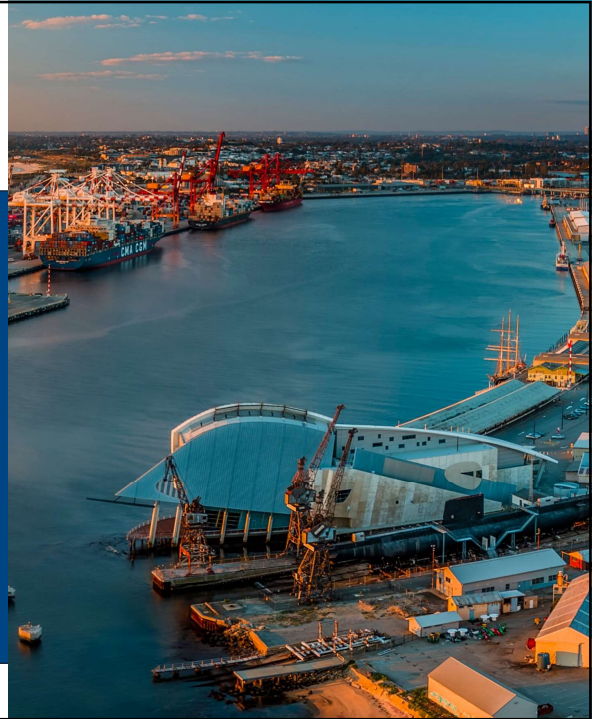




Coastal Hazard Management at Fremantle Ports

Connecting Western Australia to the world



1

Fremantle Ports

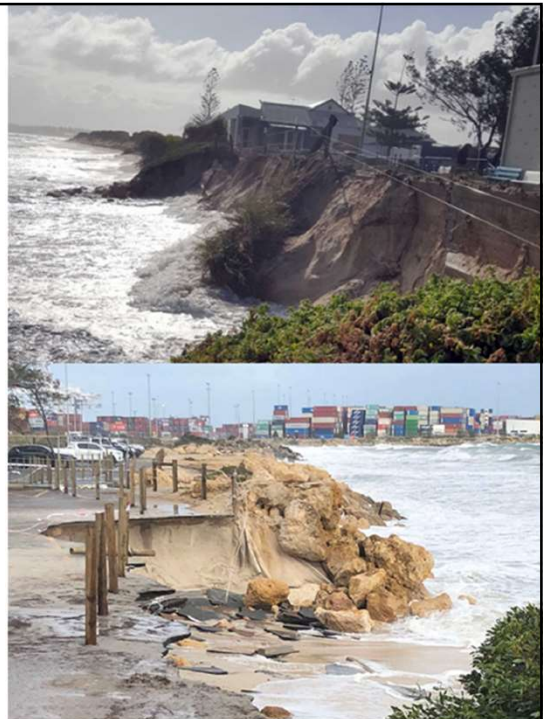
- Inner Harbour in Fremantle
 - Container Trade
 - Bulk Cargo
 - Vehicles
- Outer Harbour in Cockburn Sound
 - Kwinana Bulk Terminal
 - Bulk Goods
 - Kwinana Bulk Jetty
 - Bulk Liquids



2

Port Beach Erosion

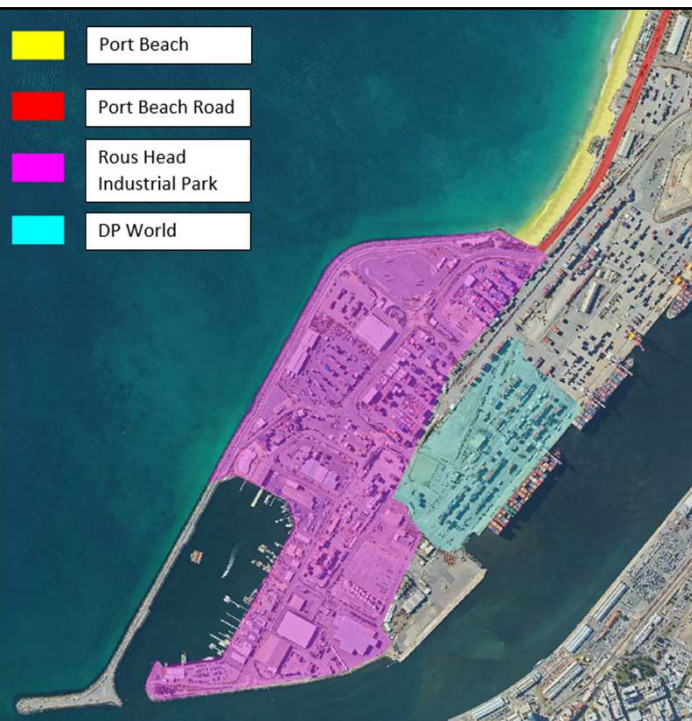
- Erosion caused by longshore sediment transport and severe storm events
- 7,500-10,000m³ of sand lost each year
- Images are from a severe storm event in 2019



