**Policy coherence for climate change adaptation at the land-sea interface in Ireland.**

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**Abstract**

One area where climate adaptation policies are proving difficult to design and implement is at the coast. On one hand, some of the most severe impacts of climate change are being recorded at the coast – especially through erosion and flooding – whilst on the other hand, these areas represent complex land-sea planning and policy interfaces. This paper analyses the coherency of policies along Ireland's coast from a climate adaptation perspective. Results suggest that many policies are developed in an ad-hoc fashion around the needs of single sectors. Improved policy coherence at all levels of governance is required to address this.

**Key words:** maritime spatial planning, climate adaptation, coasts, policy coherence, Ireland.

## 1. Introduction

The challenge of adapting to climate change in coastal areas will require more than coordinating the actions of different sectors (Pasimeni et al., 2019). This is particularly true alongs coasts where rising sea levels and increased frequency of extreme storm events are already causing serious erosion and flooding (Vitousek et al., 2017; Vousdoukas et al., 2017; IPCC, 2021). Coastal socio-ecological systems are interface regions straddling traditional terrestrial and marine planning systems that do not readily accommodate the interconnectedness of land-sea boundaries (Kidd et al., 2019). Conceptually, terrestrial and marine planning systems should be integrated to support holistic responses to a wide range of social, economic and environmental challenges and opportunities (Smith et al., 2011; Kidd et

al., 2019). This is especially relevant in the context of climate change, which requires innovative research to explore how this might be achieved (Abarca-Alvarez et al., 2019).

This paper draws on results from the "Building Coastal and Marine Resilience" project (BCOMAR) project that interrogated the coherence of planning for climate adaptation at the land-sea interface in Ireland. This is timely given the rapid development of climate change policy in Ireland since the Climate Change and Low Carbon Development Act, 2015, as well as efforts to meet a March 2021 deadline to prepare a national maritime spatial plan required by the EU's Maritime Spatial Planning Directive (Directive 2014/89/EU). It is important to consider the degree of coherency of climate change policies themselves, between terrestrial and marine planning, as well as between climate change and spatial planning. Analysis of policy coherence is guided here by an Economic Cooperation and Development (OECD) framework for sustainable development (OECD, 2016).

## 2. Methods

The BCOMAR project focused on finding ways to enhance resilience in the coastal environments of Ireland in the context of climate change through reviewing new and existing policy to support climate adaptation in Ireland, especially at the coast, and on governance systems designed to facilitate implementation of this policy (Farrell et al., 2021). The review was supplemented by a case study and engagement with stakeholders in the town of Youghal in County Cork, Ireland. A case study approach is useful for understanding phenomena, such as resilience, within its real-life context (Yin, 2009) and helps develop a 'thick narrative' of events and realities (Flyvbjerg, 2006), providing 'contexts or settings within which participants...address a problem or an issue' (Creswell, 2007: 40). This is useful to contextualise national, regional and local policy. We began by analysing broader socio-economic and cultural aspects in Youghal before considering climate change impacts.

Previous research on Youghal has focussed on the building a coastal planning framework in Ireland (McElduff et al., 2013) and on understanding local ecosystem services

(Doran & O'Higgins, 2020). We began our fieldwork with non-participatory observations of existing networks, meetings and initiatives [n = 4] to understand what projects local interest groups and the inhabitants of Youghal were already invested in, or what challenges concerned them. In the second phase of the research, we adopted a more climate change-focused approach through formal, semi-structured interviews with local representatives of organisations and government institutions [n = 6]. These included a local socio-economic development group, a community resource centre, the county council (local government), the Climate Action Regional Office (CARO), as well as local businesses and tourism authorities. Interviews began with a series of pre-defined questions about the role of the representative, their organisation and experience of climate related processes in the area (as per Seidman et al., 2004). Topics included well-documented local flood events, if and how funding streams supported adaptation options, and impacts of extreme weather on main local industries, such as tourism.

To broaden the scope of the research and capture input from residents of Youghal, we designed an online survey in the third research phase[1]. This anonymous survey was divided into three sections: understanding climate change; looking ahead; and 'about you', with a final section used to gather data on age categories and whether respondents grew up or work in Youghal. The survey also included a map of local features and amenities in Youghal that had been identified in reports, meetings, or in our interviews as being either at risk from climate change impacts, or which represent opportunities for coastal adaptation. We asked respondents to comment on these sites with an option to add others to the list.

