

#NNF2 Restoring Wild Oysters to Conwy Bay: Celebrating Community Engagement, Education and Culture

2023-2025



Cover Image: Sand art on Morfa Conwy beach © Soul 2 Sand & Volunteers out on a boat © Rhianna Parry

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Photo: Project team deploying shell cultch and native oysters © Rhianna Parry

Executive Summary

With NNF2 funding (April 2023–August 2025), this project built on the foundations of the PPL-funded Wild Oysters Project: Conwy Bay (2020–2023). Key elements of the NNF2 project included expanding public engagement and outreach activities, increasing native oyster restoration efforts, and further building our citizen science oyster nursery monitoring. The project successfully delivered a targeted deployment of 45m³ / 20 tonnes of cultch and 2,000 oysters on the seabed, an invisible but ecologically significant intervention, while the oyster nurseries offered a tangible, visible focal point for community engagement, citizen science, and reconnection with the region’s cultural and ecological heritage, where oysters once thrived. An ambitious achievement of 11,280 people and 3,060 students were reached through the project’s engagement programme, including workshops with underserved ethnic minority groups, education fairs, and ‘Oyster Safari’ site visits.

This report shares both the successes and lessons learnt from the delivery of the project’s engagement aims. The insights gathered from our work in Conwy Bay are intended to inform and strengthen future community-facing efforts linked to native oyster restoration and broader marine conservation across the UK.

Overarching Project Goals

The NNF2 Restoring Wild Oysters to Conwy Bay project focused on two key goals. The table below summarises headline results against the project’s Key Performance Indicators (KPIs), reflecting progress towards its goals in restoration, education, and community engagement between April 2023 and August 2025.

Table 1. Headline results for the Conwy Bay restoration hub (April 2023 – August 2025)

	Category	KPI	Results
Goal 1	Scale up existing oyster reef habitat restoration activities	Deploy 100 tonnes of cultch and release 10,000 mature oysters	Deployment of 20 tonnes of cultch and 2,000 oysters*
Goal 2	Number of students reached with the delivery of educational outreach/ learning modules	3,000 students	3,060 students
Goal 2	Training of citizen scientists in native oyster restoration and monitoring	60 volunteers	185 new volunteers, 118 returning volunteers = 303 total, contributing 1,460+ hours
Goal 2	Engagement of the general public during the project	10,000 people	11,280 people

This report outlines our social and community-facing achievements aligned with goal 2. For more information about the project’s restoration efforts and results of our initial project monitoring results with goal 1, please refer to the report #NNF2 Restoring Wild Oysters to Conwy Bay: Technical Report on Oyster Monitoring and Habitat Restoration (Hayden-Hughes et al., 2025) and the forthcoming #NNF2 Restoring Wild Oysters to Conwy Bay – Project Evaluation Report (2023–2025).

Goal 2) To support the long-term future of the restored oyster beds by engaging a wider range of local people with the historical and natural heritage of oysters in Conwy Bay

- Educate and inspire 3,000 young people from local schools, colleges, and universities to learn about the marine environment and become marine stewards through hands-on visits to marina sites with oyster nurseries.
- Engage 10,000 local residents through outreach events and digital content, increasing awareness of the ecological role of native oysters and fostering a sense of local pride and ownership in Conwy Bay's restoration story.
- Train 60 citizen scientists to participate in monthly monitoring of oyster nurseries, building local skills and long-term involvement.
- Publish a monitoring and evaluation report of the project's education and outreach activities, capturing key learnings - particularly from engagement with STEM audiences and underserved ethnic minority communities.

To meet the ambitious Goal 2 KPI targets the project funded the recruitment of a part-time Welsh speaking Engagement and Research Officer, in post from January 2024, to lead the engagement activities and expand reach with a wider audience through the development of a new inclusivity strategy.



Photo: Engagement stall at Gŵyl Fwyd Caernarfon © Rhianna Parry

Introduction

This report outlines the societal and community-focused achievements of the NNF2 Restoring Wild Oysters to Conwy Bay project, highlighting how marine habitat

restoration has served as a platform for citizen science, community engagement, education and inclusion. It draws on participant feedback to evaluate successes, lessons learned, and progress against both funder and project objectives.

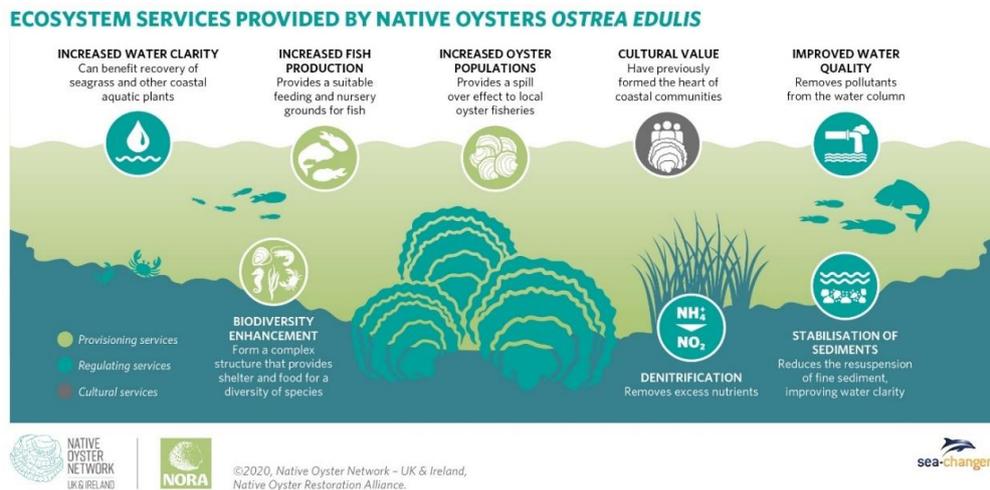
Reconnecting Communities with Coastal Heritage



Photo: Designed oyster shells © Rhianna Parry

The native oyster (*Ostrea edulis*) is a keystone species which once thrived along the Welsh coastline and wider Europe. Historically harvested for food and trade, native oysters played a key role in local ecosystems and were an important part of coastal livelihoods, contributing to both the Welsh economy and maritime heritage. However, due to a combination of historic overfishing, pollution, habitat loss, disease, populations have declined by 95% within the UK. Recent research has found that native oyster reef ecosystems across Europe now meet the IUCN criteria for ecosystem collapse, with widespread loss of geographic distribution, severely restricted current range, and the near-total disappearance of functional reef structures (zu Ermgassen *et al.*, 2025). This collapse underpins the urgent need for habitat restoration efforts and renewed public engagement with marine heritage.

Figure 1. Infographic illustrating the ecosystem services provided by native oysters. © Native Oyster Network – UK & Ireland; Native Oyster Restoration Alliance, 2020.



