

PDZ: 2	Pencarrow Head to Gribbin Head (including Fowey Estuary)	Management Area 04 Management Area 05
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Pencarrow Head to Gribbin Head

The Fowey estuary is present within this area with the tidal limits extending to settlements of Lerryn and Lostwithiel. The Fowey Estuary is relatively narrow and steep-sided in relation to its cross-sectional volume. Its intertidal area is very limited in the lower estuary. In the upper estuary, above Golant, and within the Penpoll Creek, there are some significant expanses of mudflat and saltmarsh, though still limited in relation to overall estuary extent. The coastline is rocky with bays at Lantic Bay and Polridmouth.

Commercial interests other than tourism and recreation in the area are the clay port facilities at Fowey, along with its associated infrastructure. Agriculture is also important within the immediate hinterland and is the primary land use type adjacent to the estuary.



General Description	
Built Environment	
<p>The main settlements are Fowey and Polruan, and Lostwithiel at the tidal limit of the estuary. Other communities on the Fowey estuary are Golant, Lerryn, Bodinnick, Mixtow, Penpoll, Cliff and St Winnow. There are acknowledged to be significant social and commercial links between Fowey and the settlements of Par and St Austell in the adjacent PDZ. Significant docks, harbours and quay structures dominate the shoreline at the mouth of the Fowey Estuary around Fowey and Polruan (photo, right).</p>	 <p>Fowey Docks</p>
Heritage	
<p>Historically, an eighth century church exists on the cliffs above the town at Polruan (St Saviours Chapel) and there is a lighthouse at St Catherine Point. Scattered archaeological remains are recorded between Polperro and the Polruan. There are a number of Conservation Areas present including Fowey, Polruan, Bodinnick and Lerryn. The conservation area is particularly extensive at Fowey, covering most of the settlement, the entire waterfront area and a large proportion of the estuary area. This reflects the very significant number of listed buildings along the developed frontage.. There is a Registered Park and Garden at Menabilly, which includes the Cottage and decoy lake at Polridmouth Cove. There are strong historical links between Fowey and the writer Daphne Du Maurier, with later generations of the Du Maurier family still resident in Fowey</p>	
Environment and Nature Conservation	
<p>The Polruan to Polperro SAC designation covers the coast from Polruan eastwards to Pencarrow Head. Nature conservation interests in the area also include a vegetated shingle beach at Lantic Bay (photo, right) and the Polruan to Polperro SSSI. There are a number of RIGS sites including again, Lantic Bay. The Cornwall Area of Outstanding Natural Beauty (AONB) and Gribbin Head to Polperro section of Heritage Coast are the major landscape designations in the area.</p>	 <p>Great Lantic Beach</p>
Recreation and Amenity	
<p>Tourism and recreation are important elements in the area, although perhaps less so for the upper estuary locations than for other more open areas of the Cornish coastline. Fowey and Polruan however attract many visitors, particularly for events such as Fowey regatta week and due to their cultural connections (e.g. Fowey's links to Daphne Du Maurier). Small beaches</p>	 <p>Readymoney Cove</p>

<p>and coves also play an important role in recreation for residents and visitors alike, particularly those closer to the main populations, such as Readymoney Cove (photo, right).</p>	
<p>Key Values and Drivers</p>	
<p>The key values of the area are the relatively undeveloped nature of the coastline and the natural features of the Fowey estuary, alongside the historic waterfront settings of Fowey and the socio-economic benefits derived from the commercial docks and quays.</p> <ul style="list-style-type: none"> • Communities at Fowey and Lostwithiel which support the network of smaller communities in terms of commercial activity including china clay and fishing, and attracting tourists to the area. • The natural and unspoilt nature of the coast between the settlements including AONB and Heritage Coast designations. 	
<p>PDZ Management Intent</p>	
<p>The overarching management principle is therefore to maintain the natural amenity value of the area and allows natural processes, which sustains community identity and commercial viability and recognises the tourist and recreation importance of the area.</p>	

The coastline between Looe and Gribbin Head is rocky, irregular, and mainly comprises high cliffs fronted by shore platforms, which are incised by valleys of various sizes. The coast generally faces south and is fairly exposed to Atlantic swell. Despite this the erosion rates are low, due to the high resistance of the bedrock.

