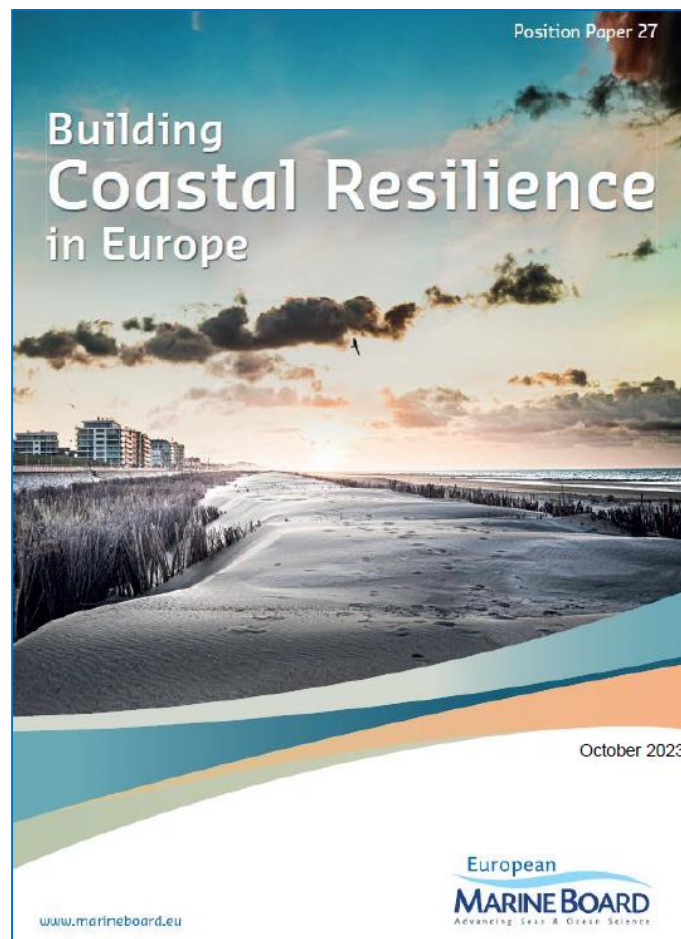
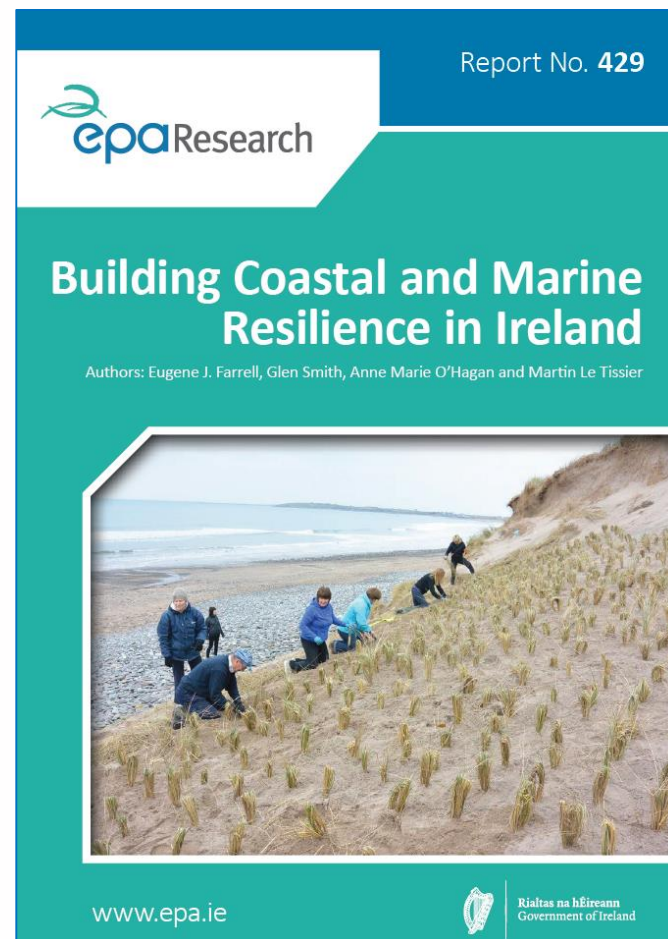


# EMB Webinar Series

*Building coastal and marine  
resilience in Ireland:  
a community perspective*



October 2023

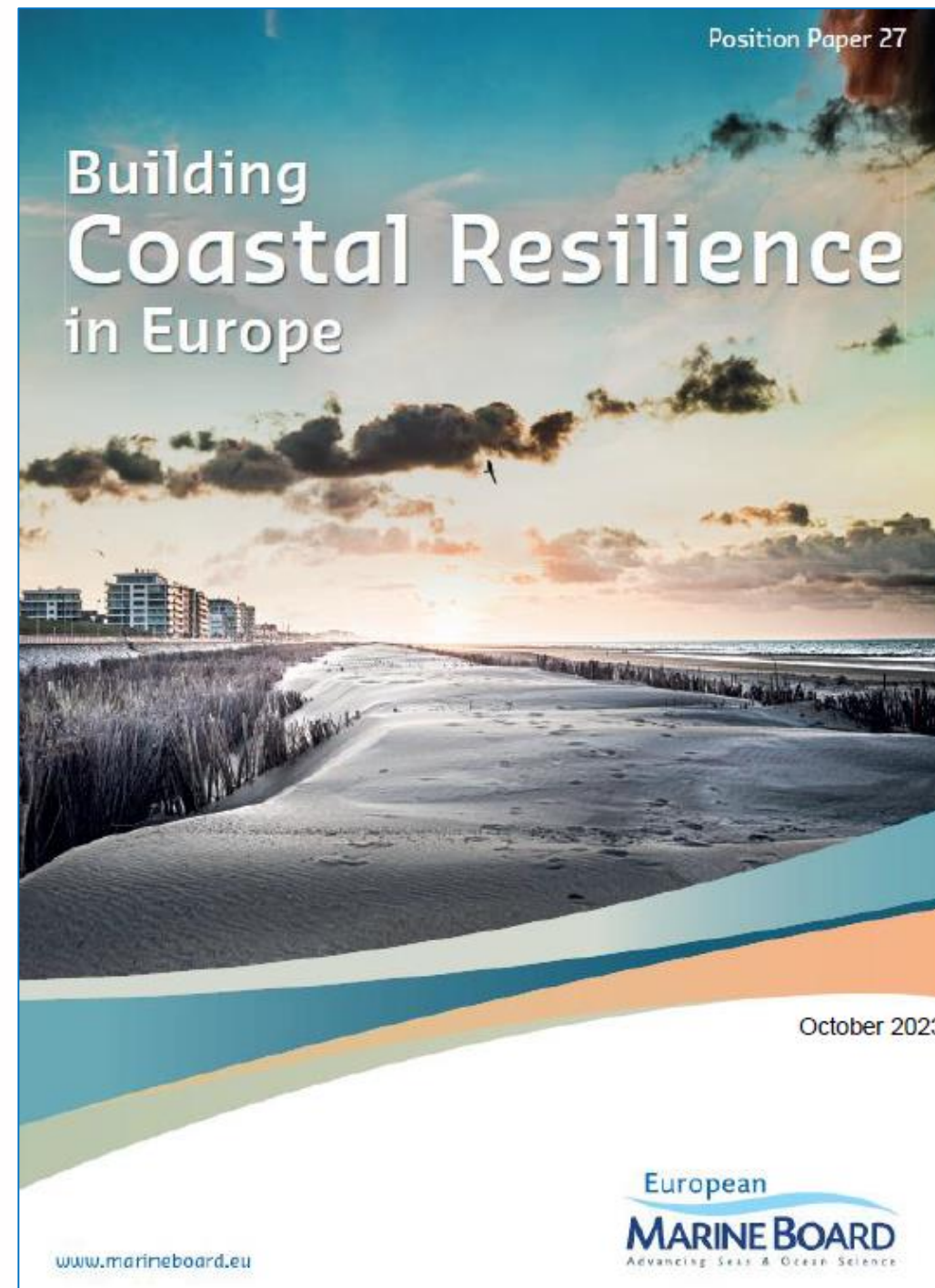


March 2023



Dr. Eugene Farrell  
Geography

University  
ofGalway.ie



## European Marine Board IVZW – Position Paper 27

This Position Paper is a result of the work of the European Marine Board Working Group on Coastal Resilience. See Annex 1 for the list of Working Group Members and affiliations.

### Working Group Chairs

Sebastian Villasante, Kristin Richter

### Contributing Authors

Jennifer L. Bailey, Thorsten Blenckner, Eugene J. Farrell, Remi C. Mongruel, Karen Timmermann, Tjeerd J. Bouma, Donata Melaku Canu, Margaret Chen, Liam Lachs, Andres Payo, Isabel Sousa Pinto

### Series Editor

Sheila J. J. Heymans

### 13 authors; 11 countries

Sebastian Villasante, University of Santiago de Compostela, **Spain**

Kristin Richter, NORCE Norwegian Research Centre, **Norway**

Jennifer Bailey, Norwegian University of Science and Technology, **Norway**

Thorsten Blenckner, Stockholm Resilience Centre, **Sweden**

Eugene Farrell, University of Galway, **Ireland**

Remi Mongruel, Ifremer, **France**

Karen Timmerman, Technical University of Denmark, **Denmark**

Tjeerd Bouma Royal, Netherlands Institute for Sea Research, **The Netherlands**

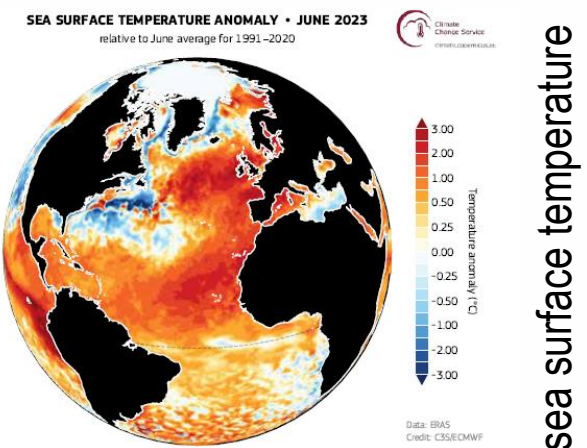
Donata Melaku Canu, National Institute of Oceanography and Applied Geophysics, **Italy**

Margaret Chen, Vrije Universiteit Brussels, **Belgium**

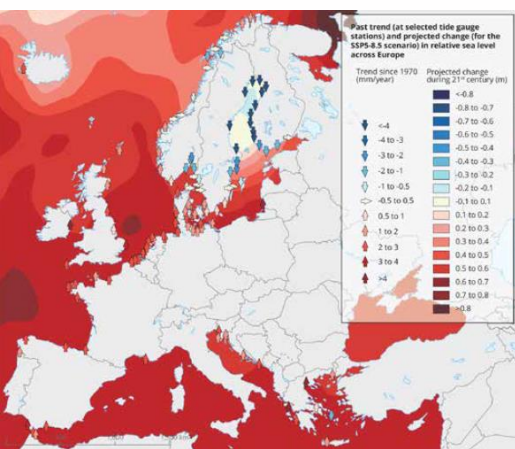
Liam Lachs, Newcastle University, **UK**

Andres Payo, British Geological Survey, **UK**

Isabel Sousa Pinto, University of Porto, **Portugal**



sea surface temperature



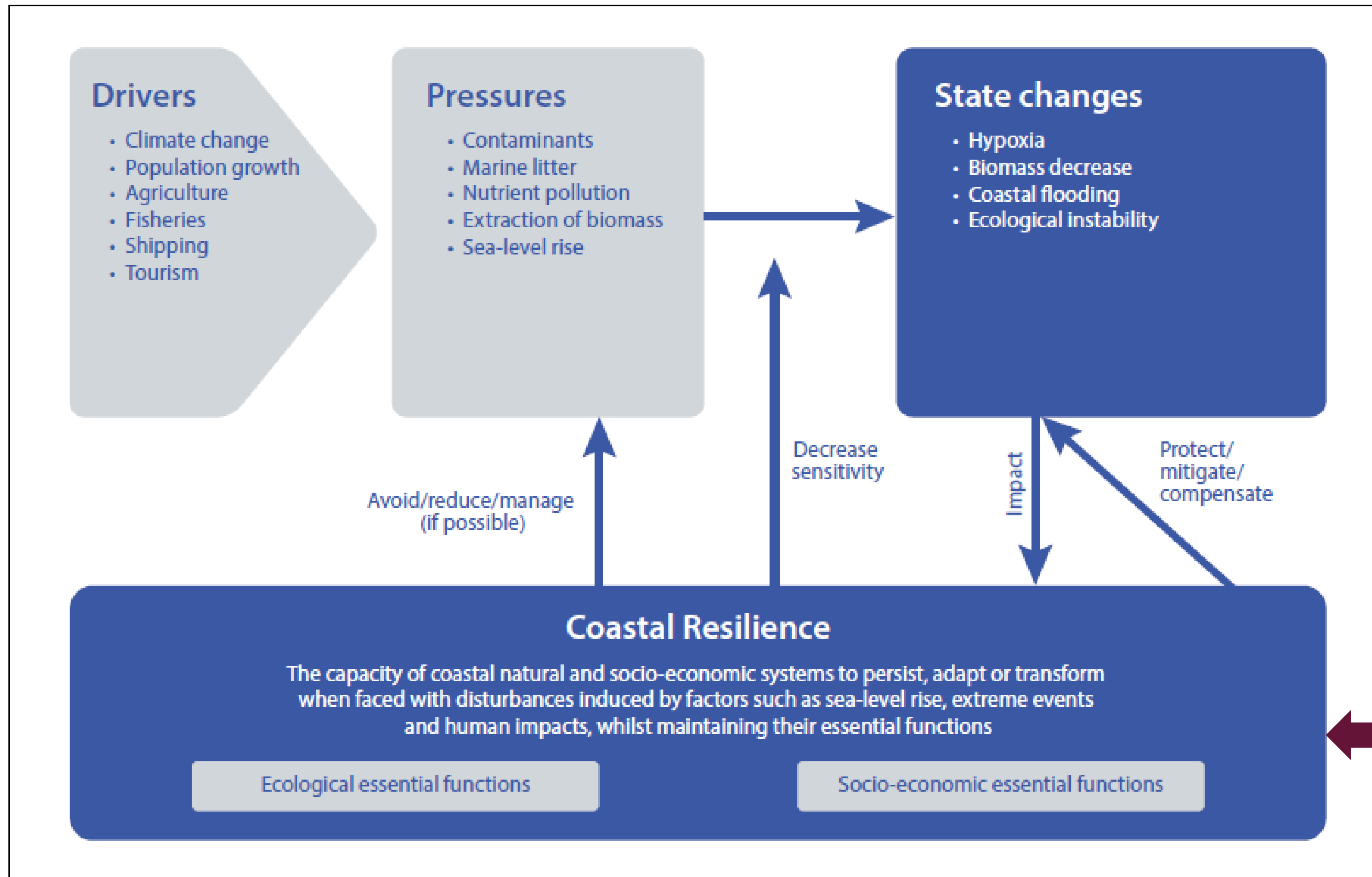
sea level rise



coastal erosion



population growth

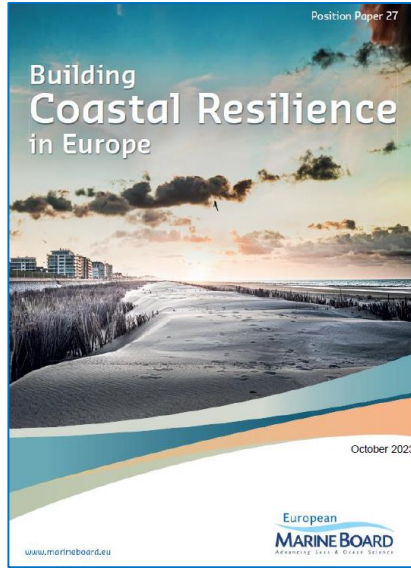


What happens in this box?

'Who' is doing 'what' 'where' and 'why'?

Is 'it' working?