Native oysters provide a range of ecosystem services such as water filtration, habitat creation leading to increased biodiversity and ecological resilience (see Figure 1). Conwy Bay and areas in close proximity to the River Conwy – including Puffin Island, Anglesey, and the Menai Strait – historically supported productive native oyster beds in the 18th and 19th centuries. Reports noted Welsh boats would land up to 8,000 oysters daily in the mid-18th century and in some areas 15,000–20,000 oysters per day in the mid-1800s. Archaeological evidence of oyster shells on the Great Orme dating to the Neolithic and Bronze Age reinforces the species’ long-term regional presence (Hayden-Hughes et al., 2023). Conwy’s historical significance is further underlined by shellfish research conducted at the former MAFF Fisheries Station in Conwy until its closure in 1999. Experimental trials included the use of lime-coated tiles for larval settlement and investigation into alternative species such as *Ostrea chilensis* and *Crassostrea virginica* (Morgan, 2012).

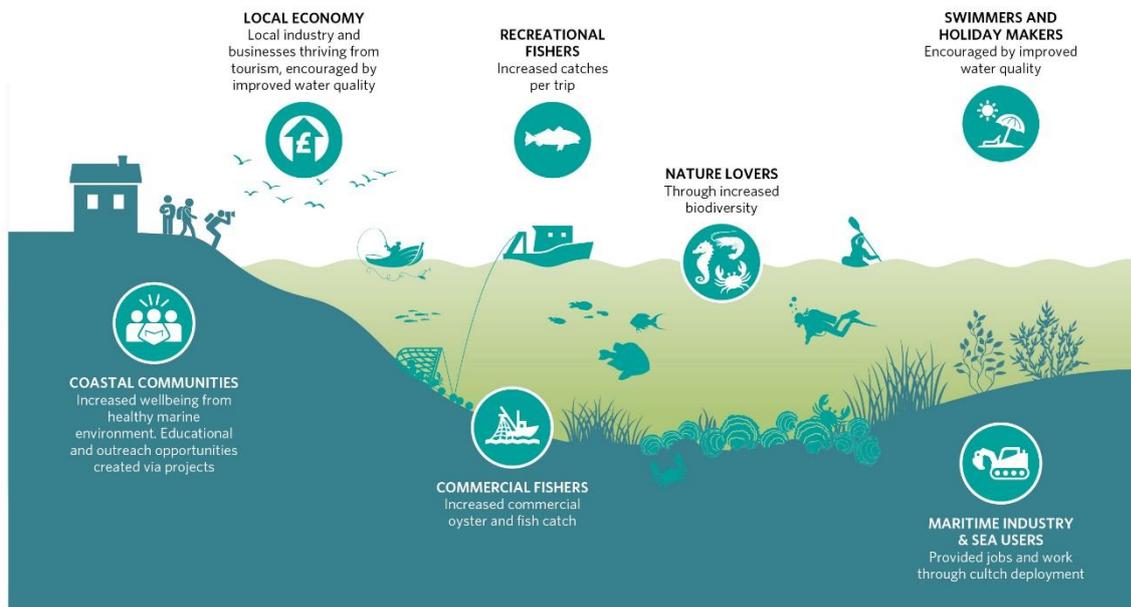
Today, Conwy Bay continues to support the shellfish fishery, particularly for mussels, lobsters, and crabs, contributing to the local economy and coastal livelihoods. Conwy Bay also lies within the Menai Strait and Conwy Bay Special Area of Conservation, noted for sand and mudflats vital for wintering oystercatchers and rare rocky reef habitats with diverse sponge communities (JNCC, 2025) The restoration of oyster habitats aims to build resilience of the marine environment while fostering community participation, place-based learning, and coastal connection.

Figure 2. Historical oyster cultivation in North Wales. (1) Building the oyster cultivation tanks at Conwy, 19. (2) Workers wiring tiles to make bouquets for oyster cultivation, 1921. (3/4) Oyster cultivation at Tal y Foel, Menai Strait, 1960s (Conwy Archives, 2019).



Figure 3. Infographic illustrating the range of beneficiaries supported by native oyster restoration © Native Oyster Network – UK & Ireland; Native Oyster Restoration Alliance, 2020.

BENEFICIARIES OF NATIVE OYSTER RESTORATION



©2020, Native Oyster Network – UK & Ireland, Native Oyster Restoration Alliance.



Welsh Context for Ocean Literacy

The Welsh Ocean Literacy Coalition – led by CaSP Cymru and made up of over 30 partners including NRW, Welsh Government, and Bangor University – developed Y Môr a Ni: The Sea and Us, the first national ocean literacy strategy in Europe. The framework

aims to deepen people’s relationship with the sea by promoting understanding of “our impact on the sea, and the sea’s impact on us,” (NRW, 2025). It reflects a growing recognition that meaningful connection to coastal environments can inspire more informed and responsible behaviours (McKinley, Burdon and Shellock, 2023). As a coalition member, the Wild Oysters project contributes by embedding ocean literacy through citizen science, habitat restoration, and place-based community engagement.

The Marine Conservation Society’s (MCS) Hiraeth Yn Y Môr project complements this vision through storytelling, creative practice, and community-led action rooted in Welsh values (McKinley, 2025). The NNF2 Wild Oysters Conwy Bay project contributes to this movement through bilingual citizen science, community engagement, education and marine restoration, naturally embedding ocean literacy within communities through culturally grounded local engagement.

Inclusion and Representation

The project aimed to address inequalities in access to environmental science by targeting Women and Girls in STEAM (Science, Technology, Engineering, Arts, and Mathematics) and underserved ethnic minority groups. These audiences remain underrepresented in the environmental sector. With North Wales being one of the UK’s least ethnically diverse regions: 97.5% of the population identify as White (Welsh Government, 2021). It was essential to create inclusive pathways into marine conservation. An inclusivity strategy was developed with guidance from local and national EDI (Equality, Diversity, and Inclusion) experts, focusing not on redefining inclusivity, but on strengthening how it is implemented within the project and embedded across activity delivery in the local region.

Simultaneously, workshops and internships supported increased representation in marine science. These activities also aligned with Bangor University’s [Athena Swan Charter commitments](#), promoting gender equity in higher education and research.

The work aligns with the United Nations Sustainable Development Goals, including Goals 4, 5, 11, 13, 14, and 17 (United Nations, 2020; see Figure 4), and supports the UN Decade on Ecosystem Restoration Strategy by promoting inclusive, community-led marine restoration (UNEP, 2021)

Figure 1. Visual representation of how the project aligns with six UN Sustainable Development Goals and the restoration goals of the UN Decade on Ecosystem Restoration (UNEP, 2021; UNEP and FAO, 2025).



