

# Fact Sheet: Apollo Bay Long-Term Foreshore Protection Design

The Victorian Government has invested \$3 million for new permanent coastal protection structures in Apollo Bay

## NEW GROYNES AND SEA WALL FOR APOLLO BAY

### Background

In 2021, the Department of Environment, Land, Water and Planning (DELWP) is constructing two new groynes and a section of rock seawall at Apollo Bay to help manage the impacts of coastal erosion.

The new 70-meter-long rock groynes will run perpendicular to the shoreline and be located just south of the Milford St revetment and to the south of Milford Ck.

Sections of rock seawall will be constructed between the two Groynes with an aim to protect the dune, walking path, cypress trees and road from erosion.

Detailed engineering work, including wave and sediment transport modelling, has determined the location and design of the new infrastructure to ensure it achieves value for money and will deliver tangible results in what is a dynamic coastal environment.

Maintaining access to and along the foreshore is a key objective of the design.



Image 1: Artist's impression of stage 1 groynes, looking north from around Cawood Street.



Image 2: Existing revetment at Milford St with beach access stairs.

### Sediment Transport and Erosion at Apollo Bay

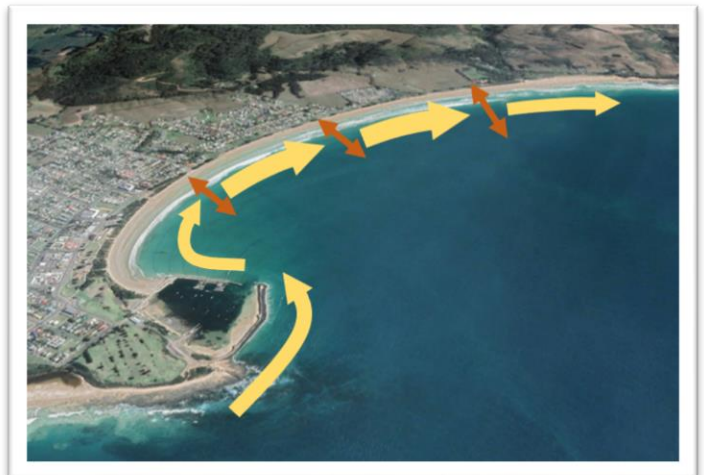


Image 3. Existing sediment transport processes at Apollo Bay. **Yellow** arrows are longshore transport, **orange** arrows are cross-shore transport.

An important mechanism driving sediment transport and erosion at Apollo Bay is the 'longshore transport' (**yellow arrows**).

Swell waves from the Southern Ocean breaking at an angle to the beach move sand from south to north along the beach.

The middle section of the beach experiences higher waves and the longshore transport is higher.

More sand is leaving this section than arriving, and the deficit is made up by erosion of the beach and dune.

A second mechanism is 'cross-shore transport' (**orange arrows**). During storms with high waves and elevated water levels sand is eroded from the beach and deposited on offshore sandbars. After the storm some of the sand will gradually return to the beach further to the north due to longshore transport.

### Protection Works

To provide long-term coastal erosion protection at Apollo Bay, DEWLP are planning to extend the revetments, construct groynes and nourish the beach.

**Revetments** are rock seawalls that run along the back of the beach. They protect the dune, walking path, heritage trees and road from erosion.

A short section of revetment was constructed at Milford Street in 2019, this will be extended.



**Image 4:** After a storm the **groynes** interrupt some of the longshore transport and trap sand on up-drift side building a higher 'fillet beach' on the south side.

**Groynes** are rock walls running across the beach into the surf zone.

They interrupt some of the longshore transport and trap sand on up-drift side (the southern side).

In this way they build a higher and wider beach, offsetting the negative impacts of the revetments.

Groynes do not protect the beach from storm erosion and there will still be times when the beach is eroded.

Groynes will however speed up beach recovery after storms.

When the groynes are constructed beach nourishment will be used to prefill the beach on the up-drift side, this minimises the impact of the groynes on the beach to the north.

### Beach Amenity

As well as protection, maintaining beach amenity is an important objective of the design.

This will be done in several ways:

- The profile of the beach is constantly varying in response to waves and tides, but the groynes will provide a higher and wider sandy beach than would otherwise be the case.
- Ramps will provide pedestrian access over the groynes for walking along the beach, as well as access to the beach.
- Revetments will protect the dune vegetation and coastal walking path from further erosion.

### Want to know more?

Regular updates and more information on the project are available here:

<https://www.marineandcoasts.vic.gov.au/coastal-programs/apollo-bay-and-marengo>