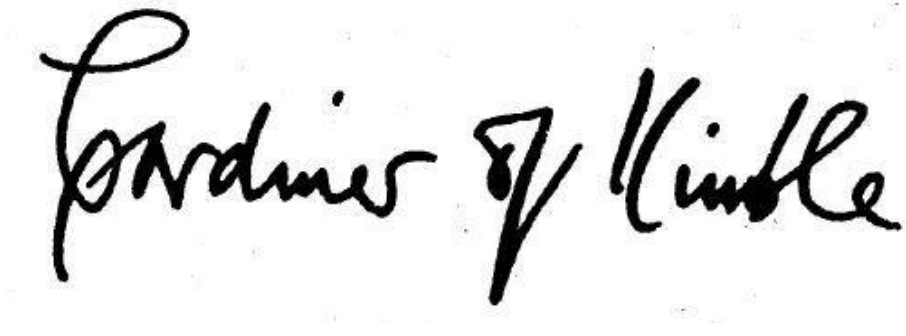
Northumberland Coast Area of Outstanding Natural Beauty

MANAGEMENT PLAN 2020-2024

Ministerial Foreword

I am fortunate that England's Areas of Outstanding Natural Beauty are part of my Ministerial responsibilities. Whether it be rolling hills, sweeping coastline or a tranquil village, spending time in an AONB can stir the heart and lift the spirit. This is a pivotal moment for all AONBs. The Government has set its ambition in the 25 Year Environment Plan which states clearly the importance of natural beauty as part of our green future, while AONBs retain the highest status of protection for landscape through national planning policy. Leaving the EU brings with it an opportunity to develop a better system for supporting our farmers and land managers, who play such a vital role as stewards of the landscape. And the Review of National Parks and Areas of Outstanding Natural Beauty led by Julian Glover — the first of its kind for generations — will make recommendations to make sure our designated landscapes can flourish in the years ahead. In my visits to AONBs around the country, I have been struck by the passion of many people — farmers, volunteers, and hard-working staff — for the beautiful places they live and work in. In this spirit I am delighted to welcome publication of this Statutory Management Plan for the Northumberland Coast AONB. It is significant that this plan will be delivered in partnership by those who value the Northumberland coast. I would like to thank all those involved in the preparation of this document, and wish you the best of success in bringing it to fruition.



Lord Gardiner of Kimble, Parliamentary Under Secretary of State (Minister for Rural Affairs and Biosecurity)

Introduction

An Area of Outstanding Natural Beauty (AONB) is a statutory designation established by the National Parks and Access to the Countryside Act 1949 and given further impetus by the Countryside and Rights of Way Act 2000. Together with National Parks, AONBs represent the nation's finest landscapes, and the primary purpose of the AONB designation is to conserve and enhance natural beauty. There are 34 AONBs in England, covering 14% of the country.

The Northumberland Coast AONB was designated in 1958. It covers an area of 138 square km along 64km of coastline from just south of Berwick-upon-Tweed to the Coquet Estuary. The AONB is only 2.5km wide at its widest point, and yet this stretch of English countryside contains a tremendous variety of features of natural, historical and cultural value.

The area is best known for its sweeping sandy beaches, rolling dunes, rocky headlands and isolated islands. Amid this striking land and seascape is abundant evidence of 7000 years of human activity, conflict and spiritual pursuit, whilst a host of national and international nature conservation designations attest to the great variety of important habitats and species in the AONB.

Given the long history of human interventions in the landscape, natural beauty can seem an elusive term; however, guidance provided by Natural England states that 'natural beauty is not just the look of the landscape, but includes landform and geology, plants and animals, landscape features and the rich history of human settlement over centuries'. Therefore the 'natural beauty' of the Northumberland Coast AONB is best expressed as the special qualities of the landscape, embracing all of these elements. These special qualities are set out in Part One of the Management Plan.

All public bodies (such as County and Parish Councils) and statutory undertakers (such as electricity and water companies) have duties under the Countryside and Rights of Way Act to 'have regard to the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty.

Management Plan

As the relevant local authority, Northumberland County Council has a statutory duty to prepare and publish a Management Plan that formulates the Council's policy for the management of the Northumberland Coast AONB and for the carrying out of the Council's functions in relation to it. This Plan must be reviewed at least every five years.

The Council has a wide range of functions that could or do affect the AONB; most obviously as the local planning authority it is responsible for establishing local planning policies through the Local Development Plan and for the determination of planning applications. However, it is also responsible for highways and parking, waste management and the provision of a range of services to local communities.

Northumberland County Council has duties under other legislation to further the social and economic well-being of local communities; however, within AONBs these have to be implemented in ways which are consistent with the conservation and enhancement of the natural beauty of the AONB. This Management Plan will also help in enabling an appropriate approach to be found within the Northumberland Coast AONB.

Although the plan is specifically for the Council to set out its polices and how it will carry out its functions, it will also help other public bodies to fulfil their obligations by clearly setting out the special qualities of the AONB and the sort of changes and pressures that could harm these. More widely, it will be of interest and value to any organisation whose work is within or could affect the AONB.

Preparation of the Management Plan

This Management Plan has been informed by previous Plans, from the experience gained in their implementation and by changing pressures upon the special qualities of the AONB. It has been subject to wide consultation with members of the AONB Partnership, local communities including all Parish Councils within the AONB, and a wide range of other stakeholders and interest groups.

A concurrent Strategic Environmental Assessment has been undertaken as required by the Strategic Environmental Assessment Regulations 2004, and a Habitats Regulations Assessment has been undertaken as required by the Conservation of Habitats and Species Regulations 2017. These can be found on the AONB website.

