
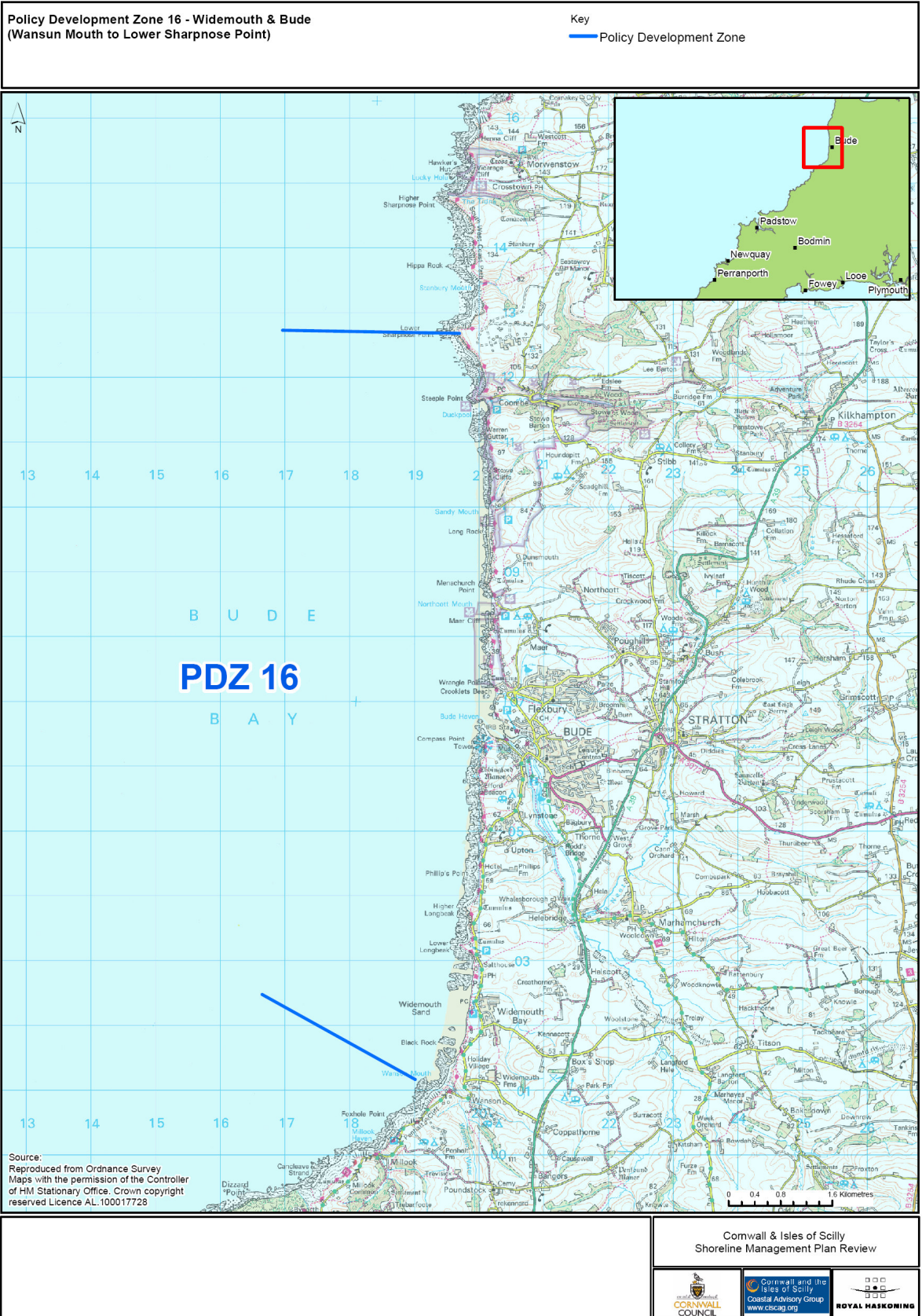







PDZ: 16	Widemouth and Bude (Wanson Mouth to Lower Sharpnose Point)	Management Area 39 Management Area 40
<p data-bbox="352 427 703 483">Looking north across Wanson Mouth & Black Rock</p> 		
<p data-bbox="284 1370 1166 1406">Widemouth and Bude (Wanson Mouth to Lower Sharpnose Point)</p> <p data-bbox="284 1442 1485 1615">This section of coastline covers the wide sandy beaches of Widemouth Bay and the Bude area. The coastline faces due west and is therefore very exposed to the westerly-dominated wave climate and weather systems of the Atlantic. The southern part of this section is made up of low cliff and dune (Widemouth and Bude) with sea cliffs dominating from the north of Bude to Lower Sharp Nose Point.</p>		



