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Opinion

Why some of Ireland's coastal communities may need to prepare for relocation

Some communities in high-risk coastal areas may need to consider relocation options, and allow nature to take its course

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Storm Chandra: Had January's storm happened a week later, during a full moon, the spring high tide would have led to a 46cm higher water level. Emergency evacuations might have been necessary. Photograph: Stephen Collins/Collins Photos

Storm Chandra has shown that our current flood prevention and response systems are not fit for purpose. With sea-level rise in Dublin and Cork exceeding the global average and increased [extreme weather](#) events, [climate change](#) is real and present, affecting our coasts as well as our rivers. Five of the seven “violent” or “hurricane force” (in the case of

storm Éowyn) named storms in the period 2019-2025 occurred in the past two years.

Storm Chandra had some unique characteristics as winds came from the east and southeast rather than the west. They were not as strong as they could have been, with gusts out at sea reaching “only” just over 90km, but they were able to generate waves high enough – up to 9m out at sea – to flood the Dart line and urban areas in Clontarf and Sandymount. It could have been much worse. Although Chandra coincided with high tide, the tide was a “neap” tide (which occurs when the moon is neither full nor new). Had Chandra occurred only one week later during the full moon, the “spring” high tide would have led to a guaranteed additional 46cm higher water level. Emergency evacuations may have become necessary.

That it did not come to this was a mere matter of chance.

We should not be surprised to find ourselves in this predicament. Never before have so many people resided on Ireland's low-lying and erosion-prone coastal areas. Much of east Dublin is reclaimed from the sea. Where there was once a salt marsh, we now have the Dublin docklands. Where there were once wide, gently sloping beaches, dunes and sand shoals, we now have Sandymount. We thought we could contain nature, but we overlooked the many benefits it provides us with – including flood protection.

But what now? How do we ensure we can deal with more severe storms in the near future and avoid emergency evacuations? Hard defences cannot be the only answer – they reflect wave energy and lead to the loss of the little remaining natural coastal protection we have. In solving one problem they can cause a cascade of others. Losing our natural protective beaches would lead to a certain, and likely exponential, escalation of flood management as sea walls have to be rebuilt or raised, sand has to be artificially replenished.



Where there were once wide, gently sloping beaches, dunes, and sand shoals, we now have Sandymount. Photograph: Bryan O'Brien

If we cannot engineer ourselves out of this crisis, we need to look to other options and make some tough decisions. The long lag times in our climate system mean that sea level will continue to rise for centuries even after greenhouse gas emissions are significantly reduced. Storms will continue to intensify as warmer oceans fuel them.

Provided sufficient sand and mud are available, however, nature can build helpful and beautiful storm buffers itself. In north Dublin Bay, waves and tides have, over the past 200 years, built us a great buffer in the form of North Bull Island. Similarly, and over a much shorter time frame of only 20 years, half a kilometre of the shore north of Booterstown Dart station is now protected by naturally accumulated sand dunes and salt marsh. The impact of such nature-based protective features is currently being studied in the EU-funded Naturescapes project which has highlighted the values and meanings embedded in our coastal environment.



North Bull Island, in Dublin Bay, significantly restricts wave impact on the shore behind. Photograph: Dara Mac Dónaill

These nature-built buffers require two things: space and sand or mud. In nature, that sand or mud comes from rivers, erosion elsewhere along the coast, or offshore sand banks.

So, if we want nature to continue to protect us from storms, we need to allow sand to move. And to do that, we need to look at how and where we build, and we need to consider whether certain parts of Ireland's coastline need to be left for nature to take its course.

[Expect more extreme weather as climate change impact now 'stark', says Met Éireann]

Permanent development on erosion- or flood-prone coastal lands is not the way to go. Where planning permissions for such developments have been granted in the past, we see a legacy of suffering today, such as at Portrane, where severe erosion has led to homes quite literally falling into the sea. In nature, eroding dunes lead to a wider beach in front of them, boosting protection, but also lead to sand travelling elsewhere to build beaches and dunes.



Eroded properties on Portrane beach, north Dublin. Photograph: Colin Keegan/Collins

To facilitate nature's way of buffering itself and us, we need a good coastal monitoring system, as the Office for Public Works is currently in the process of building. The Government needs to help to create space for natural processes and help to rebuild communities. All affected communities need to be involved in developing plans that will allow them to live safely. Some communities in high-risk coastal areas may need to consider relocation options. Coastal areas released to nature in this way could still be used for recreation and temporary seasonal use, leaving natural beach and dune environments to be enjoyed by everyone. This is not simply a technical solution to climate risk.

[Storm Chandra and aftermath caused estimated €26m of insured damage]

Experience from Fairbourne on the coast of Wales tells us that any planned relocation options must be seen as a fundamentally social process, recognising people's attachment to their homes and prioritising participation and fairness. Giving communities a realistic option to relocate, well-supported by government and planned well in advance can allow us to preserve our natural buffer system.

Ireland now has an Interdepartmental Coastal Management Group charged with implementing the coastal change management scoping strategy. This

is a great start but the process must be led jointly with affected communities. We must not leave anyone behind, least of all those who live and work at the coast and who have much local knowledge to offer.

[Ireland must prepare 'evacuation' plans for coastal areas as climate change intensifies, says expert]

A flexible approach will not be possible everywhere, but where we have the opportunity, we must allow nature to function in the way it always has – protecting itself, and our communities, from extreme storms.

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