Staff Unit and the AONB Partnership

The AONB Staff Unit is funded by Defra and Northumberland County Council. The staff unit assists and facilitates Northumberland County Council and all other partners to implement the Management Plan and to undertake projects that fulfil the purpose of conserving and enhancing the AONB, and forms part of the Conservation Team within the Development Services department of Northumberland County Council.

To assist the Council in the conservation and enhancement of the Northumberland Coast AONB, the Northumberland Coast AONB Partnership was formed in 2003. This comprises representatives of the following key stakeholders and interest groups:

- Northumberland County Council
- Natural England
- Historic England
- Environment Agency
- Community Development Trusts
- Parish Councils
- National Farmers Union
- Country Land and Business Association
- National Trust
- Northumberland Tourism
- Northumberland and National Park Local Access Forum
- Special interest members drawn from the local community and relevant groups

The North Northumberland Heritage Coast

Heritage Coasts are non-statutory designations agreed by Natural England and local authorities as being representative of our most beautiful and undeveloped coastline. They are managed to conserve their natural beauty and, where appropriate to improve accessibility.

The North Northumberland Heritage Coast stretches from the south end of Druridge Bay to the Scottish border, and extends offshore to the ten fathom contour. From the Coquet estuary to Spittal the inland boundary is identical to that of the AONB. Because the objectives of the Heritage Coast are so similar to those of the AONB, implementation of this Plan will help to conserve much of the Heritage Coast.

Part One

Special Qualities of the Northumberland Coast Area of Outstanding Natural Beauty

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The Northumberland Coast Area of Outstanding Natural Beauty (AONB) is a nationally important landscape, and the most northerly AONB in England. The beautiful landscape that we see today is the result of the complex interaction of many forces, both natural and human, over very long periods of time. In order to conserve this landscape, it is necessary first to discern and describe what is special about it. This is explored in this chapter of the Management Plan, under the three headings of Landscape, Natural Environment and Cultural Heritage.

The term ‘natural beauty’ first gained currency in a legislative context in the 1907 Act which gave legal status to the National Trust (‘for Places of Historic Interest and Natural Beauty’). It has been the basis for the designation of both AONBs and National Parks since the 1949 National Parks and Access to the Countryside Act in which however, the term was not defined. S.92 of the Countryside and Rights of Way Act formally stated that natural beauty includes conservation of ‘flora, fauna and geological and physiographical features.’ Natural beauty goes well beyond scenic or aesthetic value. The natural beauty of an AONB is to do with the relationship between people and place. It encompasses everything - 'natural' and human - that makes an area distinctive. It includes the area’s geology and landform, its climate and soils, its wildlife and ecology. It includes the rich history of human settlement and land use over the centuries, its archaeology and buildings, its cultural associations, and the people who live in it, past and present.

Landscapes

SUMMARY

- Dramatic natural coastline of rocky headlands and cliffs contrasting with extensive sweeping sandy beaches and dynamic sand dune systems
- Coastal and riverside setting of iconic historic and cultural landmark features which provide localised vertical emphasis within a predominantly horizontal landscape and seascape
- Remote historic, cultural and spiritual qualities and ecclesiastical associations of the Holy Island of Lindisfarne
- Rocky Farne Islands archipelago, which features in many coastal views
- Traditional coastal fishing villages clustered around small harbours
- Views inland to the rounded sandstone hills and Cheviot Hills provide a dramatic and dynamic backdrop to the coast
- Feeling of exposure and tranquillity on the flat, low lying open coastal plain and windswept coast, with sparse tree cover, huge skies and wide seascape views
- Dark skies

Natural Environment

SUMMARY

- Dune grassland
- Rocky shores
- Inlets and bays
- Intertidal sand and mud flats
- Migratory and wintering wildfowl and waders
- Breeding seabirds
- Whin grasslands
- Small family-run mixed farms support a range of farmland wildlife and high tide roosts etc

Cultural Heritage

SUMMARY

- Ecclesiastical
- Fishing and farming
- Industry and transport
- Castles and defence

Landscapes

Dramatic natural coastline of rocky headlands and cliffs contrasting with extensive sweeping sandy beaches and dynamic sand dune systems

The long coastline of the AONB comprises a series of rocky headlands alternating with sandy bays and extensive sand and mud flats, largely determined by the underlying geology. The coast is generally low-lying to the North Sea, with significant coastal cliffs occurring only to the north of Berwick, beyond the AONB.

As the Carboniferous sedimentary strata and the Whin Sill (roughly horizontal sheets of hard, igneous dark rock), sequentially intersect the coast, a sequence of cliffed headlands, reefs and bays has formed. Thick sandstones, resisting marine erosion, form most of the headlands, whilst thinner sandstones and limestones form reefs, offshore rocks, and wave-cut platforms (often called 'carrs' or 'steels') running out to sea or parallel with the shore. The coastline at Boulmer is a particularly good example. The Whin Sill can be seen as a series of volcanic rock intrusions into the surrounding sedimentary rocks. The quartz dolerite which makes up the Whin Sill occurs across the county and typically forms elevated ridges which are more resistant to erosion and weathering than the surrounding strata. These ridges provide ideal defensive locations along the coastline with Dunstanburgh, Bamburgh and Lindisfarne Castles all sitting on top of such outcrops.

Lindisfarne, Bamburgh and Dunstanburgh castles are outstanding landmark features sitting prominently on isolated outcrops of Whin Sill right on the edge of the sea. Bamburgh Castle is built on an impressive outcrop of dolerite rock which dominates the adjacent sands and the settlement. They create dramatic vertical focal points within a predominantly horizontal setting of sweeping sandy bays and the sea.

