7-Sep-22	Shellabration Project Launch	Noosa Council, TNC, DES, DAF, Kabi representations, community groups, other project partners.	NICA actively participated in the events and provided trial oyster baskets for viewing by event participants.
Upcoming	Training event.	Registered oyster gardeners, community groups, TNC.	Train registered oyster gardeners in the maintenance and monitoring of their oyster gardens, as well as the identification of associate species which are beneficial or detrimental to the oysters.



Figure 2. NICA and EE Hub coordinators along with school students at the Oyster Gardening high school holiday program in June 2022 at the Noosa Marina, Tewantin.

Credit: Kate O Reilly

Figure 3: NICA coordinators Maddison Brown and Alex Western and trial oyster baskets at a primary school holidays program in July 2022 hosted by Noosa Landcare Rural Futures Centre, Pomona.

Credit: John News.



Figure 4: NICA program coordinator, Maddison Brown delivering an engaging oyster gardening presentation using NICA's trial oyster baskets to students at Kin Kin School in August 2022.

Credit: John News.



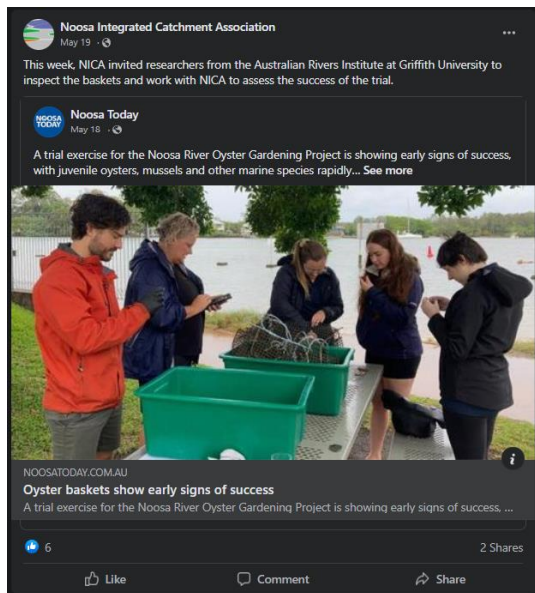


Figure 5: Sample NICA social media post capturing NICA project coordinators, Alex Western and Maddison Brown, alongside TNC project manager Megan Connell and Griffith University researcher Marina Richardson, inspecting NICA’s trial oyster baskets at Tewantin Marina. April 2022.

Credit: Richard Howard.

Figure 6: Snapshot from NICA’s funding application to the Department of Environment and Science’s 2021 Engaging Science Grants Program. The proposal intended to develop a scalable community oyster garden concept at a location along the Noosa River, a first in Australia. The funding application, submitted in December 2021, was unsuccessful.



Figure 7: NICA project coordinators Alex Western and Maddison Brown along with NICA President Dr Jan Green with TNC project managers Craig Bohm and Megan Connell with representatives from the CSIRO at the NICA oyster basket trial at Tewantin Marina. May 2022.

Credit: Alex Western.



Figure 8: Selection of oyster shells from NICA's oyster basket trial site demonstrating juvenile oyster spat recruitment and growth on clean recycled oyster shell deployed in the Noosa River. August 2022.

Credit: Maddison Brown.



Figure 9: School students at the NICA School Holiday Program event at Tewantin Marina in June 2022 eagerly inspecting and measuring the contents of a trial NICA oyster basket. Credit Maddison Brown

5. Media

In conjunction with TNC, NICA has undertaken a considerable number of activities to broaden and deepen engagement with the community including social media, newsletter and youtube content, newspaper content and

Table 4: Media highlights

Media highlights		
Date	Outlet	Reach
18-May-22	NICA Press release – <i>“Oyster Basket trial shows early signs of success”</i> . Noosa Today.	10,000+ readership. 45 likes.
Website and Newsletters		
Date	Page title	Page views
23-Aug-21	NICA member newsletter – Oyster Gardening Project “in profile”	140 subscribers
24-Feb-22	NICA member newsletter – Oyster Gardening Program update	155 subscribers
22-Jul-22	NICA member newsletter – Oyster Gardening Program update	165 subscribers
21-Sep-22	NICA member newsletter – River Tales: Oyster Rock	223 subscribers
Social Media		
Date	Page title	Page views
16-Sep-21	NICA facebook page – post on “pop-up” Oyster Basket workshop beside the river on Gympie Terrace.	1,226 followers
14-Oct-21	NICA facebook page – post on recent visit to recruit oyster gardeners on the Noosa North Shore	1,226 followers
19-Oct-21	NICA facebook page – post on “Mondays with NICA” featuring profile of the Noosa River Oyster Gardening program	1,226 followers
24-Nov-21	NICA facebook page – post on progress of the oyster shell washing initiative at Doonan Resource Recovery Centre	1,226 followers
19-May-22	NICA facebook page – post on Oyster Basket Trail update featuring Noosa Today article and collaboration with Griffith University researchers.	1,226 followers
27-Jun-22	NICA facebook page – Link to EE Hub “Free School holiday” program event featuring NICA’s Oyster Gardening workshop.	1,226 followers
28-Jul-22	NICA facebook page – Link to new NICA newsletter featuring Oyster Gardening Program update.	1,226 followers
13-Sep-22	NICA facebook page – post on update to Oyster Gardening program.	1,226 followers
TOTAL		

7. Next Steps

NICA will shortly launch Phase 2 of the oyster gardening program being formal deployment of seeded oyster baskets into the Noosa River to be undertaken by the community from November 2022 to June 2023. These activities are below.

7.1 Oyster gardening workshop and induction

NICA will shortly host an oyster gardening workshop to formally induct our oyster gardeners, advise gardeners on how to safely maintain and monitor the seeded oyster baskets that will be delivered to their jetties and their key role in the success of the overall project. NICA will also advise gardeners on how to conduct monthly data monitoring. This will involve recording parameters which will provide data on the oyster growth, survival and associated species found in these microhabitats. These parameters will provide critical information of the health and biodiversity inside these baskets which are located in different areas around the Noosa catchment.

The oyster gardening workshop will be held in late October, prior to the deployment of seeded oyster baskets.

7.2 Basket deployment

Following the oyster gardening workshop, NICA will begin preparations for deployment of seeded oyster baskets to oyster gardeners around the estuary. Spat received from the hatchery will be weighed and carefully distributed within the oyster baskets before being distributed to individual oyster gardeners and secured on site. Given the careful logistics of this stage and distribution of oyster gardeners around the estuary, NICA expects this process may take more than 1 day. To ensure the survival of oyster spat as deployment is taking place, NICA has identified a suitable “in-river” staging area for the oyster baskets.

7.3 Ongoing basket maintenance and monitoring

Each month, NICA will request registered oyster gardeners to undertake a number of maintenance and monitoring tasks to ensure their baskets are performing as required. These tasks including cleaning and desiccating the baskets to remove excess sediment, accumulated marine debris and algal growth along with checking the basket fixings for wear, abrasion or failure. Oyster gardeners will monitor overall oyster health, survival and growth rates along with ancillary ecosystem observations. NICA has designed a simple monitoring protocol for gardeners and will assist gardeners undertake this process to ensure uniformity of observations and basket integrity. Upon conclusion of the oyster gardening program, and at the direction of TNC, gardeners may assist in the deployment of their adult oysters to the reef restoration sites.