**Figure 3.1** Examples of drivers, pressures and state changes, their interactions, and impact on coastal resilience. Pressures result from anthropogenic drivers and affect the state of the ecosystem, eroding the resilience of the Coastal Social-Ecological System (CSES). The pressures reduce the ability of the CSES to absorb additional disturbances and essential functions are lost. Society can reduce the risk of eroding the resilience of CSESs by avoiding or reducing the pressure or by increasing protection and mitigating the impacts.



**BOX 1: KEY TERMINOLOGY**

Coastal resilience: The capacity of coastal natural and socio-economic systems to persist, adapt or transform when faced with disturbances induced by factors such as sea-level rise, extreme events and human impacts, whilst maintaining their essential functions (Folke, 2006; Masselink & Lazarus, 2019).

Coastal Social-Ecological System (CSES): A concept for understanding the highly connected interactions between coastal societies and ecosystems.



Credit: Peter Ganderston

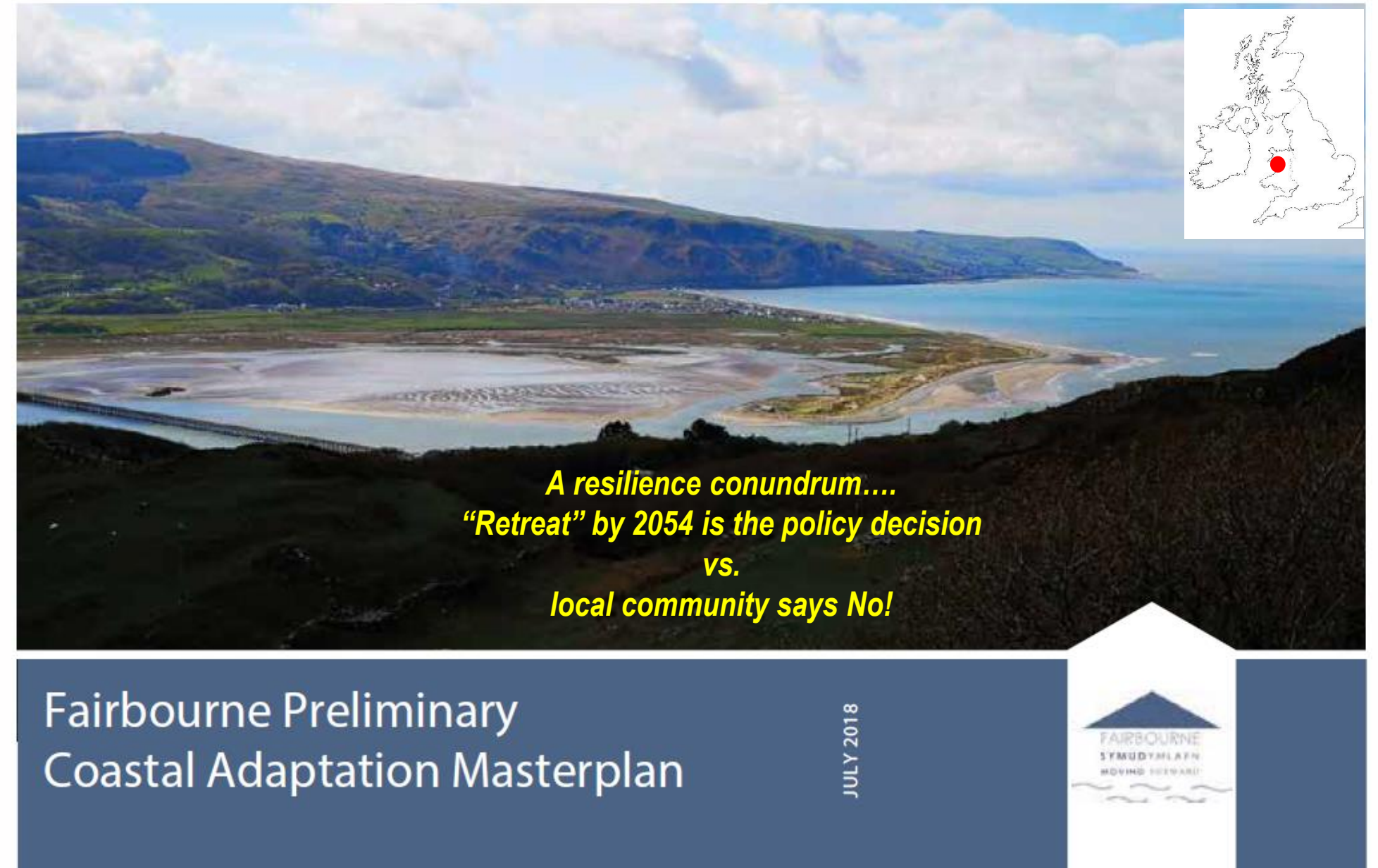
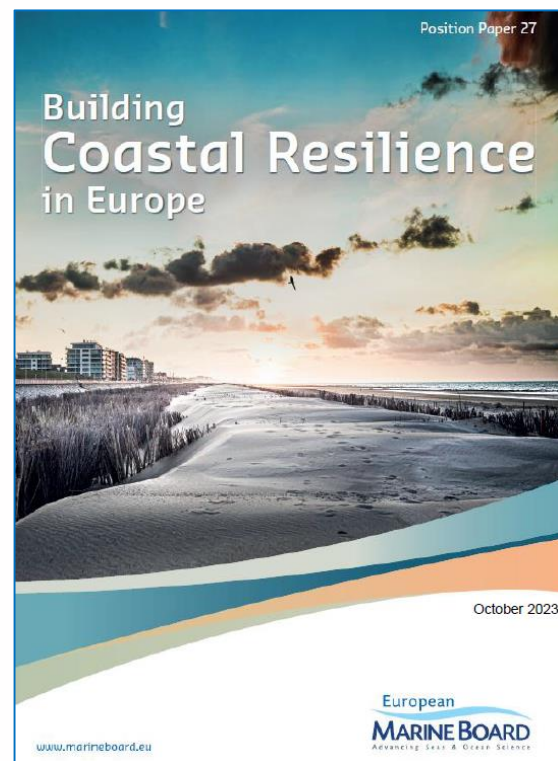
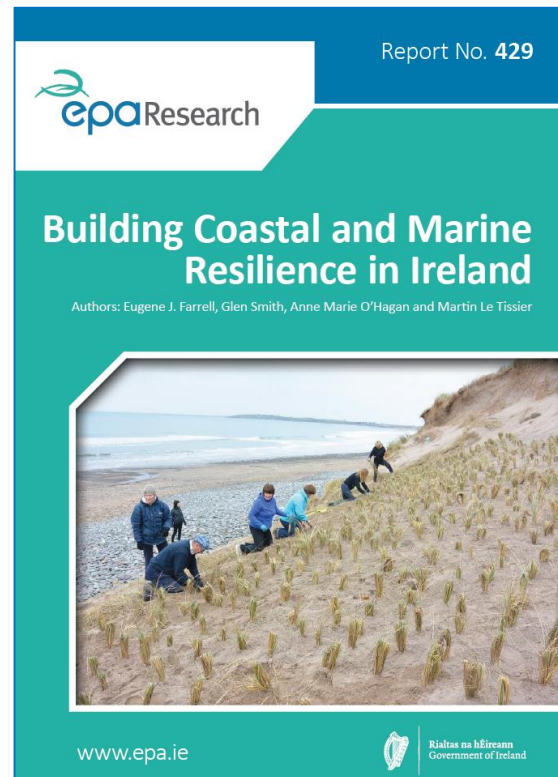


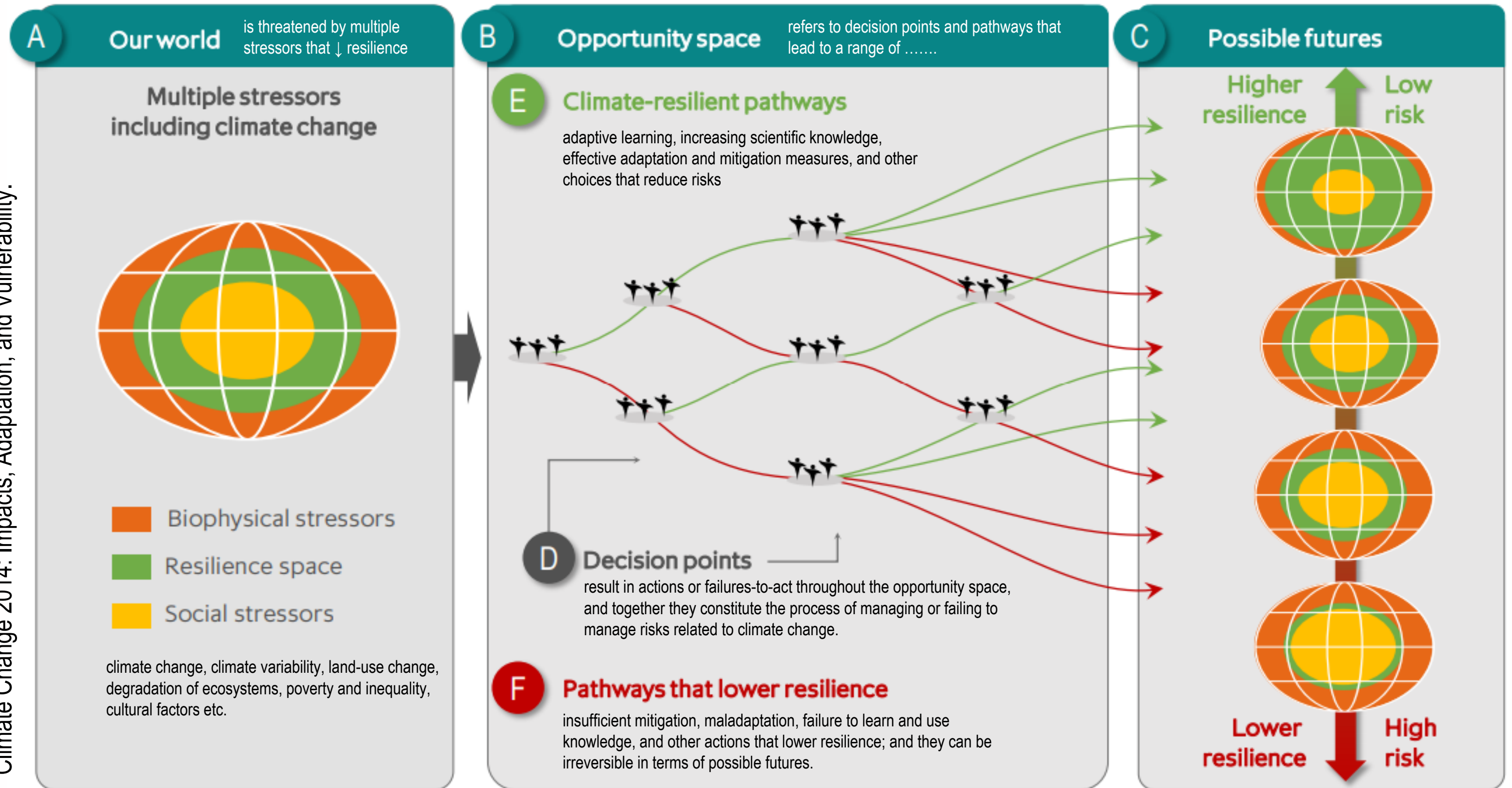
Figure 4.4 The Fairbourne Coastal Adaptation Masterplan recommended to decommission the village.

Figure 4.3 The village of Torcross in England where the coastal planning strategy emphasises the geomorphic and ecological functioning and accepts loss of the road (Masselink & Lazarus, 2019; CC BY 4.0).

- If the year is 2050 and Ireland, in its capacity as a member of both the United Nations and the European Union, announces that its coastal communities and ecosystems are “climate resilient” and they have “adapted” to climate change, what steps did we make between 2021 and 2050 to achieve this?
- What were the enablers & barriers that supported/prevented adaptation to achieve these steps (current, past or future)?



IPCC (2014) Summary for Policymakers. Climate Change 2014: Impacts, Adaptation, and Vulnerability.





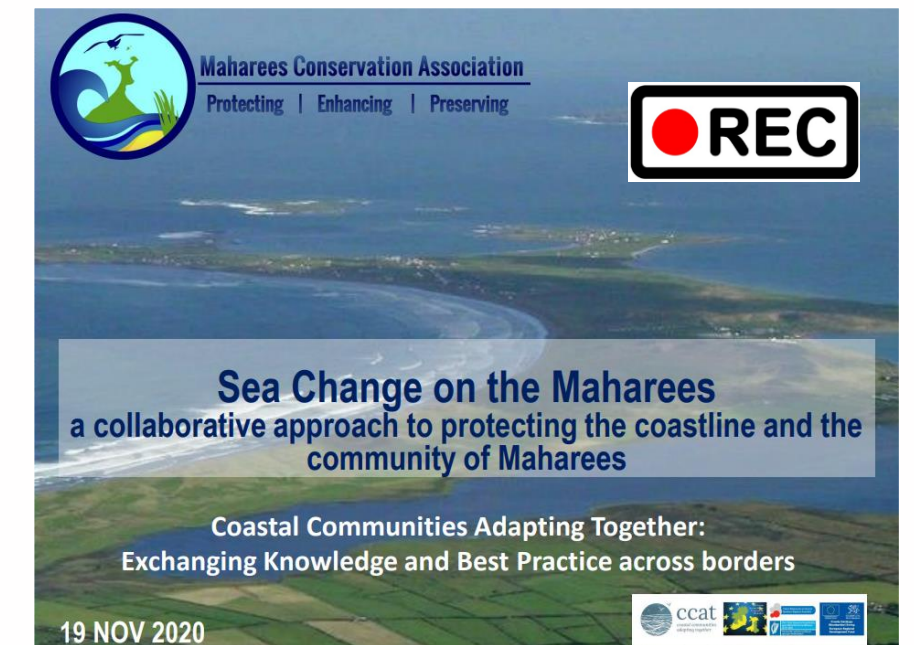
Picture: Kevin Dwyer AIPPA



**Mharees Conservation Association**

Protecting | Enhancing | Preserving

Check their Facebook page!




Ilauntannig island

Picture: CHERISH

Population c.310.  
 Low-lying tombolo: one road in, one road out.  
 Part of Brandon Bay longest (11km) continuous stretch of beach-dune on Wild Atlantic Way.  
 Farming, fishing & recreation activities.  
 Local economy has transitioned from 'Land to Sea'... from farming and fishing, to focus upon the provision of tertiary goods and services for tourism and recreational visitors.  
 Very popular tourist destination; large summer influx of visitors.  
 Area is highly vulnerable to the effects of climate change, Atlantic storms and human activities.

surfing, sea kayaking, windsurfing, paddle boarding,  
 sea safari, waterparks and diving.

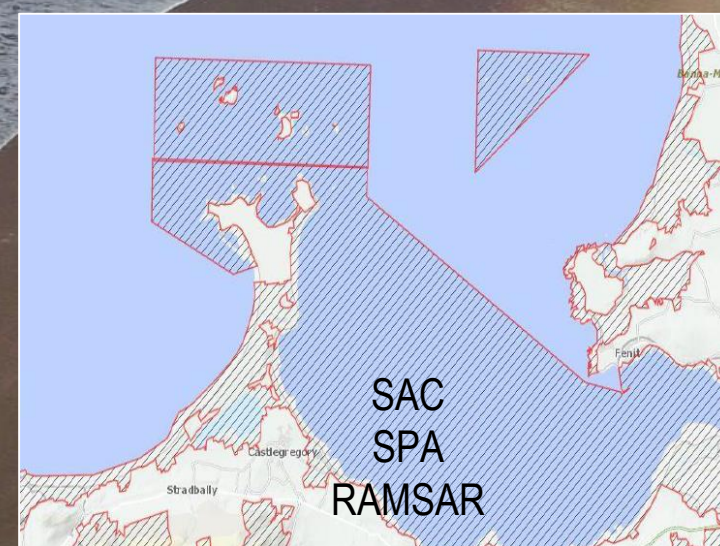


**The 'Tralee Bay and Maharees Peninsula, West to Cloghane' SAC 002070**

has the **highest number of protected habitats** (16) and **third highest number of protected species** (28) of any area in the country

Ireland has **604** Natura 2000 sites that cover **136** species and **60** habitats from the Nature directives

**37%** of our habitats are Coasts...  
 ...of those, **36%** are dunes



Total dune area: 322ha (SAC) = 3,220,000 m<sup>2</sup>.  
 SAC, SPA, pNHA, Ramsar (20,000 wintering birds in SPA).  
 Annex I (habitats), II, IV, V (animal and plant species).  
 7 Annex 1 sand dune habitats; 1 priority dune habitat (fixed/grey, dunes = 74% area).  
 EU conservation status: Unfavourable-Bad (2) & Unfavourable-Inadequate (3); Favourable (2).  
 Annex IV species: Natterjack Toad (largest breeding site in Ireland).

