

# **AN ICONIC HARBOUR UNDER THREAT**

FEBRUARY 2024



**A REPORT BY DONAGHADEE COMMUNITY DEVELOPMENT ASSOCIATION  
AND DONAGHADEE SAILING CLUB INTO THE RISKS TO DONAGHADEE  
POSED BY RISING SEA LEVELS AND STORM SURGES**



*Photo courtesy of Graham Baalham-Curry, Belfast Telegraph*

# Contents

	Summary	1
1	Background	2
2	Climate Change – The Northern Ireland Position	3
3	Climate Change – Current and Projected Impact on Donaghadee	7
4	Identifying and Addressing the Problem	15
5	Proposals to Develop the Harbour	21
6	Proposed Way Forward	27
7	Conclusion	29
	Bibliography	30

## Summary

This document has been produced by volunteers who are members of two voluntary community organisations (Donaghadee Community Development Association and Donaghadee Sailing Club) and seeks to:-

- Summarise the available documentation on the risks posed by climate change;
- Look at the impact on Donaghadee and potential actions to address these;
- Draw up a set of proposals for the responsible agencies to take forward; and
- Propose a number of modest improvements to the harbour which could be implemented separate from the implementation of coastal protection measures which may require a longer timeframe

It is an established fact that sea levels are rising worldwide. Measures to address the increase will inevitably be longer term and it will be several decades before there is any noticeable impact. In the meantime, coastal regions will be at risk particularly during times of high tides and storm surges.

In the case of Donaghadee we in the town are all too well aware of the damage which can be caused to lives and property when a high tide occurs alongside a storm. On a regular basis waves crash over the lighthouse, harbour and sea wall, posing a serious risk to those people living along the shorefront. As a result of the wave action within the harbour, storms over many years have left craft sunk or damaged beyond repair. Quite clearly the harbour does not represent a safe haven for vessels.

Studies carried out by Queens University in 1980 and by RPS in 2020 produced compelling evidence that the creation of an outer island or nib outside the mouth of the harbour would protect much of the seafront and make the harbour fit for purpose.

Sadly the impact of climate change and, in particular, rising sea levels poses a serious risk to the town's iconic harbour and seafront. The purpose of this document is to set out some of the available research, studies and evidence in the hope and expectation that local and central government will recognise the scale of the problem and take the necessary action to safeguard our town for successive generations to enjoy. "Do nothing" is no longer a sensible or acceptable option.



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## 1. Background

- 1.1 Donaghadee is a town with a population of some 7,500 situated on the north-east coast of the Ards Peninsula. Its proximity to Scotland meant that for centuries the town was a key point of entry to the island of Ireland. Not surprisingly the town has a rich history and heritage with many buildings dating from the 17<sup>th</sup> and 18<sup>th</sup> centuries. A large section of the town has been designated a Conservation Area and the surrounding coastline is protected through RAMSAR, Area of Special Scientific Interest (ASSI) and Outer Ards Special Protection Area designations.
- 1.2 The town's iconic harbour is of particular significance. Trade with the mainland was based on the Packet Service and in the early 19<sup>th</sup> century the government decided that a new harbour was required to service the boats that worked between Donaghadee and Portpatrick in Wigtownshire. The harbour was designed by Sir John Rennie (Snr) who was succeeded by his son John Rennie the Younger just two months after work commenced in 1821. However the exposure of Portpatrick harbour to westerly gales coupled with the advent of larger, faster steamships resulted in the route being deemed unviable and in 1849 the packet service transferred to Larne. The harbour then became largely a tourist/leisure facility with some fishing boats and commercial pleasure boats offering trips to the nearby Copeland Islands. The harbour is a listed structure, featuring on postcards, photographs and paintings over the last two centuries.
- 1.3 Visitors to the town will invariably walk along some or all of the shorefront. Measuring just short of three-quarters of a mile the walk from Pink's Green to the Lighthouse offers sea air, a chance to see local wildlife in the sea and air with views across the Irish Sea to Scotland. Seating, including the use of the sea wall, provides an opportunity for a break to watch the world go by.
- 1.4 Rising sea levels and an increase in the number of storm surges means that the seafront is subjected to waves breaking over the seawall and associated flooding. All the available evidence suggests that these occurrences will become more regular. Recognising this, Donaghadee Community Development Association and Donaghadee Sailing Club have collated the available evidence and produced a series of proposals.

## 2. Climate Change – The Northern Ireland Position *(see page 30 for index of sources)*

- 2.1 While some politicians continue to voice doubts over climate change and its potential impact, there is now a substantial body of research material from central government, statutory agencies and academia which should leave the reader in no doubt that the threat is real and that action must be taken now before more costly interventions are required at a later stage. In this section of the document we summarise some of the evidence currently available and which is of relevance to the situation now facing Donaghadee.
- 2.2 In studying this research it is critical to be aware that across the world, the average surface of the sea is rising due to human-induced climate change. This is primarily due to glaciers and ice sheets melting under global warming, as well as changes in the amount of water stored on land. The rise in sea-level has been independently measured and confirmed using satellite altimeters and tide gauges. Altimetry measurements over the last 25 years show that, on average, sea-level is rising about 3mm a year, and this rise is accelerating. However, this is an average number and masks big differences as sea levels are not rising at the same rate everywhere. In fact, while in some places it is rising by as much as 10mm a year, in other places it is falling by 10mm a year. What is not in doubt is that sea levels are increasing around Northern Ireland.
- 2.3 The Northern Ireland Climate Change Adaptation Programme 2019-2024<sup>1</sup> (commonly referred to as NICCAP2) reported (para 1.13) *“Sea level rise affects NI’s coasts by increasing flood risks and vulnerability to storm surges. It can negatively impact our coastal economy, communities, buildings and essential infrastructure, all of which are intimately linked to the health, safety and wellbeing of people. It can also be detrimental to our natural coastal environment including the habitats and species it supports.”*
- 2.4 The UK Climate Change Risk Assessment 2022<sup>2</sup> states *“Northern Ireland Executive Departments welcome and accept the findings and recommendations of the third Climate Change Risk Assessment. The categorisation and priority scoring of the risks will be used by Executive Departments as a basis for adaptation planning going forward. Executive Departments are now also preparing for the comprehensive mid-programme review of NICCAP2 which covers the period 2019-*

*2024. The third Adaptation Programme (NICCAP3), due to be published in 2024, will be a comprehensive cross-departmental response to the risk areas that were assessed. The programme will also build on the successful engagement with Local Government and Civil Society within NICCAP2 and include additional adaptation input from these sectors.”* Table 1 of the Assessment identifies several risks and opportunities where it is felt more action is needed. This specifically identifies the risks to communities and infrastructure arising from increased sea levels. Rising sea levels can cause both coastal flooding and coastal erosion. It confirms that the government is committed to defending the coastline where this is sustainable and affordable to do so.

2.5 The UK Climate Change Committee - The Climate Change Committee (CCC) is an independent, statutory body established under the Climate Change Act 2008. Its purpose is to advise the UK and devolved governments on emissions targets and to report to Parliament on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of climate change. In its report<sup>3</sup> of April 2023 on Northern Ireland the Committee made the point that even if Net Zero is achieved globally, our climate will continue to warm in the short-term, and sea level will continue to rise for centuries. It stressed the need for Northern Ireland to plan for this reality. The Committee commented that the objectives set out in NICCAP2 provided a vision of a well-adapted Northern Ireland and includes some indicators to measure progress. It felt however that its successor document (NICCAP3) needed to go further to drive deeper changes and highlighted the opportunity to embed climate resilience into planning now and avoid higher costs when larger and faster action is required later.

2.6 The Intergovernmental Panel on Climate Change is an intergovernmental body of the United Nations. Its job is to advance scientific knowledge about climate change caused by human activities. The Royal Society published a summary of its Sixth Assessment Report and its implications for the UK in November 2022<sup>4</sup>. Making the point that Climate change is a major global challenge of our times and rapid action is required to limit its further impacts, the authors state that global mean sea level will continue to rise over the 21<sup>st</sup> century. If warming is limited to 1.5°C, then sea level rise of a few tens of centimetres is expected by 2100. Under a pessimistic high warming scenario, sea level rise is expected to reach up to 1 metre by 2100.

