# amroth case study

Amroth is a small coastal village situated in South Pembrokeshire. It's main income is through the tourist industry. In the past the area has relied upon the nearby coal mine at Stepaside as it's main source of revenue. Coal reached the port at Saundersfoot along a raliway which ran along the top of an embankment built for this purpose in 1840. Anthracite mining was also an important part of the local economy until the end of the 19th centruy.

The building of the embankment in 1840 prevented the erosion of sediment from cliffs near Saundersfoot. Previously the beach at Amroth had recharged with sediment generated by this erosion, carried onto the beach by LSD. After 1840 the beach began to diminish. This caused the widespread erosion of land and the loss of gardens and residences on the sea front. The locals have managed to largely stem the erosion now through a variety of management solutions.



# Map

## Consequences

Environmental- The beach at Amroth erodes steadily but surely from 1840 onwards. This lessens the protection offerered by the sediment, and so more of the sea's force is exerted upon the land. This erodes the land. The first sign of loss of gardens was in 1896. The massive storms of 1931 & 1938 cause houses and gardens to be undermined and destroyed. A road is destroyed and must be re-routed over the hill.

Social- People lost their homes and gardens. Massive disruption to living and loss of possesion. Reduced access due to lack of road.

Economic- The area suffered hundreds of thousands of pounds worth of damages. Drop in house prices as properties near the edge of the beach become less desirable. Damage to tourist industry due to dereliction and damages,

## Now



#### Causes

The beach at Amroth relied upon recharge from the cliffs at Saundersfoot. The sediment was carried along the shore to Amroth by LSD. When this erosion was reduced by the building of a railway embankment, the beach at Amroth lost one of it's inputs and thus began to diminish in size, the outputs now outweighing the inputs, as sediment continued to be removed from the beach by LSD at the North end. The below systems diagram illustrates this.



isn't noticed for 30 years.

#### Management

• The first idea (1936) was to practise managed retreat and abandon the village as the projected £40k was too much money. This was discarded, to the resident's relief.

Groynes were made of wood to prevent LSD removing sediment. These had a very short lifespan and were soon eroded.

More recently (1980-90) riprap groynes have been instated, with rock from • the preseli hills. These have withstood erosion far better.

• Recharge occurred in the 1990s, small stones replacing lost sediment. Although expensive, this worked well.

· Return sea walls were put in place to prevent the sea's energy hitting the gardens directly. These worked, but were in some places replaced by the recharge

## Conclusion

By affecting a well established system through the building of a wall, the beach at Amroth was almost lost. It took almost half a decade for residents to notice the change. However, when this was spotted, through the use of hard management and recharge, and reducing the outputs of the system to compensate for decreased input, the beach was saved. This in turn protects the land. The system is now stable, and Amroth saved.