3

Port Beach Erosion

- Port Beach Rd is the only access road for the Rous Head extension
- 4 adaptation options were assessed
 - Retreat and Protect
 - Protect
 - Headland / Groynes
 - Sand Nourishment via (Truck or Dredge)



4

Sand Nourishment Design

- 150,000 m³ dredged from Deep Water Channel
- Dredged material designed to be rainbowed onto a 750m section of Port Beach
- Design life is estimated to last 7-8 years



5

Sand Nourishment

- 500 T of small rocks removed
- 850 T of granite rock wall removed
- 47,000 m³ of sand placed on Port Beach to date



6

KBT Seawall

- 120m seawall constructed in 2013
- Proceeding storms in 2020, The new erosion allowance encroached on the main export conveyor



7

KBT Seawall Damage

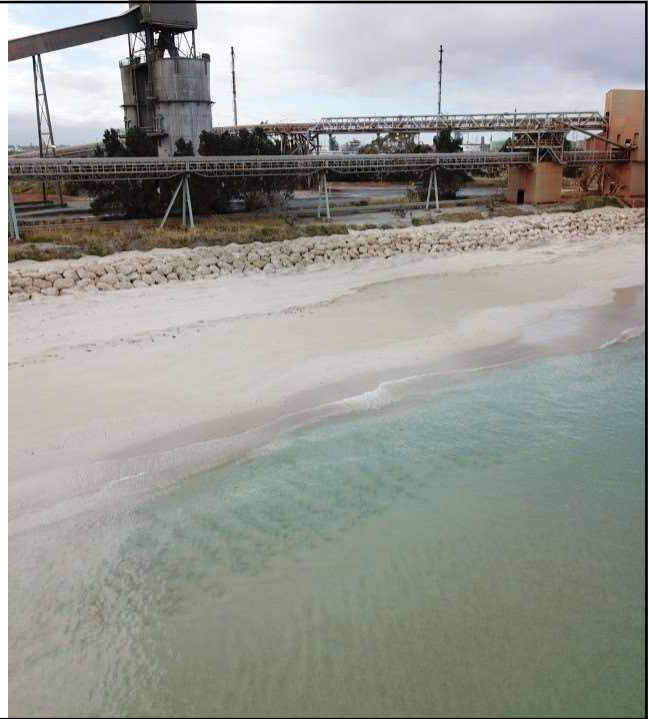
- Failure occurred in May of 2020
 - Loss of crest elevation
 - Roll out of armour rock
 - Failure of sections of the structure



8

New KBT Seawall

- 20 year ARI wave height – 1.13m
- 20 year ARI water level – 1.48m AHD
- 10 year sea level rise – 5cm

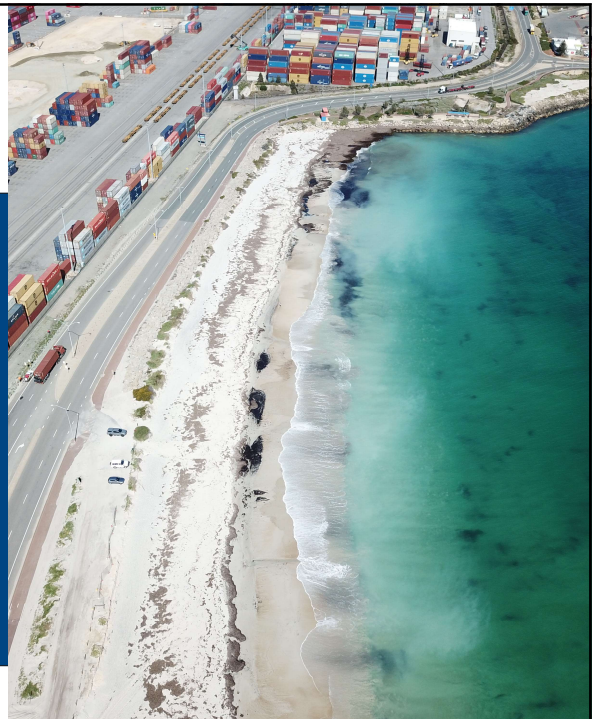


9



Thank You

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10