- 2.7 The Met Office Projecting Future Sea Level ProfSea<sup>5</sup> tool generates sea-level projections to assess the impact of future sea-level change on coastal regions. This information can be used by communities to make informed decisions around adaptation, increasing their resilience to future climate risk. It is of necessity a complex tool designed for use by professionally qualified users. An infographic helpfully shows the predicted rise in sea levels under two scenarios based around changes in emission levels. These predict that the sea level at Bangor could increase by between 19cm and 96cm by the end of the century.
- 2.8 In this section we have summarised official reports to reinforce the fact that sea levels are increasing and will continue to do so irrespective of mitigations put in place. In the next section of the report we will set out the potential impact on Donaghadee.



## Sea-level rise projections beyond 2100

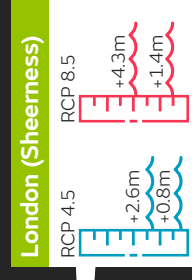
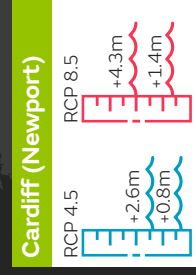
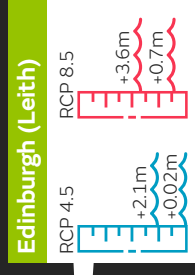
Sea levels will continue to rise after 2100 even if we greatly reduce greenhouse gas emissions. The Met Office has projected how sea level will rise up to 2300 around the UK coastline. The amount of sea-level rise increases under higher emissions scenarios, however projecting further into the future introduces more uncertainty.

## Why are future sea levels uncertain?

Sea-level projections to 2300 have a much larger degree of uncertainty associated with them as we do not know what emissions pathway we will follow. Even if global temperatures stop rising, there is a long-term commitment to sea-level rise because the ocean is slow to respond to changes in the atmosphere.

Sea levels could rise further. An additional source of uncertainty is whether ice sheets in Antarctica and Greenland will melt steadily, or rapidly collapse (after reaching a tipping point). In UK Climate Projections (UKCP18), projections of sea-level change out to 2300 were called “exploratory” projections.

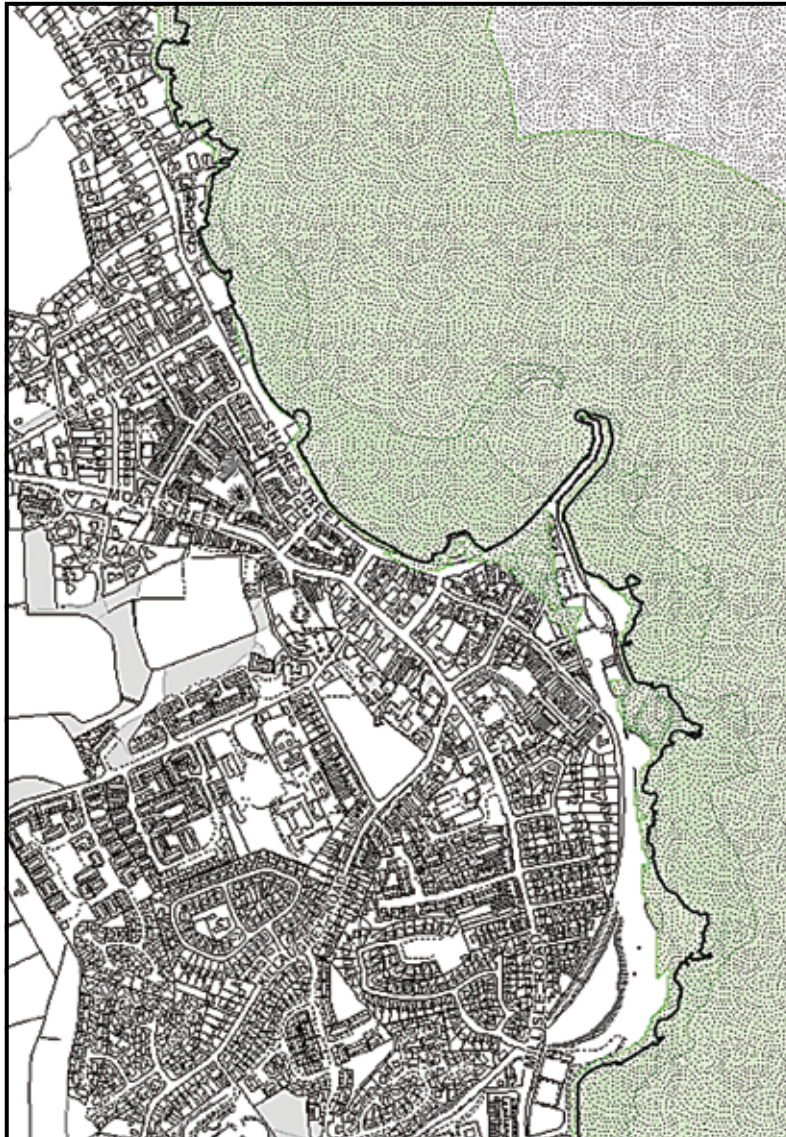
Projected ranges of sea-level rise at UK capital cities (nearest class A tide gauge location) at 2300 under RCP4.5 and RCP8.5 relative to a baseline period of 1981–2000. The lower number in the range is at the 5<sup>th</sup> percentile, and the higher number in the range is at the 95<sup>th</sup> percentile.



### 3. Climate Change – Current and Projected impact on Donaghadee

*(see page 30 for index of sources)*

- 3.1 Flood Maps NI<sup>6</sup> produced by the Department of Infrastructure confirms that the harbour and seafront both fall within the flood plain –



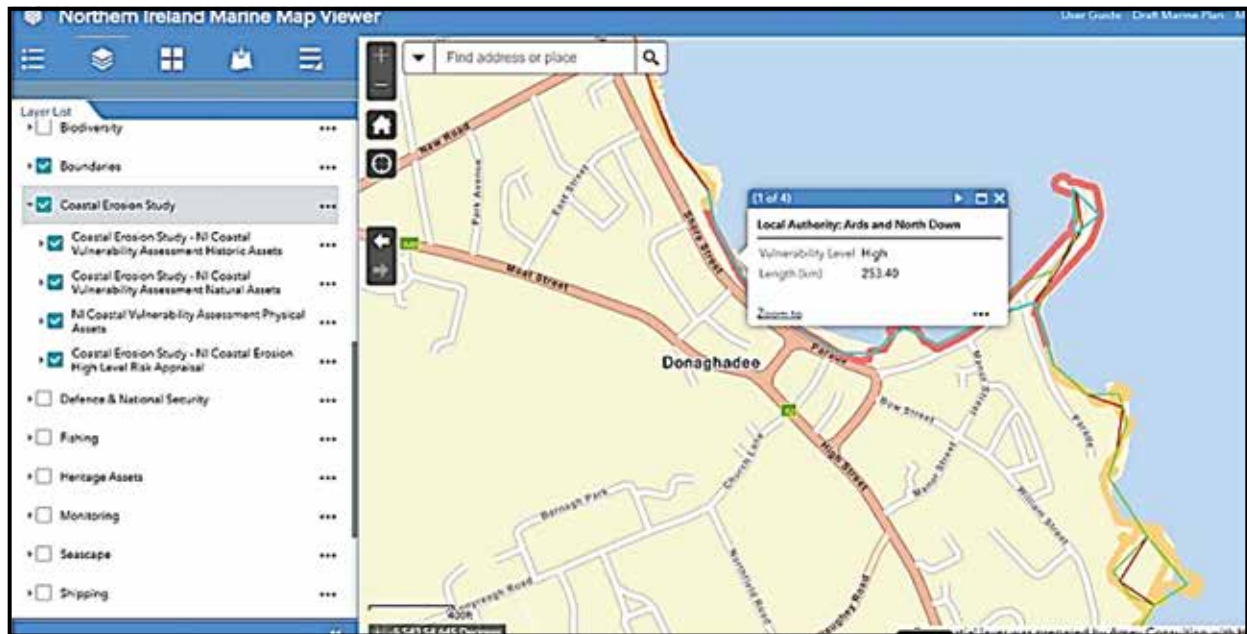
- 3.2 The NI Department of Agriculture, Environment and Rural Affairs (DAERA) have produced a number of on-line tools which demonstrate the dangers to the town and critical infrastructure of a combination of high tides, sea level rise and storm surge. Details can be found at the Northern Ireland Marine Map Viewer<sup>7</sup>

- 3.3 Climate Central is a not-for-profit news organisation that analyses and reports on climate science. Composed of scientists and science journalists, it conducts scientific research on climate change and energy issues and produces multimedia

content that is distributed via their website and media partners. Further details are available on the Climate Central website<sup>8</sup>