Despite efforts to advertise this survey widely through social media platforms and on local radio, a relatively low number of responses were received (n = 40) over a six-week period. However, this study constituted one of the first climate change focused studies in Youghal and indicates the need for awareness raising efforts. Since the conclusion of the survey a local 'Blue

[1] Covid-19 restrictions came into effect at this point and we were forced to cancel workshop plans and resort to this method.

and Green Environmental Network' has been established in the town by local stakeholders – partly in response to our research efforts – that includes awareness raising on climate change in its action plan[2].

**3. Ireland's planning system**

Nationally, the Minister for Housing, Local Government and Heritage (DHLGH) has responsibility for overall development of national planning policy and legislation on land, and also responsibility for the majority of foreshore (from mean high water (MHW) out to 12 nm) functions (currently being reformed), and wider marine functions relating to marine environmental quality, marine planning and conservation. In addition, three Regional Assemblies, responsible for Regional Spatial and Economic Strategies, coordinate planning and development in their areas. An Bord Pleanála is Ireland's independent national planning appeals board with responsibility for the planning of certain large strategic infrastructure projects.

At the local level, DHLGH oversees and guides the country's 31 local authorities who are also the planning authorities: known as councils at county or city level. At the coast, local authority jurisdiction usually extends to mean MHW, so that anything beyond this on the seaward side is the responsibility of the State. Local authorities are responsible for preparation of development plans, local area plans and planning schemes which guide development in their areas. Development Plans are adopted by elected council members every six years that take account of over-arching national and regional planning strategies and guidance provided by the Minister and government. Alongside their planning functions, local authorities have roles in the implementation of energy efficient transport, waste management, local environmental quality, emergency response and are often the public's first port of call when concerned about any 'local issue' and are tasked with leading many citizen engagement activities.

[2] Youghal's Blue and Green Environmental Network: https://youghalblueandgreennetwork.blogspot.com

Ireland has no single national coastal management policy though clearly many other policies have implications for coastal areas (O'Hagan & Ballinger, 2010). The role of local authorities in beach management has increased over the years with local authorities enacting beach bye-laws to control and manage certain activities (MacLeod et al., 2000; O'Mahony et al., 2012). In September 2020, the Minister for DHLGH, established a National Coastal Change Management Strategy Steering Group. This group is tasked with considering development of recommendations for an integrated, whole of Government coastal change strategy, including mitigation of risks from rising sea levels and more frequent extreme storm events. Their recommendations will also address future structures and the role of Government Departments in dealing with coastal change and delivering a national coastal change policy, including adaptation strategies, resource implications, legislative and regulatory change requirements and an underpinning communications strategy.

## 4. Climate change policy in Ireland

The Climate Action and Low Carbon Development Act, 2015 enabled development of the National Adaptation Framework (NAF) (Department of Communications, Climate Action and Environment, DCCAE, 2018). The NAF provides an over-arching framework whereby local authorities, regions, and key sectors can assess key risks and vulnerabilities of climate change, implement actions to build resilience to climate change, and ensure climate adaptation considerations are mainstreamed into all local, regional, and national policy. The NAF recognises there are barriers to effective implementation and stresses that "enhanced coordination of sectors, institutions and processes involved in climate related actions while also providing for an appropriate long term funding strategy to enable coherent and effective implementation" (DCCAE, 2018: 10) are required to overcome barriers.

At local level, Ireland's 31 local authorities play a critical role in mainstreaming adaptation considerations into their policies and practices. The Climate Action Plan (CAP) (DCCAE, 2019) recognises local authorities as a key stakeholder to achieve national climate

change commitments. It states that "local authorities occupy a pivotal role in their respective communities and can act to demonstrate public sector leadership on climate action in their areas as well as key mobilisers of action at a local and community level" (p. 127). The NAF requires each local authority to develop an adaptation strategy in line with guidelines for the period between 2019-2024. These strategies inform county-level development plans, and other statutory plans, as well as mainstreaming climate adaptation into day-to-day operations. The NAF recognises a number of barriers to effective adaptation planning processes including the need for buy-in at all levels of governance and by the general public; the need for better coordination between national structures and local government; political will, viable institutions and effective policy frameworks to ensure coordination between individual actions; and appropriate capacity building within local authorities and across all levels of governance. It is important to recognise that the NAF currently lacks mechanisms and funds to support coastal communities in implementing much needed adaptation measures.

