

PRINCESS ROYAL HARBOUR

Coastal Hazard Risk Management and Adaptation Plan (CHRMAP)



As we've seen recently on the east coast, accelerated climate events, such as flooding and inundation are real.

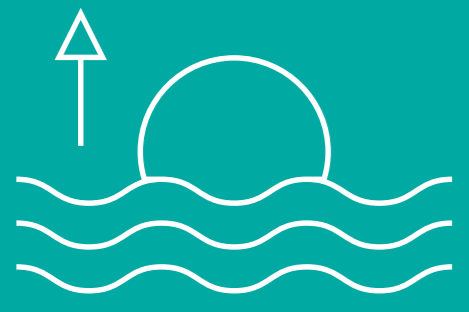
What is a CHRMAP?

A CHRMAP is a long-term plan to address the impact of coastal hazards on our coastline. It looks at various hazard scenarios within 20-, 50- and 100-year timeframes and, with input from the community and key stakeholders, identifies the most appropriate management strategies and options.



The Study Area

The study area is the land adjacent to the whole inner-Princess Royal Harbour. As this is quite a large area, we have broken it up into 5 'sections', as shown on the map.



Climate Change and Sea Level Rise

Climate change, including rising sea levels, is predicted to increase the level of erosion of sandy coastlines and inundation (flooding) of low-lying areas.

The coastline associated with the Princess Royal Harbour is low lying and therefore may be at risk to erosion and inundation. There are pressures on the Princess Royal Harbour coastal zone for land use and development for a variety of purposes including public access, recreation, residential and industrial. Governments at all levels and private parties (individuals, businesses and the community) each have important, complementary and differentiated roles in managing risk arising from coastal hazards.

What are Coastal Hazards?

Coastal hazards have the potential to impact coastal areas and assets. They have always existed along our coastlines. Coastal hazards are not necessarily associated with climate change, but they will be exacerbated by sea level rise in the future.

Erosion can occur in a short time period – for example due to a storm event, or over a longer period of time – as the shoreline gradually retreats due to rising mean sea level or changes/variability in local coastal processes. In general, erosion on sandy beaches with natural dune vegetation is a cyclical process, with beaches often eroding and recovering seasonally. There are increased pressures when erosion occurs where assets exist.

Inundation can occur due to tidal variation, sea level rise and coastal storm surge, occurring when the ocean water level exceeds the land level and leading to flooding of these areas. When assets exist in these areas they can be temporarily impacted, which may lead to permanent damage. This project will consider rainfall and catchment flooding in addition to storm surge inundation.

Both erosion and inundation hazard extents will be mapped for the CHRMAP, at various timeframes from present day to 2120.



Coastal erosion occurring at Emu Beach in Albany in 2021.



Coastal inundation occurring at Onslow in 2015.