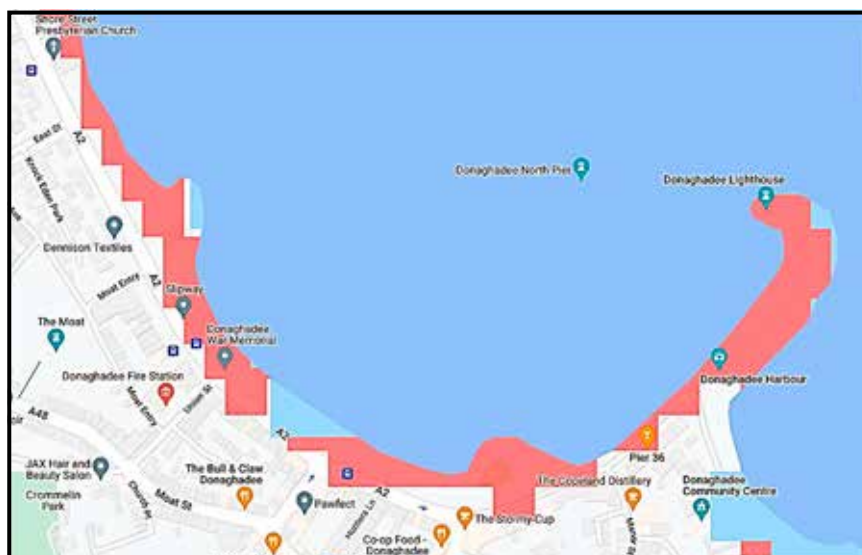
### DAERA NI Map Viewer

3.4 Using the DAERA NI Map Viewer we can see that a large portion of the town has been designated as “High Risk”

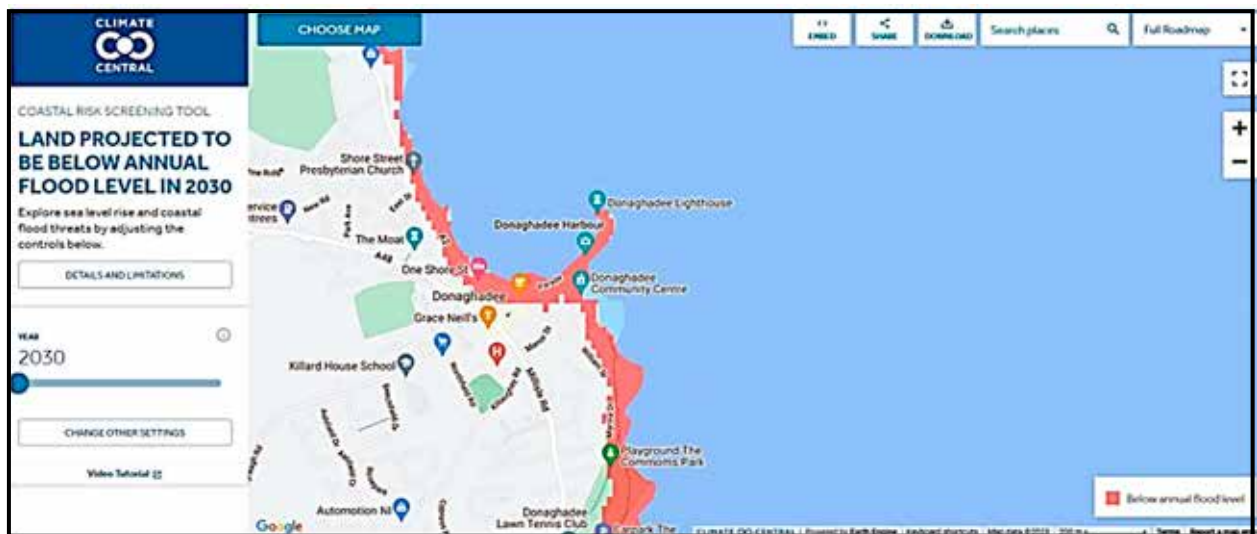


### Climate Central

3.5 Climate Central shows a similar concerning picture. The sea level rise and coastal flood maps are based on peer-reviewed science in leading journals. As these maps incorporate big datasets, which always include some error, these maps should be regarded as screening tools to identify places that may require deeper investigation of risk. A water level of 0.2 metres above the high tide line could be reached through combinations of sea level rise, tides, and storm surge – see areas in red below:



However should sea levels rise to the upper projected figure of just under a metre then the area at risk is significantly increased:-



3.6 Demonstrated on these maps is the forecast danger to Donaghadee seafront properties and critical infrastructure such as the A2, the A48, the harbour and Lighthouse and any services such as telecoms, sewage, water etc which run under the A2 at the seafront. In addition to the properties and businesses which will be affected there is the likelihood of widespread disruption to the greater Ards peninsula down the A2 and A48 including emergency services, schools, healthcare, business and recreation.

3.7 Donaghadee harbour and seafront is already experiencing flooding with associated risk to lives and property on at least 2-4 occasions each year. Normally this only affects the Lemons Wharf playground but when a high tide is associated with high winds from between 15° (NE) and 135° (SE) we have a storm surge. Even without a particularly high tide, a gale from these directions will result in waves crashing over the shorefront wall. The following pictures show the extent of the problem:-



3.8 A storm surge is caused when high winds push the seawater towards the coast, causing it to pile up there. There is also a smaller contribution from the low pressure at the centre of the storm "pulling" the water level up, by about 1cm for every one millibar change in pressure. This is called the inverse barometer effect and is similar to what happens when you drink through a straw. The strong winds in the storm generate large waves on top of the surge which can cause damage to sea defences, or spill over the top adding to the flood risk. Heavy rain further increases the risk of flooding.

#### Storm Barra and Tidal Surges

3.9 Storm Barra battered Donaghadee, Tuesday 7th December, 2021. The Belfast Telegraph<sup>9</sup> reported that HM Coastguard closed a road leading to the town's famous lighthouse, whilst also placing sandbags at the doors of homes and businesses. Redevelopment of the play park on Lemon's Wharf was halted due to

machinery and equipment being partially submerged. The force of the waves crashing over the sea defence was enough to move bins, large planters and even cars.

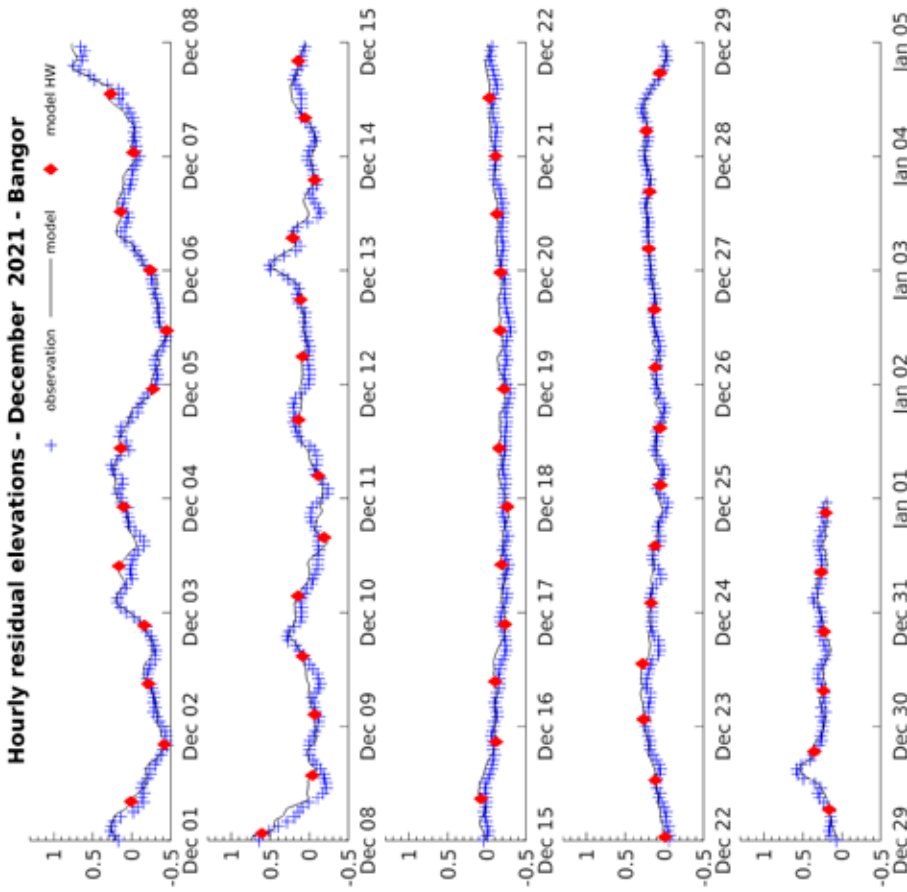


*Photos courtesy of Graham Baalham-Curry, Belfast Telegraph*

3.10 Storm Barra was not a singular incident and Donaghadee is seeing repeats of storms regularly. One is forced to conclude that it is only a matter of time before severe and very expensive damage is caused to the seafront, heritage sites, critical infrastructure and the town.

