
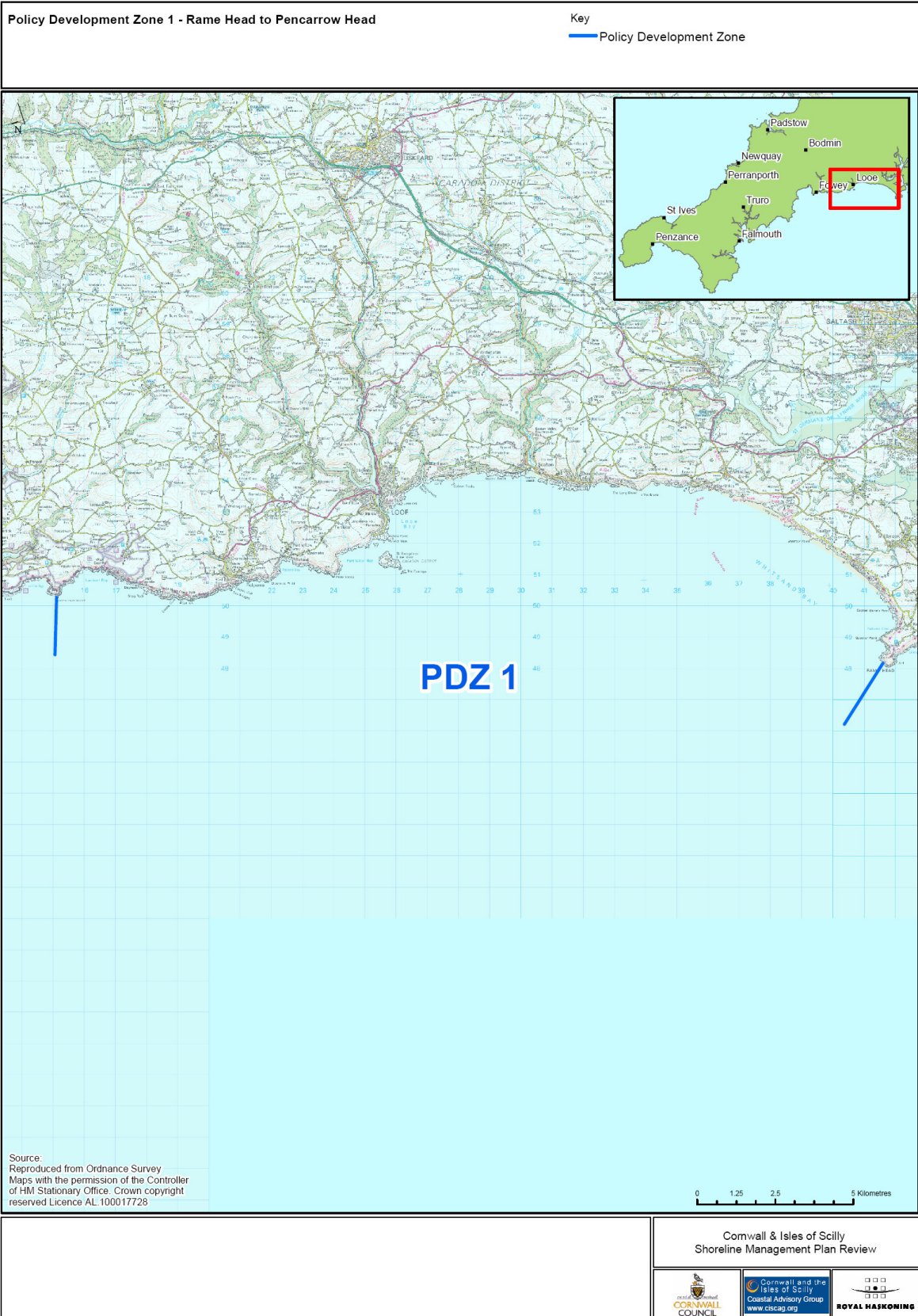





<b>PDZ: 1</b>	<b>Rame Head to Pencarrow Head</b>	<b>Management Area 01 Management Area 02 Management Area 03</b>
 <p style="text-align: right;">Aerial view of Polperro</p>		
<p><b>Rame Head to Pencarrow Head</b></p> <p>This section of coast generally faces south or south west. It mainly comprises hard, rocky cliffs fronted by shore platforms, sand/shingle beaches and incised valleys with streams discharging to the coast. The largest beach is Long Sand at Whitsand Bay, with a few smaller pocket beaches including Millendreath Beach and Seaton Beach. Tidal inlets exist at Seaton, Looe and Polperro.</p> <p>Commercial interests other than tourism and recreation in the area are the commercial fishing fleet at Looe, and agriculture along the cliff top.</p> <p>This is a relatively undeveloped rural and agricultural part of the Cornish coast comprised mainly of grassland and arable land, with some woodland. This area is valued for its coastal habitats, rare plants, historic sites and important geomorphological processes.</p>		



