

### **The coastline has been in existence for thousands of years; so why is beach replenishment and continued management of the beach at Milford-on-Sea necessary?**

Due to coast protection work around Christchurch Bay (including Milford-on-Sea), the natural supply of beach material has been greatly reduced. To compensate, the beach now needs to be fed artificially.

At Milford-on-Sea, a series of coast protection works were constructed between 1936 and 1968, meaning that the cliff is protected, and erosion is reduced. Unfortunately, this also means an important local source of (beach) material is no longer available. As such, without regular artificial top-ups of material it is likely the beach would reduce further making the seawalls much more vulnerable to future failure.

### **What does a beach do?**

The beach is a dynamic first line of defence offering protection from damaging waves by dissipating energy. This is especially helpful during heavy storms, as there is less impact on hard structures (such as the seawall). Therefore, having a beach helps to protect the seafront at Milford-on-Sea.

Once the material is placed, the effect of coastal processes (waves, currents and tides) will act to quickly move and sort the sand and shingle. This will mean the sediment will be naturally moved both up and down the beach (cross-shore) and along the coastline (along-shore).

### **How much is being added this year?**

This year (2022), approximately 4,500t of material will be placed on the beach, a similar amount to previous years. Since 2008 New Forest District Council has instigated a regime to undertake regular beach recharges to replenish the beaches at Milford-on-Sea. During this period, well over 50,000t of material has been added.

### **What would happen if another beach recharge were not undertaken?**

Without the supply of fresh material beach levels on the seaward site of these structures will further deplete. If beach levels drop too low, there is a potential that coast protection structures like seawalls will become undermined, ultimately resulting in the failure and collapse of the seawall. It is likely that this would quickly lead the loss of the beach huts and the promenade then other infrastructure further back. Property would also become increasingly at risk from erosion.

# Milford-on-Sea Beach Recharge: History & Technical Note, Sept-2022

## How does the beach get monitored?

Undertaken under the annual monitoring programme by the team at the Channel Coastal Observatory (CCO) beaches are regularly surveyed in Christchurch Bay so that changes in beach levels and volumes can be monitored over time.

Further details of the Channel Coastal Observatory, who are based at the National Oceanography Centre in Southampton can be found at:

[Channel Coastal Observatory Welcome \(coastalmonitoring.org\)](https://www.coastalmonitoring.org)

## How did Christchurch Bay evolve?

The beach at Milford-on-Sea is located at the eastern end of Christchurch Bay, which extends from Hurst Spit in the east to Hengistbury Head in the west.

Christchurch Bay comprises a 16km section of open coastline exposed to dominant waves from the south-west. The beaches are generally comprised of finer beach material on the more sheltered western side of the Bay, with coarser beaches further to the east.

A critical factor in the evolution of Christchurch Bay was the breaching of the Chalk ridge which previously extended between the Needles and Handfast Point, Purbeck. It was not until the early to mid-Holocene period of sea-level transgression (12-5000 years ago) that the Chalk ridge was removed, and the barrier between Poole Bay and Christchurch Bay (now forming Christchurch Ledge) was cut back, and rapid erosion of Christchurch Bay proceeded. Erosion of Christchurch Bay was also facilitated by its connection with the Western Solent, between 8,400 & 6,500 years ago, which created strong tidal currents causing scour in the eastern part of the Bay.

The dominant south-westerly wind and wave climate has created a littoral drift of shingle and sand along Christchurch Bay from the west to the east.

Further details of the littoral drift in Christchurch Bay can be found at the [SCOPAC Sediment Transport Study 2012](#).

The coastline has been formed, and is characterised by the cliff geology and the continual erosion. There is a historic rate of erosion of the cliff line of approximately 1m per year. Previously as the cliffs have eroded the supply of new beach material has been obtained naturally from the sand and gravels in these eroding cliffs. However, with increased habitation along the coast over the years a number of coast protection measures have been built along various lengths of the coastline. The hard coast protection structures aim to retain the expanse of area above the cliff, often facilitating the building of homes and businesses and retaining amenity space. This activity thus eliminating the supply of new beach material. Beach material is the first line of defence for the coastline in that the material at the base of the cliff protects the cliff from erosion.

## What is the Shoreline Management Plan (SMP)?

A Shoreline Management plan is a strategy for managing flood and erosion risk, over short, medium and long-term periods. SMPs identify the best ways to manage coastal flood and erosion risk both to people and the developed, historic and natural environment.

The SMP divides the coastline into 'units' and each unit had a policy attributed to it. There are four main shoreline management policies:

- Hold the Line: maintain and upgrade or replace coastal defences in their current position where funding permits.
- Managed Realignment: manage coastal processes to realign the 'natural' coastline configuration, either seaward or landward of its present position.
- No Active Intervention (do nothing): a decision not to invest in providing or maintaining defences or management of the coast.
- Advance the Line: a decision to build new defences seaward of the existing defence line where significant land reclamation is considered.