3.11 When the Storm Surge data for 7-8 Dec 2021 is examined, it can be seen that a peak of 0.75m during Storm Barra occurred and can be used as a datum for documented known damage to Donaghadee waterfront (damage may still be done at lower storm surges). This chart is produced from the National Tidal and Sea Level Facility<sup>10</sup>. NTSLF is the UK centre of excellence for sea level monitoring, coastal flood forecasting and the analysis of sea level extremes. It is the focus for sea level research in the UK and for its interpretation into advice for policy makers, planners and coastal engineers.

3.12 The meteorological storm season runs from the Autumnal equinox on the 22 September and runs to the Spring equinox on the 20 March. In the 2022-23 storm season that figure was reached or bettered on 10 occasions. (the National Tidal and sea level facility only publish data 6-8 weeks after the end of the Month so 2023-24 storm season data is only likely to be available at the end of March 24).

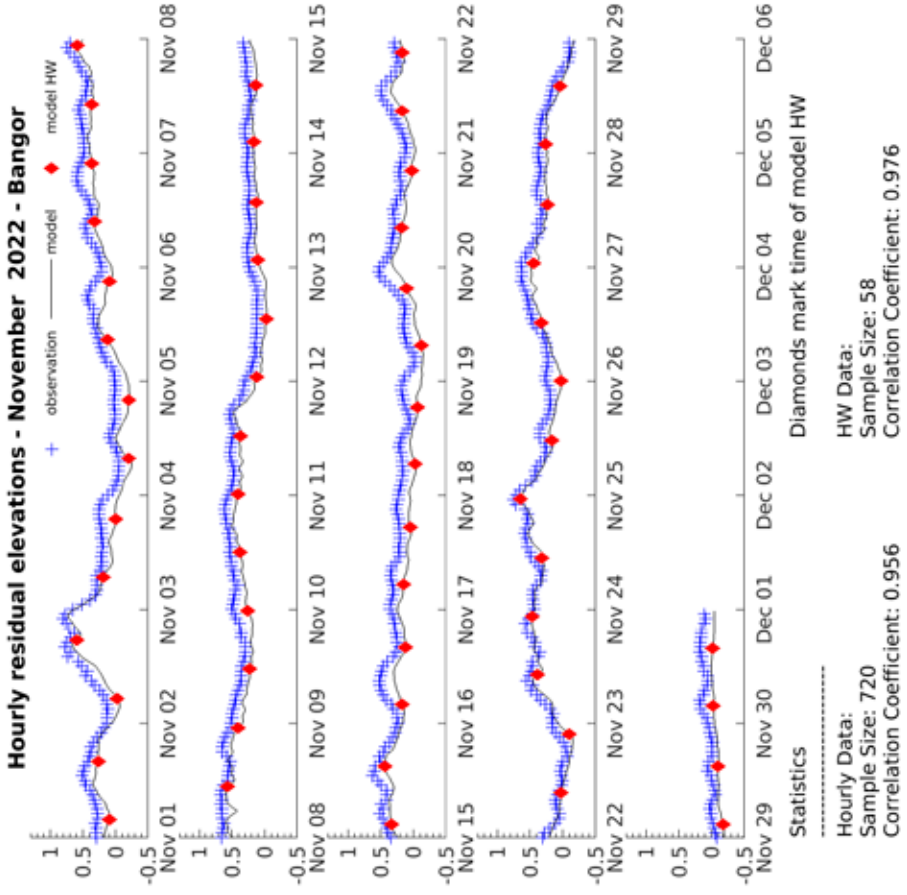


Statistics

Hourly Data:  
 Sample Size: 744  
 Correlation Coefficient: 0.964  
 Mean Error: 0.026  
 Standard Deviation of error: 0.054  
 Coefficients: 0.990, -0.026  
 RMS Error: 0.060