Deriving from the 2015 climate legislation, local authorities in Ireland are supported by four Climate Action Regional Offices (CAROs) created in 2018. The mission of the CAROs is to coordinate and support local government and lead transformative change and measurable climate action across cities and counties. This remit includes supporting community engagement activities. The CAP has also led to the enactment of the Climate Action and Low Carbon Development (Amendment) Act, 2021, which sets out more tangible actions to enhance climate resilience, including a requirement for all local authorities to prepare individual Climate Action Plans that include both mitigation and adaptation measures.

**5. The 'coastal zone'**

Despite three decades of discussion documents and legislative proposals, Ireland remains the only island State in the world (to our knowledge) without a national coastal management plan or policy. Indeed, Ireland's record for transposing and implementing EU Directives that provide protection for coastal and marine environments has mostly been reactive in response

to infraction proceedings or the potential for these (O'Higgins et al., 2019). The EU Maritime Spatial Planning Directive (Directive 2014/89/EU) requires Member States to develop and implement maritime spatial plans covering marine waters under their jurisdiction by March 2021. In Ireland this Directive covers, broadly speaking, coastal and marine waters from the MHW mark to the seaward limit of national jurisdiction. In compliance with this Directive, the National Marine Planning Framework (NMPF) was published in 2021 and uses an Ecosystem Based Management approach to set a clear direction for managing our seas. The NMPF does not replace existing regulatory regimes or legislative requirements governing each sector, but provides guiding principles for future proposals in each sector.

Even with the obvious overlapping interests between terrestrial and marine planning, Ireland still abides by the MHW mark as the invisible boundary between land areas governed by local authorities (via the Local Government Acts and Planning and Development Acts, as amended) and coastal and marine waters governed at national level. As a general rule, Ireland's foreshore (MHW to 12nm) belongs to the State and landward of the MHW land is in private ownership. The Maritime Area Planning Bill 2021 will create in law a new nearshore area, particular to the local planning system, for coastal local authorities to exercise certain development management and enforcement functions beyond the MHW mark to a maximum limit of 3 nautical miles from the shore (Houses of the Oireachtas, 2021). In Irish law, the term 'coastal zone' remains undefined which leads to problems with jurisdiction and governance responsibilities (O'Hagan & Cooper, 2001, 2002; O'Higgins et al., 2019). All these problems are symptomatic of not having instruments that provide clear obligations for the coastal zone similar to those provided by EU Directives such as the Marine Strategy Framework Directive, Water Framework Directive, Bathing Waters Directive, and Floods Directive.

**6. Policy coherence**

Climate change impacts will affect all aspects of modern socio-ecological systems; water resources, natural habitats, food supplies, energy systems, logistics, telecommunications, the

built environment, etc. (Pecl et al., 2017; Kundzewicz et al., 2018). Key challenges for both mitigation and adaptation are ensuring that policy responses are coherent across all sectors and that different sectors interpret objectives in the same way, for example, reconciling growth in tourism with nature conservation (Wolf et al., 2019).

Coherency affects not only policy, but also the way policies are translated into action. There is a distinction between policy coherence, that policies communicate the same issues and options, and policy integration, that policies are effectively translated into institutional structures and efforts 'on the ground' (Di Gregorio et al., 2017). Both policy coherence and integration need to occur vertically and horizontally across governance structures to be successful (Vince, 2015; Clarke & Flannery, 2020).