Table 11.1. Conservation assessment results for all Annex I dune habitats surveyed at Magherabeg, Co. Kerry.

Habitat	Area	Structure & Functions	Future Prospects	Overall result
1210 Annual vegetation of drift lines	Favourable (improving)	Favourable (improving)	Favourable (improving)	Favourable (improving)
1220 Perennial vegetation of stony banks	Favourable	Favourable	Favourable	Favourable
2110 Embryonic shifting dunes	Favourable (stable)	Favourable (stable)	Unfavourable-Inadequate (stable)	Unfavourable-Inadequate (stable)
2120 Marram dunes (white dunes)	Favourable (stable)	Favourable (stable)	Unfavourable-Inadequate (stable)	Unfavourable-Inadequate (stable)
*2130 Fixed dunes (grey dunes)	Favourable (improving)	Unfavourable-Inadequate (improving)	Unfavourable-Bad (improving)	Unfavourable-Bad (improving)
2170 Dunes with creeping willow	Favourable (stable)	Unfavourable-Inadequate (deteriorating)	Favourable (improving)	Unfavourable-Inadequate (deteriorating)
2190 Humid dune slacks	Unfavourable-Bad (deteriorating)	Favourable (stable)	Favourable (stable)	Unfavourable-Bad (deteriorating)

## Pressures on CSES

1. Too little sand
2. Too much sand
3. Invasive species
4. Loss of heritage
5. Tourism
6. Flooding
7. Wildfire





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OPW, 2003  
Coast of Ireland Oblique Imagery Survey

Peter Hennessy, Local resident

Peter Hennessy, Local resident

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### Community Letters to Local Government (early 2000s)

*“As landowners we can see the damage that uncontrolled access across the dunes is doing the area. As part of the management plan we would be willing to agree a number of controlled access points to the beach area.”*

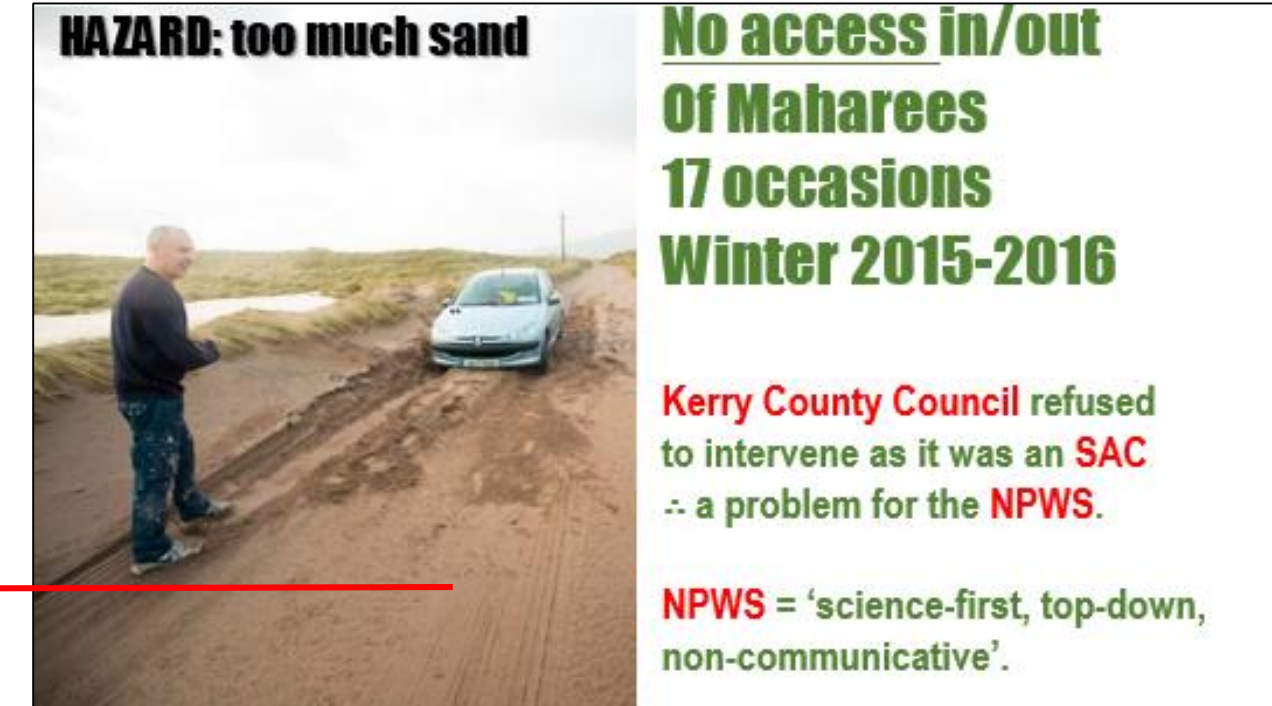
*“It should also be pointed out that if the dune structures are not protected it will be very costly to repair the damage done in the future. The threat will be not only to the public road but to the longer term viability of the Maharees Peninsula”.*

*“We are therefore writing to you to see if you could secure funding from national level to protect this valuable environmental and ecological resource.”*

*“In recent years there has been evidence significant erosion on the exposed western side of the dunes. Kerry County Council carried out a scheme to protect a section of the coastline a number of years ago and this has proven very effective. It would be very important that works of a similar nature were continued to protect the remainder of the dunes.”*

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Streamer corridor: sand drift is one facet of wind-induced hazards



**Pressures on CSES**

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Sea Buckthorn (*Hippophae Rhamnoides*) is dark greens/brown colour surrounded by dune marram grasses. Anecdotal evidence from local farmers and NPWS staff suggests that *Hippophae rhamnoides* was planted some time in the 1960s by Kerry County Council to combat dune erosion.



Negative effects:

1. Replacing/displacing rare, native plant species.
2. Decreasing species-richness of community.
3. Change (increase) nutrient content of dunes.
4. Facilitating establishment of other invasive woody plants.
5. Difficult to control once established.
6. Causing the sensitive floral seed banks to expire.

Positive effects:

1. Stabilise shifting dunes.
2. Control access.
3. Provide breeding habitat, shelter, and food for birds.
4. Increase microfaunal abundances.

Ms. Helenka Harmon, MSc

Area 1. October 2003: 64,599m<sup>2</sup> (16 acres); June 2023: 113,377m<sup>2</sup> (28 acres)

Areas 1,2 & 3: Expanded area 98% (2003-2023)



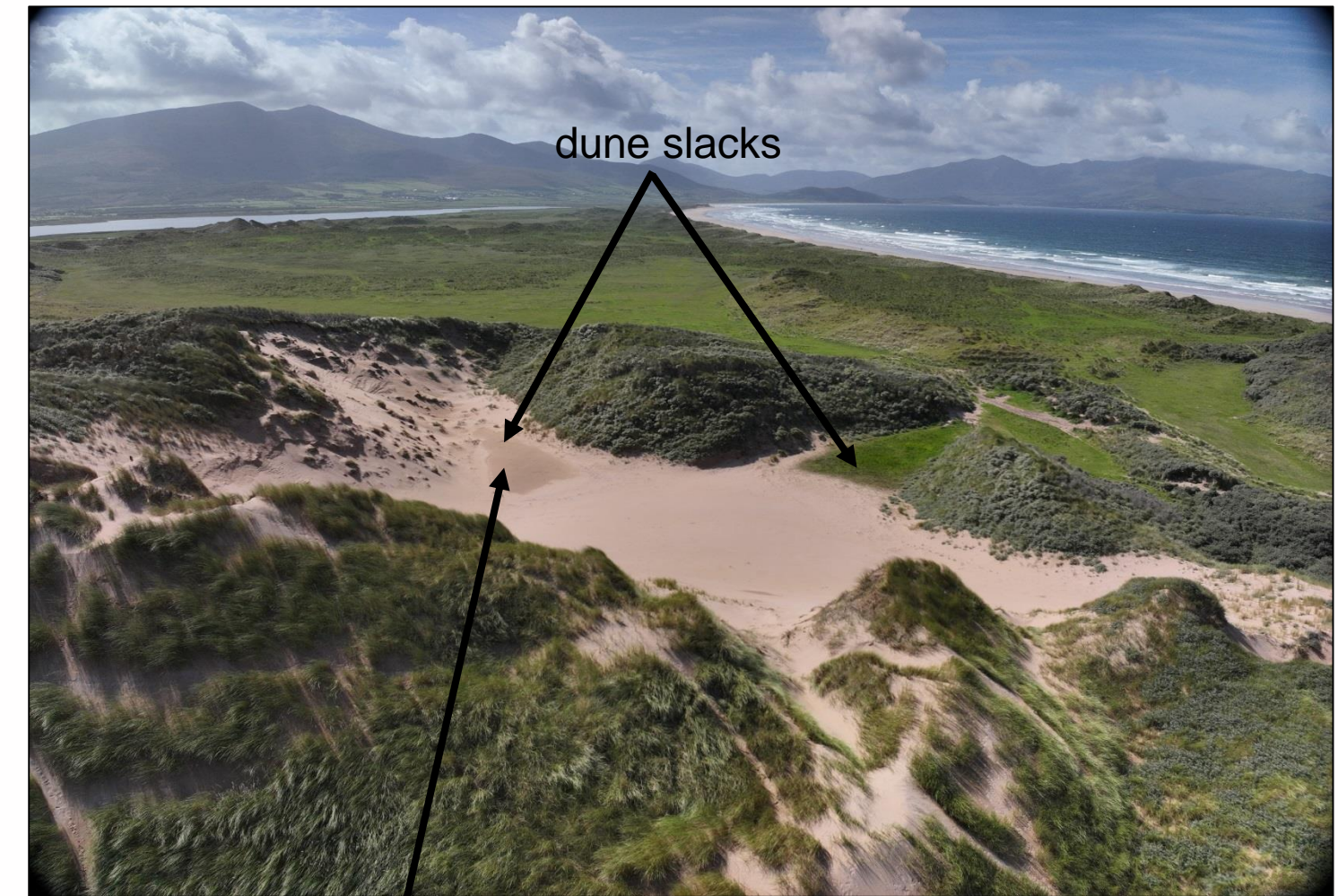
October 2003

June 2009

May 2016

May 2019

June 2023



Sea Buckthorn (*Hippophae Rhamnoides*)



toadlets

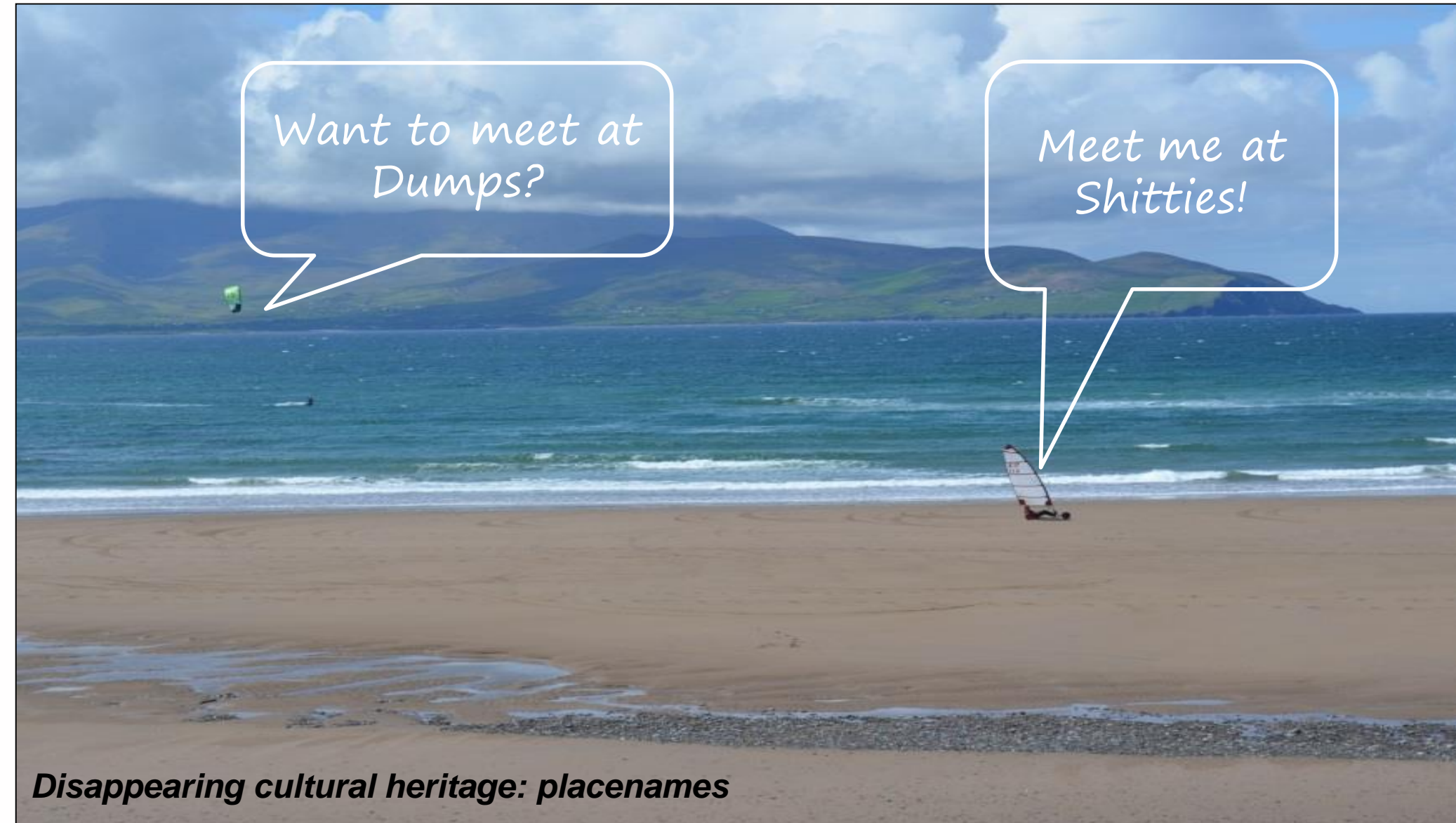
*Bufo calamita* (Natterjack toad)



**Pressures on CSES**

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Transition from land to sea of economic and social activities in Maharees past three decades. Not the same people moving; new culture and society has emerged. This is not an issue; preserving the cultural heritage is.