<p>Built Environment</p> <p>The community of Widemouth is small, with a row of residential properties overlooking the immediate frontage behind the coast road. Bude is a town of significant size with residential and commercial development fronting the low lying area of the beach, Canal (photo, right) and River Neet.</p> <p>To the south of Bude, fixed assets include the coast road which runs from Widemouth to Bude, along which also follows the SW coast path. A small number of isolated properties are present on the landward side of the road until the area of Uphill is reached, which quickly merges into Bude with a significant amount of residential, commercial and amenity assets, including to the rear of Summerleaze and Crooklets (photo, right) beaches. To the north of Bude agricultural use dominates with grassland as the predominant land cover. Here the road north of Bude is set back from the coast, with spurs running to the coast to discrete sandy beaches, with car parks and facilities at Sandy Mouth and at Duckpool. Both of these sites are owned and managed by the National Trust. Cleave Camp satellite station is a significant feature at the coast in this area.</p>	 <p style="text-align: right;">Bude Canal</p>  <p style="text-align: left;">Crooklets</p>
<p>Heritage</p> <p>Historic features include a submerged forest at Crooklets Beach, and Bude Canal and sea gates (photo, right). Bude is a Conservation Area. There are a number of archaeological sites and scheduled monuments.</p>	 <p style="text-align: left;">Bude Canal sea gates</p>

Environment and Nature Conservation	
<p>The cliffed coastline is all designated as part of the Tintagel-Marsland-Clovelly Coast SAC. This designation is related to the actively and uninterrupted eroding nature of the coastline. The cliff geology, rocky foreshore and wave cut platforms (photo, right) are all highly valued. The Bude frontage is designated as the Bude Coast SSSI and the Boscastle to Widemouth SSSI and Duckpool and Furzey Cove SSSI are also present within this PDZ.</p>	<p>Wave cut platform at Widemouth</p> 
Recreation and Amenity	
<p>The beaches of Widemouth and Bude are significant recreation and amenity features with associated assets such as shops and car parks, with a sea pool at Crooklets Beach in Bude (photo, right). These beaches attract large numbers of local people as well as tourists to the area.</p>	<p>Bude sea pool</p> 
Key Values and Drivers	
<p>The key value of this frontage is for amenity, recreation and tourism built around intervention at Widemouth and Bude. North of Bude the value of the natural unspoilt environment is more dominant with agricultural land use and conservation designations more significant and discrete tourism and recreation activities working within this environment.</p> <ul style="list-style-type: none"> • The wide sandy beaches of Widemouth and Bude • Tourism and recreation • Natural and unspoilt coastline between the settlements 	
PDZ Management Intent	
<p>The overarching management principle is therefore to allow the natural evolution of the coast, which should retain the tourism and amenity values of the area while recognising the need to maintain the identity of the coastal settlements. Supporting the long-term adaptation and resilience of Bude and Widemouth to coastal change will be a key part of the management intent for this area.</p>	

The wide, linear sandy beaches of Bude Bay extend for some 4km for the extent of this section of coastline. Small headlands are formed from sections of the more resistant sandstone cliffs. Cliffs along the shoreline reaches 110mOD at Bude.

There are sand dunes at both Widemouth and Bude. The dunes along the shoreline at Widemouth are quite degraded at the northern end and the once linear system has become truncated by encroachment of car parking and small scale beach development. The dunes at Summerleaze beach at Bude are constrained by the presence of car parking and the channel of the River Neet. Recent studies have concluded that these dunes have experienced growth along the southern and landward edges and some loss of vegetation on the seaward edge due to a blow out.

