

A Dune and Fences Photo Story *Reflections from 2023 to 2026*



Preface

“In June 2023, Galway City Council, in conjunction with the University of Galway and the Atlantic Seaboard North Climate Action Regional Office (CARO), will carry out a pilot project to install sand fencing at Grattan Beach.

The pilot project will help us develop nature-based solutions to manage Grattan Beach and sand dunes, as a ‘Living Lab’ for Galway City.

A ‘Living Lab’ is where scientists move from the laboratory to the real world to find solutions to problems, working with other experts and the public. This project extends the work of the community-led ‘I Like Beaches’ project (since 2012), where local groups have been contributing their ideas to develop a Living Lab that would make space for nature and visitors on Grattan.”



About

On a sunny day in early 2023, Galway City Council's Parks & Roads Team installed hundreds of metres of chestnut sand fencing along Grattan Beach in Salthill.

From that moment, Galway Atlantaquaria began documenting the project to see how these simple chestnut wooden fences would influence the beach over time.

Working within Explore Your Shore! framework, supported by the National Biodiversity Data Centre, we wanted to answer a series of important questions:

1. Could sand fences reduce sand loss?
2. Would they encourage coastal plants to grow?
3. Could they contribute to climate change adaptation?
4. Would they increase biodiversity?

And finally—would people like them?

Over three years, from 2023 to 2026, we observed the beach changing season by season, watched the fences, and sand shape the shore!

What follows is the story of those changes.



Stopping Sand Loss

One of the primary aims of installing the sand fences was to reduce the amount of sand being blown off the beach. Sand fences work by slowing the wind. Their open design allows air to pass through while reducing its speed, causing wind-blown sand to settle and gradually build new dunes.

Did it work? Yes.

Our photographs clearly show that much of the sand that would previously have blown across the road was instead captured behind the fences, where it accumulated and help formed new embryo dunes.

Although some people might see sand accumulating across the road as simply part of a natural beach system and process!

However, excessive sand loss has serious consequences. When beaches lose sand, they lose one of their greatest natural defences against storms. Dunes and beaches absorb wave energy and reduce flooding.

As the Climate Action Regional Office (CARO) explains, every grain of sand contributes to the protective buffer between land and sea. Without that buffer, storm surges can travel further inland, increasing the risk of flooding and erosion.

Ireland's coastline has always changed naturally through processes such as longshore drift, which moves and replenishes sand. Today, however, coastal erosion is being accelerated by both human activities and changing climate conditions.

Dr Aoife Blowick of the University of Galway beautifully explains the importance of sand in her RTÉ Brainstorm article With Every Grain of Sand.

<https://www.rte.ie/brainstorm/2019/0204/1027411-with-every-grain-of-sand-a-history-of-sand/>

To learn more about the vulnerability of sand, see:

<https://www.caro.ie/projects-research/campaigns/sand-dune/the-vulnerability-of-sand-dunes>

If stopping sand loss had been the only outcome of this project, it would already have been a success.



Encouraging Coastal Flora to grow

Before the fences were installed, Grattan Beach already supported scattered populations of Sea Rocket, Sea Radish, Sea Beet, Marram Grass and Sand Couch.

However, these plants were often short-lived. Strong winds, winter storms and heavy trampling frequently destroyed young vegetation before it could stabilise the dunes.

The sand fences project changed that.

By trapping sand and reducing wind speeds, they created sheltered conditions where pioneer plants could establish themselves far more successfully.

Within weeks, vegetation began expanding behind the fences. This is Nature-based Solutions (NbS) in action.

The fences acted as a protective bulwark, allowing coastal plants to trap even more sand and strengthen the developing dunes.

During the first few years an interesting pattern emerged.

Sea Rocket, with its brilliant white flowers, dominated the most exposed areas closest to the sea, while Sea Radish gradually occupied slightly more sheltered ground with vibrant yellow blooms.

By 2026 both species had largely established their own territories. This is a classic example of ecological succession.

Both species compete for space, yet together they improve the habitat by trapping sand and adding organic matter as they die back.

In doing so, they prepare the ground for permanent dune builders such as Marram Grass and Sand Couch.

The beach was no longer simply an expanse of sand.

It had become the beginning of a functioning dune ecosystem.



In the last few years we have seen the pioneer species move across the dunes, the yellow radish, the white mayberry, and the green couch grass all vying for dominance across the dunes. This has been wonderful to observe.

