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## Aberdaugleddau – disgrifiad cryno

Dyma gaer o aber, wedi'i amddiffyn ers miloedd o flynyddoedd gan geyrydd pentir hanesyddol, cestyll canoloesol a cheyrydd Palmerston enfawr. Mae yn ddyffryn boddedig, ac yn darparu angorfa dŵr dwfn, aruthrol eang, ar gyfer tanceri o fewn anferth cyfoes. Mae'n lle strategol ei natur, gyda phentiroedd a chlogwyni allanol delfrydol ar gyfer safleoedd amddiffynnol. Heddiw, mae'n cyfleu ymdeimlad o fod o'r pwys diwydiannol mwyaf, ac o fod

yn faes chwarae morol ar gyfer hwylwyr ac iotwyr. Ni ddaeth ei swyddogaeth filwrol bwysig i ben hyd wedi'r Ail Ryfel Byd.

Gwasanaethir y fro gan drefi Hwlfordd, Aberdaugleddau a Phenfro, sydd a'u bodolaeth a'u cymeriad ynghlwm wrth yr aber. Ceir hefyd bentrefi ac aneddiadau mân yma a thraw ar hyd y ffyrdd, ar groesfannau neu lle bu glanfeydd fferïau'r aber. Y mae'r diwydiant amlwg yn Noc Penfro ac Aberdaugleddau, gyda phurfeydd olew a'u glanfeydd yn amlwg iawn yn nhirwedd glannau genau'r aber, yn gwrthgyferbynnu'n drawiadol â thirweddau diddos a gwledig blaenau'r aber, lle ceir llechweddau coediog a thir âr. Mae'r lefiathanau diwydiannol cyfoes hefyd yn cydfodoli ag ardaloedd sydd o ddiddordeb naturiol a chadwraethol o bwys cenedlaethol a rhyngwladol. Mae aber Daugleddau a dalgylchoedd Cleddau Wen a Chleddau Ddu yn rhan o Barc Cenedlaethol Arfordir Sir Benfro.

## Summary description

Fortress Haven, defended for millennia by prehistoric promontory forts, Mediaeval castles and massive Palmerston forts, is a drowned river valley or ria, providing an immense expanse of deep-water anchorage for today's oil-carrying super tankers. It is a naturally strategic place, with outer headlands and cliffs ideal for defensive installations. Today it conveys the sense of being both industrially of supra-importance, and of a maritime playground for sailors and yachtsmen. Its role as an important military bastion did not cease until after the Second World War.

The area is served by the towns of Haverfordwest, Milford Haven and Pembroke, whose existence and character relate closely to the ria. Elsewhere, villages and hamlets are dispersed along roads, their intersections or at former landing places for cross-Haven ferries. The prominent industry at Pembroke Dock and Milford Haven, with oil refineries and their jetties dominating the coastal landscape at the mouth of the Haven, contrasts remarkably with the intimate and rural landscapes of the inland ria or Daugellau, and its surrounding woodland slopes and farmland. The modern industrial leviathans also co-exist with areas that are of international and national nature conservation interests. The Daugleddau estuaries and the Cleddau river basins form part of the Pembrokeshire Coast National Park.

Key Characteristics
<b>Complex geology</b> - The geological history of the landscape is complex, with a mixture of Ordovician, Silurian, Devonian and Carboniferous rocks and mudstones. A band of uplifted igneous lava and tuff is exposed to the north of Milford Haven.
<b>Large Ria</b> - The deep water of Milford Haven was initially formed along a fault line, widened by glacial meltwater flows. Post-glacial sea level rise flooded the valley to form today's extensive ria landscape.
<b>Estuaries extending inland</b> - The ria extends many miles inland to include the long, twisting Daugleddau estuaries, including the Eastern and Western Cleddau tidal rivers with their very sheltered conditions but strong tidal currents, and extensive lengths of salt marsh and mud banks.
<b>Coastal and intertidal species and habitats</b> - are of international and national importance. Species-rich salt marshes and sheltered muddy inter-tidal areas are abundant, including many 'pills' (small muddy creeks), some man-made.
<b>Mixed fields and hedgerows</b> – a rolling lowland agricultural landscape with a mosaic of mixed fields bounded by hedgerows.
<b>Mixed and conifer plantations fringe the upper ria and estuaries</b> – with frequent copses and riparian (riverside) woodlands found on slopes throughout. Ancient semi-



natural sessile oak woodlands are also among the area's valued habitats.
<b>Historic port defences</b> - A number of archaeological features are present, from Iron Age forts to significant and well-preserved, 19th century naval fortifications, including the Royal Dockyard at Pembroke.
<b>Towns and villages</b> - The area is served by the towns of Haverfordwest, Milford Haven and Pembroke. Elsewhere, villages and hamlets are dispersed along roads, their intersections or at former landing places for cross-Haven ferries.
<b>Industry by the lower ria</b> - Oil refineries and their jetties, and a power station dominate the coastal landscape at the mouth of the Haven.
<b>Tranquil rural upper ria and estuaries</b> – contrasting to the lower ria, the upper ria and estuaries and their surrounding woodland and farmland are intimate and rural
<b>Renowned scenic qualities</b> - The upper ria and estuaries have long been admired for its scenic qualities, with the Haven being mentioned in Shakespeare's Cymbeline.