Statistics

Hourly Data:  
 Sample Size: 720  
 Correlation Coefficient: 0.956

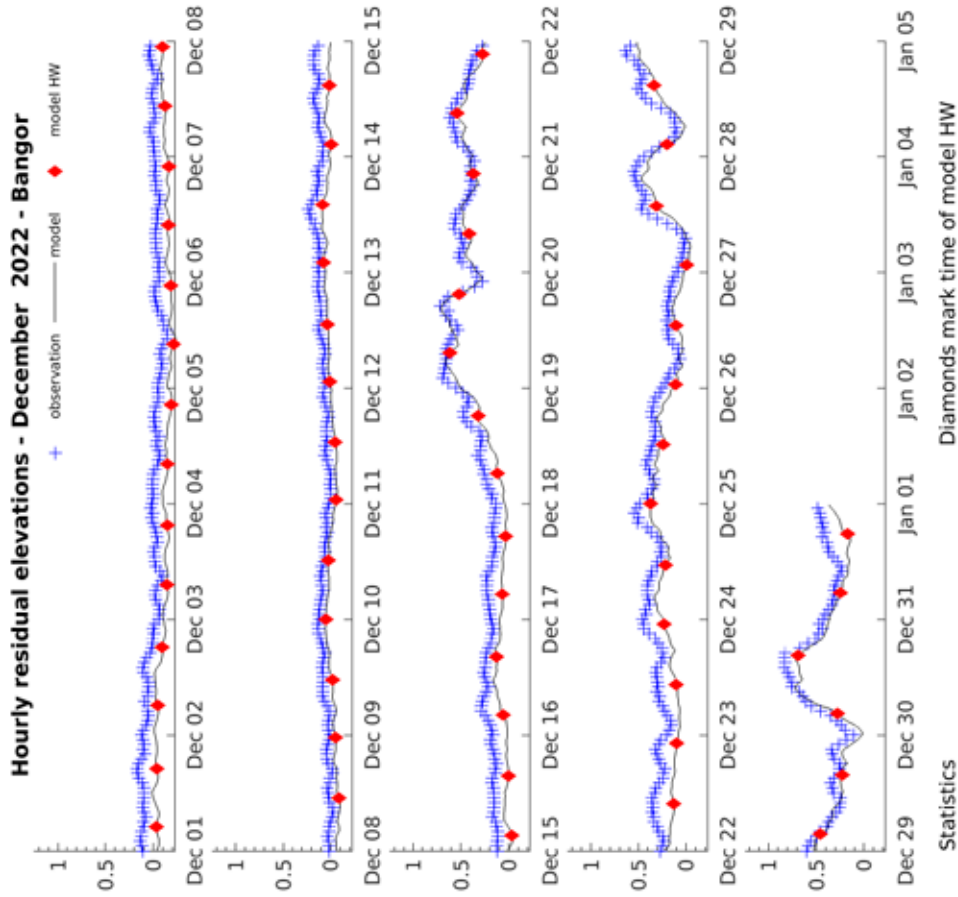


Statistics

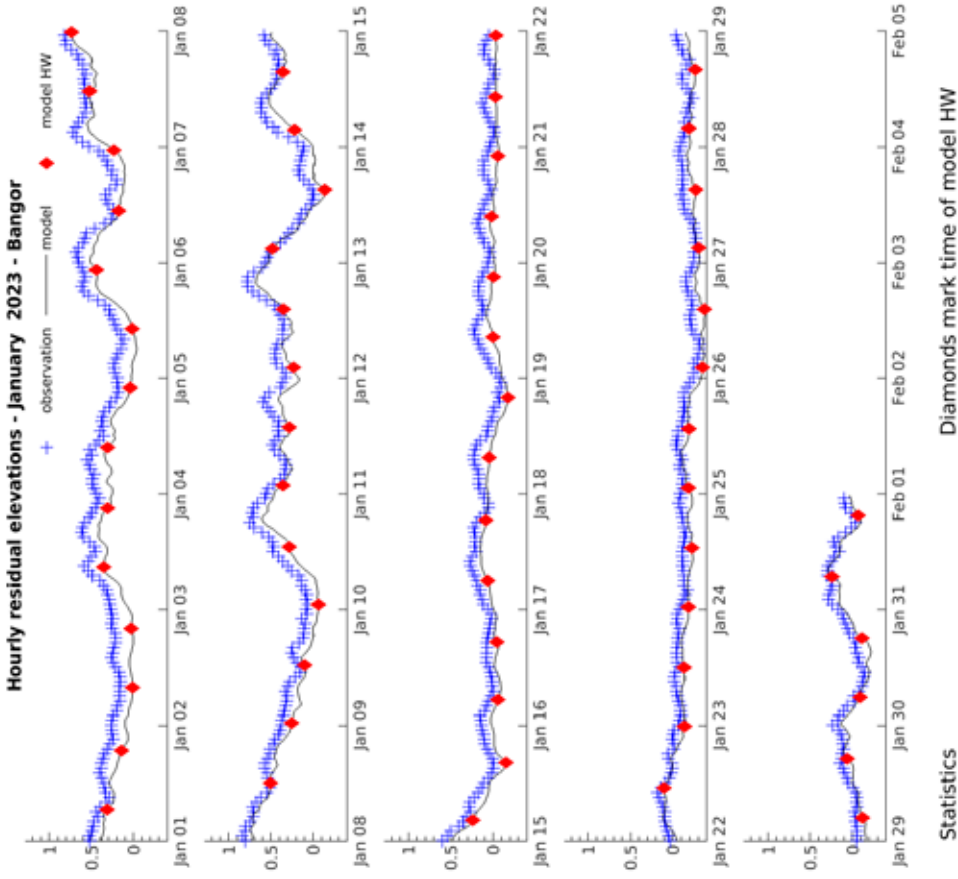
Hourly Data:  
 Sample Size: 58  
 Correlation Coefficient: 0.976

December 2021 – Storm Barra

November 2022 – 3 Occasions

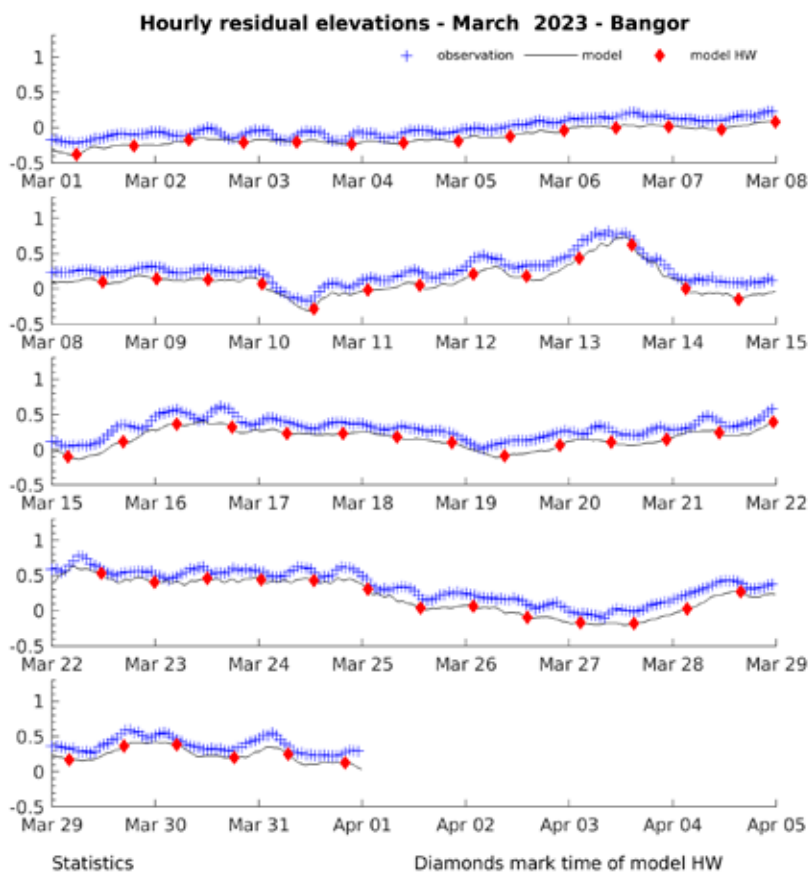


December 2022 – 1 Occasion



January 2023 – 4 Occasions





### March 2023 – 2 Occasions

3.13 All traffic proceeding to the south of Donaghadee must travel along the A2 from its junction with Bridge Street to New Street. This area is particularly susceptible to waves and debris coming over the wall posing a serious risk to motorists and pedestrians. The resident of 28 The Parade sustained several life changing injuries when a wave broke open her front door and knocked her over. Her home was flooded and rendered uninhabitable for over a year.

3.14 It is abundantly clear that the properties along the shorefront are at a high risk of damage from storm surges, wave action and flooding. These risks will increase still further as sea levels rise and more extremes of weather become commonplace. A conservative estimate would put the value of the properties in the area bounded by the Climate Central's 20cm projection at £50m but this can be multiplied several times over if the 90cm projection were to be proved correct. It is incumbent on our elected representatives – at local, regional and national level to press for action now in order to reduce the risk to lives and property and in so doing preserve the history and heritage of Donaghadee for future generations to enjoy.

#### 4. Identifying and Addressing the Problem *(see page 30 for index of sources)*

4.1 The weakness in the harbour design is that while protected from a northerly gale through a combination of the Copeland Islands and the North Pier the harbour is completely exposed to a gale from any direction between the north-east and south-east. Waves come straight through the harbour or strike the North pier and reflect across the harbour. In such conditions the harbour is not fit for purpose.

4.2 Around about 1980 the then owners of the harbour, Department of Commerce, commissioned the Civil Engineering Department of Queens University Belfast to carry out a study of the harbour area, draw conclusions and make recommendations. The report<sup>11</sup> issued in 1981 took account of hydrographic survey work including sea bed levels and tidal stream float tracking and evidence from severe wind and wave conditions which occurred on four occasions in that year. A 1:150 scale model of the harbour was built in a redundant factory building to facilitate study of different wave actions, the movement of sand and to test out possible solutions. Two main conclusions were drawn:-

- a) The gap between the North pier and the shoreline resulted in the silting up of the harbour; and
- b) The wide harbour entrance offered no protection against wave penetration.

The study recommended joining the North Pier to the shore to stop the silting and either the construction of an outer nib to the South Pier or form an inner harbour within the current harbour.

4.3 Sadly despite the best efforts of several community organisations, no action was taken on foot of the study and in 2015 the ownership of the harbour passed to the local Council created through the merger of Ards Borough Council and North Down Borough Council. A few months prior to this Ards Borough Council accepted and published a Town Masterplan<sup>12</sup> for Donaghadee which included the development of the harbour as a high priority project:-

- a) Redevelopment of the Harbour to include the construction of an outer nib and extension of the North Pier to the Lemon's Wharf and
- b) Explore commercial opportunities building on the redeveloped harbour – café/ice cream kiosks etc

4.4 A few years after its formation and following pressure from the Donaghadee Town Steering Group, the Council commissioned RPS to produce a technical feasibility study including:-

- a) The provision of an outer breakwater to improve shelter and vessel access;
- b) Connection of the North Pier to Lemon's Wharf

The RPS study<sup>13</sup> was obviously able to draw on much more sophisticated technology than that deployed by QUB but nevertheless the recommended solution is more or less the same i.e. that the measures at a) and b) above would resolve the problems and render the harbour fit for purpose. Taking account of the historic nature of the harbour the report recommended that extension of Lemons Wharf to the North Pier should stop short of actually joining the two structures.

4.5 The report (paragraph 6.4.3) found that the breakwater would resolve the problem of wave action within the harbour itself. However, without the extension of Lemons Wharf – North Pier the problem of siltation in the harbour would continue.

4.6 The proposal to extend Lemons Wharf does however need to be considered against other factors,

- Any extension to the Wharf will have to finish short of the North Pier. This will create a "choke point" for swimmers and boat users who may choose to enter and leave the Harbour by the "back door" with the consequent risk of injury.
- Presently, the absence of such a structure allows waves in the harbour to "spend" on the beach whereas, the proposed structure would have a "washing bowl" effect with waves refracting off the vertical harbour walls.
- Silting can be addressed by other means, groynes being one of the solutions. The harbour was last dredged around 2012 so silting is not a major problem.