A Nature-based Defence Against Climate Change

Historically, Salthill’s coastline has always been protected using hard engineering. Large boulders and rock armour were installed to deflect wave energy away from the promenade. While these structures are important, they do not repair themselves after storms. **Nature does.**

Healthy dune systems absorb wave energy, trap sand and rebuild themselves after damage.

During major storms such as Agnes (September 2023), Debi (November 2023), Ashley (October 2024), and Éowyn (January 2025) the dunes did resist and fully recover.

Sand Couch (*Elytrigia juncea*) proved remarkably resilient, surviving where loose sand had been stripped away. Unlike concrete or rock armour, living dunes are self-repairing.

The Grattan project is relatively small scale, so we cannot claim that it alone mitigates climate change.

However, it clearly demonstrates how Nature-based Solutions can increase coastal resilience by creating dynamic landscapes capable of recovering naturally after extreme weather.

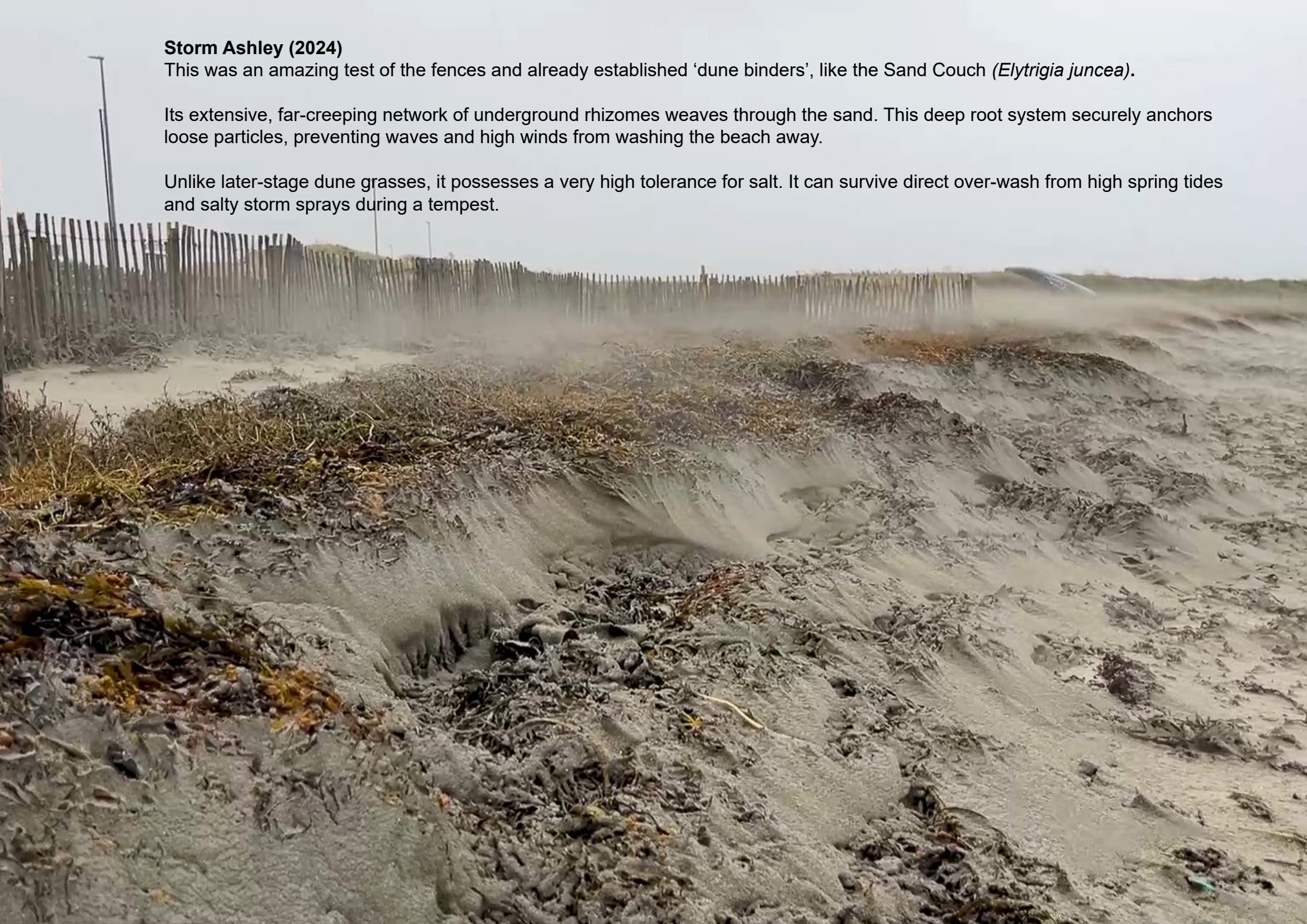
Storm Éowyn had hit the Sand Couch incredibly hard, however it grew back even stronger.