Project Background

The Wild Oysters Conwy Bay project began as a part of the People’s Postcode Lottery-funded Wild Oysters Project (2020–2024), which launched Native Oyster restoration across three UK hubs. In Conwy Bay, this phase installed nurseries and initiated seabed restoration, laying the groundwork for the current project.

A Local Working Group (LWG) and Technical Advisory Group (TAG) were established, bringing together local experts from science, industry, and policy. Their continued guidance ensured the #NNF2 project remained locally relevant and scientifically robust.

The project’s intended activities and impact were aligned with NLHF objectives, ensuring that environmental restoration was delivered alongside societal benefit. Table 2 summarises how the #NNF2 Wild Oysters to Conwy Bay project was designed to contribute to key funder outcomes.



Photo: Oyster nursery monitoring session with volunteers © Rhianna Parry

Table 2. Summary of Intended Wild Oysters Conwy Bay Delivery Against NLHF Objectives (as set out in NNF2 funding proposal).

Funder Objectives	The Wild Oysters Conwy Bay Delivery Against NLHF Objectives
✓ People will have developed skills	Opportunities will be available for a broad-range of ages and backgrounds, to gain hands-on experience of marine conservation, raising awareness of the importance of our marine environment and invaluable experience for future employment.
✓ People will have learned about heritage, leading to change in ideas and actions	People will learn about the importance of oysters, the local marine environment and the importance of preserving it, thus informing the next generation of marine stewards to help tackle global biodiversity loss and climate change.
✓ People will have greater wellbeing	The mental and physical wellbeing benefits of getting outdoors into nature are now well established. This is particularly important given the 25% increased prevalence of anxiety and depression since the global coronavirus pandemic. The #NNF2 Restoring Wild Oysters to Conwy Bay project offers opportunities to local people to explore the local N Wales coastline.

The following sections provide a detailed overview of the project’s engagement approach, outcomes, and key learnings,

demonstrating how community-focused marine restoration can support inclusive environmental action at a local scale. KPI metrics and results were recorded between April 2023 and August 2025.

Citizen Science

Citizen science oyster nursery monitoring

The success of Goal 1 involved the retention and recruitment of citizen scientists to support monthly monitoring of 2,000+ oysters at nurseries established in Conwy and Deganwy-Marina.

The first phase of the Wild Oysters Project trained an incredible 174 volunteers in Conwy Bay. During the NNF2 funded phase of the project 185 new volunteers and 118 returning volunteers had contributed 1,460 hours to the project. Volunteer community building efforts have been effective, and 40% of volunteers are returning volunteers. This demonstrates a retained enthusiasm within local communities to become marine stewards, who, when offered the chance to make new connections and learn new

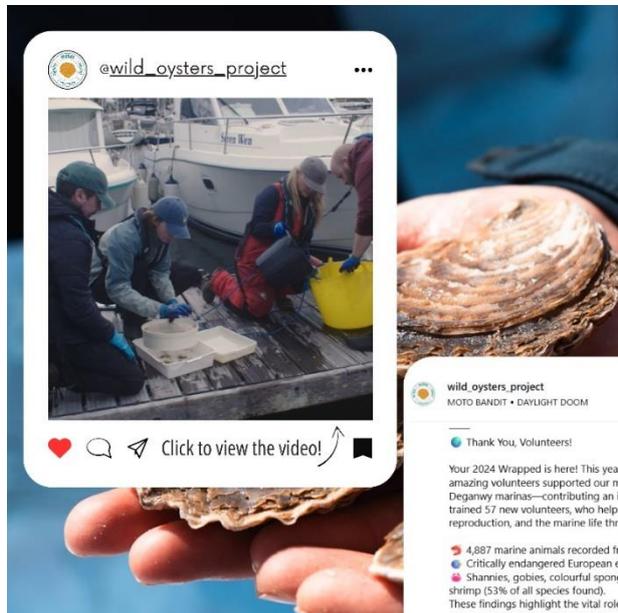
skills, excelled in contributing to restoration efforts. Volunteer community communications and project updates were achieved online with regular updates shared via WhatsApp, Instagram, Facebook, X, the volunteer email list (283 subscribers to date), and the Bangor University media team. Most posts shared were bilingual, in both English and Welsh, depending on the staff member from ZSL (English medium organisation) or Bangor University (bilingual). A Bangor University translation service was also used to support the translation of materials

Volunteer tasks included supporting the monitoring of oyster survival, recording if they are spawning, and tracking the associated biodiversity interacting with the nurseries. Data from oyster nursery monitoring will be fed into a research paper on the biodiversity associated with oyster nurseries. This short video captures the key activity delivered: <https://vimeo.com/1006733806> (Idris Films, 2024).

In April 2024, the project introduced an additional 600 native oysters to enhance the stock within the nurseries at Conwy and Deganwy marinas. Volunteers played a key role in supporting this effort by taking part in four dedicated biosecurity cleaning sessions, helping to safeguard the health of the oysters and reduce the risk of introducing invasive non-native species (INNS). They also recorded over 100 sightings of the Critically Endangered European eel within the nurseries. In response, citizen scientists began tracking the presence and size of the eels and are working to integrate this data into existing monitoring databases.

These achievements reflect not only the scientific value of citizen participation but also the care and commitment demonstrated by the volunteers. To understand the deeper impacts of their experiences, feedback was gathered from those who took part in the programme.

Figure 5. A thank you video recognising the efforts of volunteers involved in oyster nursery monitoring at Conwy Marina. Their contribution supported restoration activities through citizen science. [Click the figure to view the video.](#)



Volunteer Feedback

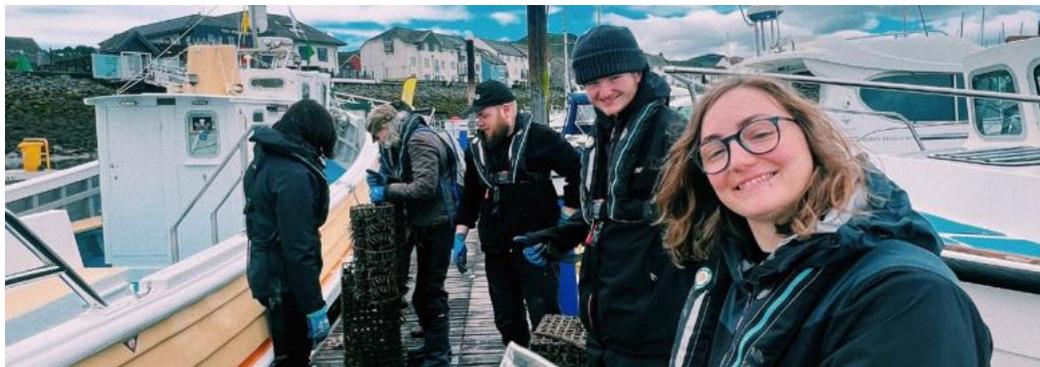


Photo: Oyster nursery monitoring session with volunteers © Rhianna Parry

To evaluate the impact of the volunteer programme, a post-participation questionnaire was distributed via Microsoft Forms to individuals who took part in citizen science activities between 2023 and 2025. These included oyster nursery monitoring, biosecurity cleaning, reef site trips, and volunteer celebration events.