<b>General Description</b>	
<b>Built Environment</b>	
<p>Fixed assets at the coast increase towards the west, with the coastal settlements at Portwrinkle, Downderry, Seaton, Millendreath, Plaidy, East and West Looe and Hannafore, Talland and Polperro. The main settlement of the area is Looe.</p>	 <p><b>Downderry</b></p>
<b>Heritage</b>	
<p>The Rame Peninsula is the site of an important cluster of post-medieval fortifications including a group of scheduled monuments. There is also an Iron Age settlement at Rame and there are medieval field strips close to Tregantle fort. A group of Bronze Age barrows are situated close to the cliff east of Downderry, with other historic and archaeologically valuable sites and scattered archaeological remains between Polperro and Polruan. In addition there are a number of Conservation Areas present. St George's Island (also known as Looe Island) is a scheduled monument and contains a number of archaeological findspots. The Lammana Chapel, built by Glastonbury monks, is located some 150m to the west of Hannafore and Marine Drive. Portwrinkle Harbour is a Grade II listed structure.</p>	
<b>Environment and Nature Conservation</b>	
<p>Nature conservation interests in the area include a number of SSSIs including Polruan to Polperro, Eglarooze Cliff, and Rame Head and Whitsand Bay SSSI. Seaton Beach is a RIGS site. The Polruan to Polperro SAC covers the coastline from Polperro up to the western boundary of PDZ1. The Cornwall Area of Outstanding Natural Beauty (AONB) and the Rame Head and Gribbin Head to Polperro sections of Heritage Coast are the major landscape designations in the area.</p>	 <p><b>Part of the Eglarooze Cliff SSSI</b></p>

<p><b>Recreation and Amenity</b></p>	
<p>Tourism and recreation are important elements in the area, although perhaps relatively less so than for other areas of the Cornish coastline. The towns of Looe and Polperro however do attract many visitors. East Looe has an important beach (pictured right) which forms an important part of the general tourist attraction. The wide sandy beaches of Whitsand Bay run for 3km from Tregantle Fort to Portwrinkle and form an important amenity to both residents and visitors along with most regular beach based activities taking place. They are popular with Plymouth-based surfers.</p>	 <p style="text-align: right;"><b>East Looe Beach</b></p>
<p><b>Key Values and Drivers</b></p>	
<p>The key values of the area are the relatively undeveloped nature of the coastline to the east, and the traditional commercial activity at Looe and Polperro, within which tourism; recreation and the marine leisure industry, are now significant features.</p> <p>Key drivers for management are:</p> <ul style="list-style-type: none"> <li>• The community at Looe which support the network of smaller communities in terms of commercial activity including fishing, and attracting tourists to the area.</li> <li>• The character and history of Looe, and Polperro as traditional fishing villages.</li> <li>• The natural and unspoilt nature of the coast between the settlements including AONB and Heritage Coast designations.</li> </ul>	
<p><b>PDZ Management Intent</b></p>	
<p>To maintain the natural amenity value of the area and allows natural processes, which sustains community identity and commercial viability of the area and recognises the tourist and recreation importance of the area. Management which recognises the need for adaptation of the shoreline communities at Seaton and Downderry is also important</p>	

### Physical Coastal Processes (further details are provided in Appendix C)

The southwest to southeast facing coastal slope along this frontage is wave dominated, mostly hard cliff which is generally stable and fairly resistant, with the exception of isolated areas of more active erosion around Seaton and Donderry. To the west of Millendreath, sediment becomes much scarcer but the frontage remains generally resistant and stable.

#### TIDE AND WATER LEVELS (mODN)

Location	LAT	MLWS	MLWN	MHWN	MHWS	HAT	Neap range	Spring range	Correction CD/ODN
Devonport	-	-2.42	-	-	2.28	2.68	-	4.70	-3.22
Looe	-	-2.45	-	-	2.35	-	-	4.80	-3.05

#### Extremes(mODN)

Location:	1:1	1:10	1:25	1:50	1:100	1:200	1:500	1:1000
Devonport	2.95	3.25	3.38	3.46	3.59	3.68	3.83	3.96
Looe	3.01	3.31	3.45	3.52	3.65	3.75	3.88	4.01

### Wave Climate

The south-west facing orientation of Whitsand Bay dictates that it is exposed to the dominant westerly swell waves which originate in the North Atlantic. The annual 10% exceedance significant wave height is 1.5m – 2.0m for the south coast of Cornwall, east of Lizard Point. The high swell component reaching the beach is influential in maintenance of the beaches. The coast between Whitsand bay and Looe Point is generally south facing, though it turns to face the east at Looe. Consequently the exposure to Atlantic swell diminishes further towards the west. Inshore wave conditions at Donderry (from 1991 to 2000) show that the largest waves (greater than 5.25 metres) and longest period (over 14 seconds) approach from between 180 degrees and 210 degrees.

### Tidal Flow

The mean tidal range in this are (defined here as the average of the ranges of the spring and neap tides) is approximately 3.5 metres. Residual tidal currents are thought to be insignificant to the morphological system.