Storm Éowyn
January 21, 2025



19th of June 2025



Storm Ashley (2024)
This was an amazing test of the fences and already established ‘dune binders’, like the Sand Couch (*Elytrigia juncea*).

Its extensive, far-creeping network of underground rhizomes weaves through the sand. This deep root system securely anchors loose particles, preventing waves and high winds from washing the beach away.

Unlike later-stage dune grasses, it possesses a very high tolerance for salt. It can survive direct over-wash from high spring tides and salty storm sprays during a tempest.

Encouraging Wildlife Through Sand Fences Deployment

As vegetation increased, wildlife followed.

The developing dunes provided shelter, nesting opportunities and food for a growing variety of birds and invertebrates.

The project became so successful that we created an entire YouTube playlist documenting bird life around the sand fences.

Species recorded include:

Cormorant
Bar-tailed Godwit
Redshank
Turnstone
Oystercatcher
Brent Goose
Stonechat - Lived by the fences
Meadow Pipit - Lived by the fences
Goldfinch - Lived by the fences
House Sparrow - Lived by the fences
European Starling - Lived by the fences

Several species, including Stonechat, Meadow Pipit, Goldfinch and Starling, regularly used the fences and surrounding vegetation as shelter and feeding areas.

Watch the playlists:

Meadow Pipit

<https://www.youtube.com/watch?v=LJBF4Y9Y3uY&t=31s>

Stonechat

<https://www.youtube.com/watch?v=3KCixLCBRPE>

Wetlands For Life Video Series

<https://www.youtube.com/watch?v=FiNJh6cDVZg&list=PLGNg4cV5ZPSI>

The fences did not simply hold sand. They created a habitat.

Unfortunately this year, while there were lots of pollinators around we did not focus on this species. There was a call for a FIT - Count but we did not have the resources to do this in 2026.



Do They Look Nice?

Perhaps the most unexpected question was also one of the most important.

Do people actually enjoy seeing sand fences?

For generations Salthill has been valued as a place for recreation and relaxation.

More recently we have begun talking about Ocean Literacy, Blue Health and our relationship with the sea.

These ideas are connected through what ecologists call **Cultural Ecosystem Services CES**.

These are the non-material benefits nature provides—beauty, recreation, inspiration, identity, wellbeing and a sense of place.

Walking through Grattan Beach today feels different.

Instead of a flat expanse of sand, people experience gentle dune shapes, flowering coastal plants, birds feeding among the vegetation and a landscape that changes every month.

The chestnut fencing itself blends naturally into the environment. Rather than dominating the beach, it quietly supports the processes that create a healthier coastline.

Beauty is subjective.

But, seeing and smelling colourful flowers, breathing fresh air, observing living dune systems, and thriving wildlife create places where people naturally want to spend time, and this is a really special place to enjoy nature and benefits.



The dunes have made a massive improvement in the ‘look’ and feel of Grattan. The flora that surrounds the dunes makes for a wonderful sight, and they prompt ‘cues to care’, with less littering observed in 2026.

What We Learned

The Grattan Beach Sand Fences Project has shown that relatively simple Nature-based Solutions can deliver multiple environmental benefits at once.

The project successfully:

1. Reduced & prevented sand loss.
2. Encouraged dune formation.
3. Increased native coastal vegetation.
4. Created habitat for birds and pollinators.
5. Improved resilience to storms.
6. Enhanced the natural beauty and ecological value of the beach.

None of this would have been possible without the collaboration between Galway City Council, the Parks & Roads Team, University of Galway, CARO, Galway Atlantaquaria, and local communities.

Summary thoughts

Watching the month's go by -The dunes tell a different story every month.

April – Mostly bare sand with the first signs of green shoots.

