

<b>PDZ: 7</b>	<b>Mount's Bay East (Baulk Head (Gunwalloe) to Marazion)</b>	<b>Management Area 17 Management Area 18</b>
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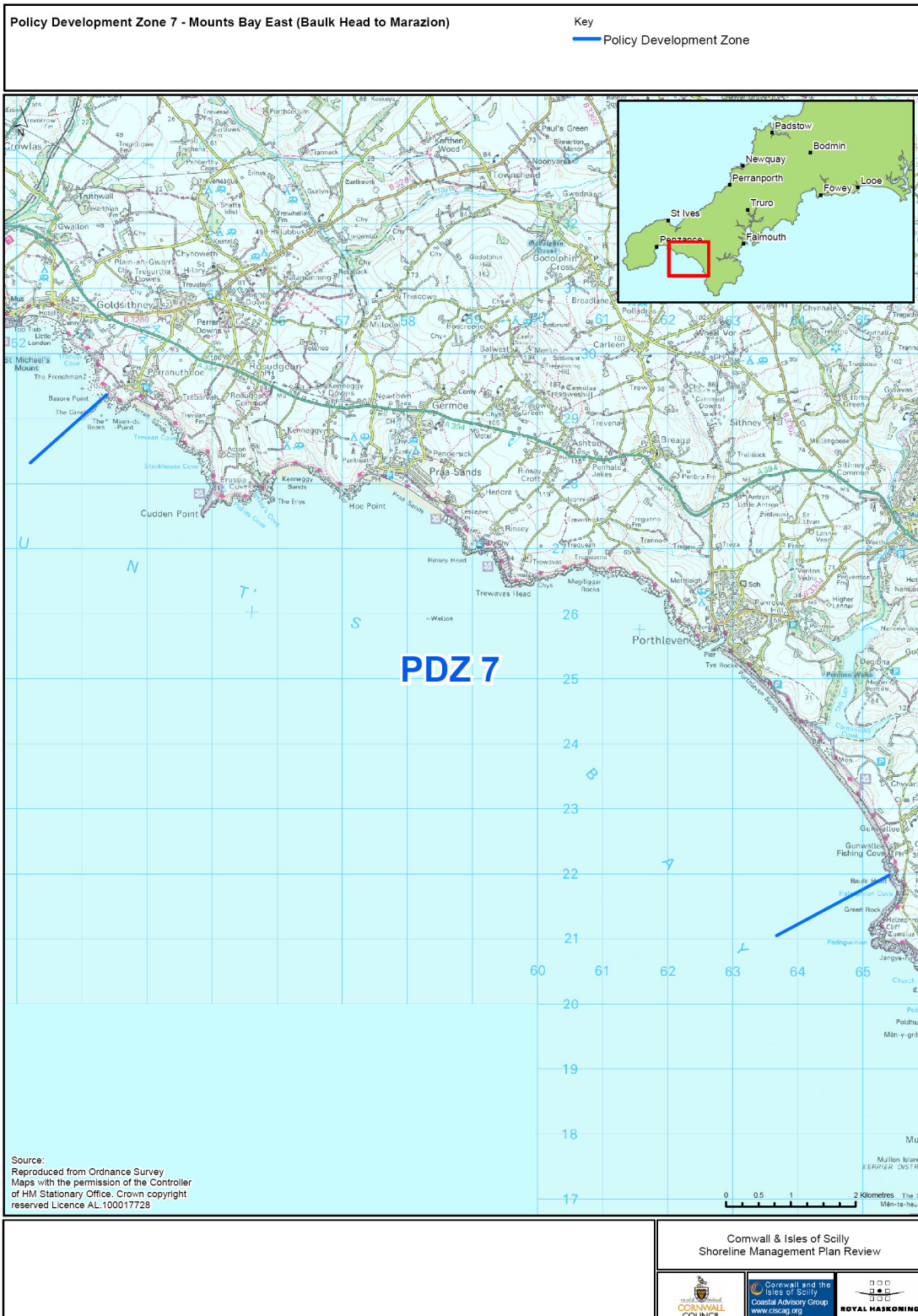
**Mounts Bay East**



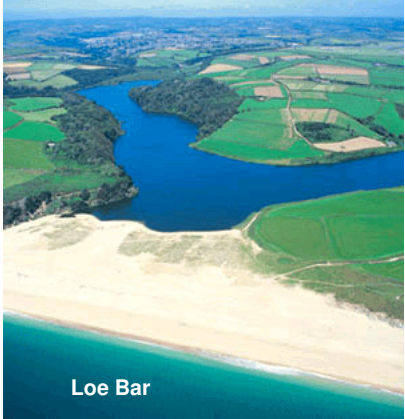
Generally this area is dominated and characterised by its natural heritage. Alongside the characteristic south coast geology of slate with granite outcrops at Rinsey and Cudden Point, there is a valuable mosaic of lowland heathland, fens, reedbeds and freshwater lagoon.