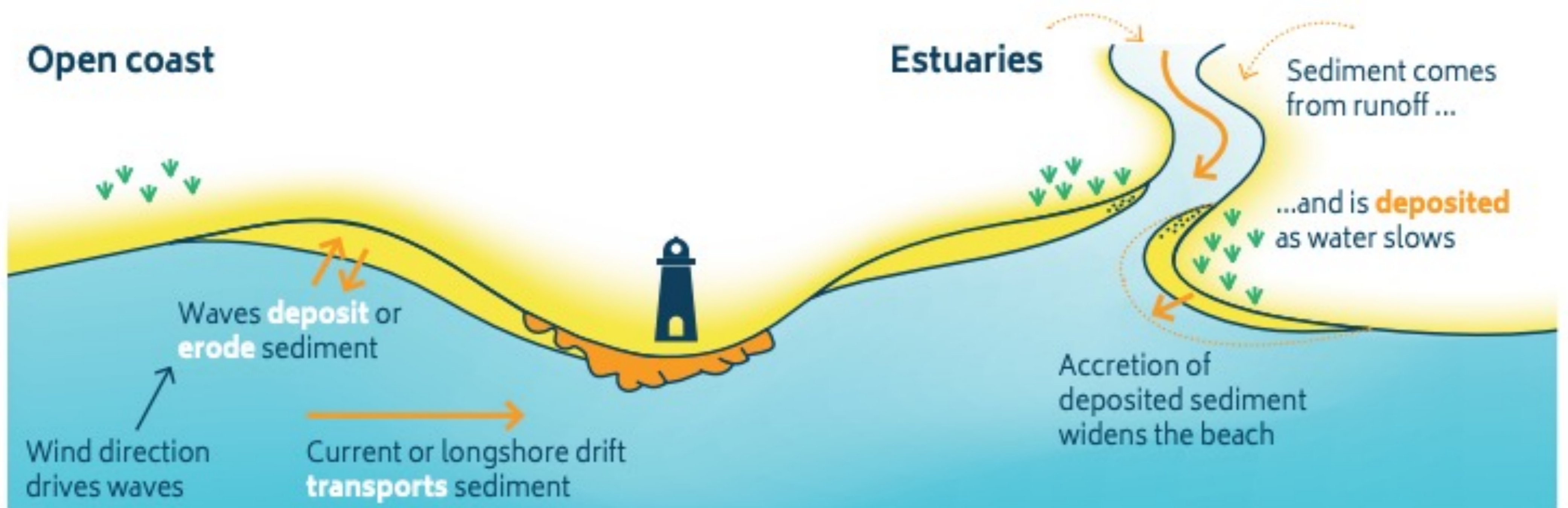
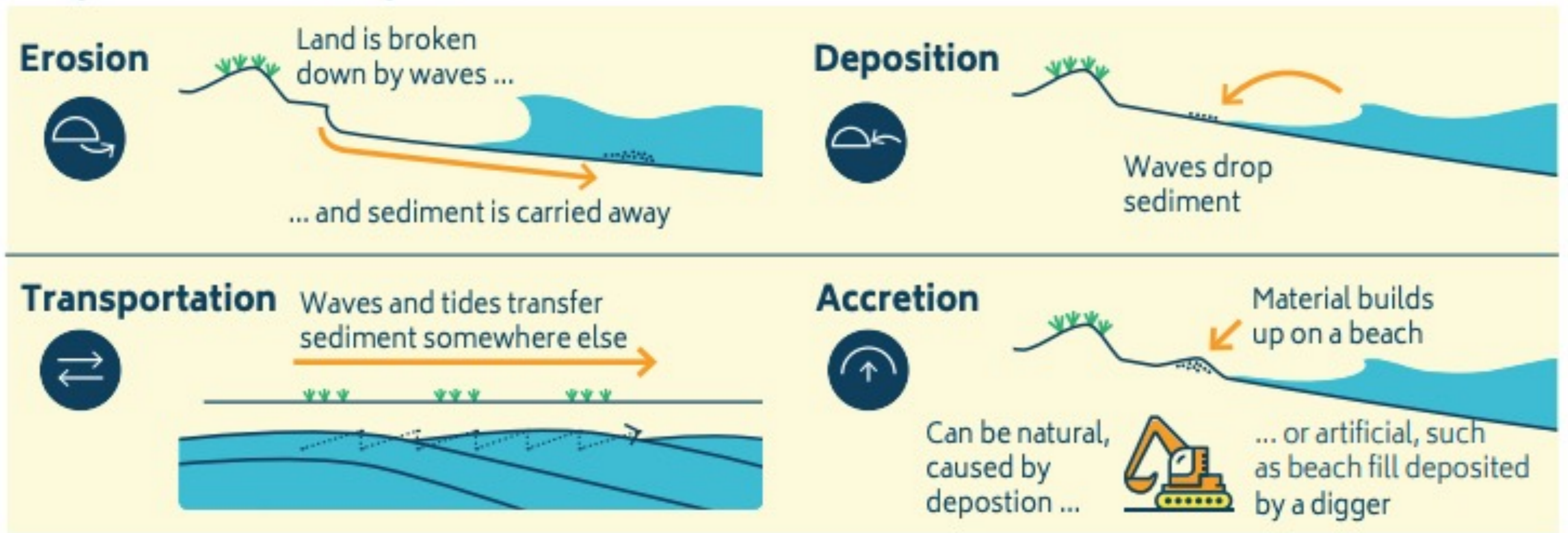


What is Shaping Princess Royal Harbour?

Princess Royal Harbour is a natural harbour that is sheltered from the large open ocean swells that typically impact and shape Western Australia's south west coastline. The natural processes that shape the harbour's shoreline are more subtle, including ocean water level variations due to tides and storm surge, locally generated wind waves (seas) and water level variations associated with rainfall runoff. These factors can combine during rare storm events to cause significant change to vulnerable shorelines in a short period of time. Underlying sea level rise is expected to amplify these shaping processes into the future, leading to a gradual retreat of shorelines that are susceptible to erosion and broader average coastal flooding extents.