Beach deposits are rare along this coast, but some pocket beaches have formed at the valley mouth bays such as Polridmouth. These are small embayments flanked by cliffs with low backing slopes. The shingle beaches at Lantic Bay are backed by steep cliffs.

TIDE AND WATER LEVELS (mODN)

Extremes(mODN)

The south facing orientation dictates relatively high exposures to the dominant Atlantic swell conditions. However, where the coast turns to face more south-east, there is significant exposure to the infrequent storms that originate in the east/south-east sending short-period storm waves along the English channel.

Tidal Flow

The mean tidal range in this area is approximately 3.4m. Spring range can be up to 4.8m at Fowey. The Futurecoast project explored the residual currents driven by these tides and did not find these currents to be significant for sediment transport.

PROCESSES

Control Features:

The cliffs vary in form from head slopes to near vertical bedrock faces cut into the Devonian slates, sandstone and thin limestone beds. As elsewhere, the bedrock is overlain by head and raised beach deposits.

Existing Defences:

There are no existing defences along the open coast section of this policy development zone. Within the Fowey Estuary there are a variety of quay structures along the frontages of Polruan and Fowey (owned and maintained by the Harbour Commissioners) and there are Cornwall Council maintained seawalls at Readymoney Cove. Further up the estuary, the railway line and embankment which runs alongside the estuary down to Fowey Docks acts

as a defacto defence for around 700m directly to the east of Golant. As the estuary approaches Lostwithiel, it enters a continually modified channel which comprises a series of earth embankments, flood defences walls and privately owned defences. There is also a section of quay wall at the southern end of the right hand bank. The earth embankments are owned and maintained by the Environment Agency.

Processes:

The pocket beaches are believed to act relatively independently of the adjacent lengths of coast, with no significant exchange of sediment. Beach movement is largely across the shoreline, but without significant loss of material from the bays. Outside of bays the very small sediment volumes and highly indented nature of the coastline result in very little net sediment movement.

Unconstrained Scenario:

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

With no defences present it could reasonably be expected that there would be limited erosion along the open coast as is presently experienced. Within the lower estuary, some very low level erosion would occur along both banks in the vicinity of Fowey and Polruan. Frequent flooding of the bank side areas would occur. Readymoney cove would gradually erode back. In summary, there would be very little change to the plan form and geomorphology of the open coast and lower Fowey estuary. In the middle estuary, the banks are mostly steep sided, therefore little additional inundation would be seen. There would be some low level erosion along the banks in response to increased tidal flows due to sea level rise (and potentially increased fluvial flows due to climate change). In the upper estuary, particularly just to the south of Lostwithiel and around the town itself increasing occurrence of inundation of the flood plain would be seen. Through time the area subject to inundation (particularly that dictated by the 1:1 year flood level) would become a more saline intertidal type of habitat.

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/100yr)	Historic recession rate (upper) (m/100yr)	Projected 100 year erosion rate (lower) (m)	Projected 100 year erosion rate (upper) (m)	Notes
Polruan	0	2.0	0	3.6	
Fowey	0	0.5	4.5	16.7	Wall, 100 year SoP
Polridmouth	10	25	21.3	50.8	Wall/coast protection present

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
6D-1	Polperro to Fowey Estuary	Do nothing strategy to maintain coastal habitats including shore dock population and geological exposures at Lantic Bay
6D-1	Fowey Estuary	Short term do nothing on undefended developed frontage. Long term hold the line strategy elsewhere.
6D-1	Fowey to Gribbin Head	Do nothing for majority of length. Hold the line through maintenance of structures at Polridmouth.

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		
No Active Intervention									
<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)	
PDZ2	0	0	44	1,505	18	523	62	2,028	
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								
<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)
PDZ2	295	2,270	341	1,357	470	599	470	4,226

PDZ 2: Pencarrow Head to Gribbin Head Management Area Statements

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

MA04 – Pencarrow Head to Gribbin Head

Covering previous SMP1 management units:

6D-1	Polperro to Fowey Estuary
6D-1	Fowey Estuary
6D-1	Fowey to Gribbin Head

MA05 – Fowey Estuary (above Boddinick) including tributaries

Covering previous SMP1 management units:

Not considered in SMP1

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