Our Coast Our Future
Mornington Peninsula Coastal Strategy

MORNINGTON PENINSULA Shire

Fact sheet #3 Coastal Hazards

Erosion and inundation are naturally occurring processes that drive change along Mornington Peninsula's coastlines. When these processes impact on what we value, we refer to them as coastal hazards.

This is the third in a series of fact sheets available on the project website.

Our Coast Our Future | Shape Our Future (mornpen.vic.gov.au)

Natural coastal processes, such as erosion and inundation (flooding), have always shaped the diverse features of Mornington Peninsula's coastline. When these processes impact on coastal values, infrastructure and uses, including how we use and enjoy the coast, we often term them coastal hazards.

The Peninsula's diverse landforms and ecosystems mean we have communities in low-lying coastal areas, as well as adjacent to rocky cliffs and beaches. Along certain regions of the coast, some communities are already impacted by inundation and erosion of their sandy beaches, while others are experiencing erosion of their rocky cliffs.



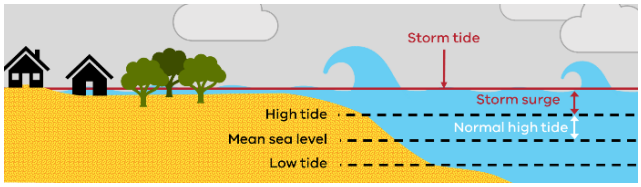
With sea level rise and climate change, there is potential for the impacts of these coastal processes to change, and for the Peninsula to experience further increases in various forms of coastal hazards.

Types of coastal hazards

Storm tide inundation - Temporary inundation (flooding) of low-lying coastal land for a period of hours to days due to locally elevated sea levels, as occurs during a storm tide.

Storm tide is caused by the combined influence of three factors:

- The predicted tide
- Low pressure air systems experienced during a storm that cause an increase in sea level (known as storm surge)
- High wind-generated waves associated with a severe storm.



Examples of low-lying land prone to storm tide inundation include coastal wetlands, marshes, inlets and estuaries.

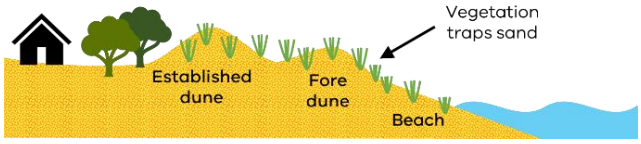
During severe rainfall events, catchment flooding can combine with storm tide inundation to increase the extent or depth of inundation, in addition to the duration of such events.

Permanent inundation - Regular inundation of low-lying areas as part of the local tidal cycle, up to and including the Highest Astronomical Tide (HAT).

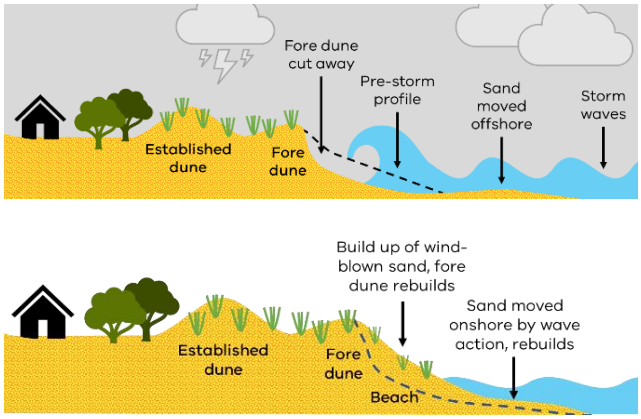
Increases in mean sea level over time will influence the extent of permanently inundated areas along the Mornington Peninsula coastline.

Coastal erosion – sandy coasts

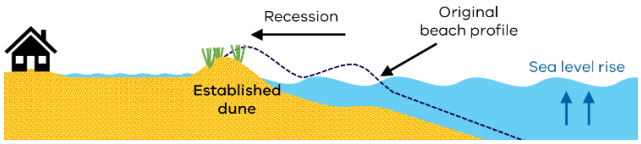
Erosion can occur when winds, waves and coastal currents shift sediment (sand) along or away from the shoreline, sometimes just offshore. Dune systems on sandy coasts go through natural periods of erosion (dune and sand loss) and accretion (dune growth), with dune vegetation key to trapping sand.



Short-term erosion (storm bite) is often associated with large storms. For a stable beach, sand moved offshore during a storm is eventually transported back onto the beach by wind and waves.



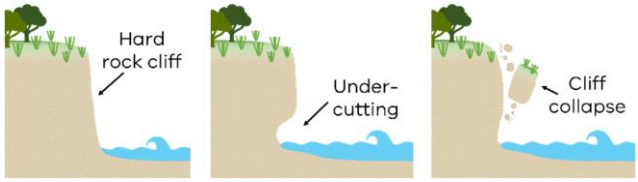
Long-term erosion (recession) may occur when there are changes in sediment supply or climate conditions (such as bigger or more frequent storms). These conditions mean the beach may not always rebuild fully between storm events. With less sand retained on the beach, the shoreline position (such as vegetated dunes and the high tide beach) can move incrementally landward.



Coastal erosion – rocky coasts

Rocky coasts can be composed of either hard or soft rock.

Hard rocky coasts are exposed over thousands of years as softer sediments are eroded away. This commonly occurs in areas of high energy (strong wave action). Hard rock erosion can take the form of deep-seated mass movements (cliff collapse), often initiated by a combination of processes occurring at the surface (such as rain or surface runoff) and/or at the cliff's base (e.g. toe undercutting). Hard rock erosion can occur with little to no warning.



Soft rocky coasts have softer, more erodible rock. These coasts can be more vulnerable to erosion from both surface processes and cliff toe undercutting. Erosion can take the form of both cliff collapse and slumping (material movement down the cliff slope).

Unlike sandy coasts, both hard and soft, rocky coasts cannot rebuild after erosion events. However, greater erosion resistance means they erode less frequently.

Coastal hazards and climate change

With a changing climate, coastal hazards are likely to have an increased impact on the Mornington Peninsula region in the future.

Improving our understanding of how changes in climate will impact local coastal processes and hazards allows us to make informed decisions on both short-term actions and long-term plans for the future. Proactive adaptation through strategic planning can allow us to minimise the impact of coastal hazards on that which we value most.

How can I get involved?

To ensure you keep up to date with the *Our Coast Our Future* Coastal Strategy and upcoming events and activities:

Visit the project website Our Coast Our Future | Shape Our Future (mornpen.vic.gov.au)

On our page you can:

- Lean more about the project, coastal hazards and our coastal communities
- Sign up so that you receive progress updates and notifications
- Read our latest project updates
- Take part in our interactive activities.

Ask us a question – email our team at coastalplanning@mornpen.vic.gov.au