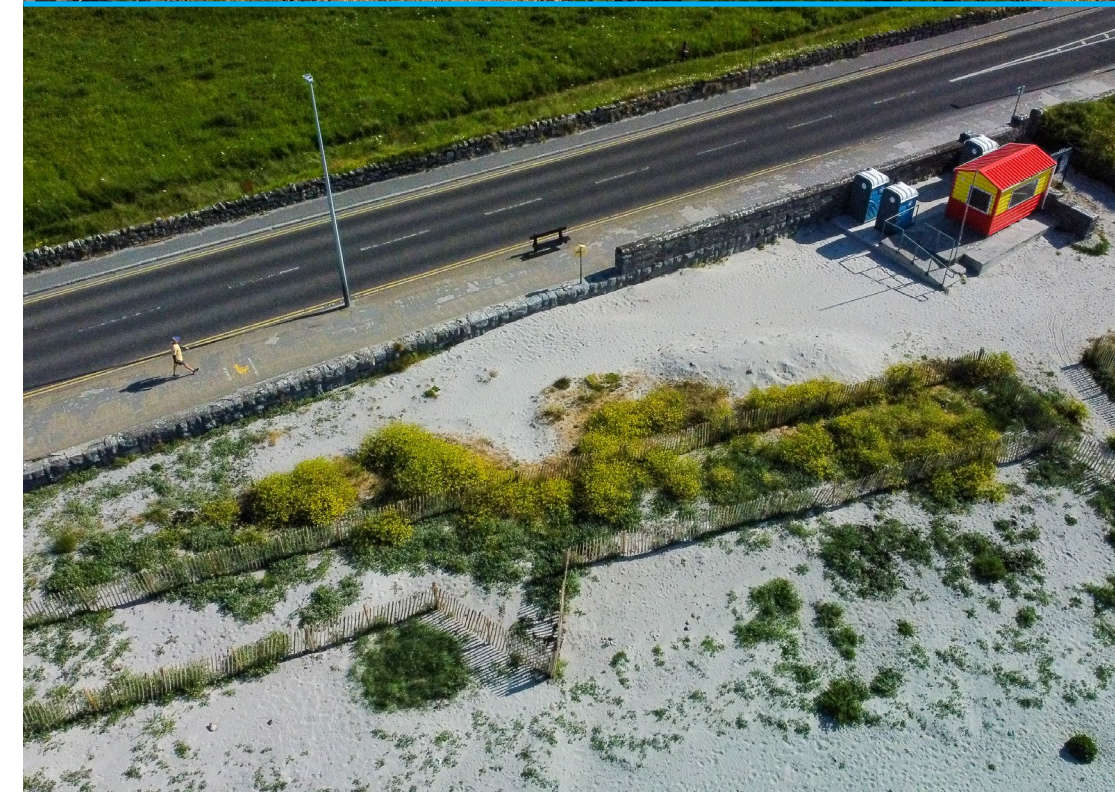
May – Rapid plant growth transforms the beach into a landscape filled with yellow flowers.

June – Embryo dunes continue to develop and biodiversity reaches its peak.

July – Summer heat begins to reduce annual pioneer species, leaving the hardiest dune plants.

August onwards – The system begins preparing for the next cycle, storing resilience for another year.

Nature is constantly rebuilding, and we are always recording.



Credit to

The original idea, championed by Dr Kevin Lynch of the University of Galway after more than a decade of advocacy, has become an excellent example of how small interventions can create lasting environmental change.



Dr Kevin Lynch, coastal geomorphologist physical geographer environmental scientist, University of Galway.