The below infographic from CoastAdapt broadly illustrates general coastal processes that can shape any coastline.

The processes that shape our coast are:



Important Assets

When undertaking a CHRMAP, part of the first step is identifying the important assets along the coastline and what it would mean if these were potentially damaged by hazards such as erosion or inundation.

These assets are considered in three groups:



Social Assets



Environmental Assets



Economic / Infrastructure Assets

The CHRMAP also needs to consider the importance of these assets in terms of community values. This helps to prioritise certain assets or groups of assets along the Harbour.



What assets are important to you ?

You can let us know how you use the coastline (and therefore what assets are important to you) by taking the Coastal Values Survey.



Open the camera app on your phone, point and scan the QR code to go straight to the survey.

Management Options

So what can we do about these hazards and their risk to the assets we love at Princess Royal Harbour? Well, there's a few strategies we can look into, outlined below.

1 To adapt, we can:

Avoid
Identify future 'no build areas' and use planning tools to prevent new development in areas at risk now or in the future

Retreat
Withdraw, relocate or abandon assets that are at risk; ecosystems are allowed to retreat landward as sea levels rise

Accommodate
Continue to use land in developed areas and accommodate risk through raised floor levels, raised roads, etc. Mostly relevant for managing inundation (temporary flooding).

Protect
Use hard structures (eg sea walls) or soft solutions (eg dunes and vegetation) to protect land from the sea. May be prohibitively expensive, especially in the long term

2 These options can be combined to develop a plan of action.

● + ● + ● = 📄

3 Choices will need to consider:

Cost of response
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Low – high
Potential cost to government and regulators

Cost of avoided impacts
(including social and environmental costs and benefits as well as economic ones)

Use of the land
(including its strategic importance, for example as an airport, defence, port facility etc)

Value of the land and its assets
(including ecosystem service, amenity, historical, cultural values)

Length of protection
Short- to long-term protection



We will go into more detail about the adaptation strategies and options in the Community Workshops.



Community Workshops

Register your interest on the webpage. Dates and times TBC

[www.https://www.albany.wa.gov.au/council/projects/live-projects.aspx](https://www.albany.wa.gov.au/council/projects/live-projects.aspx)

CoastAdapt, 2022

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Get involved!

Community and stakeholder engagement is an important part of developing a CHRMAP. Have your say and get involved in the following ways:



Take the Coastal Values Survey online (scan the QR code below)



Join the Community and Business Reference Group – there are still some places available!



Attend the Community Workshops later in this project (dates and times TBC)



Spread the word with your networks, let's get as many people involved as possible



Register your interest in the project on the webpage.

www.albany.wa.gov.au/council/projects/live-projects.aspx

Project Timeline

The project is being undertaken in eight (8) key stages, which can be viewed on the project webpage. To summarise, the project stages have been grouped together and displayed below.

PART 1	PART 2	PART 3	PART 4
<ul style="list-style-type: none"> » Hazard assessment » Community coastal values and aspirations (survey) 	<ul style="list-style-type: none"> » Risk assessment and adaptation options » Community workshops and online polling 	<ul style="list-style-type: none"> » Draft CHRMAP Report » Community feedback 	<ul style="list-style-type: none"> » Produce final CHRMAP report



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Aspirations

Give the project team a sense of your aspirations for the Princess Royal Harbour ('the harbour') coastline. Using the coordinated colour sticky dot, please rate the following sentences.

 *Not very important*

 *Somewhat important*

 *Very important*

In 20 years, land in the coastal zone associated with the harbour will be provided for coastal foreshore management, public access, recreation and conservation;

In 20 years, land in the coastal zone associated with the harbour will have reduced risk associated with erosion and inundation;

In 20 years, land in the coastal zone associated with the harbour (land at risk from coastal erosion and inundation) will be managed to avoid inappropriate land use and development.

In 20 years, land in the coastal zone associated with the harbour will be managed to ensure land use and development does not accelerate coastal erosion or inundation risks or have a detrimental impact on the functions of public reserves.



Leave any other thoughts, comments or questions here.