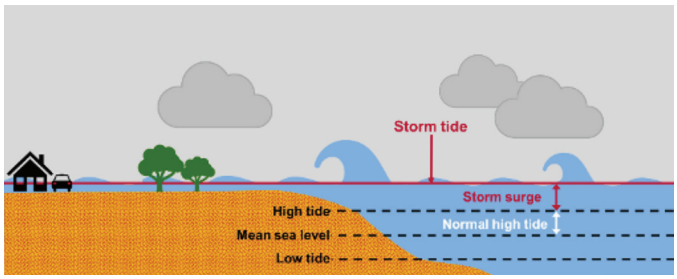
FACTSHEET No.3 - Coastal hazards

What are coastal hazards?

Flooding and erosion are natural processes that contribute to shaping the unique landforms of each coastal region. These processes become hazards when they have adverse impacts on infrastructure and natural assets, and the way people use and enjoy the coast. In south Queensland, major coastal hazard impacts are typically associated with storms and tropical cyclones.

Storm tide inundation



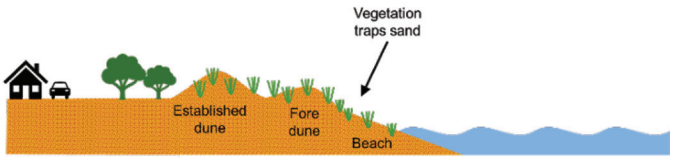
Storm tide inundation is the flooding of low-lying coastal land from a locally elevated sea level (the 'storm tide'). The storm tide is a combination of the predicted tide, storm surge, and wave action. Storm surge is driven by the combined influence of low atmospheric pressure and high winds associated with events such as East Coast Lows and tropical cyclones.

Coastal erosion

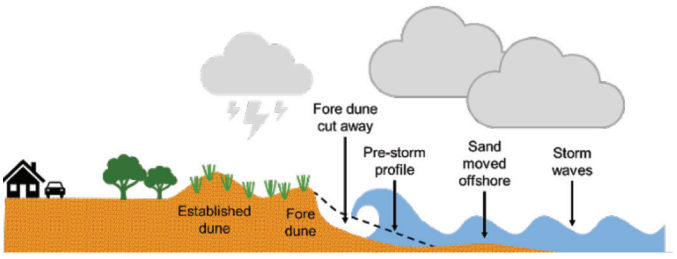
Coastlines naturally erode and accrete over time, driven by variations in sediment supply and climate patterns. Both short term and long-term erosion processes may impact on coastal assets, depending on how close to the foredune the assets are located.

Coastal erosion occurs when winds, waves and coastal currents act to shift sediment (sand) away from the shoreline. This can be a short-term shift, often associated with storm activity (termed storm bite), and the beach will then gradually rebuild. When a beach is stable, all of the sand moved offshore during a storm eventually moves back onto the beach (over months or years).

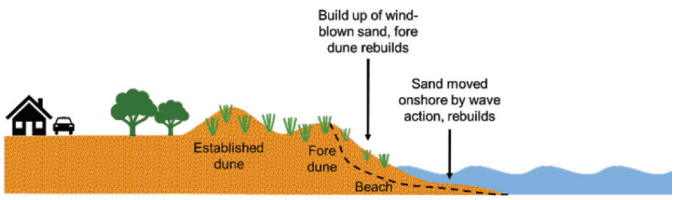
In other cases, due to changing sediment supply or climate conditions, the beach may not have sufficient capacity to rebuild between storm events. In the absence of intervention, long-term erosion (termed recession) may occur, which is the landward movement of the shoreline over longer timeframes (decades).



Normal beach shape, calm conditions



Beach erosion during storm



Beach and dune repair after storm

FACTSHEET No.3 - Coastal hazards (cont.)

Future impacts

Projected sea level rise and an increase in storm intensity for the south Queensland coastline is anticipated to increase the extent and impact of coastal hazards

Coastal erosion:

- Increased water levels will accelerate coastal erosion
- Sediment transport patterns may be altered by shifts in wave direction, triggering changes to the form and location of shorelines
- Low-lying land may be permanently inundated
- Increased storm activity will escalate the severity of coastal erosion events

Storm tide inundation:

- Sea level rise will increase the apparent severity and frequency of storm tide inundation and will cause inundation to occur further inland
- Increased storm intensity will add to the magnitude of storm tide events and the extent of inundation.

Source: Coastal Hazard Technical Guideline (DEHP, 2013)

Planning to adapt

Storm tide inundation, short term erosion and long-term erosion all have the potential to adversely impact existing and future assets in the coastal zone. These impacts can be minimised through strategic planning and adaptation actions. This involves:

- Understanding the physical processes
- Assessing the likely extent of storm tide inundation and erosion, now and in the future, and assets that may be impacted
- Assessing the consequence of impacts for communities and ecosystems
- Considering the range of planning and adaption options and developing an adaptation plan.

Through the *Cooloola Coast – The Resilient Coast* project, Gympie Regional Council and the State Government are actively planning to avoid or mitigate the impact of coastal hazards, both now and into the future.

Fact sheets in this series

- Terminology
- Coastal landscape
- Coastal hazards
- Coastal hazard adaptation

More information on coastal hazards can be found at:

Coast Adapt: https://coastadapt.com.au

QCoast2100: http://www.qcoast2100.com.au

https://www.gympie.qld.gov.au/resilientcooloola