## Visual and Sensory profile

The ria forms a unifying theme, including its estuaries and its surrounding rolling lowland landscape setting. Where the ria and its estuaries penetrate deep inland, the character is tranquil, with many woodland fringed banks running down to the water and few visual elements that detract from their scenic appeal. The most sheltered places are the muddy upper estuaries and the many small 'pills' (muddy creeks), often hidden from wider view. In places the enclosed, intimate scale and the fascinating palimpsest of old remains, weirs and mini-docks adds small-scale detail to the broader natural setting. No wonder then, this part of the area has been included within the Pembrokeshire Coast National Park.

The twisting, course of the ria and its tributary estuaries, each in their own gentle valley, has meant that transport across the area has been limited. The resulting indirect lanes on 'peninsulas' can be very quiet and rural. The modern Cleddau (road) Bridge at Pembroke counters the impasse and marks a distinct change in character for the area 'downriver'.

The contrast is utter, with those parts of the lower ria, around Milford Haven town and Pembroke Dock, having a busier, urban and industrial character, in places transforming the landscape entirely, and providing another principle theme to the area. The wide, open, deep water has been embellished by huge, geometric gantries of jetties and dock apparatus. Enormous oil tankers slowly glide in and out, and rows of bulky oil storage tanks line the adjacent horizon. Tall industrial buildings and a complicated assortment of towers and chimneys break the once gentle, rolling, farmland skyline, and a radiating network of electricity pylon lines lead away. The occasional flare stack adds focus to this area of night lighting.



Looking down the Daugleddau near Beggars Reach © John Briggs



Oil refinery apparatus on a rolling open farmland skyline, north of Milford Haven © LUC



The wide, open Milford Haven, with an assortment of piers and ships © Dave MacLaughlan, PCNPA



Pembroke Dock town looking towards the Cleddau Bridge across to Neyland

© Dave MacLaughlan, PCNPA





Looking up the estuarine channels amidst the gentle landscape at Lawrenny © John Briggs



The rolling landscape near Creswell Quay, looking from Lawrenny © John Briggs

## Geological Landscape influences

This landscape is defined by the extensive ria (or drowned valley) of Milford Haven. The waters of the Haven extend inland from its mouth some 30 kilometres, passing along the Daugleddau estuary before dividing into the Eastern and Western Cleddau tidal rivers. The altitude of the land is generally about 50m, rising to nearly 100m at local summits and high points.

The geological history of the landscape is extremely complex, with a variety of different bands of rocks fringing the Haven. A mixture of Devonian sandstones and conglomerates are interspersed by older, Silurian mudstones, which extend westwards to the Pembrokeshire coast. These rocks are surrounded by a band of younger, Carboniferous

Limestone which marks the transition to the shales of productive Middle and Lower Coal Measures found in the north of the area.

The northern boundary of the area is marked by a further change in geology to exposures of older, Ordovician and Silurian argillaceous rocks. The deep water of Milford Haven lies above a major fault (the Ritec Fault), overlooked to the north by a band of much older, uplifted Precambrian lava and tuff. Exposures of these igneous rocks are visible in the cliffs at Little Castle Head. The Ritec Fault gradually developed into a river valley some 50 million years ago, which, on the onset of the last Ice Age, was filled by huge volumes of melt water from local ice sheets. A deep valley was gouged out by the water, which was drowned by rapid sea level rise following the end of the last Ice Age about 12,000 years ago.

Today's ria landscape is regarded as one of the most outstanding examples of a drowned valley in Britain, and at its mouth has become Europe's biggest deep water port. The Milford Haven waterway divides the area in two, with the towns of Milford Haven and Pembroke Dock lying on its north and south shores respectively.

## Landscape Habitats influences

The wider ria, including the Daugleddau estuary and Cleddau rivers, is fringed by a rich diversity of internationally and nationally important intertidal habitats within the wider, Pembrokeshire Marine cSAC and Milford Haven Waterway SSSI.

Habitats and species of importance include tidal swept sponge communities and colourful anemones; rich mudflats containing productive shellfish and worm assemblages; and species-rich saltmarshes with flowering plants including the nationally scarce laxflowered sea lavender. The internationally important populations of grey seal are a primary reason for its cSAC designation.