The impressive medieval castle at Warkworth, cutting off a promontory created by a meander in the River Coquet, is a major local landmark and tourist attraction, evoking the power of the medieval Dukes of Northumberland.

Remote historic, cultural and spiritual qualities and ecclesiastical associations of the Holy Island of Lindisfarne

Linked to the mainland only by a tidal causeway, the Holy Island of Lindisfarne retains a remote, spiritual quality which first prompted the founding of an ancient monastery (later a priory) by Saint Aiden in AD635, at the request of King Oswald, and later linked with Saint Cuthbert and Saint Wilfred. It was the centre from which the 7th Century conversion to Christianity of the Anglo Saxon Kingdom was based and the place where the Lindisfarne Gospels were written.

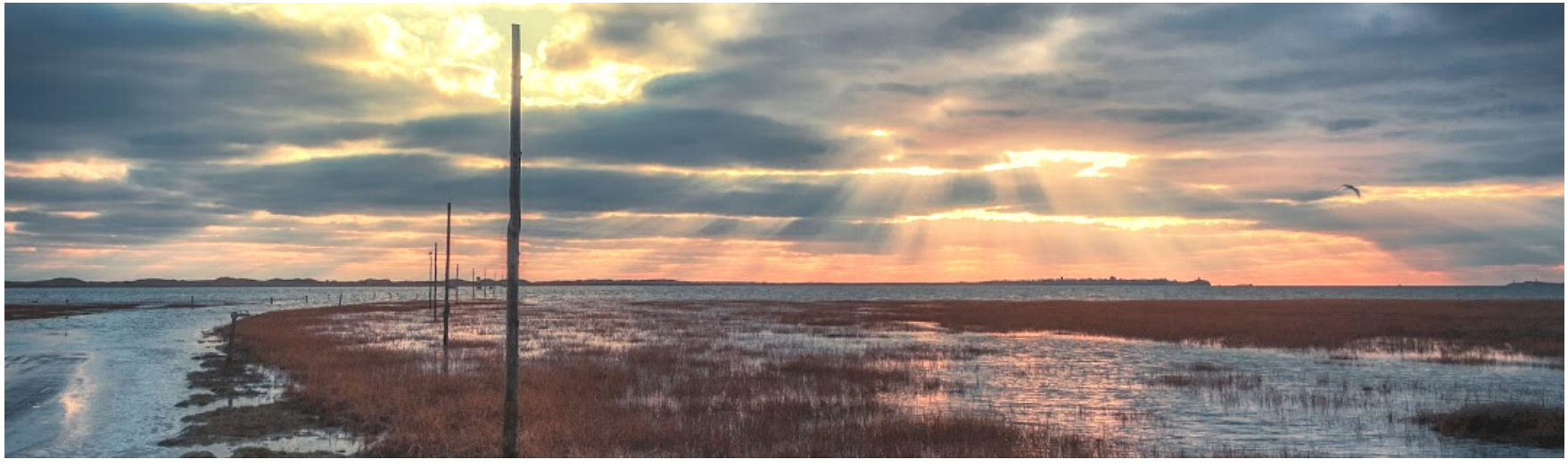
The island has inspired religious and cultural works for more than thirteen centuries. The romantic ruins of the priory inspired sketches and paintings by the artist J M W Turner (who also painted the ruins of Dunstanburgh Castle in 1797).

These characteristics of the 'hard' coast contrast with a 'soft' coastline where weaker rocks have been eroded to form bays. Between Berwick and south of Bamburgh, long stretches of broad sandy beach at Cocklawburn and Cheswick are backed by dunes, with tidal flats between. Further south the longer sweeping bays at Beadnell, Embleton and Alnmouth have broad sandy beaches and well developed dune systems, often forming high ridges. These are popular tourist locations, and the dunes near Alnmouth have been developed as a 'links' golf course.

Holy Island, connected to the mainland by a tidal causeway, is generally low-lying but comprises contrasting rocky cliffs to the north and east. Extensive sand and mud flats lie to the south west of the island and south on the mainland at Budle Bay. Along its south shore the remains of the Priory stand on a localised ridge or 'heugh' and Lindisfarne Castle is perched impressively on an outcrop of the Whin Sill. The Farne Islands comprises two small groups of rocky islands of Whin Sill, home to internationally important bird and mammal populations

Coastal and riverside setting of iconic historic and cultural landmark features which provide localised vertical emphasis within a predominantly horizontal landscape and seascape

The chain of imposing castles at Lindisfarne, Bamburgh, Dunstanburgh and Warkworth are iconic historic features of national, if not international status. They are significant tourist attractions with special scenic qualities due primarily to their dramatic coastal and, in the case of Warkworth Castle, its riverside setting. They provide evidence and a special legacy of the need to defend this northern frontier.



Today the island is not only a centre for pilgrimage, but its scenic quality attracts visitors from all over the world each year, mostly attracted to its medieval religious heritage, compact village, fishing harbour and the more recent 16th Century castle (and registered historic park and garden) on the higher, southern part of the island, but also to the peace and tranquillity of the more remote, sandy, northern side.

Rocky Farne Islands archipelago feature in many coastal views

A group of twenty eight rocky islands lying between two to five miles off the coast, the Farne Islands form the easternmost outcrop of the hard dark rock of the Whin Sill. From an area stretching from north of Berwick to south of Castle Point, the islands are a distinctive feature in particularly striking views of the diverse natural coastline comprising the sea, rocky headlands and sandy bays, together with castles and other historic and cultural landmark features. Views back to Bamburgh Castle on the coast with the backdrop of the Cheviot Hills provide an unforgettable picture for the islands visitors.

