



North West & North Wales Coastline

a partnership for coastal defence management

North West England North Wales Coastal Group Shoreline Management Plan

Westmorland and Furness



Date: February 2023

Introduction

This booklet has been produced to provide an overview of the coastal geography, erosion and flooding risk and Shoreline Management Plan (SMP) policy as it applies to the newly constituted local government unitary authority of Westmorland and Furness. The purpose of the leaflet is to provide a quick reference guide on the coastal management issues relevant to this coastline and the SMP policy response.

It is designed to be used by all stakeholders planning for development on the coast, including planners, coastal managers, asset owners and developers. Links are provided throughout the booklet to key parts of the SMP. In all cases, please refer to the current SMP for a fuller description of the SMP policy environment applicable to the Westmorland and Furness coastline, and bear in mind any more recent strategies, studies and schemes. This booklet is based on information contained in the SMP, with an input from the relevant Local Authorities.

(Photo Front Cover: Source: North West England and North Wales Shoreline Management Plan SMP2)

The Shoreline Management Plan

The coast of England and Wales is covered by 22 Shoreline Management Plans (SMPs).

A Shoreline Management Plan (SMP) is a strategy for managing flood and erosion risk for a particular stretch of coastline, over short, medium and long-term periods. SMPs identify the best ways to manage coastal flood and erosion risk to people and the developed, historic and natural environment.

The SMP for North West England and North Wales (SMP22) covers the coast from Great Orme's Head to the Scottish border at the Solway Firth. This area is also known as Cell 11 and is divided into a series of Sub-cells.

The current (second generation) SMPs were developed by groups of Risk Management Authorities (RMAs), including the Environment Agency, coastal local authorities, Natural England and other key stakeholders. The second-generation SMP for North West England and North Wales was produced over the period 2009 to 2011 and published in 2012¹.

Although SMPs remain advisory rather than statutory documents they do set out an agreed 100-year strategy for coastal management, and are based on agreed objectives and high-level technical, economic and environmental assessments.

¹ <https://www.mycoastline.org.uk/shoreline-management-plans/>

Coastal Processes and Coastal Change in Westmorland and Furness

The area embraces a wide variety of landscapes and spectacular scenery. The area's coastline extends along the Northern side of Morecambe Bay, with the Kent, Leven and Duddon Estuaries. On Walney Island the land use is mainly agricultural and marshland, with small settlements at North Walney, North Scale, Biggar and Vickerstown. The inner mainland coastline is more heavily urbanised with the town of Barrow-in-Furness, and the Port of Barrow.

Characteristics

The Northern shoreline is characterised by undulating lowlands interspersed with coastal cliffs which are fronted by areas of saltmarsh, fringing narrow shingle beaches, scars and a continuous area of intertidal sandflats, mudflats and dynamic channels. The shorelines to the West of the Bay, between Roa Island and Ulverston, and to the East between Morecambe and Arnside, are characterised by low till (boulder clay) cliffs interspersed by areas of low-lying land. The Kent Estuary is a small estuary located along the North Eastern side of Morecambe Bay. The estuary is generally funnel shaped, although it is constrained in width at two locations: Arnside, where it is constrained by the Kent Railway Viaduct, and the high land at Sandside. The Leven Estuary is a small macro-tidal estuary located on the North side of Morecambe Bay. The Duddon Estuary lies to the North of Morecambe Bay and is bordered by the Cumbrian open coast to the North and Walney Island to the South. It is a macro-tidal, shallow estuary and includes dune systems. Walney Island has a varied West-coast shoreline, with small cliffs separated by low-lying sand. The East coast, is characterised by saltmarsh and mudflats. At the Northern end of the Island, Earnse Bay has an extensive dune system. Sandscale Haws and Roan Head near Barrow includes dune habitat as part of a National Trust Nature Reserve.

Processes

The orientation of the Northern section of Morecambe Bay, combined with extensive intertidal banks, means that the shoreline is relatively sheltered from wave action. Due

to the shallow nature of the Bay, storm surges can be significant, especially when associated with strong Westerly or South Westerly winds. The Rivers Leven and Kent represent the two key controls on the Northern Bay system. Their dynamic low water channels and banks exert a significant influence upon shoreline evolution both within the estuaries and along adjacent shorelines. Channels located near to the shore allow larger, higher energy waves to erode the shoreline. Due to the orientation and form of the Duddon Estuary, the South Eastern side of this estuary faces directly approaching waves from the Irish Sea. Under normal conditions, the shallow nature of the estuary means that the wave energy is reduced, but when storms coincide with spring tides there can be significant wave activity in the estuary. On the western side of the estuary, waves are mainly internally generated and wave action is not very strong. During normal conditions, tidal currents are therefore primarily responsible for sediment transport. Walney Island has eroded on the West coast and accreted at the Northern and Southern ends. There are large areas of low-lying land which are vulnerable to sea-level rise, including the village of Biggar, and during storms the south of the island can become cut-off from the mainland. There is erosion to the former South Walney landfill site. Near Barrow, there is erosion close to Askam Waste Water Treatment Works and adjacent to Piel castle.