*Disappearing cultural heritage: placenames*



RTÉ television  
"On the Land" series  
"Onions" (14/10/1963)

**Disappearing cultural heritage: farming**

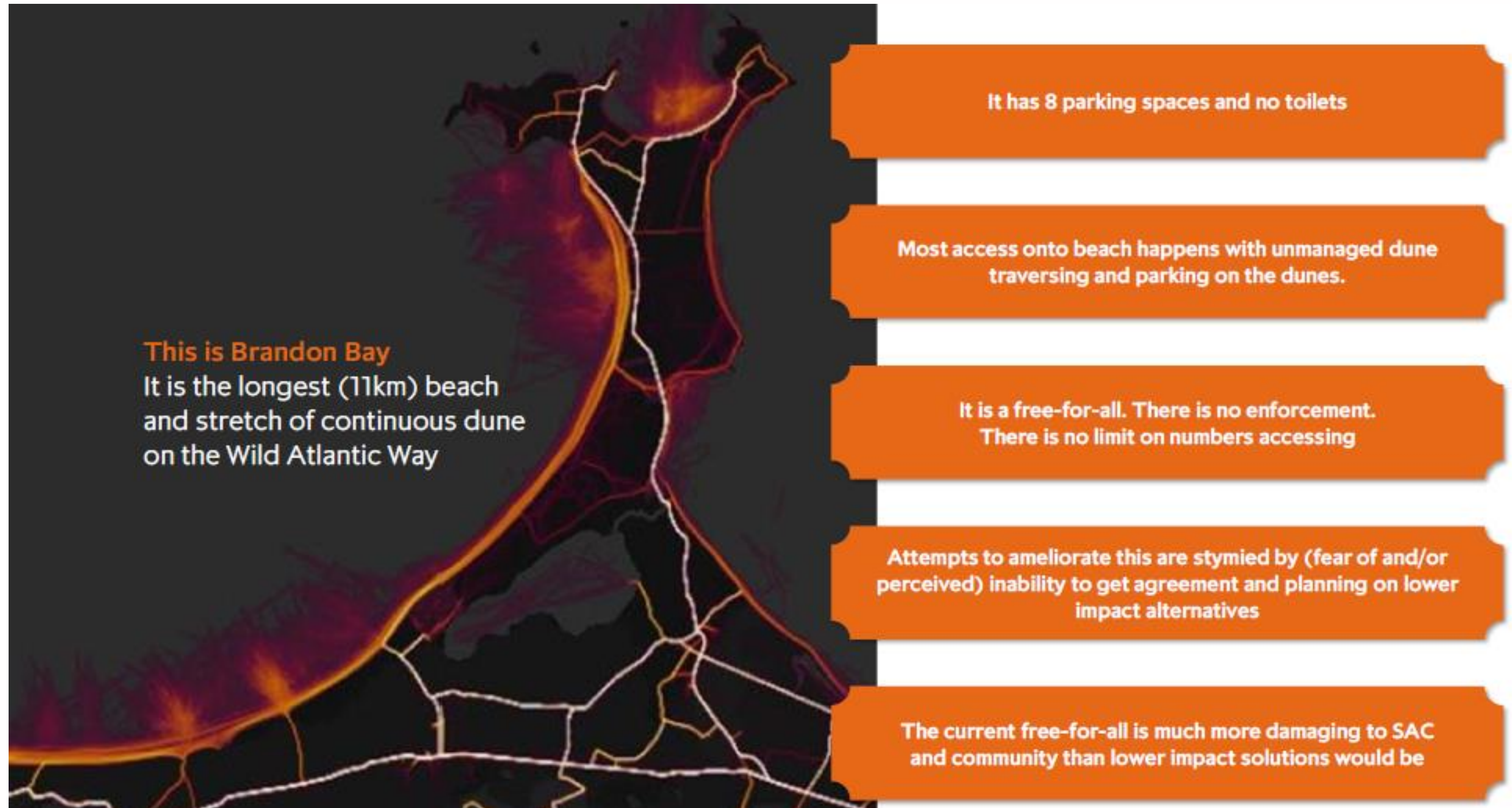
"Carrots, onions, parsnips and potatoes have long thrived in the light, sandy soils. In 1963, 200 farmers, with an acre each, produced 200 acres of onions, which were then processed in the local vegetable co-op before being sold across Ireland."

-Ella McSweeney, IrishTimes



## Pressures on CSES

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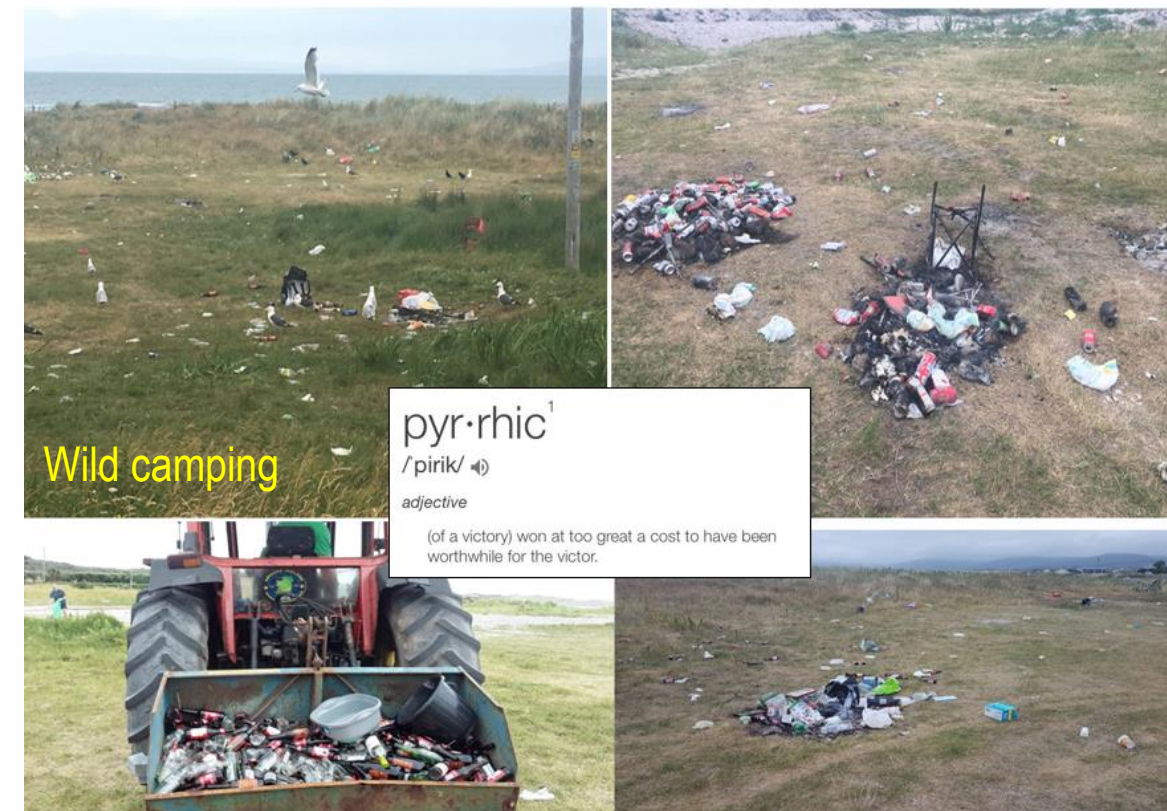
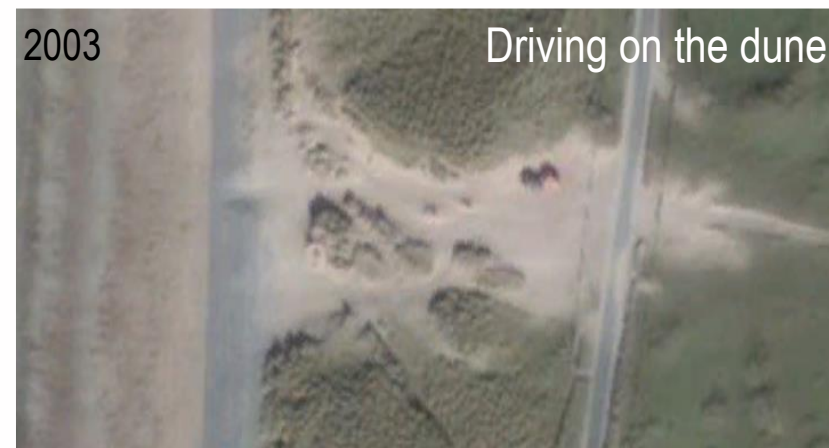


Strava heatmap: aggregated, public activities over a time period of one year.

**Pressures on CSES**

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Title of watersport 'mecca' has been a pyrrhic victory as the **health and safety of residents and visitors** in areas like the Maharees is at **serious risk as emergency services cannot access the area quickly** during summer months. Coastal ecosystem degradation is very visible during the summer months.



The aftermath of illegal camping at Trench Bridge in Maharees which is part of an SAC.

It took 30 people two hours to gather all of the debris strewn all over the area.

A tractor was required to collect the cleared items including tents, beer bottles, nappies, and human excrement

## Pressures on CSES

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Although flooding in Maharees currently is not viewed as significant a concern as coastal erosion more than **50%** of the respondents from a survey believe that property damage and loss will 'definitely be a concern' in the future due to flooding.





## Pressures on CSES

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Pictures from:



**Mharees Conservation Association**  
Protecting | Enhancing | Preserving

## Solutions for CSES

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February 2016: Public meeting



**February 2016. Public meeting and presentation & the formation of the Maharees Conservation Association.**

### **Roadmap to protect the community (see: recommendations to build resilience)**

1. Liaise with Kerry County Council to have location included in OPW coastal risk study
2. Give councillors (local politicians) the information to represent the community
3. Form a Group; speak as a Group
4. Use social media; learn from other Groups
5. Initiate education programmes
6. Collect scientific data for coastal risk study
7. Determine what value National Parks and Wildlife Service places on the SAC
8. Use terms like "integrated dune system"
9. Ask stakeholders what will happen if the dunes are lost / not conserved?

**Solutions for CSES**

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**HAZARD: reactivated blowouts**



**Prevent growth of reactivated dune blowouts using Nature-based solutions**

**Straw bales  
Christmas trees**

Community-led  
Community funded

**Blowout is stabilised and infilling.**



Signage



Control access



Manage access



Fundraising



Control access

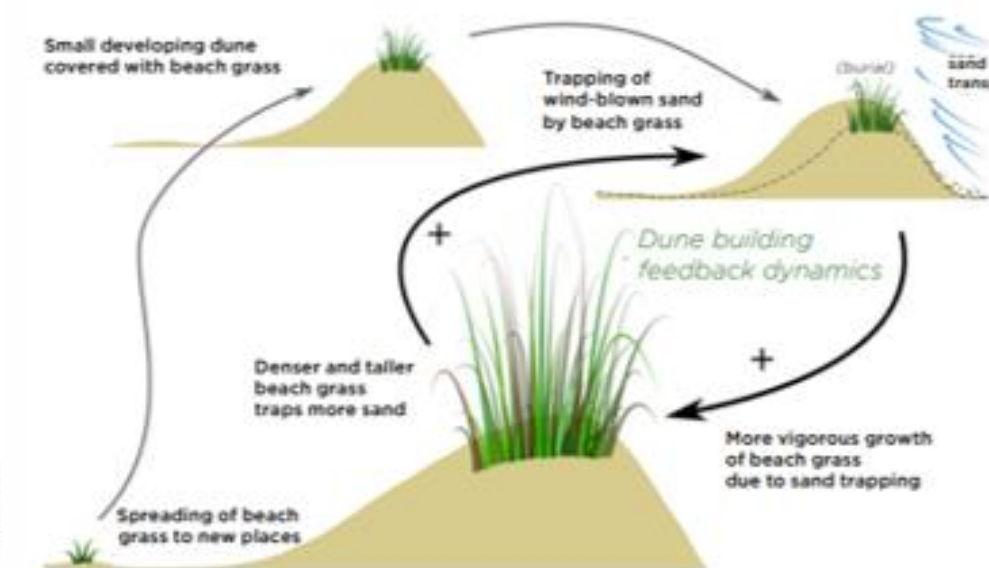
**Solutions for CSES**

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**Prevent growth of new dune blowouts using marram grass planting and access control & signage**

Community-led



**Plant-sand feedback dynamics drives coastal dune development.**

Dune planting & other NbS  
"Clean Coasts" Partnership

Figure 5.2 Community-led marram grass planting on the Maharees Peninsula, Ireland.

## Solutions for CSES

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Figure 5.1 Example of community-led Nature-based Solution (installation of dune fences) to mitigate wind-blown sand leading to closure of the road in the Maharees Peninsula, Ireland.



Degraded **sand dunes have been restored** and have become more biodiverse as a result of marram planting (with help from NGO Clean Coasts) and controlled access.

MCA volunteers have **secured funding** (through Kerry County Council (KCC) and National Parks & Wildlife Service (NPWS)) for and erected **dune fencing to restrict access** and allow the dune species to survive without human interference. **Signage** has been erected to appeal to visitors to use official paths and official camp sites.

**Enablers:** MCA became a Clean Coasts group; MCA organized community training events; MCA sourced local funding for trowels and signage; MCA purchased and erected fencing to protect NbS areas; Wide participation of schools, other groups & full spectrum of community.

**Barriers:** MCA had to identify and self-fund the fences and source expertise to install; Continued maintenance by MCA volunteers multiple times each year; State agencies should have more resources to manage coastal SACs.

Source: The Kerryman, 7 January 1949  
'Planting sandrush at Stúaic Bán'



Source: Maharees Conservation Association, 30 July 2020  
'Planting sandrush at Stúaic Bán'

**Solutions for CSES**

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Streamer corridor: sand drift is one facet of wind-induced hazards

**HAZARD: too much sand**

**No access in/out Of Maharees 17 occasions Winter 2015-2016**

Kerry County Council refused to intervene as it was an SAC - a problem for the NPWS.

NPWS = 'science-first, top-down, non-communicative'.

**Stakeholder meeting on the dune**

**Unlocking the impasse**

- Health and safety risks
- Site Management
- Kerry County Council €5,000
- Maharees Conservation Association volunteers

Local council; NPWS; local community; university

**Local community install dune fences**

**Oct 2016. Meeting**  
Nov 2016. Proposal

**Apr 2017. Installation**  
Jan 2018. Dug out  
Jul 2019. Dug out  
Feb 2020. New fence

**Road clear since April 2017.**

Nature-based Solutions (NbS) work.  
Community effort rewarded (attainable goals)  
Stakeholders communicating.  
Building awareness and education.

## Solutions for CSES

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The road at a site near Magherabeg Cut had been blocked by sand and cleared 17 times by KCC in winter 2015-16. An NbS based on chestnut sand fencing was delivered in collaboration with University of Galway, KCC and NPWS was co-designed to address this hazard. The only access road in/out of Maharees peninsula has not been blocked since.

**Enablers:** MCA designed an NbS to reduce the wind blown sand hazard. The MCA worked with coastal scientists to select the **optimal location and write a proposal for approval and funding** (€5000) to NPWS and KCC. In October 2016, the MCA **gathered all the stakeholders on the dune** to illustrate the issue & solution via NbS. MCA agreed to install NbS via volunteer hours.

**Barriers:** The MCA had **no clear guidance** on who could make decisions on implementing the NbS in the SAC. The MCA had to **source the fencing, install it and have continuously maintained the fences since installation in April 2017**. The seaward fences have been dug out and raised at least three times and a buried fence replaced in one instance - all work done by volunteers



## Solutions for CSES

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Scientists have a breeding programme to save this endangered species from going extinct.



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*Take a fieldtrip to the coast!*



The sea buckthorn is still being avoided.....so focus on other biodiversity!



## Solutions for CSES




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**Flora and Fauna of the Maharees and Castlegregory - Series 4**

Welcome to the Maharees and Castlegregory area - home to many interesting and sometimes rare species of flora and fauna. Using these species spotter sheets, see how many different species you can find as you enjoy our beautiful area. Wild flowers are an important source of food for our pollinators and we appreciate your cooperation in allowing them to grow! Supported by Kerry County Council, the Community Environment Action Fund and the BSc in Wildlife Biology at MTU, Kerry.