TIDE AND WATER LEVELS (mODN)

								7.1	-4.0m
Extremes(mODN)									
<i>Location:</i>	1:1	1:10	1:25	1:50	1:100	1:200	1:500	1:1000	
Bude	4.82	5.04	5.15	5.22	5.34	5.42	5.52	5.62	

Wave Climate

This stretch of coast is mostly west facing and therefore exposed to extremes in North Atlantic wave height and energy. The annual 10% exceedance wave height is 2.5m – 3m (Futurecoast, 2002), with a 1 in 50 year extreme offshore wave height of 20m.

Wave buoy recordings (at Perranporth) have demonstrated that significant wave heights frequently exceed 5m during the winter months and wave periods of 15 seconds and higher are not uncommon. These values can be taken as generally representative for the whole of the north coast of Cornwall although nearshore wave conditions at Bude will be modified by the local bathymetry, rocky outcrops, shore platform and defences.

Local conditions also dictate that historically the frontage a Bude appears vulnerable to extreme water levels generated as a result of wind set-up. Generally any strong onshore winds creating surge conditions will be accompanied by a rough sea and an energetic wave climate, even if the waves are locally generated and of short period duration, so the presence of waves will always exacerbate the wind set up effects. However the geometry of Summerleaze Beach and the presence of the River Neet channel could make this part of the frontage particularly vulnerable to strong winds from the north-west.

Tidal Flow

It is generally thought that tides and tidal currents are less important than wave energy in driving erosion and transport of sediments along the north coast of Cornwall and tidal current velocities are low for most of this frontage, generally not exceeding 0.75 m/s. Around some of the headlands, tidal current velocities can locally exceed 1.0 m/s

PROCESSES

Control Features:

The geology is composed primarily of interbedded sandstones and slates of Carboniferous age, with varying levels of overlying head deposits. The rock strata are folded and faulted, and this is seen in the cliffs and wave-cut platforms. The principle controlling feature of the coastline is the geology and the wave cut platforms which provide some shelter to the cliff toe. Areas where the rock platform is absent can be seen to have responded by eroding back more rapidly. The small headlands provide some shelter to the adjacent coastline locally, but due to the general lack of alongshore connectivity; they do not exert overall control.

Existing Defences:

A rock armour revetment defends the back of the beach at north Widemouth. The defence sits seaward of the small dune area which is immediately north of the car park area and has played a role in disconnecting the dunes from the beach.



At Bude, there are a variety of small scale defences present at both Crooklets Beach and Summerleaze beach. At Summerleaze there are gabions forming a training wall alongside the right bank of the River Neet (photo, top right) as it discharges onto the beach and a sloped masonry revetment on the left bank between the river channel and the Bude Canal. A large moveable sluice gate retains water within the River Neet for amenity purposes. There are sections of rock armour protecting the dunes and development at the rear of the beach to the north. There are a number of vertical masonry walls protecting property at the mouth of the Bude Canal (photo, right) and there are the concrete and masonry walls of the Canal itself.



In addition there are inner and outer Canal sea gates (photo, right) which control water levels within the canal and provide a flood defence function during storm surge events. There is also a small tidal swimming pool at Summerleaze beach with walls and concrete access steps which affords some protection to the cliffs behind from wave action.



At Crooklets, small concrete walls and revetments provide some protection to beach huts and other development at the rear of the beach. A more substantial, but short, section of concrete revetment at the northern end of the beach provides protection to six properties from cliff erosion (photo, right).



Processes:
<p>New sediments are derived from offshore calcium carbonate sources (marine organisms) and from erosion of the local cliffs. The high lithic content (60%) of the beach sediment at Widemouth Sand indicates that much of the sand originates from erosion of the local geology.</p> <p>Sediment transport is mostly limited to movement across the shoreface profile in response to storms and general variation in the wave climate. Alongshore transport via littoral drift is insignificant and generally blocked by the presence of the rocky shore platforms. At Widemouth Sand, some alongshore transport may occur due to tidal currents, though not thought to be significant.</p>
<p><i>Unconstrained Scenario:</i></p> <p>Although unrealistic, because of the residual impact of defences, this scenario considers how the coast would evolve in the absence of defences.</p> <p>The future unconstrained scenario is for a continuation of the gradual erosion and weathering of the cliff line and shore platform, producing a slow recession, which is very unlikely to exceed 10 in any location. Some lowering of the beach face at Widemouth and Bude, narrowing of the foreshore and continued erosion of the dunes may occur in response to variation in the wave climate and storm events, but a lack of constraint overall should enable the beaches and dunes to roll back and adjust their profiles and crest height to sea level rise, without significant loss of intertidal area.</p>