The islands provide probably the most accessible seabird colony in England and are also home to a large grey seal colony. These draw about 45,000 tourists each year on a short boat trip from the mainland, where features of interest include a medieval Pele Tower, chapel, lighthouse and information centre on Inner Farne, and Longstone Lighthouse (with its connections to the heroine Grace Darling) on the outermost island. Historically the islands have strong links with Celtic Christianity and St Aidan and St Cuthbert, who valued the island's solitude for meditation.

Traditional coastal fishing villages clustered around small harbours

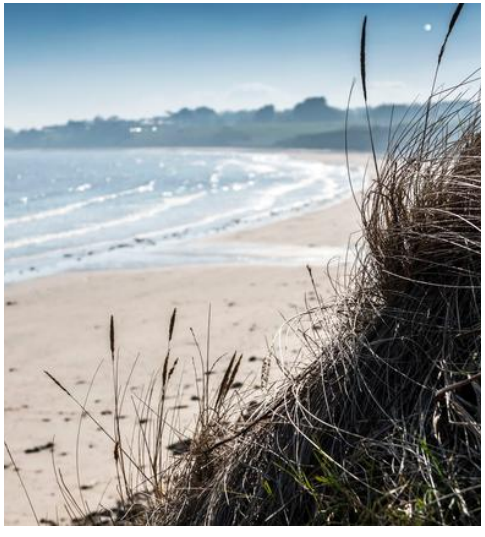
Settlements along the coast have evolved through centuries of association with the sea for trading and fishing, located where there are indentations in the cliffs and reefs providing a degree of shelter. The coastline between Bamburgh and Craster provides an increasing amount of shelter. Craster is still an important fishing village, with tightly knit buildings clustered around a small sheltered harbour, as to a lesser extent are Low Newton and Boulmer where the village stretches out along the coast as the reef formations of the North and South Reins provide a protective envelope around Boulmer Haven. The simple vernacular design of the traditional fishing village, distinguished by its historic compact and ordered settlement pattern, often single storey buildings built with grey sandstone rubble and red pantile or grey slate roofs, is a special and distinctive characteristic of the AONB.

Fishing still takes place from harbours on Holy Island, at Seahouses, Beadnell, Boulmer and Craster, but some harbours now cater increasingly for the tourist industry

Views inland to the rounded sandstone hills and Cheviot Hills provide a dramatic and dynamic backdrop to the coast

In addition to the strong visual qualities of views up and down the coast, particularly from iconic castles and raised topography in areas such as Waren Mill, views inland help to provide a wider context or setting to the relatively constrained designated landscape. Vistas inland stretch to the west, over the extensive gently undulating coastal plain of arable farmland and fragmented woodland and plantations. The openness of this landscape setting is underpinned and amplified by a relative absence of obtrusive development or structures, reflecting its arable use and remoteness. Even major transport infrastructure, such as the A1 and the East Coast mainline is absorbed within the vastness of the landscape without significant prominence, although the construction of the Middlemoor and Wandylaw wind farms has had an adverse impact on views inland from much of the AONB.

Consequently, the wider landscape context of the AONB is defined to the west by a fragmented line of low, rounded hills and moorland, running south to north from the Alnwick Moors, through to the Chillingham and Kyloe Hills, before the topography falls to the extensive lowland area south of the river Tweed. Occasionally, longer distance views to the dramatic Cheviot Hills in the Northumberland National Park are possible, and provide a visual link between the nationally important landscapes. Highpoints along this raised middle distance help create a visual sense of context to the coast, although this envelope extends well beyond the AONB itself. Within the wider landscape setting of the AONB the current absence of intrusive development adds to the special qualities and context of the coast.



Feeling of exposure and tranquillity on the flat, low lying open coastal plain and windswept coast, with sparse tree cover, huge skies and wide seascape views

The low-lying and open character of much of the AONB, the absence of heavy tree cover, low hedges and sparse and scattered elements of human habitation and infrastructure can lead to strong feelings of tranquillity and remoteness. Seascape is an essential component of this character, both that experienced looking out to sea and that experienced viewing the coast from Lindisfarne and the Farne Islands. Despite the settled and farmed nature of the landscape, the network of country lanes and paths, access along the coast on the shore and its links are frequently free from significant human presence, particularly outside peak holiday seasons. Experience of this wide-open landscape beneath vast skies spanning from the seaward horizon to the Cheviot Hills in the west can result in a perception of isolation and freedom from the intensity of urban life, and is a valued component of the area.

Weather and seascape, altering light, wind, and changing seasonal colours and hues, in combination with the rich cultural heritage of the area can lead variously to peaceful contemplation, relaxation and even melancholy. Alternatively, exposure to harsh climatic conditions and the primacy of natural environment forces, whether on the shore or on the coastal plain, can focus the mind on less ethereal matters and remind residents and visitors of the wild coastal exposure of the AONB.

Dark skies

Ever-increasing levels of outdoor lighting are constantly diminishing our view of the spectacular sky visible on a clear night, and most people have to travel far from their homes to experience a good view of the night sky. Areas of the Northumberland Coast AONB still retain such dark skies, and these are a special quality of the area, valued by residents and visitors alike.