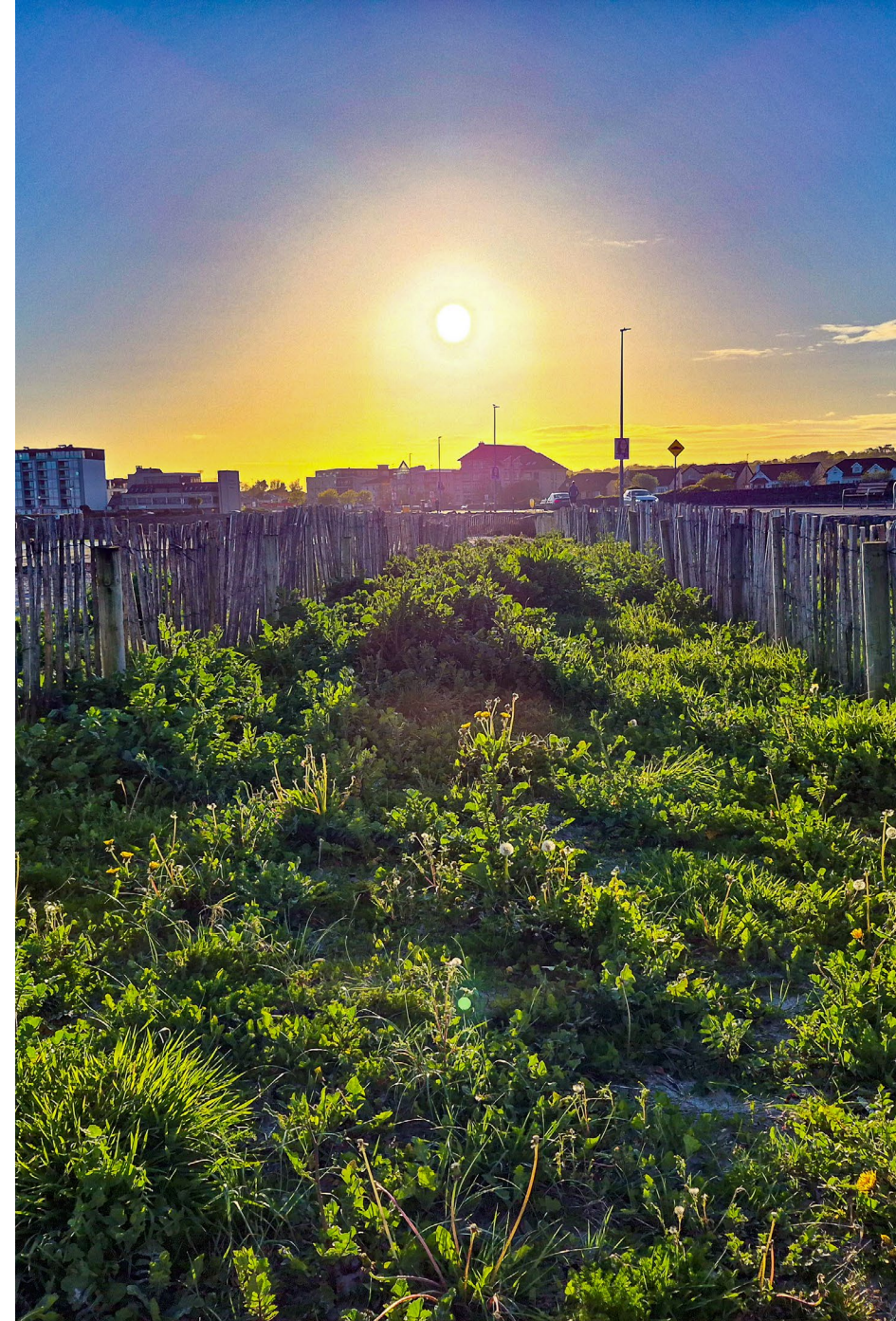


2027

Our hope for 2027 is simple:

Continued installing of sand fences to strengthen dune development.
To encourage even greater biodiversity along the shoreline.
Enable more people to understand how dunes protect our communities.
More collaboration with other networks.
Expand guided walks, biodiversity events and Explore Your Shore!
Activities day/evening.
Examples include - Butterfly, Moth, Bumblebee, Flora, Fossil, Dune walks etc.
Demonstrate how Nature-based Solutions can help protect Galway's coastline for future generations.
Create more records, infographics and posters.

Together we can ensure that Grattan Beach remains not only a place for recreation, but a living example of how people and nature can work together to build resilience against climate change and biodiversity loss.



NOTES/SOURCES

Aquarium website links

The Photo Journal

<https://nationalaquarium.ie/sandfencesphotostudy/>

The Installation of the Sand Fences 2023

https://nationalaquarium.ie/wp-content/uploads/2026/07/SAND_FENCING_project_01_07_2023.pdf

14 weeks later, how the sand fences work, 2023

https://nationalaquarium.ie/wp-content/uploads/2026/07/14th_week_report_20_09_2023.pdf

2024

https://nationalaquarium.ie/wp-content/uploads/2026/07/GRATTAN_REPORT_2024.pdf

2025

<https://nationalaquarium.ie/wp-content/uploads/2026/07/2025-DUNE-STUDY-v1.pdf>

2026

<https://nationalaquarium.ie/wp-content/uploads/2026/07/A-sand-fences-photo-study-2026.pdf>

Nature Based Solutions

<https://iucn.org/our-work/nature-based-solutions>

Dune Restoration

<https://dunes.ie/runkerry-dune-restoration-project/>

Beaches and Dunes Network

<https://dunes.ie/member/university-of-galway/>

Learn more about Dunes

<https://dunes.ie/resources-hub/>

Cultural ecosystem services

<https://www.sciencedirect.com/science/article/pii/S2665972723000818>