4.7 In 2023 the Council engaged Consultants to review the 2015 Town Masterplan and present proposals. The report<sup>10</sup> which has been adopted by the Council reported that the redevelopment of the harbour remains a major issue and a "missed opportunity". It sets a priority for the reawakening of the harbour commenting *"Funding is required for the restoration and development of the harbour, with potential for a breakwater and pontoons that facilitate use of the harbour by sailboats and leisure craft, subject to appraisal and business case"*

4.8 The Peace Plus Programme<sup>14</sup> is a cross-border funding programme 2021-2027 supported by the European Union, the Government of the United Kingdom of Great Britain and Northern Ireland, the Government of Ireland, and the Northern Ireland Executive. The total value is €1.1billion. Of this, a total of €24.7m has been allocated to Investment Area 5.2 which seeks to promote climate change adaptation and disaster risk prevention and resilience taking into account ecosystem-based approaches. The extent to which officials from Ards & North Down Borough Council have engaged in this programme is not known but since it has the longest coastline of any council covered by Peace Plus, non-involvement by A&ND BC would be unthinkable if not embarrassing.

### **Practice Elsewhere in the UK**






4.9 In July 2021 the Government in Westminster published its Flood & Coastal Erosion Investment Plan<sup>15</sup> in which it committed £5.2bn for flood and coastal protection schemes. The Scottish Government provides grant support to local authorities, albeit not on the same scale as in England. It has also developed guidance to support local authorities in the preparation of Coastal Change Adaptation Plans<sup>16</sup>.

4.10 Flooding and Coastal Erosion<sup>17</sup> is a Research Briefing prepared for the Welsh Assembly in November 2023 and provides a helpful summary of the approach in Wales. The Welsh Government published its National Strategy for Flood and Coastal Erosion Risk Management in Wales in October 2020. It is the second iteration of the National Strategy, replacing the version published in 2011. Each financial year the Welsh Government invites Risk Management Authorities (RMAs are Local Authorities, Natural Resources Wales and Water Companies) to bid for funding to deliver a programme of capital works to reduce the risk of flooding and coastal erosion to communities across Wales. Funding is in excess of £200m over a three-year period.

### **Northern Ireland**

4.11 The Department of Agriculture, Environment and Rural Affairs (DAERA) is responsible for coordinating a cross-departmental response to the risks and opportunities relevant to NI in the UK Climate Change Act 2008. As detailed in para 2.3 of this document the Department published NICCAPP2 setting out key priority areas

**Figure 1: NICCAP2 Key Priority Areas and Outcome Objectives**

NICCAP2 Key Priority Areas	NICCAP2 Outcome Objectives and Visions
<p><b>NC</b> Natural Capital, including Terrestrial Coastal/Marine/Freshwater ecosystems, soils and biodiversity.</p> 	<ul style="list-style-type: none"> <li>- <b>NC1:</b> We will have species, habitats and water bodies that are resilient to the impacts of climate change.</li> <li>- <b>NC2:</b> We have coastal communities, habitats, landforms and infrastructure that are resilient to impacts of climate change.</li> <li>- <b>NC3:</b> We have soils and woodland that are resilient to the impacts of climate change.</li> </ul>
<p><b>IF</b> Infrastructure Services.</p> 	<ul style="list-style-type: none"> <li>- <b>IF1:</b> We have Transport &amp; Network Services that are resilient to the impacts of Flooding &amp; extreme weather.</li> </ul>
<p><b>P</b> People &amp; Built Environment.</p> 	<ul style="list-style-type: none"> <li>- <b>P1:</b> We have people, homes, buildings and communities that are resilient to the impacts of Flooding &amp; extreme of weather.</li> </ul>
<p><b>B</b> Disruption to Businesses &amp; Supply Chains.</p> 	<ul style="list-style-type: none"> <li>- <b>B1:</b> We have businesses that can adapt to impacts of Climate Change &amp; extreme weather.</li> </ul>
<p><b>I</b> Food Security/Global Food Production.</p> 	<ul style="list-style-type: none"> <li>- <b>I1:</b> We have a food system that is resilient to impacts of climate change.</li> </ul>

Objectives IF1 and P1 are particularly relevant to Donaghadee’s iconic harbour and seafront.

4.12 In relation to IF1 it states that DfI engages with local councils to assist them in bringing forward Local Development Plan policies and proposals that take account of climate change adaptation considerations in accordance with the provisions of the SPPS and any other policies or advice in guidance issued by the DfI. In Objective P1 reference is made to the preparation of Flood Risk Management Plans (FRMP). These plans highlight the flood hazards and risks in the areas where there is the most significant flood risk from rivers, the sea, surface water and reservoirs. They identify objectives and measures that will be undertaken over the six-year Floods Directive planning cycle to address flooding and they set out how the relevant competent authorities will work together with communities to reduce the flood risks

4.13 In December 2021 the Department of Infrastructure published the Flood Risk Management Plan covering the period 2021-2027<sup>18</sup>. Table 2.1 in Paragraph 2.3 of the Plan sets out the respective responsibilities of the various organisations but, as can be seen, there is no specific mention of coastal protection measures. Throughout the report there is a stronger emphasis on flooding linked to rivers and drainage and coastal protection measures receive only a brief reference.

<b>Table 2-1: Organisational roles for flood risk management in Northern Ireland</b>	
<b>Risk Management Authority</b>	<b>Key role in Flood Risk Management</b>
DfI Water and Drainage Policy Division (WDPD)	<ul style="list-style-type: none"> <li>• Development of flood risk management policy; and</li> <li>• Coordinating the implementation of the Floods Directive.</li> </ul>
DfI Rivers	<ul style="list-style-type: none"> <li>• Undertakes maintenance of designated watercourses;</li> <li>• Undertakes inspection and maintenance of designated river and coastal flood defences;</li> <li>• Manages a capital flood alleviation scheme programme;</li> <li>• Manages flood mapping and modelling activities;</li> <li>• Statutory Consultee for the Planning Authorities on flood risk;</li> <li>• Liaises with Met Office and UKCMF regarding severe weather information; and</li> <li>• Lead Government Department for the Strategic Coordination of Flooding Emergencies.</li> </ul>
DfI Roads	<ul style="list-style-type: none"> <li>• Maintains all public roads and related drainage systems;</li> <li>• Manages a programme of highway drainage improvements;</li> <li>• Deals with impacts of highways flooding, including actions to alleviate; flooding such as closing roads and clearing blockages; and</li> <li>• Takes action to protect property that may be affected by flooding of the highway.</li> </ul>
Northern Ireland Water (NI Water)	<ul style="list-style-type: none"> <li>• Provides water and sewerage services across Northern Ireland;</li> <li>• Maintains surface water, foul and combined sewers;</li> <li>• Manages a programme of sewer flooding improvements;</li> <li>• Deals with impacts of sewer flooding; and</li> <li>• Takes action to protect property that may be affected by sewer flooding.</li> </ul>
DfI Planning	<ul style="list-style-type: none"> <li>• Preparation of Regional Development Strategy;</li> <li>• Northern Ireland wide planning legislation and policy;</li> <li>• Processes regionally significant planning applications; and</li> <li>• Scrutinises Council Local Development Plans.</li> </ul>
Local Councils	<ul style="list-style-type: none"> <li>• Development Planning - Preparation of Local Development Plans (LDP); Process most planning applications, Enforce planning decisions; and</li> <li>• Emergency planning, response and recovery – when required, coordinate and support the emergency response to flooding; when approved, administer Scheme of Emergency Financial Assistance (SEFA).</li> </ul>

4.14 The Plan focuses on the main centres of population and the risk of flooding – there is no explanation as to why other areas have not been examined. In the case of Bangor, the report concludes that Flood Maps NI indicates that “Bangor is not

shown to be at risk from tidal flooding even in the most extreme events.” This would appear to run counter to the evidence presented elsewhere in this report.

4.15 Chapter 6 of the report sets out a summary of the costs associated with the delivery of the plan but although totalling an impressive £440m there is no specific reference to coastal protection measures. Indeed much of the £440m is based around current levels of funding and there is no reference to additional resources being allocated.

4.16 Mid and East Antrim Council has produced a Climate and Sustainability Action Plan 2023-2027<sup>20</sup> setting out how it will address climate change in Mid and East Antrim over the next five years. Although little is stated as regards specific actions to address coastal protection it does nevertheless serve as an example for other Councils to follow.

4.17 In its (undated) Local Development Plan (LDP) - Position Paper published post 2019, entitled The Coast<sup>19</sup> the Council notes that the Ards and North Down Borough is bounded by 115 miles of coastline and it is likely that coastal erosion and sea level rise will become a significant problem for the Borough in the future. It states that coastal protection is most frequently achieved by to ‘holding the line’ through the use of hard defences such as seawalls and groynes to protect property and infrastructure behind them. Ultimately this approach results in the loss of beaches due to the cutting off of landward sand supply and seaward deflection of wave energy. The document sets out alternative approaches which may be considered though it is difficult to see how any of these could be adopted in relation to Donaghadee harbour.