POTENTIAL BASELINE EROSION RATES

Base rates have been assessed from monitoring and historical data. The range of potential erosion is assessed in terms of variation from the base rate and sensitivity in potential sea level rise. The base rates provided below are taken as an average based on historical records. The rates are a composite value based on erosion of the toe and recession of the crest of the cliff and reflect the erosion rates following failure of defences.

(Sea Level Rise assumed rates: 0.06m to year 2025; 0.34m to year 2055; 0.96m to year 2105.)

Location	Historic recession rate (lower) (m/100 yr)	Historic recession rate (upper) (m/100 yr)	Projected 100 year erosion rate (lower) (m)	Projected 100 year erosion rate (upper) (m)	Notes
Widemouth Bay	20	25	37.8	70.6	
Bude	-	-	27.9	69.8	
Flexbury	-	-	9.3	23.3	
Coombe	0	10	0	18.1	

BASELINE MANAGEMENT SCENARIOS

PRESENT MANAGEMENT

Present Management is taken as that policy defined by SMP1, modified by subsequent strategies or studies. It should be noted that both in the case of SMP1 and that of many of the strategies undertaken before 2005, the period over which the assessment was carried out tended to be 50 years.

SMP1		
MU	LOCATION	POLICY
7B-3	Widemouth	Hold existing defence line along defended frontage. Do nothing for remaining lengths. Do nothing but monitor at Salthouse.
7B-3	Widemouth to Bude	Do nothing to maintain geological exposures and coastal habitats.
7B-3	Bude & Crooklets	Hold existing line along natural and built defences. Do nothing along undeveloped stretch with relocation of coastal footpath. Hold existing defence line for developments backing Crooklets beach.
7B-3	Crooklets to Hartland Point	Do nothing to maintain geological exposures and coastal habitats with recommendations for cliff failure monitoring at specific locations. Continued maintenance of existing structures should be permitted.

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Economic Assessment

The following table provides a brief summary of damages determined by the SMP2 analysis for the whole PDZ. Further details are provided in Appendix H. Where further, more detailed information is provided by studies, this is highlighted. The table aims to provide an initial high level assessment of potential damages occurring under the two baseline scenarios. The damages for each epoch are current values. These are discounted to give present values in the final column.

ASSESSMENT OF EROSION DAMAGES

Epoch	0 -20 year		20 – 50 years		50 – 100 years		Total		
No Active Intervention	Number of properties	Present Value x £1000	Number of properties	Present Value x £1000	Number of properties	Present Value x £1000	Number of properties	Present Value Damages (£x1000)	
Location									
PDZ16	1	133	6	391	14	240	21	764	
Total for PDZ									

ASSESSMENT OF POTENTIAL FLOOD RISK

Epoch	Flood risk tidal 2025		Flood risk tidal 2055		Flood risk tidal 2105		Total	
No Active Intervention	Number of properties	Present Value x £1000	Number of properties	Present Value x £1000	Number of properties	Present Value x £1000	Number of properties	Present Value Damages (£x1000)
Location								
PDZ16	76	783	86	453	174	234	174	1470

PDZ 16: Widemouth and Bude (Wanson Mouth to Lower Sharpnose Point)

Management Area Statements

PDZ 16 has been sub-divided into 2 principal management areas, these being:

MA39 – Wanson Mouth to Higher Longbeak

Covering previous SMP1 management units:

7B-3	Widemouth
7B-3	Widemouth to Bude

MA40 – Higher Longbeak to Lower Sharpnose Point

Covering previous SMP1 management units:

7B-3	Bude & Crooklets
7B-3	Crooklets to Hartland Point

Within these areas a summary of policy is provided. Management Areas statements are provided in the following sheets.