The estuary and tidal rivers are fringed with a mixture of coniferous and mixed plantations, along with swathes of ancient semi-natural sessile oak woodland. Around Lawrenny, these oak woodlands date back to at least 1600 and have a rich ground flora. Further inland a mosaic of pasture and cereal fields, interspersed by hay meadows, forms a regular pattern. These are bounded by hedgerows and frequent hedgerow trees. Small woodland copses and linear woodlands are scattered across the gentle slopes of the landscape, often fringing streams which form pills (muddy creeks) upon entry to the ria.

## Historic Landscape influences

The ria and historic landscape of Milford Haven encapsulates a complete chronological range of features relating to maritime conquest, settlement, commerce, fishing and defence, dating back to prehistoric periods. The earliest features include Iron Age promontory forts sited on several of the headlands at the entrances to the Haven and Daugleddau, for example, Picton Point camp occupies a strategic location at the meeting point of the Cleddau rivers.

The Norman conquest saw the construction of prominent castles, also taking advantage of the defensive positions afforded by the rivers and coast. The towns of Haverfordwest and Pembroke are both centred on Norman castles sited on the upper courses of rivers. The significant growth of these castle-boroughs by the 13th century was partly caused by their use as springboards for the Norman invasions of Ireland.

Evidence relating to the use of the ria as a key communication route is visible in the survival of small settlements, jetties, small creeks, landing places and piers along the shores of the Daugleddau dating back to the Dark Ages. Settlements developed as thriving trade centres in the 16th to 19th centuries, serving the surrounding Pembrokeshire coal mines and limestone quarries at West Williamson. The wealth of the area led to the development of a series of gentry residences, often transforming earlier Medieval ecclesiastical establishments and castles into grand mansions with parks and gardens. Picton Castle is one such example, today being a modest tourist attraction.

The construction of the planned settlements of Milford and Pembroke Dock in the late 18th and early 19th centuries led to the relocation of coastal trade from the Daugleddau estuary to the new deep water ports, accommodating changes in ship sizes and technology. Massive naval defensive structures in the form of Palmerstonian Forts were built at the mouth of the Haven, remaining prominent structures as reminders of the ria's unofficial title of 'Fortress Haven'.

The area is served by the county town of Haverfordwest in the north, and Pembroke and Pembroke Dock in the south east and Milford Haven in the west. Outside these towns settlement is dispersed, with stone-built villages and hamlets located along roads, crossroads, or at one of the many landing points for ferries that once crossed the Haven. Distinctly modern farm buildings occur at intervals throughout the area.

## Cultural Landscape influences

The area boasts a remarkable cultural landscape, in that it is at once historically and culturally rich, and yet also economically one of the most dynamic areas in Wales. Its defensive function from prehistory to the 20th century, and the story of its dockyards and ship-building, its trans-Atlantic shipping and overland links by rail, are now a matter for the area's museums and interpretation centres, though Pembroke Dock retains much evidence still of the town's 19th century heyday as a military centre, and its role as a seaplane base during the Second World War is not forgotten. The Haven was also a testing ground for Barnes Wallis's bouncing bombs, made famous in the film *The Dambusters*.

The refineries and oil terminals which began to appear in Milford Haven from 1957 and more recently the liquefied natural gas berths and pipelines, have locked the area into a global economy. Their development reflects shifts in global politics. As a consequence, the area has also become a centre for environmental activism, prompted by the implications of the 1996 *Sea Empress* disaster. The sea is also part of the traditional and active present-day leisure culture of this area.

The Seafair Haven in 2006 brought tall ships into Milford, and maritime tourism is becoming increasingly important. The Haven underlies the most famous literary reference to the area, in Shakespeare's *Cymbeline*. Imogen, upon hearing that her exiled husband may await her at Milford Haven, asks: (Act III, Scene 2).

“how far it is,  
To this same blessed Milford; and by the way,  
Tell me how Wales was made so happy as  
To inherit such a haven”



There are also oblique references in literature to the importance of Milford Haven: to the Tudor dynasty, as the landing point where Sir Rhys ap Thomas greeted Henry Tudor, and the mab darogan ('son of prophecy'), the future Henry VII, on his way to his confrontation with Richard III at Bosworth. However, the best-known writer associated with this area is Dick Francis of Lawrenny, the jockey-turned-thriller writer.

The castled town of Pembroke, described by Defoe in the 18th century as 'the largest, the richest, and at this time the most flourishing town of all South Wales', retains its Medieval lay-out and burgage plots. The Flemish planted town of Haverfordwest preserves its long culture of trade and merchandise, though no longer dependent on the river. The imposing ruins of Carew Castle are associated with Rhys ap Tewdwr, the 11th century prince of the Welsh kingdom of Deheubarth.



A 'pill' or muddy creek at Garren Quarries. © John Briggs



A landmark at the head of Carew River estuary: Carew Castle © John Briggs



The gentle, open farmland landscape to the north of Milford Haven © LUC