#### PROCESSES

##### Control Features:

Rame Head at the far eastern end of this zone forms an effective barrier to sediment transport around the Rame peninsula and into Plymouth Sound. Therefore linkages to the abutting SMP (South Devon and Dorset) are likely to be very limited.

Pencarrow Head at the western end of the zone forms an effective barrier to any sediment exchange with Lantic Bay or the Fowey Estuary system to the west (PDZ2).

##### Existing Defences:

Discrete defences exist at Portwrinkle (harbour and rock revetment - council maintained); Donderry and Seaton (rock revetment and masonry / concrete seawalls – council maintained); Millendreath (seawalls and gabions – privately maintained); Plaidy (revetments and rock armour – council maintained); East and West Looe (quay and harbour structures, concrete seawalls – council/ harbour commissioners maintained); Hannafore (concrete &

masonry revetment and walls retaining the highway – council maintained); Talland Bay (seawall - privately maintained); Polperro (quay and harbour structures, masonry seawall, tidal barrier – various maintainers, gate replaced in 2009 by Environment Agency).

**Processes:**

Longshore sediment linkages exist within the eastern part of the area, affecting Seaton, Downderry, Portwrinkle and the Whitsand Bay beaches. However this net eastward transport which occurs from the active cliffs at Millendreath (just to the east of Looe) through to Polhawn Cove (eastern end of Whitsand Bay), is thought to be generally weak. This part of the frontage is relatively sediment rich although there are recession pressures at Downderry and possible downdrift impacts at Portwrinkle. There are negligible sediment links along the western section of the coast with no interactions between the settlements of Looe and Polperro.

*Unconstrained Scenario:*

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

The current undefended sections of hard cliff coastline would continue to erode and weather back slowly, with occasionally more significant cliff slips and rock falls occurring. This would continue to deliver sediments to the beaches and coves. Areas of more active erosion at Portwrinkle, Downderry, Seaton, and Millendreath/Plaidy would display a faster rate of retreat. There may be some narrowing of the intertidal areas over time due to sea level rise. Locations where river valleys meet the sea (Seaton, Looe and Polperro) would tend to respond more strongly to sea level rise than rocky areas in the absence of their defences. The crests of the beaches that form in these valleys would be elevated by the rising sea level, and retreat inland, where there is space to do so.

**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/100yrs)	Historic recession rate (upper) (m/100yrs)	Projected 100 year erosion rate (lower) (m)	Projected 100 year erosion rate (upper) (m)	Notes
Downderry	10	45	21.5	106.6	Raised defence present
Seaton	10	45	16.5	91.6	Recurved wall. 100year SoP
Millendreath	10	25	32.6	76.6	Seawalls & gabions, 5year SoP
Looe	0	0	24.3	48.3	Seawall, 5year SoP
Talland	0	3.0	5.6	16.8	Variety of seawalls, 5year SoP

## 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
6D-1	Portwrinkle	Short term do nothing in Hoodney Cove and long term hold elsewhere to protect assets at risk
6D-1	Downderry & Seaton	Hold currently defended frontages with short term do nothing (study and monitor) along east Downderry
6D-1	Millendreath & East Looe	Hold existing defences, do nothing (study and monitor) on undefended lengths, with non-intervention along cliffs adjacent to East Looe
6D-1	Looe	Hold the line strategy to defend built assets from erosion
6D-1	Talland Bay	Hold the line strategy to maintain built assets
6D-1	Polperro	Strategic hold the line with surveillance and monitoring as part of short-term strategy along undefended lengths

## Economic Assessment

The following table provides a brief summary of damages under the No Active Intervention scenario, 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 erosion and flooding scenarios. The damages for each epoch are discounted present values.

### ASSESSMENT OF EROSION DAMAGES

Epoch	0 -20 year		20 – 50 years		50 – 100 years		Total	
<b>No Active Intervention</b>								
<i>Location</i>	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)
PDZ1	2	267	26	1,219	101	1,616	129	3,102
	Total for PDZ							

### ASSESSMENT OF POTENTIAL FLOOD RISK

Epoch	Flood risk tidal 2025		Flood risk tidal 2055		Flood risk tidal 2105		Total	
<b>No Active Intervention</b>								
<i>Location</i>	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)
PDZ1	385	2,830	448	1,755	542	631	542	5216



## PDZ 1: Rame Head to Pencarrow Head Management Area Statements

### Management Areas

PDZ1 has been sub-divided into 3 principal management areas, these being:

#### MA01 – Rame Head to Dowderry

Covering previous SMP1 management units:

6D-1	Portwrinkle
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#### MA02 – Dowderry and Seaton

Covering previous SMP1 management units:

6D-1	Dowderry & Seaton
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#### MA03 – Seaton to Pencarrow Head

Covering previous SMP1 management units:

6D-1	Millendreath & East Looe
6D-1	Looe
6D-1	Talland Bay
6D-1	Polperro

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