**Maharees Conservation Association**  
Protecting | Enhancing | Preserving

**MTU**  
Munster Technological University

 <p><b>Cinnabar Moth</b> <i>Tyria jacobaeae</i> Leamhan flanndearg</p> <p>Day flying moth with distinctive red/black colouring. Caterpillars are bright orange and black and feed predominantly on Ragwort.</p>	 <p><b>Wall Brown</b> <i>Lasioommata megera</i> Donnóg an Bhalla</p> <p>Classified as endangered, the Wall Brown is a medium sized butterfly with numerous black eye 'spots'. Can be seen basking in sunny weather (especially on walls, hence their name). Caterpillars feed on a range of grasses.</p>	 <p><b>Six-Spot Burnet</b> <i>Zygaena filipendulae</i> Buirnéad sébhailiach</p> <p>A distinctive moth that flies during the day. At the peak of their flight period, they can be seen feeding in large numbers on plants such as Ragwort and Knapsweed. Caterpillars often feed on Bird's foot Trefoil.</p>	 <p><b>Common Blue</b> <i>Polyommatus icarus</i> Gormán Coiteann</p> <p>The most commonly seen species of three 'blue' butterfly species we have in Ireland. (Common, Small and Holly Blue). Common Blue males are a striking blue, females a drabber blue/brown colour. Both males and females have orange spots on the undersides of wings. Bird's foot trefoil is the main food plant of the caterpillars.</p>	 <p><b>Small Blue</b> <i>Cupido minimus</i> Gormán Beag</p> <p>Ireland's smallest butterfly and is classified as 'endangered' in Ireland. Pale blue in colour with no orange spots like the common Blue butterfly has. The caterpillars feed exclusively on Kidney Vetch.</p>
 <p><b>Lesser Marsh Grasshopper</b> <i>Chorthippus albomarginatus</i> Droivín teaspáigh</p> <p>One of 5 species of grasshopper to be found in Ireland. The Lesser Marsh Grasshopper lives in damp, marshy and drier grassland and coastal habitats. They are active in the day, particularly in warm sunshine. They feed on several types of grass species. The Maharees is one of the best places to find this species.</p>	 <p><b>Garden Chafer</b> <i>Phyllopertha horticola</i> Ciaróg dhéa ghairdín</p> <p>Member of the scarab beetle family, this species has a distinctive brown and metallic colouring and can look quite clumsy when ambulating. In May or June, they can sometimes be seen in large numbers feeding on species such as Burnet Rose.</p>	 <p><b>Natterjack Toad</b> <i>Epidaleia calamita</i> Cnádán</p> <p>Ireland's only native toad and a protected species. The Natterjack Toad occurs only in County Kerry, (with the exception of a handful of introduced populations elsewhere). The Maharees is one of the main strongholds for the toad. They have a distinct yellow stripe running down their back. Breeding occurs from April/July, and eggs are laid in strings.</p>	 <p><b>Painted Lady</b> <i>Vanessa cardui</i> Ailleán</p> <p>The Painted Lady is a well-recognized butterfly and is a migrant species, so numbers seen in Ireland will fluctuate from year to year. One of our largest butterflies with a distinctive black and orange colouring.</p>	 <p><b>Small Heath</b> <i>Coenonympha pamphilus</i> Fraochán Bwag</p> <p>The Small Heath is a small species of butterfly that is classified as near threatened. It always rests with its wings closed, which clearly shows the distinctive eye spot on the underside of its hind wing. The Small Heath butterfly inhabits a range of habitats including sand dunes. Caterpillars feed on a range of grasses.</p>

For more information please visit our website: [www.mahareesconservation.com](http://www.mahareesconservation.com) Follow our Facebook Page: Maharees Heritage and Conservation

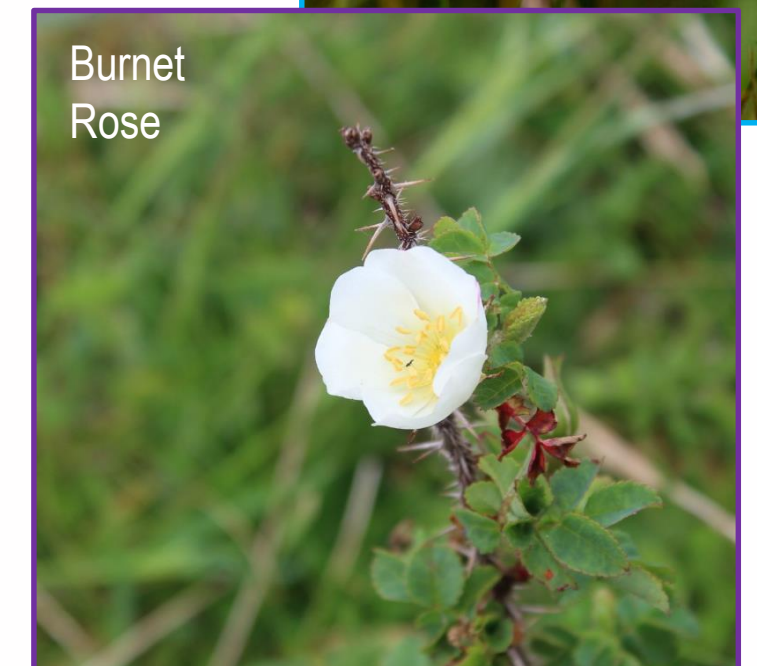


Bee Orchid

Pyramidal Orchid



Burnet Rose



## Solutions for CSES










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**Flora and Fauna of the Maharees and Castlegregory - Series 4**

Welcome to the Maharees and Castlegregory area - home to many interesting and sometimes rare species of flora and fauna. Using these species spotter sheets, see how many different species you can find as you enjoy our beautiful area. Wild flowers are an important source of food for our pollinators and we appreciate your cooperation in allowing them to grow! Supported by Kerry County Council, the Community Environment Action Fund and the BSc in Wildlife Biology at MTU, Kerry.

**Maharees Conservation Association**  
Protecting | Enhancing | Preserving

**MTU**  
Munster Technological University

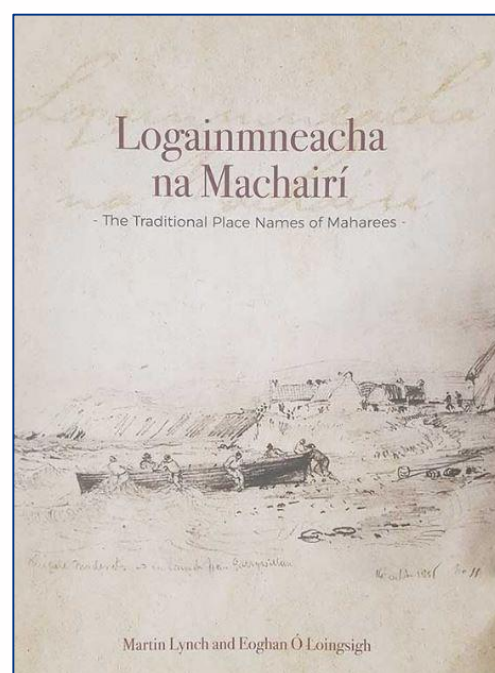
 <p><b>Cinnabar Moth</b> <i>Tyria jacobaeae</i> Leamhan flanndearg</p> <p>Day flying moth with distinctive red/black colouring. Caterpillars are bright orange and black and feed predominantly on Ragwort.</p>	 <p><b>Wall Brown</b> <i>Lasioommata megera</i> Donnóg an Bhalla</p> <p>Classified as endangered, the Wall Brown is a medium sized butterfly with numerous black 'eye' spots. Can be seen basking in sunny weather (especially on walls, hence their name). Caterpillars feed on a range of grasses.</p>	 <p><b>Six-Spot Burnet</b> <i>Zygaena filipendulae</i> Buinnead sébhailach</p> <p>A distinctive moth that flies during the day. At the peak of their flight period, they can be seen feeding in large numbers on plants such as Ragwort and Knapweed. Caterpillars often feed on Bird's foot Trefoil.</p>	 <p><b>Common Blue</b> <i>Polyommatus icarus</i> Gormán Coiteann</p> <p>The most commonly seen species of three 'blue' butterfly species we have in Ireland. (Common, Small and Holly Blue). Common Blue males are a striking blue, females a drabber blue/brown colour. Both males and females have orange spots on the undersides of wings. Bird's foot trefoil is the main food plant of the caterpillars.</p>	 <p><b>Small Blue</b> <i>Cupido minimus</i> Gormán Beag</p> <p>Ireland's smallest butterfly and is classified as 'endangered' in Ireland. Pale blue in colour with no orange spots like the common Blue butterfly has. The caterpillars feed exclusively on Kidney Vetch.</p>
 <p><b>Lesser Marsh Grasshopper</b> <i>Chorthippus albomarginatus</i> Droivín teaspáigh</p> <p>One of 5 species of grasshopper to be found in Ireland. The Lesser Marsh Grasshopper lives in damp, marshy and drier grassland and coastal habitats. They are active in the day, particularly in warm sunshine. They feed on several types of grass species. The Maharees is one of the best places to find this species.</p>	 <p><b>Garden Chafer</b> <i>Phyllopertha horticola</i> Ciaróg dhéa ghairdín</p> <p>Member of the scarab beetle family, this species has a distinctive brown and metallic colouring and can look quite clumsy when ambulating. In May or June, they can sometimes be seen in large numbers feeding on species such as Burnet Rose.</p>	 <p><b>Natterjack Toad</b> <i>Epidaleia calamita</i> Cnádán</p> <p>Ireland's only native toad and a protected species. The Natterjack Toad occurs only in County Kerry, (with the exception of a handful of introduced populations elsewhere). The Maharees is one of the main strongholds for the toad. They have a distinct yellow stripe running down their back. Breeding occurs from April/July, and eggs are laid in strings.</p>	 <p><b>Painted Lady</b> <i>Vanessa cardui</i> Ailleán</p> <p>The Painted Lady is a well-recognized butterfly and is a migrant species, so numbers seen in Ireland will fluctuate from year to year. One of our largest butterflies with a distinctive black and orange colouring.</p>	 <p><b>Small Heath</b> <i>Coenonympha pamphilus</i> Fraochán Bwag</p> <p>The Small Heath is a small species of butterfly that is classified as near threatened. It always rests with its wings closed, which clearly shows the distinctive eye spot on the underside of its hind wing. The Small Heath butterfly inhabits a range of habitats including sand dunes. Caterpillars feed on a range of grasses.</p>

For more information please visit our website: [www.mahareesconservation.com](http://www.mahareesconservation.com) Follow our Facebook Page: Maharees Heritage and Conservation



## Solutions for CSES

1. Too little sand
2. Too much sand
3. Invasive species
4. Loss of heritage
5. Tourism
6. Flooding
7. Wildfire



Funding sources:



**Kilshannig Point.**

An Eitir (*un gtir*) – The channel.

The White Bank – A low-lying sand bank, visible offshore at low tide.

Poll Búi (*poul bwee*) – The Yellow Hole; a yellow clay was dug here from the cliff. Mixed with water, the clay formed a mortar named *gaidhean* (*geen*) used for building stone-walled houses.

Glasláthair (*glos-lawbir*) – The green place; derives its name from mud banks of green *Zostera* grass, locally known as 'swi'.

Clochar (*klubur*)/The Cloichears – Stoney fields.

The Wells.

Milleach (*miluch*) – Derives from 'imleach' (*imiluch*), a piece of land differing in quality from the land around it.

The Middle Gap.

Scairt (*skart*) – Shelter. The beach to the east of Milleach, sheltered from the Atlantic Ocean and the prevailing south westerly winds. On 24 December 1847, at the height of the Great Famine, the 31 ton sloop *Industry*, with a cargo of flour and meal destined for Tralee, was deliberately driven ashore at Scairt by the captain in an effort to provide food for the starving people.



## Solutions for CSES

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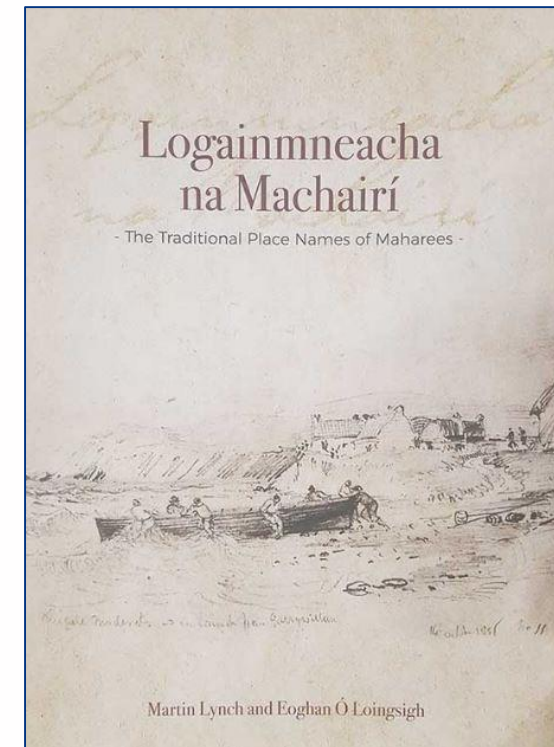


### Explore The Maharees

#### Summer Schedule Biodiversity Heritage Events 2022

Month	Date	Time	Event	Location
July	10	Sun 10am	Mermaid's Purse Hunt with Clara Dolan	Béal Geal (Blue Flag Beach)
	14	Thur 11am	Maharees Heritage Walk	Spillane's Car Park
	16	Sat 11am	Jellyfish Talk with Clara Dolan	Béal Geal (Blue Flag Beach)
	21	Thur 10am	Beach Clean	Béal Geal (Blue Flag Beach)
	21	Thur 9pm	MCA Table Quiz	Green Room
	23	Sat 11am	Maharees Heritage Walk	Kilshannig
	24	Sun 2pm	Wildflower Walk with Clara Dolan	Béal Geal (Blue Flag Beach)
	28	Thur 11am	Marram Planting	Béal Geal (Blue Flag Beach)
	30	Sat 11am	Rockpool Exploration with Clara Dolan	Kilshannig
	August	4	Thur 2pm	Beach Clean
6		Sat 11am	Maharees Heritage Walk	Spillane's Car Park
11		Thur 11am	Maharees Heritage Walk	Kilshannig
11		Thur 9pm	Maharees Heritage Table Quiz	Green Room
13		Sat 11am	Rockpool Exploration with Clara Dolan	Kilshannig
20		Sat 11am	Maharees Heritage Trail Walk (10km)	Béal Geal (Blue Flag Beach)

Brought to you by Maharees Conservation Association  
Details on Facebook



## Kerry coastal community wins national gold for vivid living heritage event

Maharees celebrating winning the Living Heritage category at the Heritage Week Awards in Offaly



Best "Living Heritage" event in Ireland.

Maharees Conservation Association members celebrating the Heritage award at Béal Geal beach on Monday, from left, Martin Lynch, Mary Ellen Mansell, Eileen McCarthy, Joanne Kennedy, Darragh O'Connor, Maura Cronin and Martin Finn. Photo by Mark O'Sullivan



**Enablers:** Having the BSc programme in Wildlife Biology nearby at MTU Kerry provided **access to experts** who were willing to share their knowledge. Forming a separate **biodiversity sub team** enabled a focus and a set of volunteers to **deliver regenerative tourism/ interpretive heritage experiences**. A **local historian** who had the vision, the drive and the research skills to document the cultural heritage and traditional place names of the area.

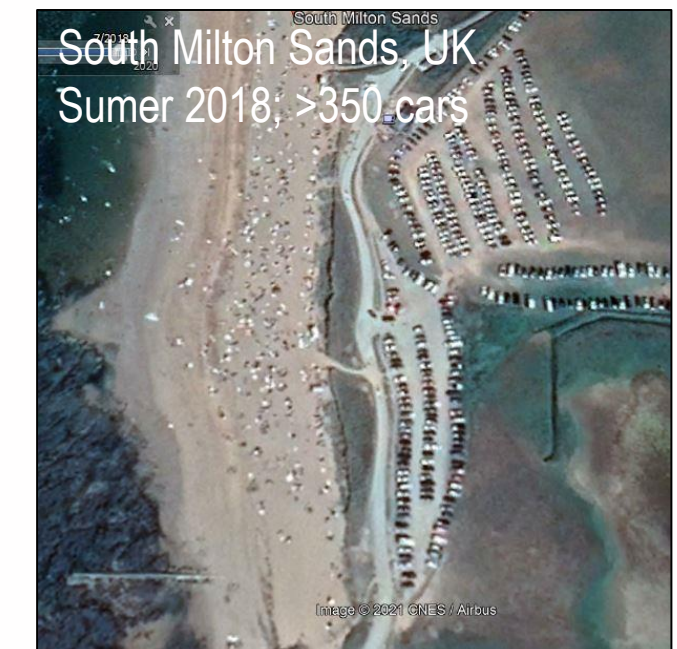
**Barriers:** Understanding the full array of **funding** streams available; learning how to **write successful funding applications**.