Defences

Local stretches of defences have been constructed along the shoreline in the North of the Bay. In front of cliffs, these defences prevent the release of fine and coarse sediment to the Bay. However, any short-term release of sediment is likely to be insufficient to build the beaches. There are a range of defences along this coast including walls and embankments. The long-term plan is to continue to protect certain settlements from flooding and erosion, but also to allow for the creation of areas of new habitat and flood storage areas by moving defences inland where opportunities exist, and opportunities for managed realignment have been identified. On Walney Island, defences in the form of rock revetments have been constructed intermittently along the West coast to prevent erosion and flooding. Works are planned for new defences to the former South Walney landfill site.

For more information on the existing (at time of writing of SMP) coastal characteristics, processes and defences in Westmorland and Furness, see the

North West Shoreline Management Plan Main Document (Section 3.2), Appendix C (Introduction and Sections C4 L, M, N, O and P) and Appendix D

- [SMP Main Document FINALV2.pdf - OneDrive \(live.com\)](#),
- [Appendix C - Introduction FINAL.pdf - Microsoft Word Online \(live.com\)](#),
- [Appendix C - OneDrive \(live.com\)](#) and
- [Appendix D - OneDrive \(live.com\)](#).

North West Shoreline Management Plan (SMP)

All SMPs consider four standard policy options. SMPs set out the management approach for a specific length of coast as either:

- **Hold the Line (HTL)** – maintain or improve the current standard of protection.
- **Advance the Line (ATL)** – move defence alignments seawards.
- **Managed Realignment (MR)** – allow the shoreline to move backwards or forwards, but through a managed approach.
- **No Active Intervention (NAI)** – no investment in defences, lets nature take its course.

Policy options are broken down into three time horizons (epochs):

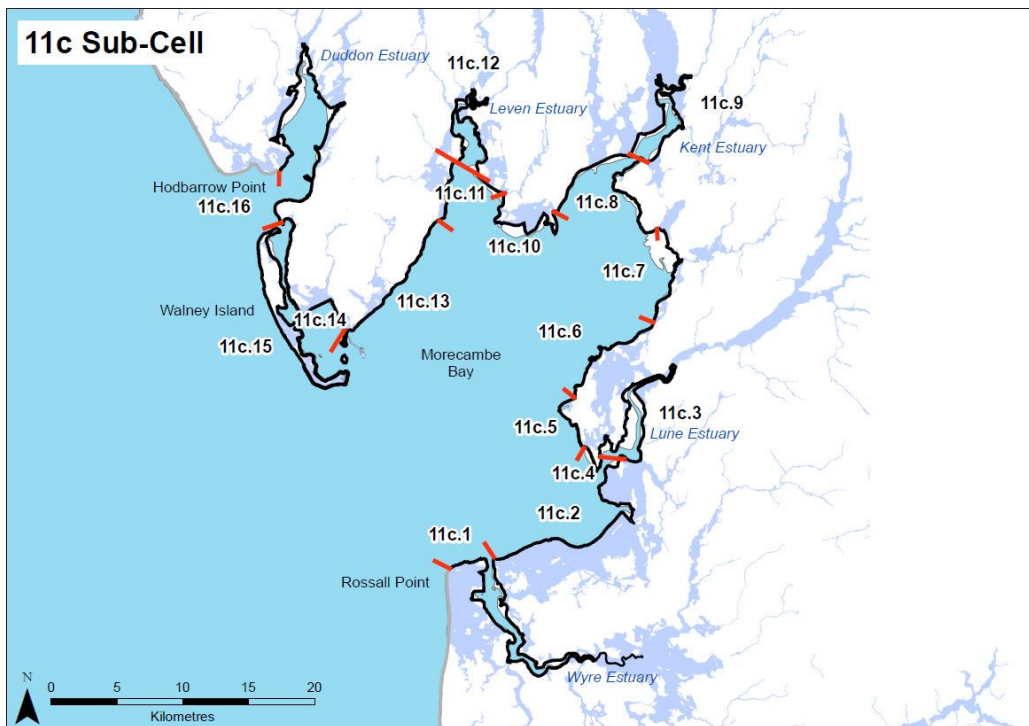
- the short term 0-20 years
- the medium term 20-50 years
- the long term 50-100 years

These time horizons provide direction on the timing of policy implementation, but are not absolute and there may be flexibility in the timing of policy transitions, taking into account factors like the rate of sea-level change, local studies, social and environmental factors.