The survey used a mix of multiple-choice, Likert scale, and open-ended questions to gather both quantitative and qualitative insights into participants' experiences. It assessed outcomes in skills development, environmental understanding, wellbeing, confidence, inclusivity, heritage, and future interest.

The findings below are based on responses from volunteers (n=21) representing a range of ages and backgrounds between 2024–2025. The results support our evaluation of how the project contributed to marine stewardship, community connection, and practical conservation skills in North Wales:

Table 3. Summary of volunteer feedback and outcomes from the citizen science programme (2023–2025), highlighting key themes, impact findings, and representative quotes.

Theme	Findings	Volunteer Quotes
Skills & Knowledge	100% learned practical oyster skills	“Monitoring the oyster nurseries made me realise just how much life oyster beds sustain... It’s definitely made me more passionate about sustainable seafood.”
Marine Stewardship	100% felt more connected to marine life	“I have gained a much greater interest and knowledge of bivalves and the importance of them to maintain clean and healthy waters.”
Confidence & Capability	92% felt more confident in conservation	“Even when I’m not feeling at my best, I will always look forward to oyster cleaning with such an amazing group.”
Coastal Heritage & Sense of Place	83% felt more connected to place	“Interesting to learn how oyster reefs used to exist in the bay and we’re helping bring them back.”
Wellbeing & Community Connection	100% said it improved their wellbeing	“Being around positive, enthusiastic and knowledgeable young people was a joy.” “Meeting interesting people who I’d not normally meet! They were all so lovely.”
Inclusivity & Accessibility	Inclusive & accessible, with room to widen age participation	“The sessions are always very welcoming and inclusive of all walks of people.” “Getting more ages involved, not just children and young people.”
Community Engagement	High satisfaction with volunteer appreciation events	“Everything. There has not been a single thing I disliked.”
Future Engagement & Feedback	100% want to volunteer again, with suggestions for online theory sessions and strong enthusiasm for	“I would have liked a theory lesson... Maybe an e-learning course?” “I’m always interested in hearing about more volunteering. If there’s more to share going on



Photo: European flat oyster, Ostrea edulis © Rhianna Parry

Read their reflections here:

“Just being surrounded by people from different backgrounds, but all with the same common goal and interest – that’s really special. It’s so rewarding. At the end of the day, I feel like I’ve achieved something that contributes to a bigger goal. And it’s just incredible to be around people who get completely excited about pulling up a butterfish or an eel!” - Rowan Jones

“It’s really cool learning about what they do and seeing real conservation and science in action. My favourite part is probably the people I meet. I love coming out here and meeting others from all walks of life who also care about conservation and want to do whatever they can to help the planet.”- Brooke Butterfield

“It’s as much about the people as it is about checking on the oysters and marine life. A lot of the volunteers are involved in marine science, so it’s really cool hearing about different projects. Even if you’re not, it feels good to do something positive for the local area. I think what the Oyster Project is doing is really important.”- Jeffrey Shield



Photo: Oyster cleaning session © Rhianna Parry

Volunteers were recognised through a series of informal events celebrating their contributions and fostering community:

- **Pizza & Movie Night Bash – Bangor (Volunteers Week 2024)**
Informal celebration featuring a marine film screening and volunteer data highlights. *Attended by 11 volunteers.*
- **Christmas Monitoring Session – December 2024**
Festive-themed oyster nursery session with hot drinks and field kit gifts. *Attended by 9 volunteers.*
- **Restoration Site Boat Trip – July 2025**
Exclusive reef site visit for active volunteers to see restoration impact first-hand. *Attended by 12 volunteers.*
- **World Oyster Day – August 2025**
A volunteer thank-you event held during a monitoring session, followed by a celebratory lunch to mark the international occasion. *Attended by 12 volunteers.*

Figure 7. Volunteers observing the restoration site during a boat trip, witnessing the impact of their data collection and contributions to real-time monitoring.



Photo: Volunteers observing the restoration site during a boat trip, witnessing the impact of their data collection and contributions to real-time monitoring © Rhianna Parry

Successes and Lessons Learnt

Table 4. Summary of successes and lessons learnt from volunteer coordination and engagement during the citizen science programme (2023–2025), grouped by theme.

Theme	Successes	Lessons Learnt
Communication	Regular social media posts alongside closed Facebook and WhatsApp groups effectively supported volunteer engagement.	Use of multiple platforms builds a sense of community; ensure consistent posting and bilingual content where possible.
Time & Capacity	Oyster nurseries proved to be an effective engagement tool.	Time and staff capacity to manage them should be considered carefully in future project planning.
Volunteer Management	Online volunteer sign-up tools (e.g. Volunteersignup.org) helped streamline admin tasks.	Continue using low-effort digital tools to support coordination, especially during busy fieldwork periods.
Accessibility	Volunteers from a range of backgrounds took part.	Travel remains a barrier for some. Budgeting for transport (bus/train fares, parking) increases accessibility and participation.
Learning & Engagement	Volunteers enjoyed practical tasks such as monitoring and biosecurity cleaning, and showed strong enthusiasm to engage in wider citizen science within the area and other projects.	Many requested more background theory (e.g. biodiversity ID). Offer optional pre-session e-learning or handouts to support deeper understanding, certificates of participation to add CV value, and accessibility resources (e.g. BSL).
Volunteer Recognition	Celebrate People, Not Just Data - Recognition builds loyalty. Volunteer belonging grew through end-of-season socials, thank-you videos, and shared project updates. Tangible moments, like the reef visit, informal drinks, small	Simple, personal recognition builds long-term engagement. Continue offering informal socials, project updates, and small gestures of appreciation.

	thank-you gifts, or keepsakes linked to the project.	
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Public Engagement

Engagement Programme

Oyster monitoring and restoration activities have provided an incredible opportunity for local communities to connect with their coastal heritage.

The NNF2 project set an ambitious target of engaging 10,000 people over two years through expanded outreach and citizen science activities. By the project’s close, this goal was exceeded, with 11,280 members of the public engaged and 59 outreach events delivered or attended (see Figure 9 & 10).