## Solutions for CSES

1. Too little sand
2. Too much sand
3. Invasive species
4. Loss of heritage
5. Tourism
6. Flooding
7. Wildfire



In 2021 Fáilte Ireland announced €19 million investment to develop state-of-the-art facilities for outdoor water-based activities around Ireland, including a shared facility centre in Maharees.



Working with partners such as KCC, the NPWS and the police service, an Garda Síochána, MCA are assisting in the provision of a safer visitor management system during the busy summer season. A summer car park, line marking, signage, more Garda support and a system of reporting illegal parking is ensuring that the quality of life for residents, visitors and wildlife is much better.

**Enablers:** Evidence provided by KCC traffic counter and MCA drone survey to show the danger to visitors and residents posed by wild / dangerous parking.

**Barriers:** Having to make the case for a seasonal surge in visitor management facilities (parking, policing, traffic management system) to match the surge in visitors. Still without adequate alternative solution for wild camping.

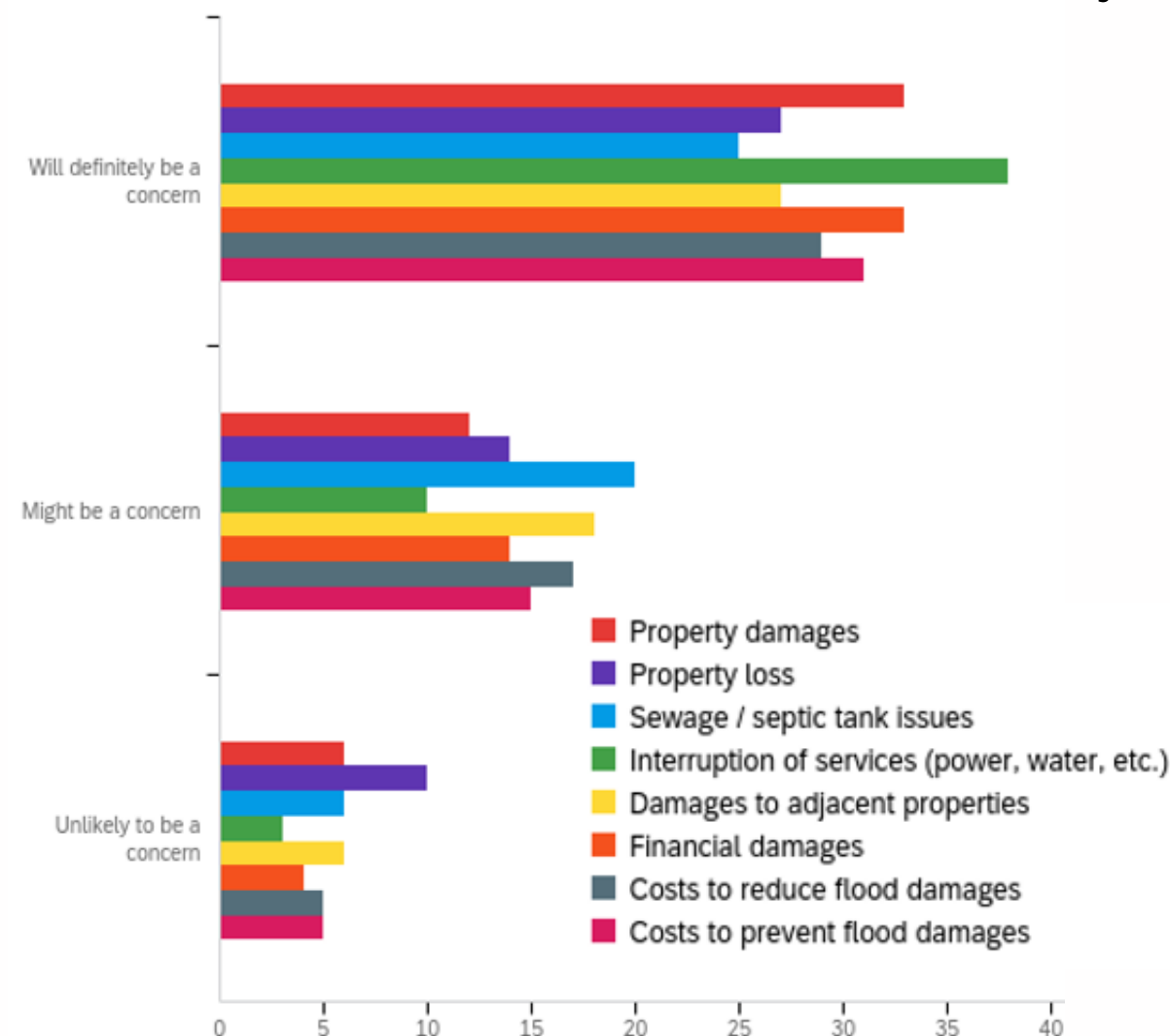
## Solutions for CSES

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Can this community adapt to living with flood and erosion risk?

### In terms of future flood risk, how concerned are you?



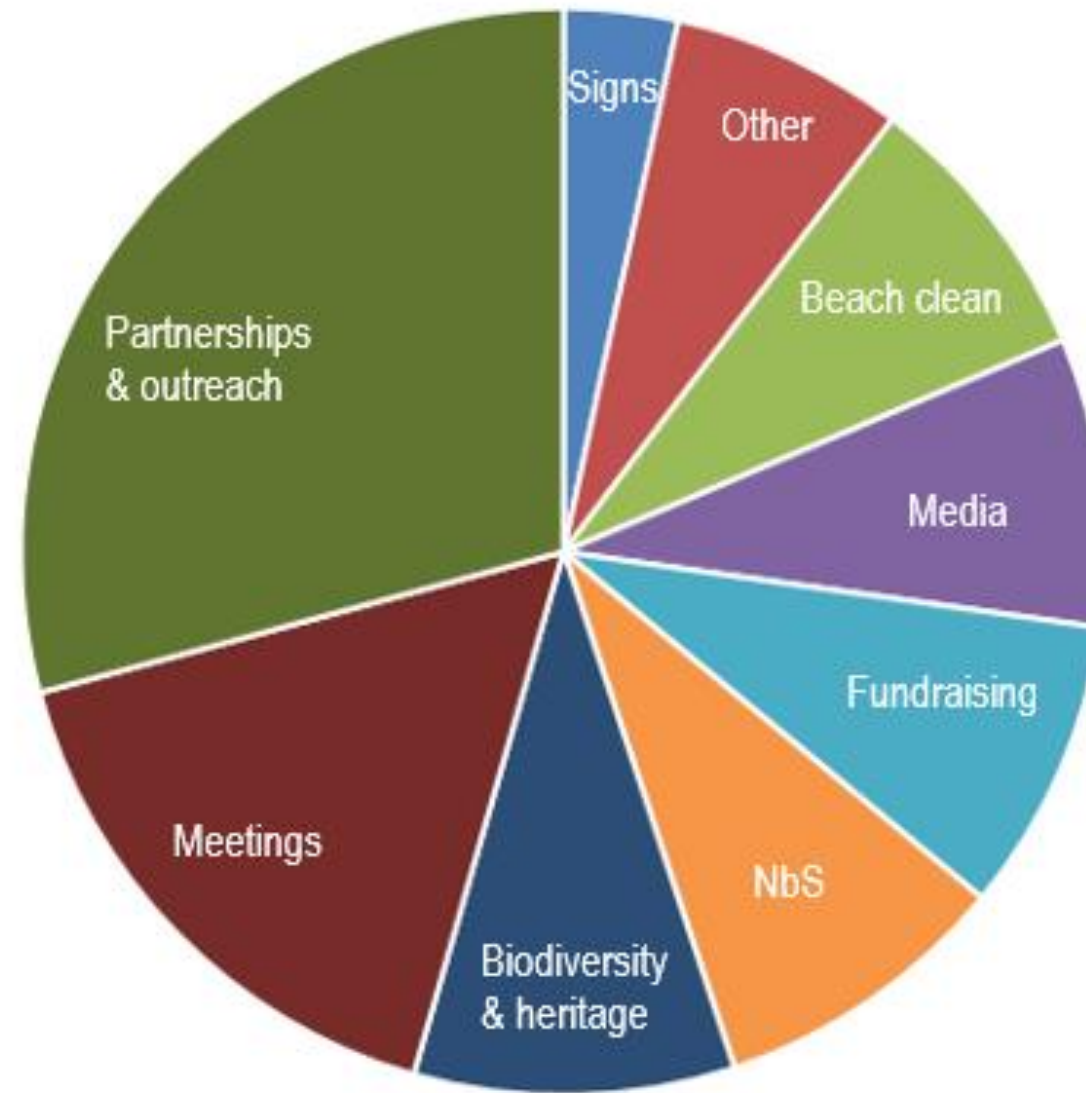
Shane Corr, MSc

“The night (2014 storm) it hit here, it was **frightening**. It came in between the two houses and up the front yard. The drains are good to take it, but they couldn’t take that. That was **frightening**”.

When asked if flooding has gotten worse over the past few years, she said, “it’s **hard to say**”. Susan recalls **children getting on the back of tractors and trailers to get to school because their parents could not get past the flooded roads**.

In the last six years, “Susan” has **built two flood walls around her home**. In 2014, after the storm, “Susan” made a small around her concrete patio area to prevent water from coming up onto her doorstep. The wall is approximately 50cm in height and was built by herself and her husband. In 2020, **a second wall was built around the front of the house, and it is much larger in size and length**. Again, this was built by the homeowners, and with both walls, they were funded by the homeowners. “Susan” mentioned that she is not bothered anymore by flooding and that the **walls act as a sense of security and make her feel safe**.

“The **flooding would not happen if the drainage were right**. Sometimes the drain doesn’t even work. If there were a natural fall in the drain, it would work”.



Activities (n = 617) Feb 2016 – March 2022	#	%
Partnerships & outreach	180	29
Meetings	101	16
Biodiversity & heritage	59	10
NbS	55	9
Fundraising	53	9
Media	54	9
Beach clean	51	8
Other	43	7
Signs	21	3



What we did	Associated Implementation Challenges for the community
<ul style="list-style-type: none"> <li>Installation of 3 lines of Chestnut Fencing to Control Sand Deposition</li> </ul> <p style="text-align: center; transform: rotate(-45deg);">mitigate sand deposition hazard</p>	<ul style="list-style-type: none"> <li>Researching and designing a Solution ourselves – a local resident did the research and proposed the design of the three-row approach informed by sediment transport path information from Dr Eugene Farrell, NUIG - because no one else had one!</li> <li>Documenting the proposal</li> <li>Gaining permission separately for the approach from               <ul style="list-style-type: none"> <li>NPWS (Natura 2000 site)</li> <li>Kerry County Council (planning permission)</li> </ul> </li> <li>Funding the purchase of the fences               <ul style="list-style-type: none"> <li>€5000 – from Kerry County Council</li> </ul> </li> <li>Developing a works plan and securing the necessary expertise locally. Erecting the fencing – community event/</li> <li>Adjusting the fencing as required on a number of occasions since then</li> <li>All the labour in designing, constructing and maintaining the solution has been delivered at their own cost by the community</li> </ul>

What we did	Associated Implementation Challenges for the community
<ul style="list-style-type: none"> <li>Installed fences to control access</li> <li>Managed the area to maximise dune recovery.</li> <li>Fundraising</li> </ul> <p style="text-align: center; transform: rotate(-45deg);">mitigate uncontrolled access (see: trespassing)</p>	<ul style="list-style-type: none"> <li>Designing the fencing pathway approach</li> <li>Seeking advice on what materials we were allowed to use from NPWS and Kerry County Council Biodiversity Officer               <ul style="list-style-type: none"> <li>Used Sheep Wire Fencing and Straw Bales. Funded or by local contributions</li> </ul> </li> <li>Developing a works plan and securing the necessary expertise locally. Installing the fences and bales on a community work day.</li> <li>Erecting signage to explain about the dune protection work and why parking and access was being restricted.</li> <li>Enduring the vitriol of those who prefer to park on the beach/ camp on the dunes on social media channels.</li> <li>Seeking advice from the Biodiversity Officer on whether cleared sand from the road could be used to cover decomposing bales (aesthetic considerations) and on how the dry sand could be kept from blowing if it was permitted.</li> <li>Weeding out alien species (e.g. dock leaves) from decomposing bales.</li> <li>Planting Marram to expedite sand dune vegetation to re-establish.</li> <li>We have since deployed bales in other hotspot areas to deliver critical foredune protection. Key challenges here involved funding (local councillors allocations), securing permissions from all parties (KCC, NPWS, Foreshore) and timely delivery of bales pre storm season</li> </ul>

What we did	Associated Implementation Challenges for the community
<ul style="list-style-type: none"> <li>Planted marram grass to regenerate the dune.</li> <li>Erected fencing to keep the public off the dune.</li> <li>Erected signage to notify the public regarding the dune protection work in operation.</li> </ul> <p style="text-align: center; transform: rotate(-45deg);">restore dune ecosystem</p>	<ul style="list-style-type: none"> <li>Became a Clean Coasts group and arranged for Clean Coasts Rep to demonstrate Marram Planting skills</li> <li>Arranged several community planting events.</li> <li>Learning where and how to source the Marram slips.</li> <li>Learning how to plant the Marram grass.</li> <li>Funding application for trowels and signage for the planting works</li> <li>Creating and erecting signage to explain the work and access restrictions.</li> <li>Drafting the right message!</li> <li>Erecting fencing to keep the public off the dune.</li> <li>Engaging in repeat planting where footfall prevailed.</li> <li>Fencing off further areas of dune as more breaches form from public walking up the dune.</li> </ul>



This level of engagement is **NOT** "empowerment" & **NOT** sustainable.



The social contract between coastal communities and Government is unfair.  
**"agree to be ruled, and in return, your rulers will offer you protection"**

*"After all this effort over several years by so many people, and despite much progress, ultimately the community still feels like they have failed to deliver their objectives and safeguard themselves for the long-term. Lack of a joined-up, cross-agency solution-focused approach is key to these poor outcomes."*





**HAZARD: too much sand**  
**No access in/out Of Maharees**  
**17 occasions**  
**Winter 2015-2016**

Kerry County Council refused to intervene as it was an SAC - a problem for the NPWS.  
NPWS = 'science-first, top-down, non-communicative'.