The Organisation for Economic Co-operation and Development (OECD) developed a framework to support progress towards achieving the 17 UN Sustainable Development Goals (SDGs). The SDGs and climate action, with disaster risk reduction (DRR), are comparable in their demand for policy coherency. *Better Policies for Sustainable Development 2016 – A New Framework for Policy Coherence* was designed to 'provide practical support to any government interested in adapting its institutional mechanisms, policy-making processes and practices to implement the SDGs in a coherent manner' (OECD, 2016: 3). Although international in context the framework's principles are useful for analysis at national and sub national levels, and in a climate action context. It is made up of three components: analytical, institutional and monitoring. The first two were useful for analysing coherence of climate change policy in relation to Ireland's coasts. However, it is too early to assess monitoring processes, as policy integration at the local level is in its relative infancy. We identified the following subset of factors from the OECD analytical framework for analysing policy coherence for climate adaptation at the coast:

**Factor 1.** Take account of the responsibilities of key actors from the private sector, civil society, as well as Government, for addressing climate adaptation.

**Factor 2.** Identify inter-linkages and different types of interactions between economic, social, and environmental policies (horizontal coherence) that move from sectoral perspectives towards more integrated decision-making processes and "issues-oriented" agendas.

**Factor 3.** Consider linkages between decisions and actions across different governance levels (vertical coherence). Has government involved local stakeholders in formulation and implementation of policies? Is national government supporting local authorities to increase or combine resources and capacities to formulate effective policy responses for climate adaptation? Are implementation responsibilities clearly divided among different levels of government, taking into account distinct competences and comparative advantage of each level?

**Factor 4.** Consider diverse sources of funding to foster coherence: public, private, domestic, international.

**Factor 5.** Promote an administrative culture for cross-sectoral collaboration and systematic dialogue among policy communities (e.g. between governmental departments).

## 7. The case of Youghal, Co. Cork

Youghal is located in the east of County Cork at the estuary of the River Blackwater, which forms the border with County Waterford. Figure 1 locates features discussed in this paper. Recent census data shows that the town has a population of around 8000 people (Cumann Na Daoine, 2018). Carpet manufacturing boomed in Youghal from the mid-20$^{th}$ century and was the single largest local employer until this industry collapsed by 2003. The town struggled to capitalise on 'Celtic Tiger' economic boom (1995 – 2008) opportunities. These factors are reflected in local socio-economic statistics, with 40% or urban Youghal classed as 'disadvantaged' or 'very disadvantaged' and an above average unemployment rate of 11% (Cumann Na Daoine, 2018).


**Figure 1:** Satellite image of the centre of Youghal and its main beach (image rotated 90 degrees clockwise). Key features referred to in this paper include A) the Quality Hotel at Redbarn Beach, B) the location of the boardwalk (including recent extension), C) the marina, and D) the Youghal wastewater treatment plant.

Despite these challenges Youghal is taking steps to attract investment and safeguard its socio-economic future, most notably as a tourist destination. The town is located on 'Ireland's Ancient East', as branded by the National Tourism Development Authority (Fáilte Ireland) to attract more international and domestic tourists. There is a well-coordinated effort between local actors and national bodies such as Fáilte Ireland to promote Youghal's cultural and natural heritage and to cater for increased visitor numbers. Youghal has received substantial government investment for this in recent years.

An important asset in Youghal is the 'Eco-Boardwalk' (henceforth, boardwalk), which is located on the town's main beach, Claycastle Bay Beach. The boardwalk is promoted as an opportunity for users to improve their physical and mental wellbeing by providing a route along the shoreline that is accessible to all. Although a promenande has existed for decades in Youghal, the wooden boardwalk in its more modern form was constructed in 2012, and

stretched for 400m. In Spring 2021 an extension to the boardwalk was completed and it now stretches 1.2km to the Quality Hotel at Redbarn Beach (see Figure 1). The boardwalk has emerged as one of the most popular local amenities, providing a coastal route for people of all ages and physical abilities to enjoy. One local resident stated, 'there is no doubt in my mind that […] the boardwalk – pound for pound – is the best thing we've ever done'. During site visits we noticed that the boardwalk was busy in all types of weather. Although not originally designed as a significant part of the town's transport infrastructure, the new extension will connect a hotel and leisure centre at Redbarn Beach to the fringes of the town.


**Figure 2:** Youghal's Eco Boardwalk as seen from the north-eastern (town) end. Author's photo, September 2019 (pre extension work).

### 7. 1 Climate change in Youghal

Our survey results suggest that local residents in Youghal are noticing local climatic changes, with 45% of respondents claiming to be sure that the local climate is changing, and a further 45% agreeing with 'yes, I think so'. A key impact for the town is coastal flooding. The Office of Public Works (OPW) is the Irish Government agency with responsibility to advise on flood and erosion risk management, including future flood extent scenarios related to climate change.