Natural Environment

Long sandy beaches backed by sand dunes form an impressive part of the Northumberland coastal landscape. Most of the dunes are relatively young single ridge systems occurring at the backs of bays such as those at Embleton, or on spits across estuaries such as at Alnmouth and Warkworth. More extensive dune systems occur at Goswick, on Holy Island and at Ross Links. Unlike most sandy soils, dunes are calcareous due to the quantity of shells in the sand, and so once the shifting sand has been stabilised by pioneer plants such as marram and lyme grass, it supports a diverse community of lime-loving grassland plants.

Among the more distinctive flowering plants of dune grasslands are bloody crane's-bill, lesser meadow-rue, sea bindweed, seaside centaury, purple milk-vetch and burnet rose. Also common are lady's bedstraw, viper's-bugloss, common restharrow, bird's-foot trefoil and wild thyme. Lichens are common - especially species of Cladonia and Peltigera - and it is these that give the more mature fixed dunes the name 'grey' dunes (as opposed to the 'yellow' mobile dunes with bare sand). Petalwort, a scarce and tiny liverwort with a lettuce-like appearance is known from a few sites within the AONB.

Several scarce plants occur in damp hollows in the dunes called dune slacks, including coralroot orchid, dune helleborine, marsh helleborine, black bog-rush and round-leaved wintergreen. Of particular importance is Lindisfarne helleborine, an orchid known from nowhere in the world other than the dune grasslands on Lindisfarne. A few areas of dune in the more extensive systems around Lindisfarne are old enough to have had their shell content dissolved out by percolating rainwater, or comprise glacial sands which never contained shell fragments, and so have acidic soils. These support small areas of coastal heath with common heather, bell heather and in damper areas cross-leaved heath, such as are found at Ross Links and Bamburgh Golf Club.

Dune systems in Northumberland support a significant proportion of the north-east England populations of two species of butterfly - dark green fritillary and grayling - and the diverse invertebrate community also includes uncommon moths such as the sand dart, shore wainscot and the Portland moth.

Because of the internationally important plant communities that they support, several types of dune grassland communities are specially protected under the European Union's Habitats Directive. For this reason six areas of dune grassland in the AONB totalling 806ha in area are included in the North Northumberland Dunes Special Area of Conservation.

Rocky shores

The intertidal rocky shores of Northumberland vary from areas of broken bedrock and boulder fields, cobbles, vertical rock walls and horizontal ledges. They provide a permanent foundation for marine life to colonise, and the varying conditions created by the daily tides make the reefs one of the most diverse habitats on the Northumberland coast. The rocky shores around Holy Island and the Farne Islands are also protected as Special Protection Areas as the marine life provides a valuable food source for internationally important birds.

Inlets and bays

Whilst predominantly rocky, the Northumberland coast has several characteristic, sediment-dominated embayments, including Budle Bay, Beadnell Bay and Embleton Bay. These beautiful beaches are relatively exposed, fairly uniform in nature and support many marine invertebrates. Budle Bay lies on the mainland just south of Holy Island. This area forms one of the most extensive areas of sand flat between the Firth of Forth and the Wash, with one of the richest assemblages of sediment species in the North East of England.

Beyond the intertidal area, Beadnell Bay and Embleton Bay form a sandy break in the otherwise continuous rocky reefs, with extensive areas of clean sand that support dense populations of the heart urchin Echinocardium cordatum, and razor clams Ensis iliqua and E. arcuatus. The inlets and bays around Holy Island, as well as many of the mainland bays, are also protected as a Special Protection Areas for their importance as a habitat to internationally important birds.

Intertidal sand and mud flats

The Northumberland coast has extensive, biologically diverse sand and mud flats, ranging from wave exposed areas with mobile coarse sand, to more sheltered areas of fine sediment. The type of animals and plants which are supported by a sand or mud flat will vary according to a number of factors including the type of sediment present, its stability and the salinity of the surrounding water. Lindisfarne, Budle Bay and the coast adjacent to the north of Holy Island form the most extensive area of intertidal sand and mud in North East England.

These extensive areas support one of the largest intertidal beds of the narrow leaved eel grass Zostera angustifolia and dwarf eelgrass Zostera noltii on the east coast the UK. There is also a diverse collection of animals living within the sediment and large beds of the blue mussel Mytilus edulis. Many of the bays along the open coast consist of fairly mobile sand, which supports communities of small crustaceans and marine worms. Areas of more sheltered sediment, such as Newton Haven, support stable lower shore communities of burrowing heart urchins Echinocardium cordatum and bivalve molluscs. The intertidal sand and mud around Holy Island is also protected as a Special Protection Area as the many marine invertebrates provide a rich food source for birds.

Migratory and wintering wildfowl and waders

A range of habitats including the wide shallow bays and saltmarshes around Lindisfarne, the rocky shores that punctuate lengths of sandy beach and the estuaries of the Coquet and the Aln provide rich and vital feeding grounds for huge numbers of ducks, swans, geese and wading birds that either pass through on migration between their arctic breeding grounds and wintering grounds further south, or spend the winter here, on habitats kept ice-free by the sea.

The soft sediments of bays and estuaries support flocks of waders including bar-tailed godwit, redshank, golden plover, grey plover, curlew and dunlin, probing the mud for the many invertebrates that live in it, especially small bivalve molluscs and lugworms. Extensive beds of eelgrass within Fenham Flats and Budle Bay are grazed by pale-bellied brent geese, wigeon and whooper swan. The eelgrass beds are the largest on the east coast of England and this area supports a high proportion of the Svalbard population of pale-bellied brent geese during the winter, after which they return to breed in the Svalbard Archipelago, about half way between mainland Norway and the North Pole. Lindisfarne National Nature Reserve (NNR), which extends to 3,541 ha and includes the dunes and much of the inter-tidal waters of Holy Island was established in 1964 to protect these important populations and to provide a mechanism to manage conflicts between conservation and wildfowling, for example through the creation of sanctuary areas. The NNR is managed by Natural England.