Gunwalloe is a small fishing cove settlement at the far eastern end of this zone. The length of coastline from Gunwalloe to Porthleven consists of 4.5km of steeply shelving beach, facing south-west. Mid-way along this coastline is Loe Bar, a barrier beach feature behind which lies Loe Pool, the largest freshwater lagoon in Cornwall. Porthleven is a small fishing village based around a fairly substantial harbour, which still supports a small fishing fleet. The exposed nature of Porthleven to storms and large waves from the south-west is well documented.

From Porthleven to Praa Sands the coast is rural rocky cliff, shore platform and rock outcrops, a stretch of rural heritage coast characterised by well-preserved mine engine house at Rinsey Head. From Praa Sands through to Marazion, a number of beaches provide tourism and recreational opportunities.

Agriculture is prevalent along the cliff top areas and forms the primary management of that zone. The coastal footpath skirts along side the fields at the cliff top and there is very little in the way of a buffer zone along the section from Perranuthnoe to Marazion.



<b>General Description</b>	
<b>Built Environment</b>	
<p>There are small communities spread out along the coast and there is discrete modification of the shoreline but this is limited to harbours and small scale defences associated with access points on to the beaches. Porthleven (photo, right) is by far the most significant coastal settlement within this zone.</p> <p>There is some residential property close to the edge of the low head cliffs at Praa Sands, Kenneggy Sands and Perranuthnoe, which are unusually vulnerable to erosion in comparison to much of the rest of the Cornish coast.</p>	 <p>Porthleven harbour</p>
<b>Heritage</b>	
<p>The historic features of interest include the Cornwall and West Devon World Heritage Site dramatically located engine houses along Trewarvas Cliff and Porthleven Conservation Area (photo, right).</p>	 <p>The Bickford-Smith Institute at Porthleven</p>
<b>Environment and Nature Conservation</b>	
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<p><b>Recreation and Amenity</b></p> <p>Many holiday parks and other forms of holiday accommodation exist along this coastal zone, particularly in the Praa Sands to Marazion frontage, with tourism likely to be the primary source of income to the local economy. Activities such as sailing, fishing, surfing and windsurfing are all popular water based recreational activities which form an important draw to this part of the Cornish coast.</p>		 <p>Anglers at Loe Beach</p>
<p><b>Key Values and Drivers</b></p> <p>This area is valued for the fishing communities at Gunwalloe and Porthleven, the rugged and rural (yet readily accessible) nature of the coastline and attractive locations such as Loe Bar, Porthleven, Rinsey Head and Prussia Cove. The popular beaches at Hendra, Praa Sands, Kenneggy Sands and Peranuthnoe are key tourist destinations along this stretch of coastline.</p> <ul style="list-style-type: none"> <li>• The natural heritage.</li> <li>• Cornwall and West Devon Mining Landscape World Heritage Sites at Trewarvas Cliff</li> <li>• Tourism and recreation.</li> <li>• Importance of amenity beaches</li> </ul>		
<p><b>PDZ Management Intent</b></p> <p>The high-level management intent therefore is to provide support to the diverse nature of this part of the Cornish coastline and the objectives of the Cornwall AONB and the Lizard Heritage Coast. The intent is also to support the resilience of locally important infrastructure and access routes. This should include roll-back and re-routing policies for the coastal path. The objective of providing this support is to promote community resilience in the face of coastal change, supporting adaptation strategies where required, particularly along the more actively eroding stretches of coast at Gunwalloe, Praa Sands and Perranuthnoe.</p>		

Unusually for Cornwall, there are some extended lengths of coastline in this zone under significant erosional pressures, due to the erosion of low head cliffs, most notably at Praa Sands and Perranuthnoe. There are also erosional pressures at Gunwalloe and inundation risks at Loe Bar and Porthleven. Discrete lengths of defensive revetments in these locations will also constrain the shoreline in places while recession continues along the undefended sections. The narrow buffer line (which contains the coastal footpath) separating the natural cliff top from agricultural fields may come under increasing pressure along the Perranuthnoe to Marazion stretch.

**TIDE AND WATER LEVELS (mODN)**

<b>Extremes(mODN)</b>									

As with the previous section of coastline, the Gunwalloe to Porthleven shoreline faces the open fetch of the north Atlantic and being south-west facing, is exposed to extremely energetic waves from the west and south-west. Futurecoast (2002) states the annual 10% exceedance wave height as being 2.0 -2.5m. There is a risk of flooding from waves overtopping walls and defences at Porthleven.

**Tidal Flow**

The tidal range in this region is around 3.6 metres. Futurecoast explored the residual currents driven by these tides and concluded that the tidal currents are typically less than 1 m/s, and drive no significant sediment transport.