The OPW flood information website hosts reports for significant flood events in Youghal in 2004, 2012 and 2014 (www.floodinfo.ie) According to the report for the 2014 flood event, some form of flooding is now expected every 1-2 years. The most recent serious flood event occurred in October of 2020. The situation is exacerbated by a combination of low-lying land and inadequate flood defences. Much of the centre of Youghal is built on reclaimed land that lies close to sea level, and streets and properties located in this area are those most commonly impacted by floods.

The original boardwalk was largely destroyed by a storm in January 2014. Given the popularity of the feature, the town was subsequently awarded €220,000 in government funding to rebuild the feature along the same route that it followed previously. With intense storms expected to occur more frequently in Ireland (Sweeney, 2020), there is a chance the boardwalk will suffer significant damage in the future. The majority of respondents to our survey were concerned about the boardwalk (87%) and the beach (90%) in the context of climate change.

Local participants in meetings, interviews and the survey cited three options for responding to the problem of coastal flooding in Youghal. The first is to improve flood walls at the water's edge in the centre of town. The second is to dredge the marina and surrounding area to deepen the water and reduce wave height. The third option is to reinstall eroded wooden groynes on the beach encourage build-up of sediment to the south of the town, with the expectation that a wider beach will provide better protection during storms.

### 7.2 Policy coherence and Youghal

The OECD framework introduced above provides a structured approach to scrutinising the institutional mechanisms, policy-making processes, and practices needed to support strategies aimed at tackling complex problems. The framework is designed for the coherent implementation of the SDGs but a high level of coherence is also required for strategies to reduce the impact of climate change risks. In the example of flood risk management, strategies need to be coherent (or aligned) to overcome fragmentation, improve legal certainty as well as

flexibility, and secure sufficient resources and the involvement of private sectors actors (Driessen et al., 2018). We used the explicit questions and statements listed in these factors to scrutinise what had emerged through our research about climate change adaptation in Youghal (as well as at the regional and national level).

*7.2.1 Key actors and horizontal coherence*

Factor 1 emphasises the responsibilities of actors from the private sector (alongside civil society and Government). Climate change adaptation – such as measures to reduce the risk of coastal flooding – needs to be supported by a well-designed and integrated land/sea planning system. Development companies are key private sector actors that have a significant influence on the location, type and quality of newbuilds and infrastructure. Promoting greater responsibilities in the context of projected climate change impacts would likely involve a mix of stricter regulation and improved incentives for developers. Development plans will need to be carefully scrutinised so that they do not 'lock in' assets in at-risk areas. In the example of Youghal, the construction of a new wastewater treatment plant on a coastal wetland in Youghal in 2018 (see Figure 1) demonstrates this risk.

Some of the barriers to increasing the responsibilities of (private) actors are systemic. This links to Factor 2 of the OECD framework, which calls for improved horizontal coherence towards an issues-oriented agenda. In practice, there are a number of legacy issues manifested in Youghal that highlight the inadequate policy response. Unfortunately, planning in County Cork does not yet take a sufficiently holistic approach and is further impeded by strong jurisdictional divides, with local authority jurisdiction ending at Mean High Water (in most cases). Even where local authority jurisdiction is extended to the nearshore area under the new Marine Area Planning Bill, this will deal almost exclusively with development and not wider coastal management. The Cork County Development Plan (2014), for example, advised against building on land that is at risk from flooding or to take flood defence measures where this was not possible (Cork County Council, 2014). Whilst this approach does inform the Cork County

Council Climate Adaptation Strategy (2019-2024), where coastal flooding is identified as a high priority future risk (Cork County Council, 2019), the Strategy places more emphasis on structural integrity than on avoiding construction. At present, climate considerations for planning coastal infrastructure in Ireland also prioritise mitigation (carbon offsetting through green infrastructure) over adaptation. In the context of climate change this can be viewed as a failure of the planning system.