Public outreach and engagement

The project team attended and delivered a range of impactful outreach events across North Wales, all activities were designed to:

- Raise awareness of project goals
- Increase ocean literacy
- Open access to restoration efforts
- Foster community participation

Some examples of key events delivered include:

- Bangor Science Festival, Bangor University - 9th March 2024, 1,682 attendees
- Gŵyl Fwyd Caernarfon (Pentre Bwyd Môr), Caernarfon - 11th May 2024, 2,000 attendees
- Dylan’s Seafood Discovery Day, Criccieth - 13th July 2024, 1,700 attendees
- Eisteddfod Genedlaethol Cymru, Rhondda Cynon Taf – 8–9th August 2024, 600 attendees
- Oyster Safari (Berth Holder Open Day), Conwy Marina – 29th August 2024, 58 attendees
- Festival of the Sea (Y Môr a Ni), Flint – 22nd March 2025, 292 attendees
- 1,500 Years of Bangor Celebration (Science Zone), Bangor Pier – 1st March 2025, 250 attendees

Community events such as Dylan’s Seafood Discovery Day and the Conwy Marina Oyster Safaris alone engaged over 1,700 attendees, raising awareness of ocean conservation and supporting volunteer recruitment.

A highlight was the project's presence at Gŵyl Fwyd Caernarfon, where the team delivered engagement within the Pentre Bwyd Môr tent hosted by [Môr Ni Gwynedd](#). The stall featured oyster filtering tanks, plankton ID and a virtual reality (VR) film developed by Jake Davies (Project SIARC) and commissioned by Môr Ni Gwynedd. As part of the project's inclusivity strategy, the VR experience trialled a unique and accessible way for participants to connect with their local marine environment.

This engagement model was replicated at The Sea and Us: Festival of the Sea in Flint, part of Y Môr a Ni Ocean literacy strategy. Through the use of live oysters, hands-on activities, and science communication, the team contributed to the coalition's national mission to improve ocean literacy and foster emotional connection to the sea.

Paid student placements at Bangor University played a central role in delivering these events, providing valuable experience in science communication and supporting volunteer recruitment. The project also represented the project at Bangor University Open Days, where KS5 students and families engaged in interactive sessions showcasing marine careers and conservation.

Community Celebration Event

To strengthen local ties and celebrate community involvement, the project delivered a bespoke event: Gŵyl Wystrys yr Hydref / Autumn Oyster Fest, Morfa Conwy (October 2024) – 160 attendees (see Figure 8).

This family-friendly celebration blended science, art, and music, rooted in Welsh coastal heritage. Held in partnership with North Wales Wildlife Trust and [Keep Wales Tidy](#), the event served as a key opportunity to promote ocean literacy and foster a sense of marine stewardship by delivering project messages in an engaging and accessible way. A highlight of the day was a performance by a local Welsh folk duo, who enriched the atmosphere with sea-themed music, reflecting the cultural connections to the marine environment. The event took place at Conwy Morfa Beach, located just down the road from the oyster nurseries and strategically overlooking the seabed restoration site, bringing the community directly into the landscape of change.

A standout feature was the commissioned sand art by [Soul 2 Sand](#), created live during the event. The artwork represented the importance of biodiversity, visually reinforcing the significance of important local coastal habitat such as the artisanal mussel fishery. While guided by the artist, local attendees took part in creating the piece, making it a true community effort.

Figure 9. Autumn Oyster Fest at Morfa Conwy celebrated oyster restoration and Welsh coastal heritage through community science, art, and music. [Click to view the event video.](#)



Figure 9. Zoomed-in view of North Wales with orange circles showing the locations and number of people engaged with through the #NNF2 Restoring Wild Oysters to Conwy Bay project.

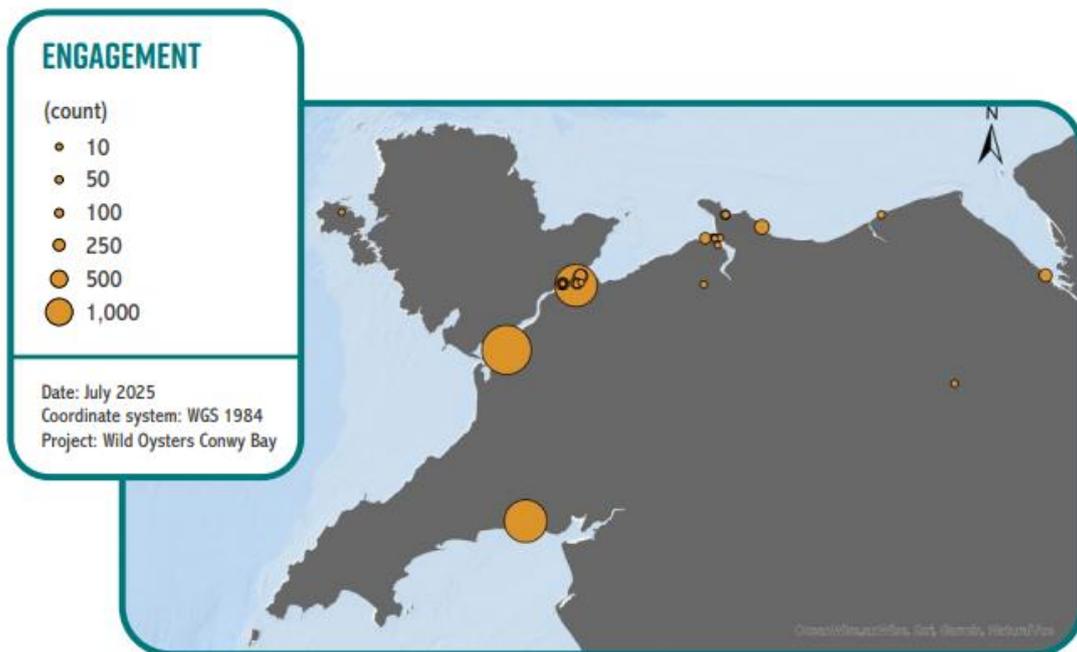
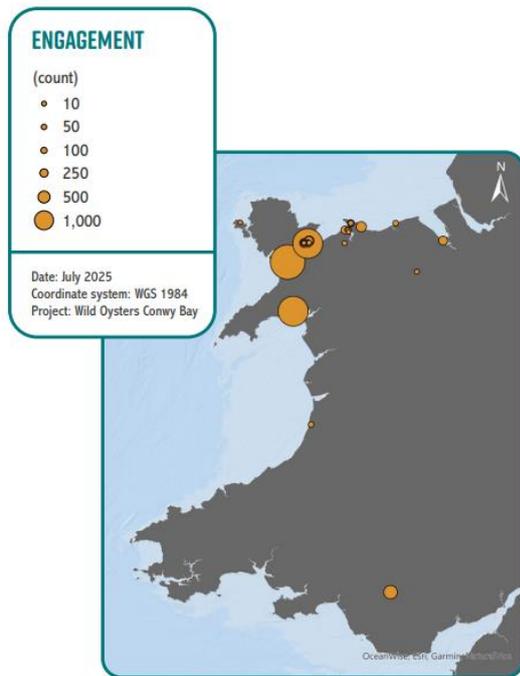


Figure 10. Map of Wales with orange circles showing the locations and number of people engaged with through the #NNF2 Restoring Wild Oysters to Conwy Bay project.