**PROCESSES**

**Control Features:**

From the exposed frontage of Porthleven Sands and Loe Bar through to the more sheltered frontage of Marazion, this coastline is controlled by the hard geology and prominent headlands at Trewavas Head, Rinsey Head, Hoe Point, Cudden Point and the Greeb.

**Existing Defences:**

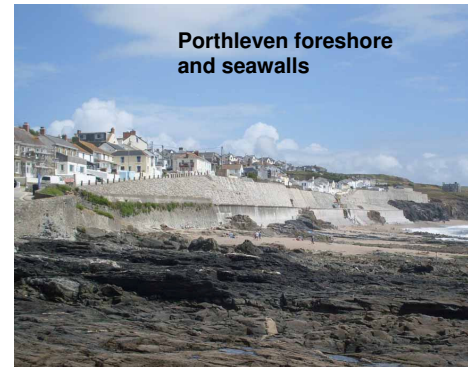
There are a number of discrete defence lengths at Gunwalloe Fishing Cove, including walls and rock placements, most of which have been privately constructed, giving a piecemeal appearance (and performance) of the defences (photo, right). Erosion of the cliff faces continues despite presence of defences. The National Trust own the slipway.

At Loe Bar, there are culverts through the barrier which manage water levels in the pool which are maintained by the Environment Agency.



At Porthleven, in addition to the main harbour structures, there are open coast defences to the east, running for some 450m, consisting of vertical and sloped concrete and masonry walls, plus some stepped aprons.

At Praa Sands, there is a 200m length of rock armour fronting the low head cliffs at the eastern end of the beach, at the western end (Sydney Cove) there are rock revetments and concrete seawalls present (Council maintained). To the north east of Praa Sands, Perranuthnoe (Perran Sands) has a concrete slipway providing beach access – the slipway is defended by a relatively large placement of rock armour to either side of it.



Porthleven foreshore and seawalls

#### Processes:

Generally sediment links between the coves and beaches are not present, although a weak eastward residual tidal drift may introduce some sediment links between the Porthleven, Loe Bar and Gunwalloe areas along Porthleven Sands. Modelling has suggested there is a potential eastward longshore drift across this unit; however, it is probable that the net movement is actually relatively low, rather the unit is swash aligned with movements in both directions dependent upon short-term wave conditions. This suggestion is supported by the lack of sediment accumulation at the east end of the beach, although this may also be partly attributed to the shingle extraction taking place there.

The Cornwall Sand Dune and Beach Management Study (Halcrow, 2009) predicts that the relatively exposed Praa Sands frontage could undergo increased erosion of the beach dune system. Increasing sea level and nearshore wave heights, may lead to offshore transport of sediment, resulting overall net loss of sediment from the nearshore system.

#### *Unconstrained Scenario:*

Although unrealistic, because of the residual impact of defences, this scenario considers how the coast would evolve in the absence of defences.

Pressure upon the localised frontages at Gunwalloe, Loe Bar, Porthleven, Praa Sands and Perranuthnoe is likely to increase in line with rising sea levels and increased storminess. The remainder of the frontage is likely to remain stable and display low sensitivity to climate change.

## 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
<b>Gunwalloe Fishing Cove</b>	10	25	9.6	24	
Porthleven	10	25	9.6	24	Coastal protection - wall and recurved wall, 100 year SOP
Praa Sands	50	100	48	96	Beach with dunes and properties to rear
Perranuthnoe	43	65	78.3	118.3	

## 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
6E-1	Pedngwinian to Porthleven	Hold the existing defence line along currently defended lengths and Loe bar. Do nothing along undefended lengths with monitoring at Porthleven Sands.
6E-1	Porthleven to Rinsey Head	Do nothing strategy
6E-1	Rinsey Head to Hoe Point	Do nothing strategy along undefended sections with monitoring at Praa Sands. Hold defended frontage at Sydney Cove.
6E-1	Hoe Point to Cudden Point	Do nothing strategy
6E-1	Cudden Point to the Greeb	Do nothing strategy with monitoring of cliff stability



## 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									
PDZ7	2	266	52	2,963	108	2,089	162	5,318	
<b>Total for PDZ</b>									

### 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								
PDZ7	0	0	0	0	0	0	0	0

## PDZ 7: Mounts Bay East Management Area Statements

### Management Areas

PDZ 7 has been sub-divided into 2 principal management areas, these being:

MA17 Baulk Head to Trewavas Head

MA18 Trewavas Head to The Greeb

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

### MA17 –Baulk Head to Trewavas Head

Covering previous SMP1 management units:

6E-1	Pedngwinian to Porthleven
6E-1	Porthleven to Rinsey Head

### MA18 – Trewavas Head to The Greeb

Covering previous SMP1 management units:

6E-1	Rinsey Head to Hoe Point
6E-1	Hoe Point to Cudden Point
6E-1	Cudden Point to the Greeb