The North West England North Wales SMP extends between Great Orme's Head in North Wales and the Scottish Border. This area is known as Cell 11. It is divided into smaller sections of the coast known as Sub-Cells. The relevant Sub-Cell for Westmorland and Furness is 11c. This is broken down into Policy Areas, and those relevant are:

- 11c 8: Heald Brow to Humphrey Head
- 11c 9: Kent Estuary

- 11c 10 Humphrey Head to Cark
- 11c 11: Outer Leven Estuary
- 11c 12 Leven Estuary
- 11c 13 Bardsea to Piel Island
- 11c 14 Walney Island
- 11c 15 Walney Island Channel (mainland)
- 11c 16 Duddon Estuary



Map of Sub-Cell 11c Policy Area Locations

See the North West Shoreline Management Plan Main Document (Section 5.2)
[SMP Main Document FINALV2.pdf - OneDrive \(live.com\)](#)

Coastal Management Policy Approach

Each Sub-Cell is divided into smaller Policy Areas, themselves sub-divided further into Policy Units. Policy Areas consist of interacting areas of open coast or estuaries. For each Policy Area the SMP presents a Policy Statement that includes a summary of the long-term vision for the coast in question and describes the preferred policies (HTL etc.) for each Policy Unit. As mentioned above, there is some flexibility in the timing of

the implementation of the policy approach, and these should not be viewed as absolute dates. The policy approach along the Westmorland and Furness coast is as follows:

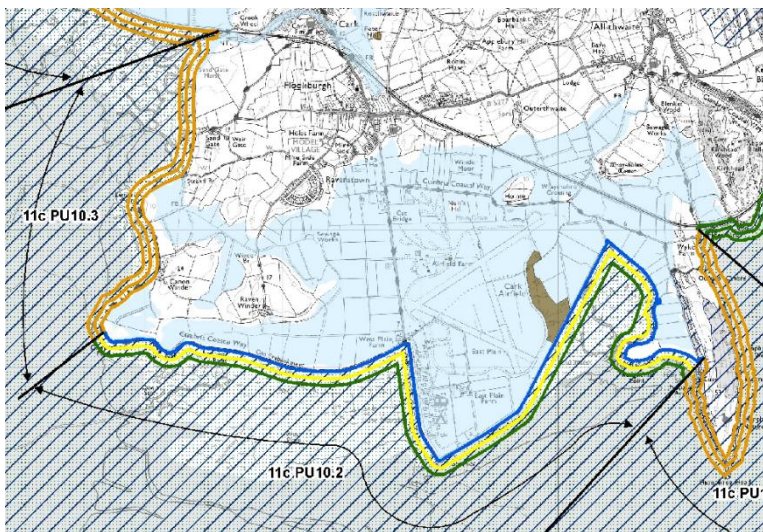
Policy Area 11c.8		Policy Approach (from 2010)		
		0-20 years	20-50 years	50-100 years
Policy Unit	Location			
8.1	Heald Brow to Frith Wood	No Active Intervention	No Active Intervention	No Active Intervention
8.2	New Barns	No Active Intervention	No Active Intervention	No Active Intervention
8.3	Grubbins Wood(New Barns to Ash Meadow	No Active Intervention	No Active Intervention	No Active Intervention
8.4	Ash Meadow to the Kent Viaduct (Arnside)	Hold The Line	Hold The Line	Hold The Line
8.5	Kent Viaduct to Holme Island	Hold The Line	Hold The Line	Hold The Line
8.6	Holme Island to Humphrey Head	Hold The Line	Hold The Line	Hold The Line
11c.9				
9.1	Kent Viaduct to Dick Fell Road (Sandside)	Hold The Line	Managed Realignment	Managed Realignment
9.2	Sandside (Dick Fell Road to Hollins Road	Hold The Line	Hold The Line	Hold The Line