Rocky shores are inhabited by waders that forage among the seaweed such as purple sandpiper, turnstone and redshank. Rafts of ducks including long-tailed duck, red-breasted merganser, common scoter and eider can be seen on the sea, the latter being the only species to stay in the area to breed, and a species with a close association with the Christian heritage of Lindisfarne, being locally known as 'Cuddy ducks' after St Cuthbert.

Breeding seabirds

The Farne Islands are internationally important for the seabird colonies that gather to breed on them each spring, and are a National Nature Reserve. Of particular importance are the colonies of arctic, common and sandwich terns, guillemot and puffin. The terns nest on the ground on the islands in large noisy colonies, with about 1,900 pairs of arctic tern, 820 pairs of sandwich tern, and about 90 pairs of common tern. The Islands' population of about 40,000 pairs of puffins occupy burrows, where each pair rears a single young. About 50,000 guillemots lay their eggs on precarious ledges on the cliffs, which they share with smaller numbers of kittiwakes, shag, cormorant and razorbill. Eider duck also nest on the islands, with about 550 nest scrapes lined with their famously soft feathers or eiderdown.

An important breeding colony of arctic and little terns occurs in Beadnell Bay, with smaller numbers of little tern at Lindisfarne.

Much of the intertidal area of the AONB is specially protected as Special Protection Areas under the European Birds Directive, and all of it is protected under domestic law as Sites of Special Scientific Interest because of its national and international importance for migratory and wintering wildfowl and waders and breeding sea birds.

Whin grassland

The outcrops of whinstone that form the Farne Islands, the crags on which Bamburgh, Lindisfarne and Dunstanburgh Castles are seated and other rocky outcrops within the AONB support a distinctive plant community called whin grassland. This is largely confined to Northumberland because the Whin Sill, which is a very distinctive formation of igneous quartz-dolerite rock originating from magma intrusions into pre-existing sedimentary rocks, is a rare geological formation outside of the county. Examples of coastal whin grassland are restricted entirely to the AONB.

The best examples of whin grassland form where the rock has weathered to form a base-rich but thin and drought-prone soil, which supports short grazed turf interspersed with patches of bare rock slab. Scarce species found on the whin include maiden pink, a delicate member of the carnation family that has intensely coloured rose-red flowers; a diminutive, blue-flowered lily called spring squill; several alliums including field garlic and, very rarely, wild chives; and the pink-flowered and reddish-leaved hairy stonecrop. Common rockrose and a number of clovers and hawkweeds add to the colour in early summer, but by mid-summer many plants have succumbed to drought in this harsh environment. Whin outcrops also support a large number of species of lichen, many of which are scarce in Britain.

Good examples of whin grassland can be found at Dunstanburgh, Craster, Cullernose Point, Hips Heugh, Bamburgh and on the Heugh at Holy Island.

Small family-run mixed farms

Arable farming is the dominant land use on the rich productive soils of the coastal plain, and this traditionally has supported its own distinctive bird community, including species such as grey partridge, tree sparrow, corn bunting, skylark and yellowhammer. Changes in agriculture in recent decades have caused dramatic declines in the populations of many of these species as both seed and insect food sources have diminished. However, the Northumberland coastal plain still supports important populations of most of them, and farmers within and around the AONB play a vital role in sustaining them through the provision of buffer strips, overwintered stubbles and small patches of vegetation grown to provide a range of seeds through the winter. The corn bunting is a particular concern, with intensive efforts being taken to try to ensure its survival in the county.

Arable land and grassland, especially damp grasslands with shallow flooding, can also be important for some waders, especially wintering curlew, redshank and golden plover, providing roosting and feeding habitat which is used especially at high tide. Wet grassland also supports small breeding populations of declining species including lapwing, curlew, snipe and yellow wagtail.

The scarce arable plant corn marigold has recently been found near Bamburgh, highlighting the potential for farmland within the AONB to support a range of important species in addition to farmland birds.