Successes and Lessons Learnt

The following table 5 summarises key successes and lessons learnt from volunteer coordination and engagement during the citizen science programme. Themes highlight what worked well and where improvements can be made to strengthen future community science initiatives.

Table 5. Summary of outreach and education outcomes (2023–2025), highlighting successes and lessons learnt in community engagement, inclusive learning, and long-term stewardship.

Theme	Successes	Lessons Learnt
Reach & Participation	Engaged over 11,000 people through 59 outreach events across North Wales, surpassing targets through festivals, science fairs, and marina sessions.	Use a mix of large-scale and local events to maximise visibility and reach a wider cross-section of the community.
Inclusive Engagement	Delivered hands-on activities (e.g. oyster filtration, shell ageing, plankton ID) and introduced VR experiences to engage a range of abilities and ages.	Incorporate multi-sensory and digital experiences to make marine science accessible and appealing for people of all backgrounds and experience levels.

Education & Skills	Provided students with experience in marine outreach and inspired intergenerational learning at public events.	Offer structured opportunities for student involvement and design activities that promote informal learning and skills-sharing across age groups.
Community Connection	Embedded Welsh culture through language, live music, and collaborative sand art at outreach events.	Root events in local culture or attend local events to build emotional connection and reinforce a sense of place. Strengthen engagement with inland communities to overcome barriers of coastal connection, broaden inclusivity, and ensure equitable access.
Stewardship & Retention	Timed outreach around key milestones and held volunteer appreciation events like Autumn Oyster Fest.	Schedule events to coincide with visible project moments and strengthen long-term engagement through regular recognition and pathways to stay involved (e.g. monitoring).

Formal Education Programme

The formal education programme was developed to enhance ocean literacy and awareness of native oysters and the ecosystem services they provide among Key Stage 2 - Key Stage 3 pupils, and to higher education level. The programme, linked to the National Curriculum for Wales (2022), aimed to inspire the next generation of marine stewards to continue to care for the marine environment. The education programme featured a range of free activities and resources, including:

- A range of lesson plans, worksheets, interactive games and workshops
- 'Oyster Safari' to see the oysters up close
- Curriculum-linked classroom workshops and assemblies- digital or in person as required
- Hands-on participation in our marine conservation project
- We also offer student internships and research project opportunities

As part of this delivery, 32 interactive workshops were held at schools and marina sites, reaching learners across all formal education levels. Of these, 23 were delivered bilingually or in Welsh, ensuring inclusive access to marine science education in North Wales (see Figure 11).

Figure 11. Map of North Wales showing locations of schools engaged with through the project. Green location pins indicate sessions delivered in English, red pins bilingual sessions, and yellow pins sessions in Welsh.



Teacher Feedback

To assess the impact of the education programme, a post-session questionnaire was distributed via Microsoft Forms to educators following classroom workshops, assemblies, and Oyster Safari visits delivered between 2023 and 2025.

The survey evaluated outcomes in ocean literacy, environmental stewardship, STEAM engagement, curriculum alignment, and inclusivity for pupils across KS2–KS3 and higher education. Using a mix of multiple-choice, Likert scale, and open-ended questions, the survey gathered both quantitative and qualitative insights into educators’ experiences.

The results below reflect feedback from educators (n=6) across 10+ workshop sessions

Table 6. Teacher reflections on the Wild Oysters education programme (2023–2025), based on feedback from six primary and secondary schools across Conwy and Ynys Môn.

Theme	Key Findings	Teacher Comments
Ocean Literacy	100% agreed or strongly agreed sessions improved pupils’ understanding of native oysters and marine ecosystems.	<i>"Children gained a far deeper understanding...very informative."</i>

Marine Stewardship	100% agreed sessions encouraged pupils to think about protecting their local marine environment.	<i>"The session engaged all, especially ones that struggle to engage in a 'normal' classroom setting."</i>
STEAM Engagement	90% strongly agreed, 10% agreed the sessions raised awareness of marine careers and STEAM pathways.	<i>"Enthusiasm of staff helped students engage better with a topic they're unfamiliar with."</i>
Curriculum Alignment	Most respondents felt content aligned well with the Curriculum for Wales and was age-appropriate.	<i>"This has led to increased engagement within our ecosystem science topic."</i>
Inclusivity	100% strongly agreed sessions were inclusive for pupils with additional learning needs; 83% strongly agreed they engaged less-confident learners.	<i>"We all believed that the session was already accessible and inclusive." "Mix in some physical/outdoor activities for pupils who struggle with written work."</i>
Satisfaction	100% would recommend the programme and want to participate again.	N/A

Teacher reflections reinforced this impact:

“This has led to increased engagement within our ecosystem science topic, and pupils engaged well and were eager to ask questions.” - KS2 Teacher (pre-site workshops, Oyster Safaris, and beach clean sessions)

“The enthusiasm of staff helped students engage better with a topic they’re unfamiliar with” and the “session engaged all, especially ones that struggle to engage in a “normal” classroom setting.” - KS3 Teacher (assembly and pre-site workshop)

“Thank you for the workshop you did last Friday! I’ve picked up a lot and have realised where I can take the topic to a higher level!” - KS2 Teacher (pre-site workshop)

Feedback from six educators across ten sessions showed strong alignment with the Curriculum for Wales and clear benefits for ocean literacy, environmental awareness, and STEAM engagement. Sessions were praised as inclusive, hands-on, and bilingual, with all recommending the programme. These outcomes support Goal 2 by building lasting school partnerships and helping young people become marine stewards through workshops and marina site visits.

Wider Education Initiatives

The project also received valuable feedback from wider education initiatives, including a collaboration with [Reaching Wider](#), a national outreach programme funded by Medr: Commission for Tertiary Education and Research. Reaching Wider supports underserved groups, particularly those in the 40% most deprived areas of Wales, as well as care-experienced young people, carers, and learners from ethnic minority backgrounds. At a STEM Skills Day in Gwynedd on 28 March 2025, 125 Year 7 and 8 pupils joined bilingual workshops, including our pre-site session. Reaching Wider’s evaluation found 52.9% of participants lived in the 40% most deprived areas, highlighting the project’s role in inclusive, place-based education.