Policy Area 11c.8		Policy Approach (from 2010)		
		0-20 years	20-50 years	50-100 years
Policy Unit	Location			
9.3	Hollins Well Road north to Levens Bridge (east bank) & Levens Bridge to Kent Viaduct (west bank)	Hold The Line	Managed Realignment	Managed Realignment
11c.10				
10.1	Humphrey Head	No Active Intervention	No Active Intervention	No Intervention Active
10.2	Humphrey Head to Cowpren Point	Hold The Line	Managed Realignment and Local Hold the Line	Managed Realignment
10.3	Cowpren Point to Cark	No Active Intervention	No Active Intervention	No Intervention Active
11c.11				
11.1	Cark to Leven Viaduct	No Active Intervention	No Active Intervention	No Intervention Active
11.2	Leven Viaduct to Canal Foot Cottages	No Active Intervention	No Active Intervention	No Intervention Active
11.3	Canal Foot	Hold The Line	Hold The Line	Hold The Line
11.4	Glaxo Factory Site (south)	No Active Intervention	No Active Intervention	No Intervention Active
11.5	Sandhall to Conishead Priory	Hold The Line	Managed Realignment	Managed Realignment
11.6	Conishead Priory to Bardsea	No Active Intervention	No Active Intervention	No Intervention Active
11c.12				

Policy Area 11c.8		Policy Approach (from 2010)		
		0-20 years	20-50 years	50-100 years
Policy Unit	Location			
12.1	Leven Viaduct to Haverthwaite (left bank) and Haverthwaite to Greenodd (right bank)	Hold The Line	Managed Realignment	No Intervention Active
12.2	Greenodd to Barrow End Rocks (A590)	Hold The Line	Hold The Line	Hold The Line
12.3	Barrow End Rocks (A590) to Leven Viaduct	Hold The Line	Managed Realignment	No Intervention Active
11c.13				
13.1	Bardsea to Newbiggin	No Active Intervention	No Active Intervention	No Intervention Active
13.2	Newbiggin to Rampsid	Hold The Line	Managed Realignment	Hold The Line
13.3	Rampsid	No Active Intervention	Hold The Line	Hold The Line
13.4	Roa Island	Hold The Line	Hold The Line	Hold The Line
13.5	Piel Island	No Active Intervention	No Active Intervention	No Intervention Active
11c.14				
14.1	South End Hawes to Biggar (east side)	No Active Intervention	No Active Intervention	No Intervention Active
14.2	Biggar to Lenny Hill (east side)	Hold The Line	Hold The Line	Hold The Line
14.3	South End Hawes to Hare Hill (open coast)	No Active Intervention	No Active Intervention	No Intervention Active
14.4	Hare Hill to Hillock Whins	Hold The Line	Hold The Line	Hold The Line

Policy Area 11c.8		Policy Approach (from 2010)		
		0-20 years	20-50 years	50-100 years
Policy Unit	Location			
14.5	Hillock Whins to Nanny Point Scar	No Active Intervention	Managed Realignment	Managed Realignment
14.6	Nanny Point Scar to Mill Scar	No Active Intervention	No Active Intervention	No Active Intervention
14.7	Mill Scar to north of West Shore Park	Managed Realignment	Managed Realignment	Managed Realignment
14.8	North Walney - from north of West Shore Park to Lenny Hill (both coasts)	No Active Intervention	No Active Intervention	No Active Intervention
11c.15				
15.1	Rampside to Westfield Point	No Active Intervention	No Active Intervention	No Active Intervention
15.2	Westfield Point to Hindpool (Barrow in Furness)	Hold The Line	Hold The Line	Hold The Line
15.3	Hindpool to Lowsy Point	No Active Intervention	No Active Intervention	No Active Intervention
11c.16				
16.1	Lowsy Point to Askam Pier	No Active Intervention	No Active Intervention	No Active Intervention
16.2	Askam-in-Furness (including Askam Pier)	Hold The Line	Hold The Line	Hold The Line
16.3	Askam to Dunnerholme	No Active Intervention	No Active Intervention	No Active Intervention
16.4	Dunnerholme to Sand Side	Hold The Line	Hold The Line	Hold The Line
16.5	Kirby-in-Furness	Hold The Line	Hold The Line	Hold The Line