A local authority can apply for funding (up to €750,000) through the Minor Flood Mitigation Works and Coastal Protection Scheme, administered by the OPW. Whilst such schemes are essential to adaptation, responsibilities remain divided in accordance with the land/sea boundary. In a coherent system the three options for tackling coastal flooding and erosion proposed by inhabitants of Youghal (sea wall improvements, marina sediment dredging, and beach groyne renovation) would be regarded as a shared 'coastal flooding and erosion' isuues involving all actors. The emerging marine planning system (under the newly-published NMPF and associated Marine Area Planning Bill) provided an opportunity to design such an issue-oriented approach. Unfortunately, the draft NMPF provided little guidance on the topic of coastal flooding and erosion, an omission that was highlighted in the public consultation responses (DHLGH, 2020), and that has not been adequatley addressed in the final version (DHLGH, 2021). The main message is that the OPW should still bear the main functions and responsibilities in relation to these threats. Private sector responsibilities are not explicitly named. Explaining more clearly how coastal erosion and flooding relate to tourism, agriculture, transport, cultural assets, construction, etc., might facilitate more holistic planning at the coast.

The three locally supported responses to coastal flood management in Youghal raise other policy coherence concerns. Ireland's Flood Risk Climate Change Sectoral Adaptation Plan addresses the need for protective walls to address both fluvial and coastal flooding (OPW, 2019). The emphasis here is on identifying 'trigger points' for areas and communities that

might not be at risk at present but likely will be in the future, as well as on cost benefit analysis to encourage near-term investment in grey infrastructure to avoid long-term costs of flood damage (Ibid. p. 128). However, the plan does not include provisions for progressive forms of coastal adaptation, such as hybrid flood defences (Sutton-Grier et al., 2015; Rezaie et al., 2020). Hybrid flood defences ('building with nature') utilise the regulating ecosystem services of natural habitats to protect against storm surges, thus encouraging habitat protection and/or restoration. Whilst this approach does feature in the Biodiversity Climate Change Sectoral Adaptation Plan (DCHG, 2019) it does not carry over to its flood risk counterpart and has had little traction in Youghal vis-à-vis local development initiatives. Additionally, many coastal management options will impact nearby or adjacent areas (Rudd et al., 2018; O'Higgins et al., 2020), as ecosystem processes do not observe jurisdictional boundaries. This will require county councils to collaborate on climate adaptation to promote horizontal coherence across jurisdictions (Factor 2). According to a 2020 Local Government Management Agency (LGMA) report – "Local Authorities [are] engaged in a huge number of activities, and had developed and embedded processes into how we were working to address some of the most serious symptoms of climate change …. However, they were often working independently of each other, thus losing out on the opportunity to share their learning or partner and create synergies around projects that were relevant to other local authorities" (Clarke & O'Donoghue-Hynes, 2020: 8). Ireland's CAROs might provide the best mechanism for trans-county horizontal integration in climate adaptation, but integration with marine planning is currently beyond their remit.

*7.2.2. Funding sources and cross-sectoral collaboration*

Improved coherence between actors and policies, such as formalising an issue-oriented approach, could improve access to a diverse range of funding sources, which is encouraged under Factor 4. The €500,000 funding for the current extension of Youghal's boardwalk was sourced from the Department of Rural and Community Development through the Outdoor

Recreation Infrastructure Scheme. This was delivered through a partnership of Cork County Council and Fáilte Ireland. Private actors helped build momentum for the project, boosted by the coordinating work of the Youghal Socio-Economic Development Group (YSEDG). The storm that caused damage to the boardwalk in 2014 also prompted the preparation of a *Guide to Works and Development Consents for Repairing Infrastructure Damaged in Storm or other Emergency Events* under the National Directorate for Fire and Emergency Management (DHPLG, 2014). This guide also applies to seaside amenity areas, demonstrating potential for policies to be aligned to overcome climate change impacts at the coast.