Partner Contribution: Tir a Môr Education Pack

The Tir a Môr education pack, developed by Pen Llŷn a’r Sarnau SAC and the Llŷn Partnership, is a bilingual teaching resource designed to help teachers and pupils explore Wales’s natural environment from mountains to sea. As a partner, the project contributed expertise and content to the sea booklet, helping part- shape the section on native oyster habitats with their existing education materials.

The pack will launch in September 2025 in Gwynedd and Anglesey schools, and the project team is now seeking to collaborate further with local SAC officers to integrate it into Conwy schools. Download the pack here: [Tir a Môr Education Pack](#).

Successes and Lessons learnt

The following table 7 summarises key successes and lessons learnt from the education programme, which aimed to inspire the next generation of marine stewards to continue caring for the marine environment. Themes highlight what worked well and where accessibility, representation, and cultural relevance can be strengthened in future education activities.

Table 7. Summary of inclusive education outcomes (2023–2025), highlighting successes and lessons learnt in accessibility, representation, and culturally relevant programme design.

Theme	Successes	Lessons Learnt
Ensure equitable access to learning opportunities	<ul style="list-style-type: none">• Allocated dedicated funding for school travel, promoting inclusivity across regions by removing access barriers.• Created flexible, curriculum-linked resources tailored to various Key Stages and national frameworks, enhancing	<ul style="list-style-type: none">• Access barriers, such as travel costs, can limit participation.• Learning materials must suit a wide range of learner needs, backgrounds, and contexts.

	engagement and learning outcomes.	
Embed inclusion	Developed bilingual (Welsh & English) and inclusive resources with tactile tools, sensory-friendly formats, and VR.	Accessibility must be embedded in resource design to meet the needs of neurodivergent and disabled learners.
Representation	Engaged educators early in the planning process to co-design accessible solutions.	Early involvement of educators helps identify specific support needs and leads to more effective, inclusive solutions.
Cultural relevance	Incorporated Welsh language and cultural identity throughout, with budget allocated for quality translation, culturally sensitive design, and employment of a Welsh-speaking staff member.	Cultural identity and language must be considered in all aspects of programme design to ensure local relevance and inclusivity.

Developing An Inclusive Strategy

Developing an Inclusivity Strategy for Women, Girls, and Under-served Ethnic Minority Groups Communities in STEAM (Science, Technology, Engineering, Arts and Mathematics)

A key project objective under goal 2 was to develop an inclusivity strategy that would shape all outreach and engagement activities. While STEM is the more commonly used term, the project incorporated the Arts element in response to strong interest from educators and community leads, who indicated that art-based approaches would better engage their groups in STEM learning.

The [ZSL's FAIRER Conservation Framework](#) formed the foundation of the strategy, by embedding inclusivity and reflexivity in the project, creating a space for mutual learning and equitable collaboration.

North Wales is predominantly White (97.5%), which poses challenges in effectively engaging with under-served ethnic groups and ensuring diverse participation. Bridging the gender disparity gap in STEAM was also a key consideration.

Developing this strategy involved collaborating with organisations who have successfully or currently engaging these groups, such as [Project SIARC](#), [The Wildlife Trust](#), [The North Wales River Trust](#), [Reaching Wider](#), and [Chester Zoo's](#) education and engagement team. Understanding learnings from other organisations was critical to

developing an approach for Conwy that ensured marine conservation was more accessible.

The project team increased engagement with underserved groups through partnerships with schools, community organisations, and cultural networks, including the Endeavour Society (student society, Bangor University), Pobl i Bobl (refugee group, Anglesey), North Wales Africa Society (NWAS, Bangor), and specialists at Bangor University. The team delivered three targeted outreach events co-developed with these communities, guided by the inclusivity strategy, which focused on understanding their needs and interests in the project, careers, and the marine environment.

Celebrating the International Day of Women and Girls in Science - 11 February 2025

To mark the UN’s [International Day of Women and Girls in Science](#), the project co-hosted an evening talk titled “*Accelerate Action: Inspiring Careers in Marine Science*”, in collaboration with Bangor University’s student-led [Endeavour Society](#). This event highlighted the vital role of six women across diverse areas of marine science and aligned with both the project’s NNF2 goal of widening participation, inclusivity and aligning with Bangor University’s [Athena Swan Charter](#) goals.

Figure 12. *Accelerate Action: Women and Girls in Science Day* – Instagram post shared after the 2025 evening talk, hosted in collaboration with the Endeavour Society. [Click to view the event video.](#)



The event, with an attendance of 108 attendees, created a space for connection, visibility, and open dialogue, bringing together students, early-career professionals, researchers, and scientists working across academia, NGOs, aquaculture, science communication, and policy. By sharing personal career pathways, real stories, and

- "Motivation- because trying to progress in this field is difficult."

Post event had a measurable impact on participant awareness and confidence. A total of 95% reported an increase in awareness of marine STEM careers, with 71% noting a slight increase and 25% reporting a significant increase. When asked whether the event encouraged them to pursue or continue a STEM career, participants gave an average rating of 4.7 out of 5, highlighting the value of the session in motivating next steps.

The most inspiring moments cited included the Q&A panel, hearing honest and non-linear career journeys, and seeing diverse role models.

Feedback highlights included:

- "Hearing stories of women who didn't follow a traditional path."
- "Knowing it's not too late to change your mind."
- "Talking about mental health and struggles as well as success."

Open-ended feedback and discussion identified key areas for future action to improve inclusion in STEM. Priorities included earlier exposure to marine science, targeted mentoring, better signposting of opportunities, improved retention pathways, and more visible, authentic role models.

In addition to survey responses, several key themes emerged through live discussions, Q&A sessions, and speaker reflections. These qualitative insights offered a deeper understanding of the structural and cultural barriers facing women in STEM, particularly around long-term inclusion and career progression:

- A strong call for flexible career pathways, especially to support mothers and caregivers.
- Recognition of the 'leaky pipeline', where women are underrepresented in senior roles due to caregiving responsibilities and limited advancement opportunities.
- The need for mentorship and peer networks, particularly for those returning to STEM after career breaks.
- Calls for greater involvement of male allies in creating inclusive spaces, emphasising that progress depends on collaboration, not division.
- Clear interest from participants in having regular events of this kind, suggesting strong demand for an ongoing series to maintain momentum and deepen engagement.

Table 8. Recommendations for inclusive STEM engagement, developed in line with the Welsh Government's Our National Mission, the UK-wide TALENT Commission, and the

STEM Returners Index, with relevant policy sources (STEM Returners, 2024; TALENT Commission, 2022; Welsh Government, 2023).