**Unlocking the impasse**

- Health and safety risks
- Site Management
- Kerry County Council €5,000
- Maharees Conservation Association volunteers



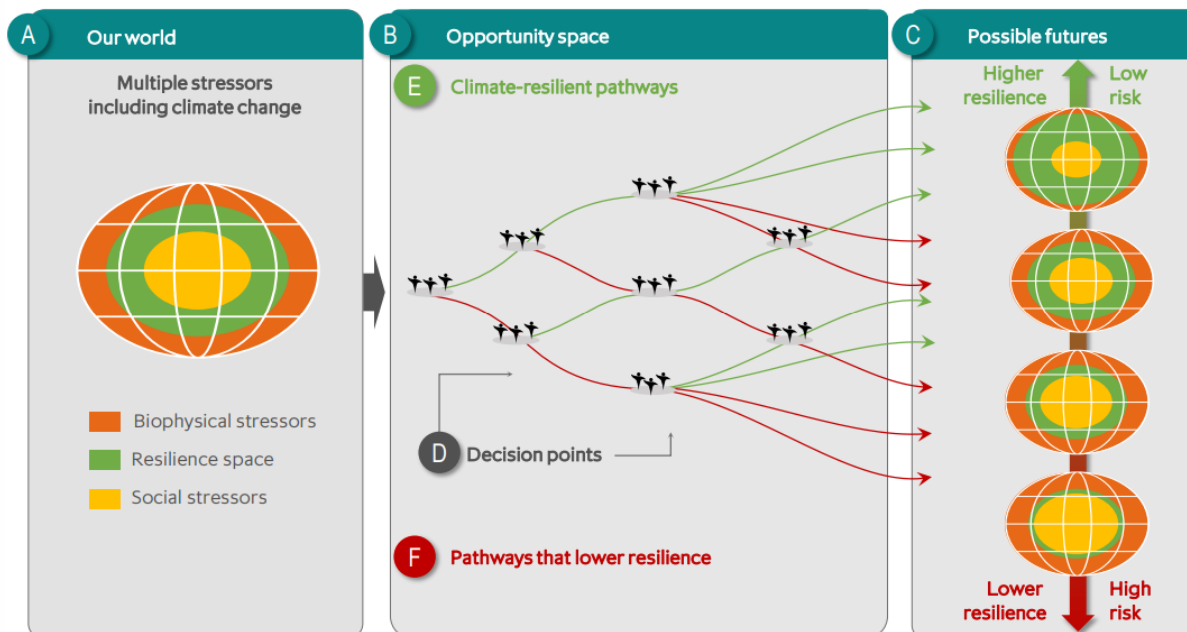
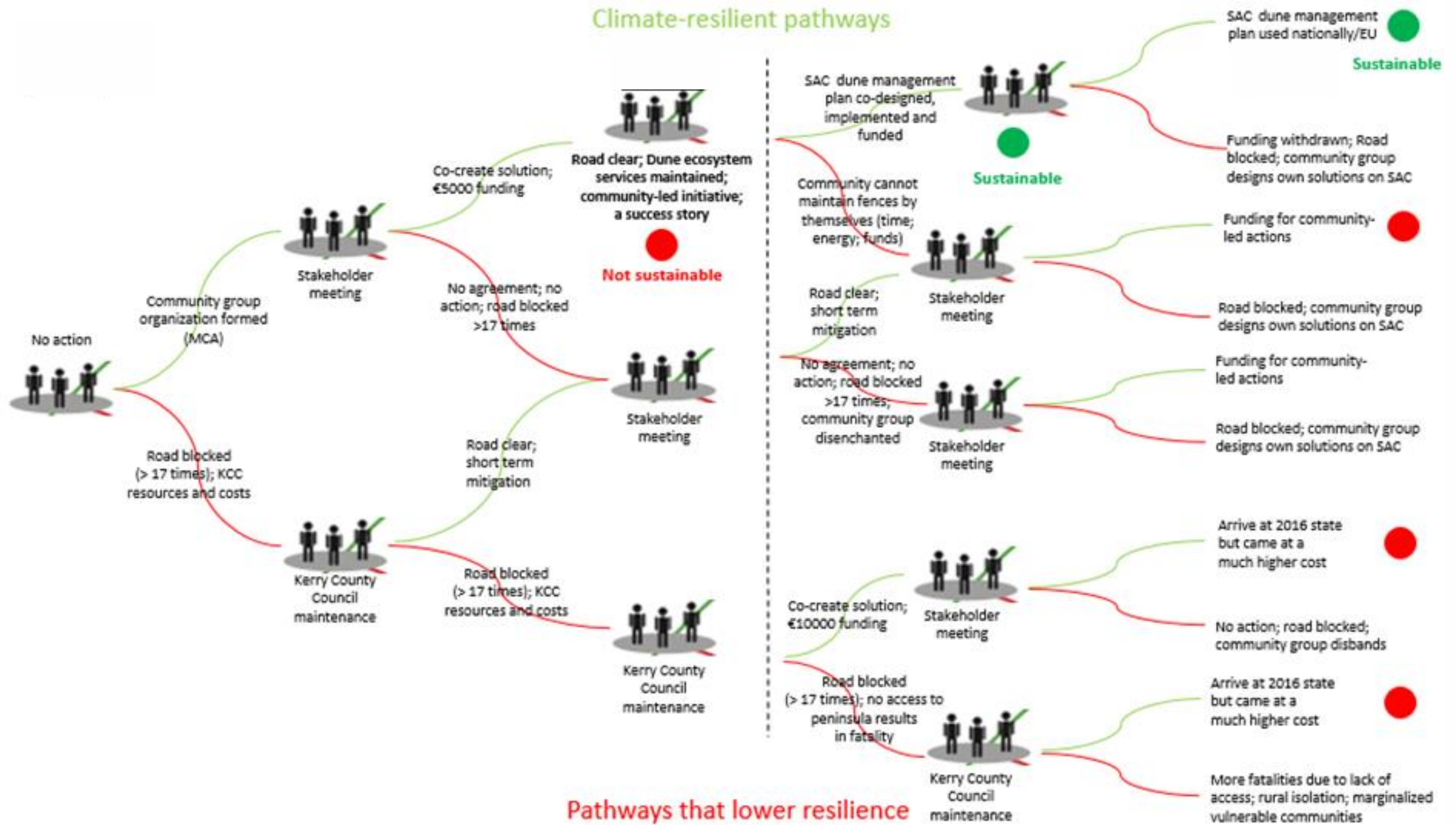
**Oct 2016. Meeting**  
Nov 2016. Proposal  
**Apr 2017. Installation**  
Jan 2018. Dug out  
Jul 2019. Dug out  
Feb 2020. New fence

**Road clear since April 2017.**  
Nature-based Solutions (NbS) work.  
Community effort rewarded (attainable goals)  
Stakeholders communicating.  
Building awareness and education.

2015

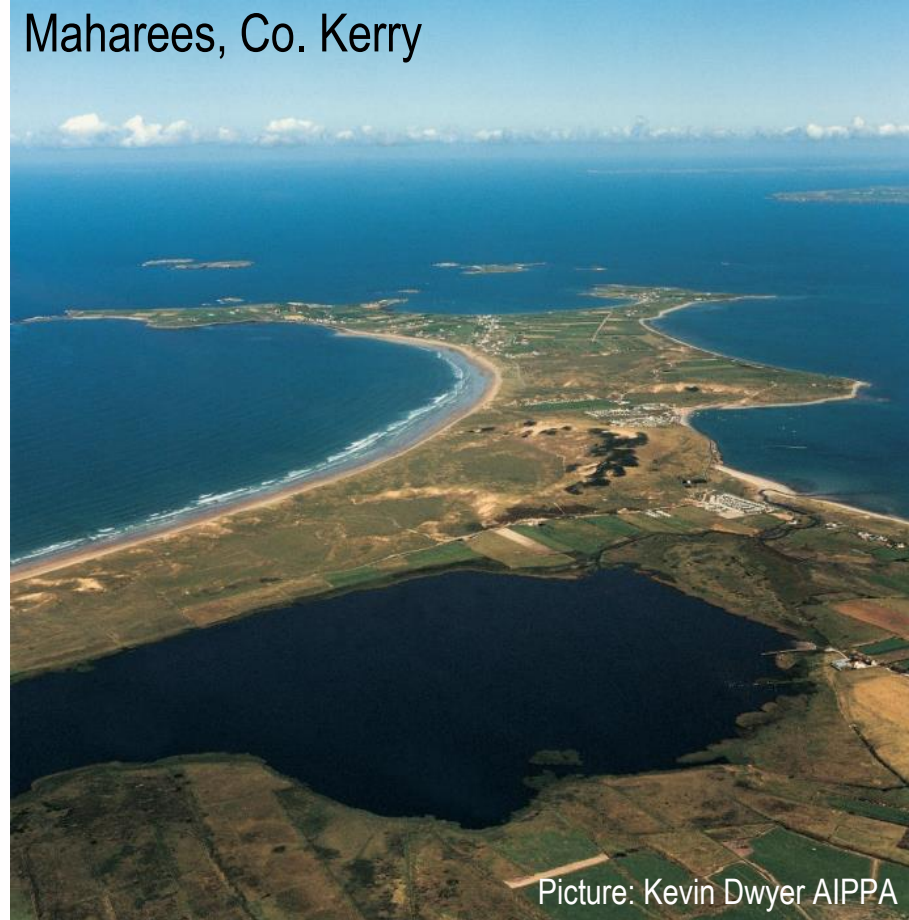
2023

2050?



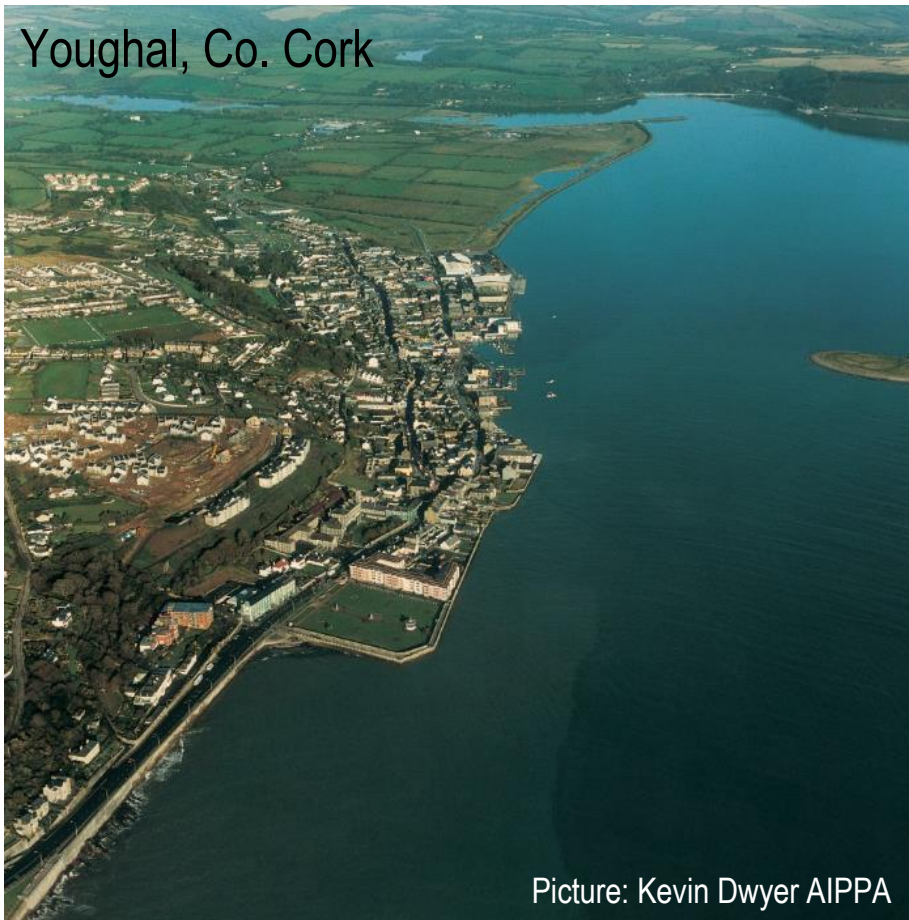
Opportunity spaces and climate-resilient pathways for community-led action to mitigate wind blown sand hazard in Maharees, Co. Kerry. The filled red circle labelled 'not sustainable' is the current state (2015 – 2021).

Maharees, Co. Kerry



Picture: Kevin Dwyer AIPPA

Youghal, Co. Cork



Picture: Kevin Dwyer AIPPA

Table 8.1. Identification of institutional barriers at a local level, among coastal communities consulted during the BCOMAR project, and possible solutions for overcoming them

Area	Institutional barriers	Institutional enablers
Governance of the coast	The multitude of departments and public bodies with a remit for the coastal area have their own governing legislation and policy objectives that do not align with each other (see Figure 3.1).	The National Coastal Change Management Strategy Steering Group (formed in September 2020) can make recommendations on future structures and roles of government departments in dealing with coastal change; the CAROs (formed in 2018) coordinate the actions and regional priorities of local authorities for coastal adaptation.
Legal responsibility for the coast	Local authorities are currently not adequately resourced or, in many cases, do not have jurisdiction to deliver the climate adaptation actions needed to support their organisation or communities to achieve climate resilience.	MAPA provides for a new "nearshore" area, where local authorities will have responsibilities that extend three nautical miles beyond the high water mark.
Coastal stakeholder forum	Unlike some other communities, which have groups that support resilience-building (Local Authority Waters Programme; Irish Uplands Forum; Natura & Hill Farmers Association; Community Wetlands Forum), there is no organised or funded body to support actions to build resilience among coastal communities.	In January 2021, the Coastal Life Collective (CLC) emerged from the MCA network. The CLC comprises over 20 communities in Donegal, Sligo, Mayo, Galway, Clare, Kerry, Cork and Dublin, sharing common challenges on their coasts. The CLC has the potential to grow and link communities to the CAROs or lead to a new forum to address the juxtaposition of higher level (national) priorities and lower level (local) problems and provide access to relevant stakeholder knowledge and funding.
Tourism	Recent successful marketing initiatives by Failte Ireland (e.g. Wild Atlantic Way; Ancient East) are increasing the number of visitors to the coast and also increasing the pressure on socio-ecological systems.	Failte Ireland's new development plans for tourism focus on actions to disperse visitors from high-density hotspots (e.g. Youghal and the Maharees, which are easily accessible from Cork city or Dingle) and develop visitor experiences based on environmental awareness. In 2021, Failte Ireland awarded €19 million to 22 locations around Ireland to develop state-of-the-art facilities for outdoor water-based activities to boost the tourist appeal of rural locations.

Report No. 429

epaResearch

**Building Coastal and Marine Resilience in Ireland**

Authors: Eugene J. Farrell, Glen Smith, Anne Marie O'Hagan and Martin Le Tissier

www.epa.ie

Riailta na hÉireann  
Government of Ireland

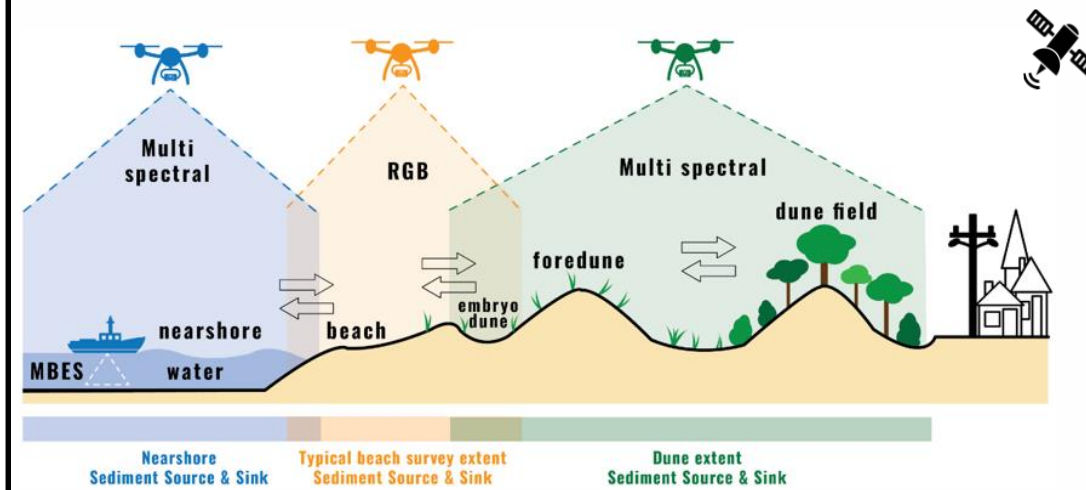


Table 8.2. Identification of technical barriers at a local level, among coastal communities consulted during the BCOMAR project, and possible solutions for overcoming them