The boardwalk in Youghal supports a significant planning, development and place-making policy priority in Ireland 2040, namely that of creating greenways and blueways[3] to encourage economic diversification in rural Ireland and provide more recreational activities (DHPLG, 2018). National Policy Objective 12 in the same document supports ways to make best use of public land, with an interest in 'activating the potential for the renewal and development of smaller towns and villages'. The newly extended boardwalk now connects two destinations, so for a select few it will support the Irish Government's 'active travel' campaign (i.e. infrastructure designed for non-motorised forms of transport) as advocated by the Department of Transport (DTTS, 2020), but the route will be more commonly used for leisure. Factor 5 advocates cross-sectoral collaboration and systematic dialogue among policy communities (e.g. between governmental departments), which could promote further land/sea integration, both on the topic of greenways and blueways and more generally. More significantly, the boardwalk supports initiatives from the Department of Health, such as the National Physical Activity Plan (Department of Health - DOH, 2016) to increase levels of physical activity among citizens. However, there is little evidence of a holistic attempt at integrating marine and terrestrial planning around the topic of greenways and blueways. The

[3] A greenway is defined by Sport Ireland as 'a predominantly traffic free path, designated for use by pedestrians, cyclists and other non-motorised users such as wheelchair users, families with buggies etc.': https://www.sportireland.ie/outdoors/greenways. Blueways follow waterways.

result is that the potential for these two types of recreational facility to link up to one another – and to wider land-based and sea-based infrastructure – is not fully realised. The NMPF expresses support for linking terrestrial and marine recreational activities in coastal towns but provides no guidance on how to achieve this. This fact is reflected in the NMPF public consultation responses, where a total of 47 comments were made from a range of local authority representatives, non-governmental organisations, and individuals about the limited access to the coast (DHLGH, 2020). Perhaps more worryingly for the NMPF in Ireland, the largest single group of consultation comments (299 of 3525) focused on the actual implementation of marine planning. It appears that clarity is lacking on the responsibilities of actors at different governance levels, which also points to a failure in the vertical coherence stressed in Factor 3 of the OECD framework.

*7.2.3. Existing vertical coherence*

Previous experiences in Ireland do provide some optimism that vertical coherence might be strengthened for coastal climate change adaptation. For example, the National CFRAM Programme (Catchment-based Flood Risk Assessment and Management) was vital for delivery of a National Flood Policy Review in 2004 to mitigate flood risk holistically and expand into flood prevention, resilience and protection. Flood risk was assessed within 300 communities (90 coastal) using modeling, mapping and consultations (>500 consultation hours via public workshops and meetings) (OPW, 2012). This demonstrates potential for a combined top-down and bottom-up approach that can help to tailor national priorities into regional action. Options might be explored for how to conduct similar assessments that focuses specifically on the coast.

## 8. Conclusions

Coherence and coordination are presented as key to implementing climate action in Ireland, and the National Adaptation Framework stipulates that this applies to sectors, institutions and processes. The overview of policy development presented in Section 3 suggests a relatively harmonious process that integrates all levels of government. Clear leadership is provided by

national guidelines and the work of the CAROs in training county council staff members. Some of this clarity and coherence is also apparent in Ireland's progress towards creating a marine spatial plan (the NMPF), including stakeholder engagement and public consultation processes. As outlined in sections 4 and 5, however, the implementation of climate change policy is not very harmonious in practice.

The case of Youghal provides an example of how towns and their communities prioritise development options that suit local needs and opportunities, and that principles for coherency advocated in higher-level policies can become lost in local strategies and plans. Locally, tourism shows strong levels of vertical policy coherence where national efforts to increase tourist numbers are backed by funding and coordination at the local level. However, these efforts can be incoherent for climate adaptation as the impacts on socio-ecological systems are not always considered. For instance, new developments to attract or cater for increased visitor numbers might also become more susceptible to climate change impacts moving forward, especially on the coast.

Coasts are interface zones, with terrestrial and marine planning processes impacting one another significantly. Despite this it appears that opportunities were missed in the drafting of Ireland's NMPF to engage more comprehensively with terrestrial planning processes. In Ireland the ongoing process of preparing a new Maritime Area Planning Bill – and the creation in law of a new nearshore area particular to the local planning system (Part 1 Section 5 of the Bill) – might represent an opportunity to explicitly link marine planning, terrestrial planning and climate adaptation, but early signs suggest that this might fall short of addressing the range of climate-related pressures faced at the coast.

Although designed for analysis of SDGs, the OECD Framework for Policy Coherence provides useful considerations and questions for analysing coastal climate change adaptation. Examples provided here are potentially indicative of processes that could be examined in other

locations. Further research into these topics might help to define a specific set of actions aimed at fostering greater sectoral policy coherence for climate adaptation on Ireland's coasts.

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