The current policy (0-20 years) at Milford-on-Sea is Hold the Line, changing to Managed Realignment in the 2<sup>nd</sup> epoch. More information on Christchurch Bay and the Shoreline Management Plan can be found at:

[Poole and Christchurch Bays Shoreline Management Plan \(SMP2\) 2010 \(twobays.net\)](#)

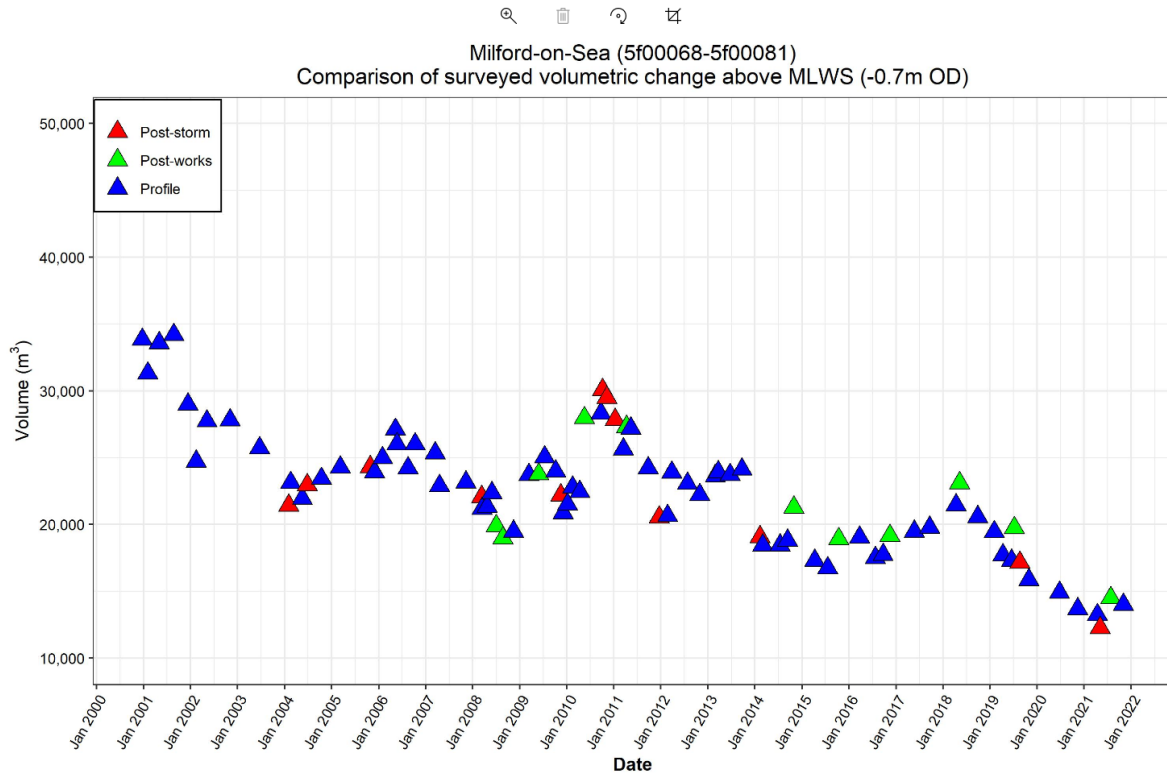
A summary of each of the shoreline management policies for the local SMP Policy Units are indicated on the map below; [Policy Summary Map \(twobays.net\)](#) .

Where there are no coast protection structures in the bay coastal erosion continues. This occurs at places such as, Naish Farm and Hordle, where current policies Managed Realignment and No Active Intervention. Where the coast protection measures such as groynes, are in place erosion still continues, albeit at a reduced rate.

## What is happening in the future?

New Forest District Council's aim is to continue to undertake these beach recharges into the near future; however, this will depend on the necessary funding being available. Despite ongoing recharges, with the finances currently available, the overall volume of beach is still in decline, and is now at the lowest level for 20-years (hence the need to implement this work at this time).

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With increasing financial pressure and environmental considerations, the Council is aware that it needs to consider the long-term sustainability of this work. Looking further ahead, with climate change and sea level rise, the coastline will become under ever more pressure, so that the issues that are being faced today are likely to continue and become more acute. Consequently, NFDC is now working in partnership with neighbouring BCP Council on a Strategy for sustainable management of the coastline to develop options on how to build resilience and adapt to future changes.

The strategy will also consider methods of delivering better efficiencies in working, such as joint working on beach management and considering alternative future coast protection options. The end result is to produce a viable programme in the long-term to enable the undertaking of coast protection schemes.

[Christchurch Bay and Harbour Flood and Coastal Erosion Risk Management \(FCERM\) Strategy | Have Your Say Bournemouth, Christchurch and Poole \(bcpcouncil.gov.uk\)](#)