## 5. Proposals to Develop the Harbour

- 5.1 In this section of the document we set out a series of modest measures to increase the usage of the harbour and generate income both directly from berthing fees and indirectly through spending in the town by crews of visiting vessels. These proposals take account of measures adopted by other harbour operators and which have worked successfully.
- 5.2 These proposals have been developed against the following key principles: -
- a) any changes should provide improved safety for users of the harbour;
  - b) they should not detract from the visual attraction of the harbour;
  - c) developments should not have a meaningful adverse effect on the Copelands Marina; and
  - d) developments should be modest and present a reasonable opportunity for payback over an acceptable period.

### Background

- 5.3 It is worthwhile to compare Donaghadee harbour with its bigger “twin” – Dun Laoghaire harbour. Both were designed by John Rennie and constructed over and within the same time period 1817 -1842 for the same purpose, “for the sheltering of ships and accommodating the mail boat” to Holyhead and Portpatrick respectively. The extra wide entrances to both ports were specifically for the convenience of the sailing vessels of that era. Despite a modification to the design of the entrance at Dun Laoghaire, both harbours continue to admit large, untrammelled and damaging waves during bad weather. However, Dun Laoghaire has the advantage of size – 250 acres/100 hectares of water between the piers which assists in reducing the impact of waves entering the harbour. Furthermore, the larger harbour has 2 internal overlapping piers behind which the large majority of boats are moored. Neither remedy is possible at Donaghadee, and external protection is the only viable solution.
- 5.4 In contrast, Donaghadee cannot claim any of the plaudits. The harbour is seen as lacking basic amenities, particularly in terms of convenience of access to and from pier to moorings. Berth holders face an unsafe “obstacle course” in the untangling of his or her boarding boat at the bottom of the vertical iron ladders before they can reach the moorings. Similarly, the same paucity of facilities exists for the few boats



that may decide to visit but the general opinion amongst the cruising fraternity is “don’t bother, there is nothing there”. In the construction of the new Sailing Club clubhouse in the early 2000’s, the Club decided, with the encouragement of the legacy local council, to include a discrete unit with toilets/showers and laundry specifically for the crews of visiting yachts. An area of the harbour near the lighthouse was designated “visitors’ berths” but no effort was made to provide the convenient shore access or fendering found elsewhere. A comparison with the numbers visiting Portpatrick, where visitors enjoy a much higher standard of facilities, and Donaghadee is telling. In the summer season 22/23 Donaghadee had 5 visiting boats with a combined income to the harbour in fees of £203 whereas Portpatrick had 400 boats which generated fees of £10,155. The income generated for businesses within the town could be meaningfully extrapolated. Portpatrick does not have pontoons but relies on a relatively inexpensive system of well-spaced ladders together with rising/falling fenders that protect boats from damage. There is also electricity available.

- 5.5 | In the short term our Council should consider emulating the facilities in Portpatrick as a means of attracting maritime visitors and boosting the town’s economy. Local berth holders would benefit greatly from the provision of a simple, seasonal pontoon to which boarding boats could be safely tied up. Such a measure would coincidentally reduce the steady loss of the Club’s keelboat sailors who find Groomsport or Bangor a safer and more accessible place than their home port to sail from.
- 5.6 The Sailing Club is, perforce, essentially a Dinghy-based Club and has been concerned for some time about the vulnerability of its Dinghy Park to damage or destruction of the property by sea storms. The Club leases the site from the Council. Without it the Club would have the utmost difficulty in continuing to operate in a sustainable way. As with the Harbour, the construction of the offshore breakwater would, based on current evidence, have the effect of reducing the size of waves in the bay area.
- 5.7 Copelands Marine, just to the south of the harbour, offers pontoon mooring, winter boat storage and boat maintenance. It is always busy. It is not anticipated that improvements to the harbour would do anything other than increase business for the Marina in boat servicing and storage as there are no proposals to introduce

similar arrangements at the harbour. Generally speaking, Bangor Marina would attract much larger yachts / motor yachts, typically from farther afield, which would not comfortably fit into the current “Visitors Berths “area in Donaghadee where manoeuvring space suits vessels of a more modest size.

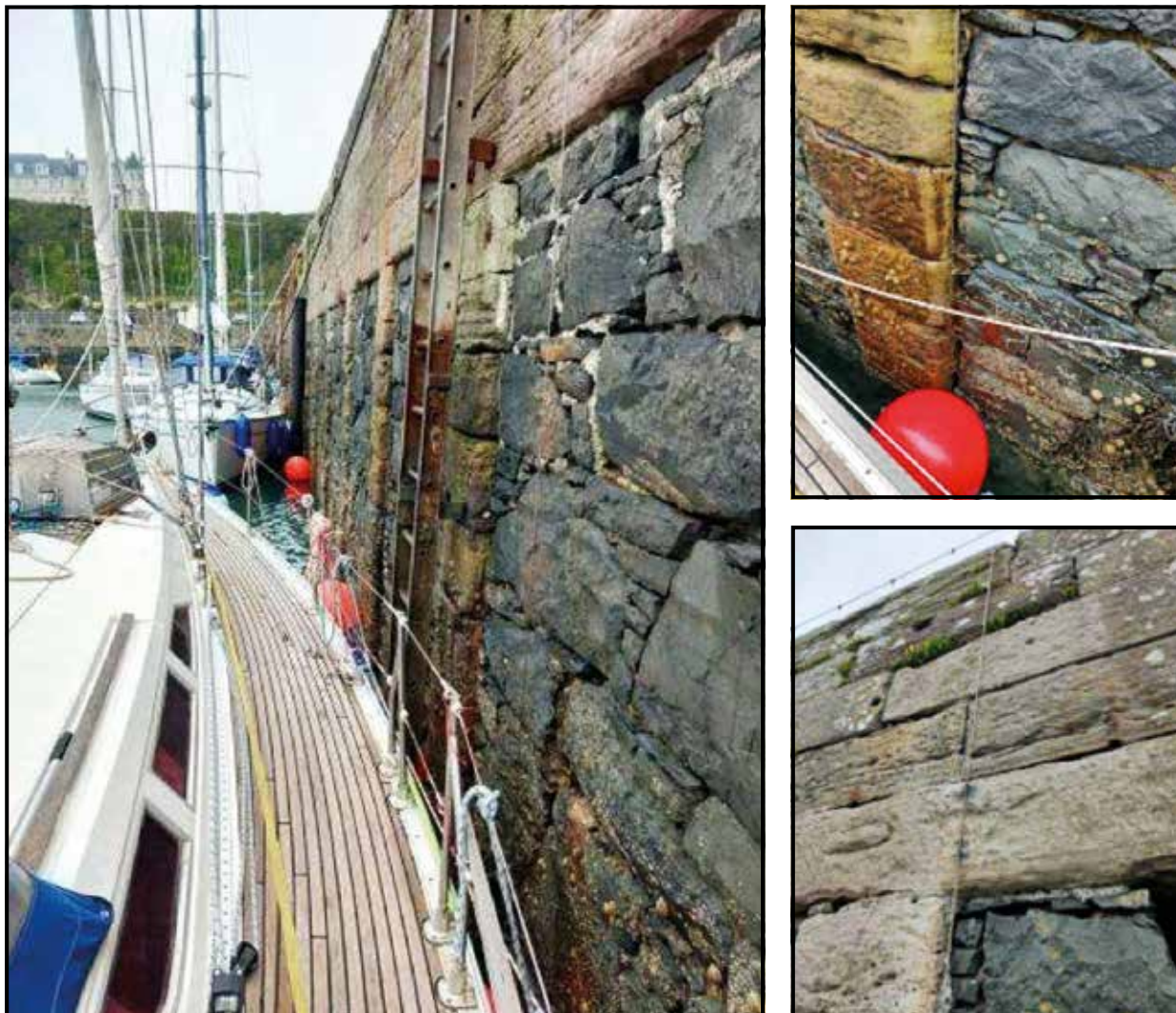
5.8 The following measures are modest in terms of expense and could be implemented independent of the outer breakwater being in place. The absence of the outer breakwater means that Donaghadee is, for the most part, a seasonal harbour, and thus until such times as the breakwater is in place several of the proposed facilities would be removed for storage during the off season.