Recommendation	Action
Increase early exposure to marine STEM	Deliver outreach activities in primary and secondary schools, focusing on marine and STEM careers.
Improve access to careers information	Create accessible resources and signpost opportunities such as paid placements and training.
Facilitate mentoring and peer networks	Develop structured mentoring and peer support, especially for returners and early-career women.
Showcase diverse role models	Highlight stories of women in STEM through talks, social media, and outreach campaigns.
Support flexible & inclusive pathways	Promote flexible working, career break support, and inclusive hiring practices.
Embed continuous feedback	Use live feedback tools (e.g. Mentimeter) to include participant voices in programme design.
TALENT Commission insights	Integrate technical career progression and recognition into programme development.
Establish follow-up event series	Run regular STEM engagement events to maintain momentum and build community.

Feedback from 83 participants at this event offers qualitative insight into the barriers women face in marine STEM. While not representative of the wider sector, the findings reflect lived experiences that align closely with Welsh and UK Government priorities on gender equity, early STEM engagement, and career retention. Calls for more visible role models, mentoring, flexible pathways, and early exposure mirror the goals set out in national strategies. These insights provide clear, local community-led evidence to guide future #NNF3 and possible further funding.

Delivering STEAM Workshops with NWAS for British Science Week – February & March 2025

The project co-developed two art’s led workshops with the [North Wales Africa Society \(NWAS\)](#) during [British Science Week 2025](#). Held at Bangor Arts and Community Centre, the sessions welcomed 42 participants aged 4- 20+ and combined marine science with art to explore the theme *Change and Adapt*.

Activities included a live oyster demonstration, an interactive talk and clay sculpture-making using real shells to build a collaborative oyster reef. The second session built on the first, allowing participants to paint or create new sculptures.

This co-created approach fostered informal learning, cultural relevance, and a welcoming environment for participants unfamiliar with marine science. Though no formal data was collected, community feedback highlighted strong engagement, wellbeing benefits, and laid the groundwork for future collaboration.

Marina Site Visit with Pobl i Bobl - 25 February 2025

The project hosted a guided oyster safari at Conwy Marina for *Pobl i Bobl*, a refugee charity based in Anglesey. The visit offered a calm, welcoming space with a nursery tour, mussel clearing, and informal marine ecology discussions.

Designed to support wellbeing and connection to nature, the session included hot drinks and relaxed conversation. No formal data was collected, but the group lead reported that *“the guys loved it, thought it was a great day and really interesting.”* The session helped build trust and laid the groundwork for future collaboration.

Welsh Language Initiatives

The Welsh language was embedded throughout the project to ensure inclusivity, reflect local identity, and support Cymraeg 2050 (Welsh Government, 2025). A Welsh-speaking Engagement Officer led bilingual delivery, with 23 of 32 education sessions delivered in Welsh or bilingually. Outreach materials, signage, and social media posts were in both languages, supported by Bangor University’s translation service. Using Welsh marine science terms normalised the language in scientific contexts and strengthened connections to local seascapes. Teachers and participants noted that bilingual delivery enhanced relevance, belonging, and access, showing Welsh as a living expression of place, culture, and connection.



Photo: Guided oyster safari at Conwy Marina for Pobl i Bobl © Rhianna Parry

Successes and Lessons Learnt

Guided by the project’s inclusivity strategy, this work aimed to involve underserved groups and inspire the next generation of marine stewards. Themes show what worked well in collaboration, co-design, and trust-building, and where future improvements could be made.

Table 9. Summary of successes and lessons learnt in inclusive engagement (2023–2025), highlighting effective strategies for collaboration, co-design, and trust-building with underserved groups.

Theme	Successes	Lessons Learnt
Collaboration & Learning	Built meaningful partnerships with local organisations (e.g. NWAS, Pobl i Bobl) and Bangor University networks to reach underserved groups.	Continued collaboration with EDI specialists and community leaders is essential for authentic, inclusive engagement.
Inclusive Design	Programme activities were shaped by input from groups with lived experience, increasing relevance and accessibility.	Early involvement of communities improves co-design and reduces the risk of assumptions in programme planning.
EDI Knowledge & Practice	Participation in EDI-focused networks and events informed a more reflexive and responsive approach to engagement.	Embedding EDI requires ongoing reflection, capacity-building, and time - not a one-off intervention.
Maximising Impact	Leveraging existing events and networks (e.g. British Science Week, community sessions) boosted visibility and reach.	Avoid duplication by working alongside established community efforts rather than creating parallel structures.
Trust-Building	Informal, low-pressure events helped foster curiosity, connection, and openness among participants unfamiliar with marine science.	Success depends on creating safe, welcoming spaces that prioritise wellbeing alongside learning outcomes.



Photo: Shell cultch deployment © Maria Hayden-Hughes

Conclusion

The project has shown that habitat restoration is most effective when science and community go hand in hand. By coupling the deployment of 20 tonnes of cultch and 2,000 oysters with targeted citizen science, bilingual education, and inclusive public engagement, the project has built a foundation for ecological recovery while reconnecting people to their coastal heritage.

Over two years, 185 newly trained volunteers, 118 returning volunteers (303 volunteers in total), more than 3,000 students, and over 11,000 members of the public have taken part in activities that improved ocean literacy, inspired marine stewardship, and explored inclusive pathways into STEAM careers. Volunteer feedback highlighted gains in conservation skills, confidence, and wellbeing; educators reported clear curriculum alignment, increased pupil engagement, and stronger awareness of marine careers; and targeted outreach with underserved groups fostered trust, representation, and cultural relevance in marine science.

These achievements reflect not only the dedication of the project team, partners, and community but also the value of embedding restoration within people's everyday lives. In doing so, the project has contributed to national priorities such as the Welsh Government's Nature Recovery Action Plan, the Ocean Literacy Strategy for Wales, and the goals of the UN Decade on Ecosystem Restoration. It also supports the growing Blue Schools movement, which aims to embed ocean knowledge into formal education across Europe (European Commission, 2025).

The lessons learned - from sustaining volunteer retention, to embedding bilingual delivery, to co-designing activities with diverse communities - now offer a tested framework for future work. As Conwy Bay's restored oyster habitats develop, this network of informed, engaged, and skilled communities will be central to safeguarding

their recovery. The project’s legacy will be measured not only in the oysters on the seabed, but in the communities that feel a sense of ownership and pride in their marine environment.



Photo: Sand art on Morfa Conwy © Soul 2 Sand



Photo: NWAS members creating clay oysters to form a collective reef in celebration of British Science Week © Rhianna Parry

Legacy and Future

For further detail on the legacy, restoration outcomes, and future direction of the project, refer to the #NNF2 Restoring Wild Oysters to Conwy Bay: Technical Report on Oyster Monitoring and Habitat Restoration (Hayden-Hughes et al., 2025) and the forthcoming Project Evaluation Report (2023–2025).

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