Policy Area 11c.8		Policy Approach (from 2010)		
		0-20 years	20-50 years	50-100 years
Policy Unit	Location			
16.6	Hardhouse Moss	No Active Intervention	No Active Intervention	No Active Intervention
16.7	Gallop Pool to Viaduct	Hold The Line	Hold The Line	Hold The Line
16.8	Duddon Estuary (Both banks upstream of Viaduct and right bank south to Green Rd Station)	Hold The Line	Managed Realignment	Managed Realignment



Extract of Policy Statement map showing Policy Units

For full details see the relevant Policy Statement for the Policy Area in the SMP (main documents>Annex 1 Policy Statements) [Annex 1 Policy Statements - OneDrive \(live.com\)](#)

Implications of the Management Approach

Each Policy Statement in the SMP includes a table of predicted implications of the policies being adopted for each location, over the three different time horizons of the SMP. This includes implications for property, the historic environment and biodiversity. Examples of potential planning impacts across Westmorland and Furness include, but are not limited to:

Epoch 1 - 2010-2030

- Manage risk to people and property at Grange-over-Sands and Barrow-in-Furness, and to key coastal infrastructure.
- Risk of flooding to Scheduled Monument at Cark Airfield.
- Flood risk to part of the A5087 at Bardsea as sea levels rise.
- Potential loss of footpaths in areas of No Active Intervention.
- Potential erosion of the Cumbria Coastal Way between Rampside and Westfield Point.
- Manage coastal risks to specific areas of Walney Island.
- Increasing flood and erosion risk to Piel Castle on Piel Island.

Epoch 2 - 2030-2060

- The access route to New Barns will be inundated more frequently.
- Holding the line has the potential to affect Meathop Woods and Quarry SSSI.
- Manages risk to people and property at Grange-over-Sands and Barrow-in-Furness.
- Managed risk to properties in Greenodd village.
- Potential loss of some properties and infrastructure in areas of Managed Realignment.
- Potential loss of coastal paths and changes to route of Cumbrian Coastal Way.
- Potential flood risk and damage of Scheduled Monument at Cark Airfield.
- Increasing erosion risk to Bardsea Country Park.
- Potential erosion of the Cumbria Coastal Way between Rampside and Westfield Point.
- Limited risk to Walney airfield as sea levels rise.
- Increasing flood and erosion risk to Piel Castle on Piel Island.

Epoch 3 - 2060-2110

- Manage risk to people and property at Grange-over-Sands and Barrow-in-Furness.
- Managed risk to properties in Greenodd Village.
- Potential loss of some properties and infrastructure in areas of Managed Realignment.

- Potential loss of coastal paths and changes to route of Cumbrian Coastal Way.
- Potential flood risk and damage of Scheduled Monument at Cark Airfield.
- Increasing erosion risk to Bardsea Country Park.
- Potential flood and erosion risk to Frith Hall and Scheduled Monument and Holker Park.
- Potential erosion of the Cumbria Coastal Way between Rampside and Westfield Point.
- Limited risk to Walney airfield as sea levels rise.
- Potential erosion losses to Piel Castle on Piel Island.

For full details see the relevant Policy Statement for the Policy Area in the SMP (main documents>Annex 1 Policy Statements>'predicted implications of the Policies being Adopted in this location' table) [Annex 1 Policy Statements - OneDrive \(live.com\)](#)

Environmental Impacts of the SMP

The SMP describes the environmental effects of the preferred policies. In Westmorland and Furness these are in the short-term an overall net gain of intertidal saltmarsh, sandflat and mudflat within Morecambe Bay and its associated estuaries and net gain of dunes at North Walney. In the long-term overall gains and losses of intertidal and dunes are highly uncertain due to response of the Bay and estuaries to sea level rise and potential future management including implementation of managed realignment.

For full details see the SMP Main Document (Section 2.6), the relevant Policy Statement for the Policy Area in the SMP (main documents>Annex 1 Policy Statements) and Annex 1 of Appendix I 'SEA'

- [SMP Main Document FINALV2.pdf - OneDrive \(live.com\)](#),
- [Annex 1 Policy Statements - OneDrive \(live.com\)](#) and
- [Appendix I - OneDrive \(live.com\)](#)

Securing the Management Approach

The management approaches set out in the SMP are subject to funding and therefore are not guaranteed to be implemented. The National Planning Policy Guidance

(NPPG, 2022) directs that the Environment Agency should be able to provide advice on this. Evidence may also be available in existing strategies and studies, which in Westmorland and Furness are the [Cumbria Coastal Strategy \(2020\)](#) and [Walney Island Strategy \(2014\)](#).