**Proposal 1 – Repainting of existing sign Visitors’ Berth**



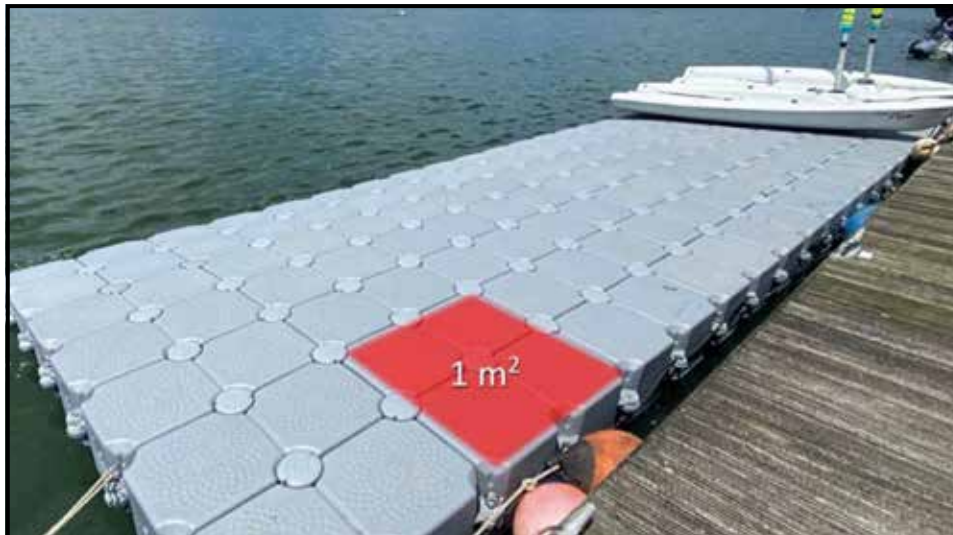
Description:	The signage for the Visitors’ Berth is now nearly totally unreadable.
Action:	Repainting and touch up of existing sign.
Time Frame:	Immediate
Lead Body/Responsibility:	Harbour Master/Harbour employees
Planning approval?:	No
Indicative cost if known:	£100
Seasonal period of use:	Year Round
Benefits:	Reputational benefit showing Donaghadee is open for business. Organisational in that visitors know where to berth. Heritage. The restoration of signage restores what was there
Source of Money:	Harbour maintenance budget

## Proposal 2 – Installation of a floating Fendering system



Description:	Floating fendering system. initially in way of visitors' berth. A similar system has been successfully fitted in Portpatrick harbour. It stops damage to boats and to harbour infrastructure. Fender is attached to weighted wire and floats with the tide.
Time Frame:	Immediate
Lead Body/Responsibility:	Harbour Master/Harbour employees
Planning approval	No - part of harbour maintenance to protect structure
Indicative cost if known:	£50-£100 per single installation for leisure use . £500-£1000 for large commercial craft.
Benefits:	Boats can ride safely alongside. Fabric of the harbour is protected. Existing ladderway does not need to be changed.
Seasonal period of use:	Year-round. Note if large commercial craft wish to use harbour (Wind, Tidal work boats, supply boats etc) it should be a stipulation that they provide their own fendering.
Source of Money:	Harbour maintenance budget. Could be funded from Tourist board grant etc.

### Proposal 3 – Installation of Modular Floating Pontoon



Description:	Modular floating pontoon. Initially for sailing club use to show proof of concept to Harbour Master and Council. Initially to be moored in Mediterranean fashion at 90 degrees to North Pier. Stand-alone pontoons with no access from the quayside.
Time Frame:	Immediate
Lead Body/Responsibility:	Harbour Master/Sailing club
Planning approval required?:	No. Floating structure counted as vessel moored.
Indicative cost if known:	Prices vary depending on manufacturer. Readily available new and second hand. Indicative new price of "Aqua Dock" £295/m <sup>2</sup> Used 6mx3m £4000.
Benefits:	Can be used in multiple modes during training. On water class room. Saves daily recovery of boats. Can be used for visiting boats to moor against. Modular system can be recovered and maintained using existing slip and stored in dinghy park. No workboat or heavy equipment needed. May be used as base for harbour maintenance.
Seasonal period of use:	Seasonal only initially.
Source of Money:	Sailing Club, Council Sports grants etc.

## Proposal 4 – Installation of Pontoon Dock at South Pier



Description:	Pontoon dock using mooring system based against South Pier to allow boarding boats to be easily accessed.
Time Frame:	Immediate
Lead Body/Responsibility:	Harbour Master/Harbour employees
Planning approval required?	No Floating structure treated as vessel moored.
Indicative cost if known:	Price will vary depending on complexity of configuration and Council requirements.
Benefits:	will provide safe access for boarding boats. Existing ladderway does not need to be changed.
Seasonal period of use:	Seasonal only initially
Source of Money:	Council and funding bodies

## 6. Proposed Way Forward

6.1 In this section of the document we set out a number of actions with an underpinning rationale for each.

### **Action 1 – Take forward the Construction of the Outer Breakwater**

6.2 Both the QUB and RPS studies have demonstrated that the construction of the breakwater will resolve the problem of wave action in the harbour. There is a high likelihood that some elected representatives may suggest that this development should be put on hold pending a wider review of the impact of rising sea levels across the whole of the Ards & N Down coastline. We feel strongly that there is no need for any further delay – the need for the breakwater has been proven in two quite separate studies conducted by independent and highly qualified consultants. We therefore recommend:-

**Action 1a** – The Council should arrange for a business case/economic appraisal to be prepared. This should include the updated cost of construction, the potential savings through damage to lives and property and also take account the potential economic benefit of having a safe harbour. The town's proximity to the Scottish coast makes it the ideal harbour for leisure traffic wishing to cross the Irish Sea in either direction and a safe haven for those making passage to and from the north coast of Ireland and western isles of Scotland. In time the breakwater will create a new habitat for wildlife.

**Action 1b** – the Council should engage with other agencies, including DAERA, DFI and NI Tourist Board to assess to what extent they can become involved in financing the project.

### **Action 2 – Further Consideration of the Extension of Lemon's Wharf**

6.3 The extension is required to reduce the siltation of the harbour caused by wave action along the shorefront. Both studies also suggest that this would allow for the creation of a natural beach on the northern side of the extension. Crucially it will only have minimal impact on reducing wave action within the harbour. As such this proposal can be considered separately and at a slower pace from the breakwater proposed at Action 1.

6.4 The downside of the proposed extension of Lemon's Wharf is the potential impact it would have on the seafront views. The extension would need to be above the

high tide mark thus obstructing the views from the shorefront towards the harbour and vice versa. There is of course the counter argument that if the extension allowed for pedestrians then it would offer opportunities for enhanced views.

- 6.5 Donaghadee is a popular open water bathing spot with swimmers engaged every day of the year. It will be important that the construction of the extension does not interfere unduly with this activity.
- 6.6 Were the extension not to proceed then the problem of siltation can be resolved through dredging (as is currently the case) and/or the erection of groynes.
- 6.7 **Action 2** The council should engage competent consultants to engage in a public consultation on the extension of Lemons Wharf and produce a range of costed design options outlining the benefits of each.

### **Action 3 – Developing the Harbour**

- 6.8 The Sailing Club recognises and accepts that it is not the only organisation with an interest in the harbour. Various individuals are users and the Club is mindful that the harbour is a listed structure.
- 6.9 **Action 3** - The Council should therefore discuss the proposals set out in Section 5 with interested organisations and the Sailing Club before engaging in a period of public consultation. This can proceed alongside the other actions and can therefore have an informed impact on the overall business case.

### **Action 4 – Conduct a wider investigation of the impact of rising sea levels on the A&ND coastline**

- 6.10 Clearly rising sea levels will impact on the coastline right round the borough. The Peace Plus measure referred to at 4.7 above offers a real opportunity to take this forward and work with other council areas to develop action plans.

### **Action 5 – The NI Executive needs to place a stronger priority on Coastal Protection**

- 6.11 **Action 5a** - The restoration of the NI Executive and the associated injection of an additional £3.3bn of public funding provides an opportunity for elected representatives to press for the allocation of a budget for coastal protection measures.

## **7. Conclusion**

- 7.1 In issuing the report we are mindful that it has been prepared by volunteers with no direct access to professional and/or technical support or advice. As such it is always possible that we have not been aware of certain facts or drawn erroneous conclusions. If that proves to be the case we stand to be corrected and apologise unreservedly for any shortcomings. With that proviso we do however believe that we have established a convincing case for action.
  
- 7.2 The community of Donaghadee has been more than patient waiting for first central government and more recently the Council to address the shortcomings in the harbour design. The evidence presented in this document indicates that the issue must be addressed now to avoid more costly interventions at a later stage.



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**DONAGHADEE**  
THE BEACON ON THE COAST