Cultural Heritage

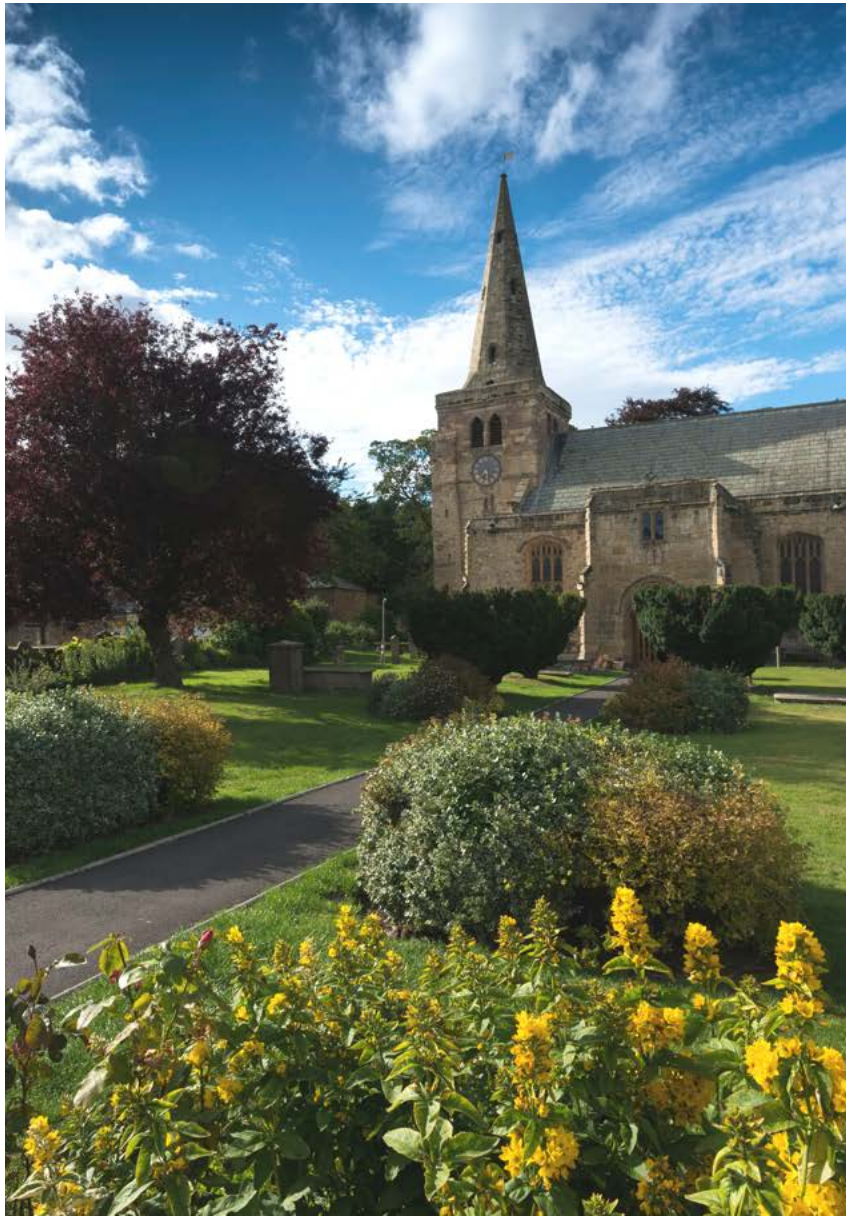
The history of human interaction and occupation of the landscape is integral to the character of the Northumberland Coast AONB. The sea has always been the dominant force not only in how it has shaped the coastline but in how our ancestors have attempted to manipulate and exploit it. Evidence of this interaction ranges from field patterns to settlements sites, route ways to buildings and quarries to castles.

The cultural heritage of the Northumberland Coast AONB encompasses archaeology, built environment, landscapes, history and culture. The cultural heritage of the AONB falls broadly into four themes – ecclesiastical; fishing and farming; industry and transport; and castles and defence.

Ecclesiastical

The isolation of dramatic coastal locations of Northumberland was undoubtedly very important within the early Celtic Christian Church where solitude, prayer and contemplation were essential. The small islands and peninsulas along the coast provided ideal locations for the austere ecclesiastical life of the early church in the 7th Century. The earliest and certainly the best known of these foundations is the monastery at Lindisfarne. Oswald's accession to the throne of the Kingdom of Northumbria in 634 resulted in the arrival of St. Aidan from Iona and the conversion to Christianity of the region.

Oswald gifted Lindisfarne to St Aidan to establish his small Christian community, and the original monastery would have comprised modest Anglo-Saxon timber buildings. The leadership of the small monastic community eventually passed to St Cuthbert and he in turn sought greater solitude and lived as a hermit, first on the St Cuthbert's Island off Lindisfarne, then Inner Farne. The spectacular Priory buildings visible today date from the 12th century. Other sites established during the early Christian period are the small monastery founded by St. Ebba on the promontory at Beadnell known as Ebba's Snook and the site on the promontory at the mouth of the river at Alnmouth called Church Hill, which is the possible location of the Synod of 'Tyford' in 684 that elected Cuthbert the Bishop of Lindisfarne.



The Synod of Whitby in 664 established the Roman Church as the denomination of Christian faith in England and this, as well as growing wealth, led to a fusion of continental, Anglo-Saxon and Celtic influences that resulted in the 'Golden Age' of Northumbria. The Lindisfarne Gospels, produced on Holy Island in about 700AD, represents the Golden Age at its height.

The peace, tranquillity and wealth of monastic sites along the coast came to an abrupt end in 793AD when the first recorded Viking raid on the British Isles took place on Lindisfarne, with the monks of Lindisfarne abandoning the island completely in 875AD.

Many of the parish churches along the coast have early origins such as St. Aidan's in Bamburgh, where elements of the current church date from the 12th century and inside there is a preserved wooden beam above the belfry which is said to be the buttress that St. Aidan died leaning against. Warkworth Church is a beautiful Norman church with an early Anglo-Saxon foundation.

The Hermitage at Warkworth continues the tradition of religious exclusion, though its foundation is much later (in the 14th Century), and has a romantic legend attached involving mistaken identity, revenge and repentance.

Undoubtedly the Dissolution of the Monasteries in 1537 had a profound impact on the ecclesiastical landscape of the Northumberland Coast but the landscape has continued to inspire and provide spiritual motivation. It is clear that the coast must have engendered spirituality of a sort in our prehistoric ancestors as the numerous burial and ritual sites of Bronze Age (2000-700BC) testify.

Fishing and farming

There is evidence of human exploitation of the land and sea in this area dating back at least 10,000 years to the Late Mesolithic period. As the last ice age ended, tundra conditions retreated and rising sea levels resulted in Britain becoming an island, small groups of Mesolithic peoples were hunting and fishing within the Northumberland coastal plain. A camp site has been discovered at Howick, and on Holy Island and Ross Links concentrations of flint tools and tool making debris have been found.