Flood and Erosion Risks

Maps of the shoreline management *Policy Units* and policies are provided in the SMP. These detailed maps can be used to identify the Policy Units relevant to your length of coastline. An extract of a Policy Statement map is shown above. Where NAI is the policy and coastal erosion is the main risk, cumulative erosion estimates are included, representing the minimum and maximum erosion distance from the shoreline position as of 2010. The flood extents are from The Environment Agency flood mapping (2008). It should be noted that the EA is continually updating its maps and these should be regarded as an update to those presented in the SMP.

Integrated Coastal Zone Management

The National Planning Policy Framework (NPPF, 2021) requires 'Integrated Coastal Zone Management should be pursued across local authority and land/sea boundaries, to ensure effective alignment of the terrestrial and marine planning regimes' (paragraph 170). In this regard, the SMP provides a long-term view (up to 2110). Some Policy Areas of the SMP overlap authority boundaries. In Westmorland and Furness these are:

- 11.C8 Lancaster City and Lake District National Park Authority
- 11.C9 Lake District National Park Authority
- 11.C12 Lake District National Park Authority
- 11.C16 Cumberland Unitary Council, Lake District National Park Authority

SMP Policy - Potential Planning Implications, taking into account national planning policy and guidance (NPPF (2021) and NPPG (2022))

- Local planning authorities - where Hold the Line (HTL) management is proposed – obtain evidence that this management approach can be secured.

Where there is uncertainty about the implementation of HTL policies, consider the need for a Coastal Change Management Area (CCMA) Local Plan designation and policy.

- Local planning authorities – CCMA Local Plan designation required in areas of No Active Intervention and Managed Realignment.
- Consider the need for the relocation of assets (such as properties, roads and coastal paths), by identifying locations where existing development and infrastructure may not be sustainable in the long term, such as those in areas of No Active Intervention and Managed Realignment, and where there is uncertainty of HTL.
- Review the potential for habitat creation and natural flood management in areas of Managed Realignment.
- Local planning authorities - Identify land which is likely to be needed for flood and erosion risk infrastructure (including access to that land and land needed temporarily during construction) and consider allocating these sites, such as land for Managed Realignment.
- Consider the use of community infrastructure levy or planning obligations to fund area wide flood management improvements, including natural flood management.
- Working with adjoining local planning authorities – Lancaster, Lake District National Park Authority, and Cumberland.

Overview

- The long-term plan is to manage flood and erosion risks to property and infrastructure from Heald brow to Humphrey Head, although there are some opportunities for habitat creation with realignment east of Grange-over-Sands.
- Managed Realignment is proposed at the Kent Estuary, allowing the outer estuary to return to a more natural state and to create habitat.
- From Humphrey Head to Cark the long term vision is Managed Realignment, but to continue to manage flood risk to the railway and other assets, and allowing additional saltmarsh development.
- The long-term vision for the Outer Leven Estuary is to potentially manage risks to the railway and agricultural land, but to allow the shoreline to set back by

allowing additional saltmarsh and habitat creation. Defences will be maintained to major assets and population.

- The long-term vision for the Leven estuary is to manage flood and erosion risks to property and infrastructure, however there are significant areas where shoreline defence is not considered viable leading to several opportunities to realign flood defences.
- For the Bardsea coastline, the long term vision for the northern part of the coast is No Active Intervention, and further south potentially Managed Realignment.
- The integrity of Walney Island as a whole will be maintained, however local flooding across the island will become more frequent. On the landward side, Hold The Line is the preferred plan.
- The plan is for long-term management of flood and erosion risks in Barrow-in-Furness.
- For the Duddon Estuary the long-term plan is to seek to realign or withdraw from defending frontages where opportunities exist, but to continue to manage flood and erosion risk to infrastructure and property where it is economically and environmentally viable.

References

Barrow Borough Council (2014) *Strategy Appraisal Report: Walney Island Flood and Coastal Erosion Strategy Review*. Developed by Barrow Borough Council with consultancy support provided by Halcrow Group Ltd

Cumbria County Council (2020) *Cumbria Coastal Strategy*. Developed by Cumbria County Council with consultancy support from Jacobs Consultancy Ltd.

Department for Levelling Up, Housing and Communities (2021) *National Planning Policy Framework*.

Department for Levelling Up, Housing and Communities (2022) *National Planning Practice Guidance – Flood Risk and Coastal Change*.

Halcrow (2011) *North West England and North Wales Shoreline Management Plan SMP2. North West & North Wales Coastal Group. Main report and appendices*.