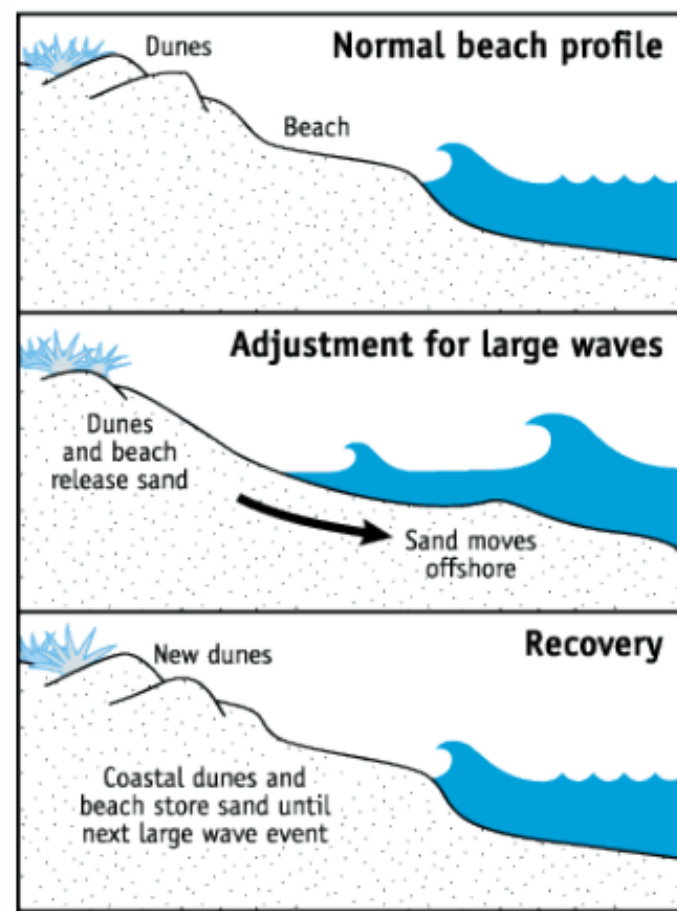
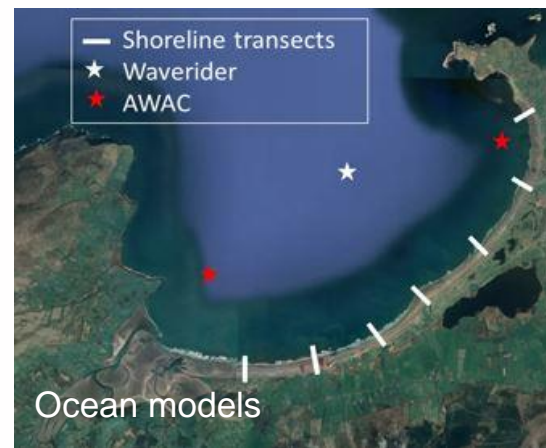
Area	Technical barriers	Technical enablers
Climate adaptation	In March 2021, the Irish government approved the Climate Action and Low Carbon Development (Amendment) Bill 2020, putting Ireland on the path to net-zero emissions by 2050. This emerged from the NMP as part of CALCDA 2015. The NAF was also part of this Act but is being implemented much more slowly as a result of confusion about what adaptation actions are to be considered and how they will be measured.	In 2021, the Climate Change Advisory Council Adaptation Committee (formed in 2016) started a review of how adaptation can be achieved and measured within coastal communities. A 2021 EPA report identified a suite of 127 indicators for measuring, monitoring, tracking and communicating climate resilience in Ireland (Flood <i>et al.</i> , 2021).
Funding	Ireland requires a comprehensive coastal asset inventory to identify and value the natural capital and the ecosystem services provided by its coastal margins across the full range of services (cultural and recreation, provisioning, regulatory and supporting). This step can highlight the value for money of capital investments in these locations.	Outcomes reported in Norton <i>et al.</i> (2018) and O'Fatharta (2019) on valuing Ireland's coastal, marine and estuarine ecosystem services and blue ecosystem services can be advanced and extended to include terrestrial coastal ecosystems.
Environmental designation	The management of Natura 2000 sites is viewed by communities as "preservation" and not as "conservation", leading to the chronic degradation and disappearance of priority habitats and the exclusion of communities in co-managing these areas.	Ireland has a template for Natura 2000 site management plans, drafted in the late 1990s by Dúchas, the Heritage Service, but this has never been implemented for varying reasons. New plans can engage with the dynamic, socio-economic, cultural and regional aspects of site management as described in the BCOMAR case studies.
Lexicon of climate resilience and sustainability	Despite the prevalence of the term "resilience" in research, policy and development plans, the findings from the case studies suggest that it is not particularly useful for engaging local stakeholders on the topic of adapting to climate change. The term is vague, ambiguous and, potentially, contentious.	There is real value in viewing resilience as a journey or pathway, rather than as an absolute attainment. There is also a preference to use alternative concepts in discussions when engaging with communities, e.g. green, heritage led, regeneration, investment or opportunity.
Coastal erosion and flooding	Coastal erosion and flooding are critical factors in the vulnerability of coastal communities. Nature-based solutions offer potential in many locations, and local communities have shown willingness to engage in these actions. Currently, information is lacking on best practice, government support structures (responsibility and funding) and permissions (e.g. on what can be done and where).	In May 2021, the Atlantic Seaboard North CARO facilitated a report by Natural Capital Ireland (2021) on nature-based solutions workshops delivered to five local authorities (Donegal, Galway City, Galway County, Mayo, Sligo). The case studies show that community-led and group-led nature-based solutions can reduce flood and erosion risks. In 2021, the OPW engaged with the BCOMAR project and has shown a willingness to consider nature-based solutions within their remit for the Minor Flood Mitigation Works and Coastal Protection Scheme.
Seasonal tourism	Local communities do not have appropriate infrastructure, services and facilities to host visitors during the peak summer tourist season. Short- and long-term tourism strategies lack sustainability imperatives and consideration of environmental and	Many communities around Ireland are engaging with local authorities in relation to beach access facilities, traffic management and enhanced enforcement activity. In 2021, An Taisce considered the potential for the long-term development of a seasonal beach



## MONITORING BEACH-DUNE SYSTEM RESPONSE & RECOVERY TO STORMS



Funding: Office Public Works; Geological Survey Ireland; Marine Institute; SFI MaREI



### Wave Measurement for Model Validation

A waverider is in-situ in the bay since Dec 2020, and will remain there for at least another year. There have also been two temporary AWAC deployments in the east and west of the bay. AWACs measure both waves and currents.

### Shore-line Imaging and Profiling

Time-lapse cameras have been installed at three monitoring sites. Timex images are geo-rectified and analysed using MatLab scripts to determine wave run-up. Repeat shoreline profile surveys have been conducted at 7 locations including the camera sites.

### Coupled Wave and Morphological Modelling

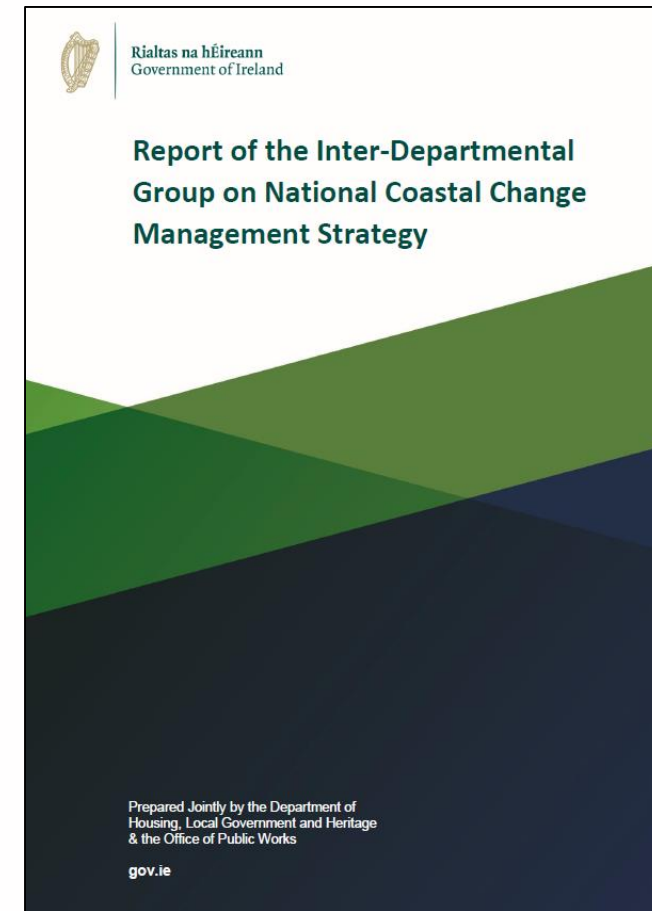
Storms will be categorised using a 5-year wave hindcast. Storm wave conditions will be used to drive the morphology model to quantify the shoreline impact of different storm types. Future climate effects will also be assessed.

### Model Development and Validation

High resolution (10 m) tide (DELFT3D) and wave (SWAN) models have been developed and extensively validated using waverider and AWAC data. An XBEACH morphology model has been developed and is currently being calibrated using camera and survey data.

### Project Team:

Dr Eugene Farrell (Geography, NUIG)  
Dr Stephen Nash (Civ. Eng. NUIG)  
Ms Sheena Fennell (EOS, NUIG)  
Prof. Gregorio Iglesias (MRE, UCC)  
Dr Siegmund Nuyts (PDR, NUIG)  
Mr Andi Egon (PhD candidate, NUIG)

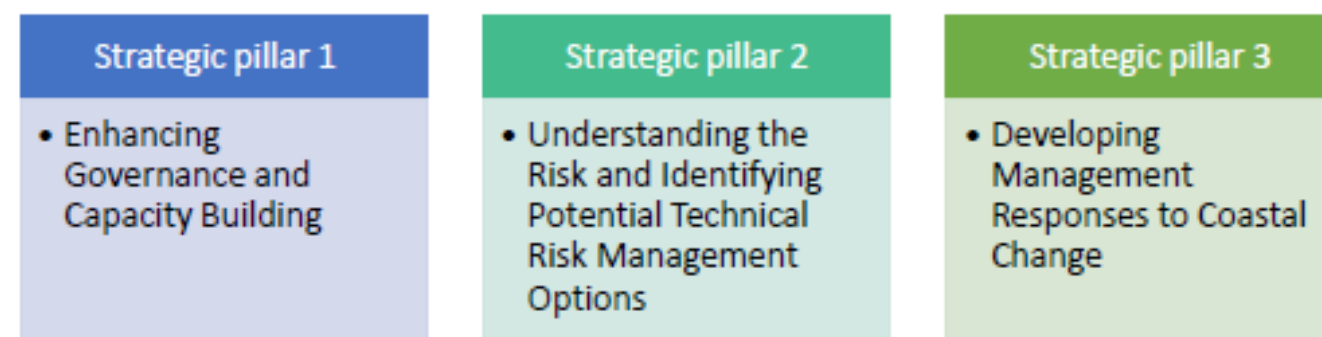


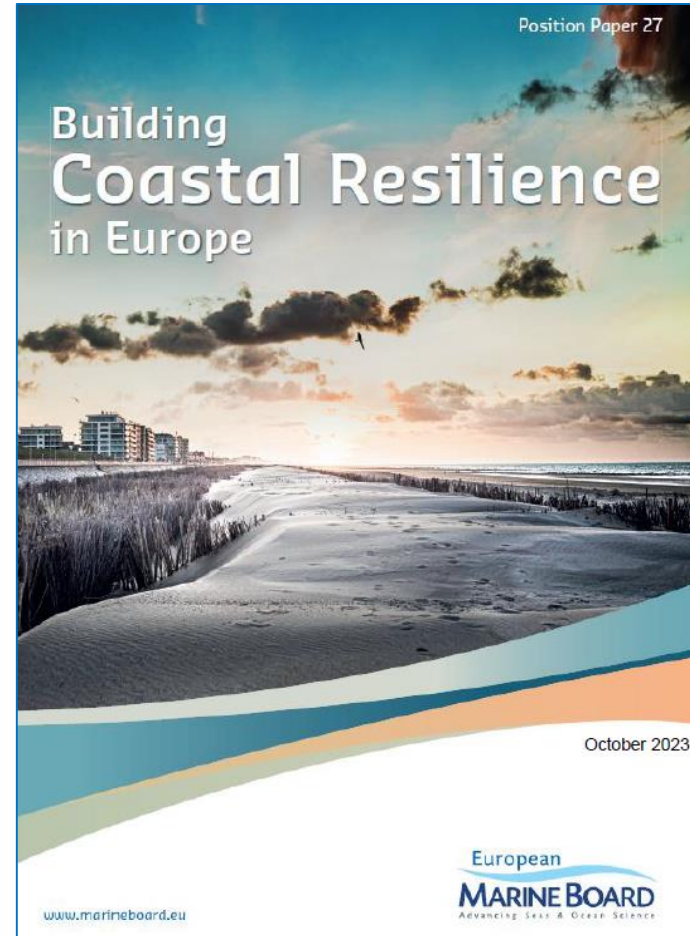
Drawing from the many examples of good practice in the management of coastal change evident in the approach of other jurisdictions, there are a number of broad themes which should be considered in any future policy being developed for Ireland, including:

- Policy approach
  - The need for coastal change management plans to be prepared to identify the appropriate measures necessary to best manage the risks associated with coastal change, in the short, medium and longer terms, with such plans reviewed and updated at appropriate intervals.
  - The consideration and application of high level risk management policy options along the coastline or parts thereof. For example, no active intervention, hold the line, managed realignment, managed retreat or advance the line, along each reach of the coastline, as used in the UK Shoreline Management Plans.
  - The use of a sediment management approach which can include various scales of assessment based on sediment cells and sub-cells.
  - The emphasis on sustainable management of the coastline as evident in the approach in the UK, the Netherlands and Denmark.
  
- Communications
  - The importance of clearly communicating risks associated with coastal change to coastal communities and including these communities in the decision making process.
  
- Data and Research
  - The availability of high quality data to inform the decision making process. For example, regular monitoring of coastal retreat and dunes (annually), monitoring of dyke consolidation and monitoring of water levels and wave conditions as is carried out in Denmark. Similarly, the National Network of Regional Coastal Monitoring Programmes of England collect coastal monitoring data in a co-ordinated and systematic manner to serve their coastal management needs.
  
  - The importance of research to provide the up-to-date information required to manage the risk from coastal change. In the UK, the Environment Agency manages a Flood and Coastal Erosion Risk Management Research and Development Programme which is a collaborative and academic led research programme to provide information on the management of flood and coastal erosion risk.

### Chapter Five - Key elements of an Irish Coastal Change Management Strategy

The range of integrated elements of a coastal change management strategy and the consequent recommendations can be categorised under three overarching headings.





European  
**MARINE BOARD**  
Advancing Sea & Ocean Science

## Building Coastal Resilience

European Marine Board Position Paper No. 27

### SCIENTIFIC RECOMMENDATIONS

- I. Establish integrated transdisciplinary research on coastal social-ecological systems**

...to address knowledge gaps for single pressure and site-specific multiple, cumulative pressure-response relationships, and tipping points.
- II. Develop sufficient observational, monitoring and data capacity**

Increase monitoring, big data and artificial intelligence investment and integrate data into a unified interdisciplinary platform with resilience indicators.
- III. Develop and operationalise resilience indicators**

... in a pan-European platform.
- IV. Improve model prediction capacity**

... to predict the magnitude, timing, location and impacts of multiple, cumulative pressures.
- V. Invest in research on nature-based and hybrid solutions**

Identify the environmental and social-economic co-benefits, site specific feasibility, and impacts of various combinations of seaward and landward nature based solutions.

#### Examples of nature-based solutions

**SEAWARD** Conservation and restoration of marine coastal habitats; vertical ocean farming; marine protected areas; and low trophic aquaculture.

**HYBRID** Marsh-levee systems; dune-dyke systems; 'green' structural engineering.

**LANDWARD** Conservation and restoration of landward coastal habitats; vegetated dunes and marshes; and beach nourishment.

European  
**MARINE BOARD**  
Advancing Sea & Ocean Science

## Building Coastal Resilience

European Marine Board Position Paper No. 27

### POLICY RECOMMENDATIONS

- I. Adopt a systems approach to coastal management**

This should be based on adaptive, cross-sectoral and coherent policies. All aspects of the land-sea interface should be included in the Integrated Maritime Policy and links between marine- and land-based policies should be improved.
- II. Include nature from the beginning of the design process**

Coastal resilience solutions should be designed using an ecosystem-based management approach.
- III. Build adaptive capacity at multiple scales**

This should be across local communities, and national, regional and EU governance.
- IV. Reflect the value of natural capital**

The value of natural capital should be reflected in our economies and societies.
- V. Follow the six-step approach**



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Thank you

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