During the Neolithic period (4,000-2,000BC) more settled conditions prevailed and social and technological changes were marked. Within Holy Island village, excavations have revealed remains of settlement from this period and distinctive Neolithic stone flint tools continue to be found along the coast. During the Bronze Age (2,000-800BC) there was a shift from hunter-gatherers to settled farming communities together with the development of social rituals. A typical landscape feature from this period are burial mounds. Shifting sands and dunes have revealed burials from this period at Low Hauxley, just south of the AONB. Deterioration in the climate was a feature of the transition into the Iron Age (800 BC – 40AD) and this dictated that there was pressure on resources, particularly the fertile coastal plain and the population shifted to enclosed fortified sites – such as Howick and Craster.

The current landscape is a palimpsest of accumulated evidence. Medieval ridge and furrow, earthworks of deserted settlements and abandoned quarries are overlain by field boundaries, settlements and even golf courses. They provide an intriguing insight into historic activity. Other notable features that are testament to farming include the distinctive steam chimneys for thrashing developed in the 19th century and duckets - shorthand for dovecotes - which often date from the medieval period.

The sea has always dictated how people have lived along the coast; it has influenced architecture, such as the well preserved and rare fisherman squares of Seahouses, and the way in which most settlements shelter from the elements using the topography of the landscape. Fishing has always been immensely important. Records dating back to the 14th century show the industrial scale of the ecclesiastical fishing operations around Lindisfarne.

Harbours at Craster, Beadnell and Seahouses are still active and whilst now dominated by leisure as opposed to the once thriving fishing industry the harbours still provide a wonderful insight into a historic way of life. The distinctive aromas of the working smokeries at Seahouses and Craster are incredibly evocative of an industry that is a shadow of its former self, as are the stakes of lobster and crab pots and the tar blacked half boat sheds on Holy Island. The coble, a local fishing boat, with a distinctive flat bottom enabled fishing out from shallow bays such as Boulmer, Embleton and Newton.

The frequently treacherous coastal waters resulted in increasing numbers of shipwrecks, which now form a valuable element of the known marine archaeological record.

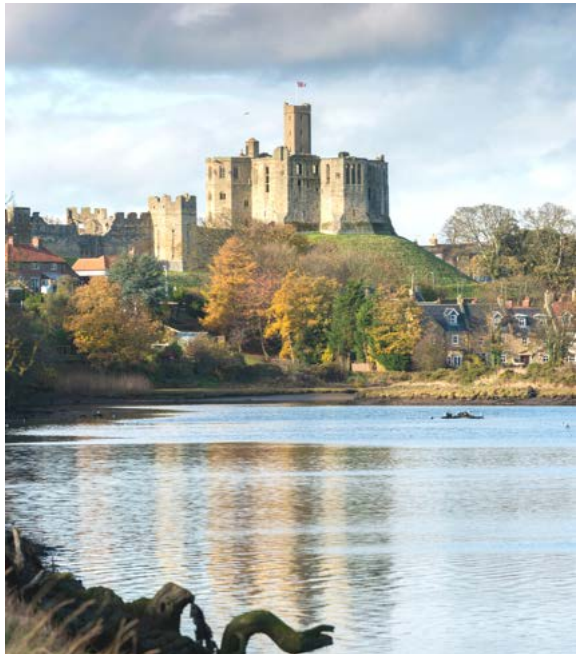
Industry and transport

To support the changes in the economy of the county in the 18th century, new industries were to develop along the coastline. Notable amongst these was the lime industry, with large kilns at sites including Holy Island, Seahouses and Beadnell supplying essential raw materials for improving soil fertility. The volume of lime production was such that a significant export trade developed. Craster also developed as a port for the export of whinstone to the continent, with pantiles coming in as ballast. A distinct architecture is associated with this period of growth in trade and industry with agricultural warehouses and merchant houses being amongst the building types, which survive to the present day. The increased wealth amongst major landowners resulted in the building of stately houses with associated landscaped ground, of which Adderstone Hall near Belford and Howick Hall are prominent examples

Another notable feature of the AONB is the linear form which is emphasised by the north-south routes to the western edge of the A1 and the East Coast mainline railway. The development of the railway not only facilitated trade and industry, it heralded the start of tourism, notably enabling the eccentric publisher Edward Hudson to refurbish Lindisfarne Castle as a holiday retreat, with the help of Edwin Lutyens and Gertrude Jekyll.

Castles and defence

The Vikings raid on Holy Island in 793 was a precursor to instability in the early medieval period with individual kingdoms battling for supremacy. Whilst upstanding physical remains from this period are few, the Norman invasion of England had a profound impact on the built heritage of the coast. Disputes between England and Scotland, which began in the 14th century, started nearly three centuries of warfare and raiding. The Northumberland coast assumed a strategic importance that was to lead to the construction of major castles of Bamburgh, Dunstanburgh and Warkworth and the town defences of Berwick. A fort was constructed on Holy Island in 1570-72, which formed the basis for Lindisfarne Castle.



During the twentieth century the requirements of defence were again to leave a built legacy on the coast. With the long sandy beaches along the coast seen as a possible location for invasion, extensive concrete and wire defences were erected during the Second World War. The wary vigilance of the Cold War has also left a legacy on the coast at sites such as Newton Point. Throughout the twentieth century pressures for leisure developments were also to be experienced along the coast. Chalet and caravan sites, hotels and farm conversions to holiday homes form a new built legacy, which marks a distant time in the history of the north Northumberland coastline.

The historic evolution of settlements on the coast and their relationship to the land form, climate and available building materials has resulted in the special and distinctive characteristics. These characteristics of the built landscape are integral to the special qualities and attraction of the AONB.