Climate Ready Coasts Statewide Erosion Hazard Assessment

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SOUTH AUSTRALIA

Government of South Australia
Department for Environment and Water

Climate Ready Coasts

- Coordinate consistent approaches to coastal hazard adaptation
- Improve understanding of coastal risk
- Increase capacity and knowledge of coastal hazard adaptation planning
- Create evidence-based decisions and investments in the coast.
- Data workstream

Funding partners

Australian Government
National Emergency Management Agency

Government of South Australia
Coast Protection Board

LG Research & Development Scheme
Local Government Association of South Australia

Delivery partners

Local Government Association of South Australia

Government of South Australia
Department for Environment and Water

Project management group

Local Government Association of South Australia

Government of South Australia
Department for Environment and Water

SOUTH AUSTRALIA COASTAL COUNCILS ALLIANCE

Adelaide Coastal Councils Network

ALEXANDRINA

CITY OF ONKAPARINGA

Statewide Erosion Hazard Assessment

- First pass understanding of statewide erosion hazard exposure.
- Consistent assessment where areas of erosion hazard can be compared with common methodology and assumptions.
- Statewide data and assessment of coastal processes to leverage in regional and local scale assessments.
- Hazard assessment, not a risk assessment
- Flood map viewer

HATCH

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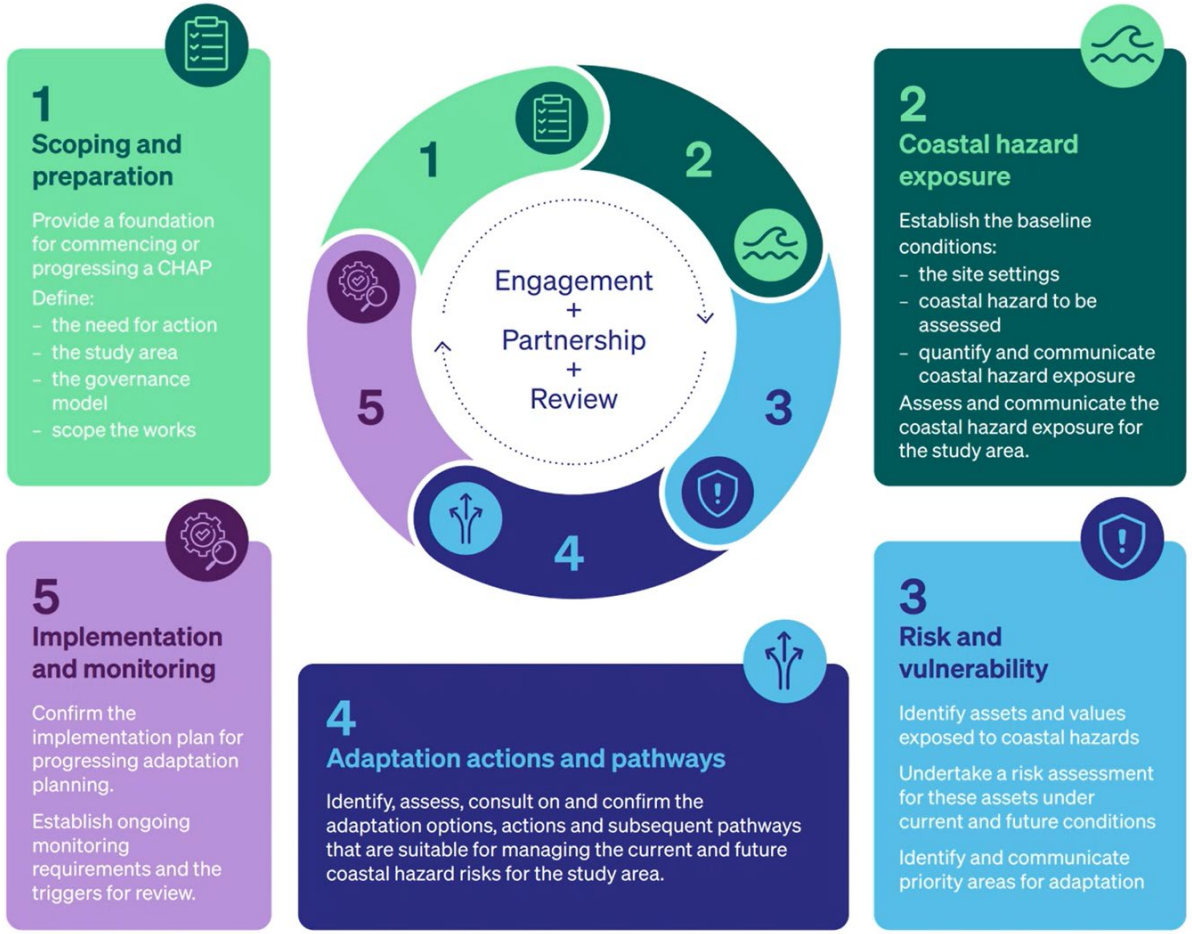
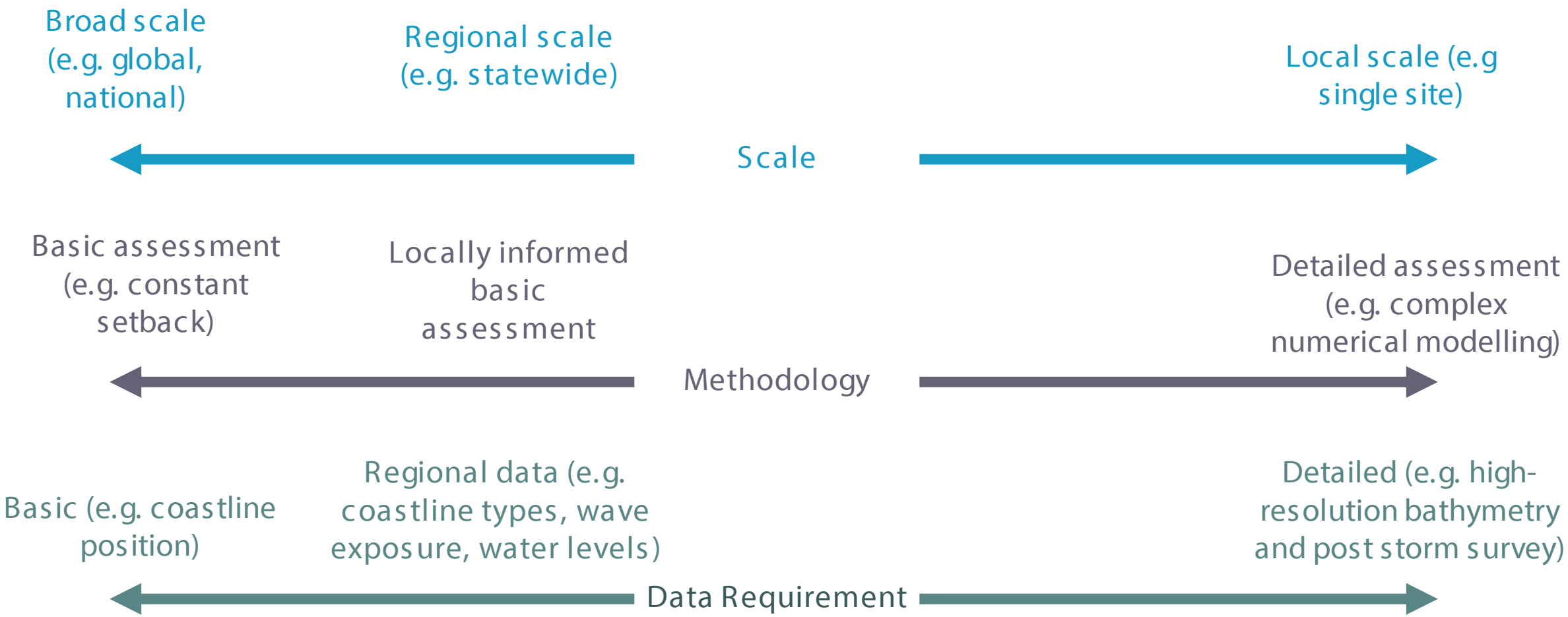
Statewide Erosion Hazard Assessment

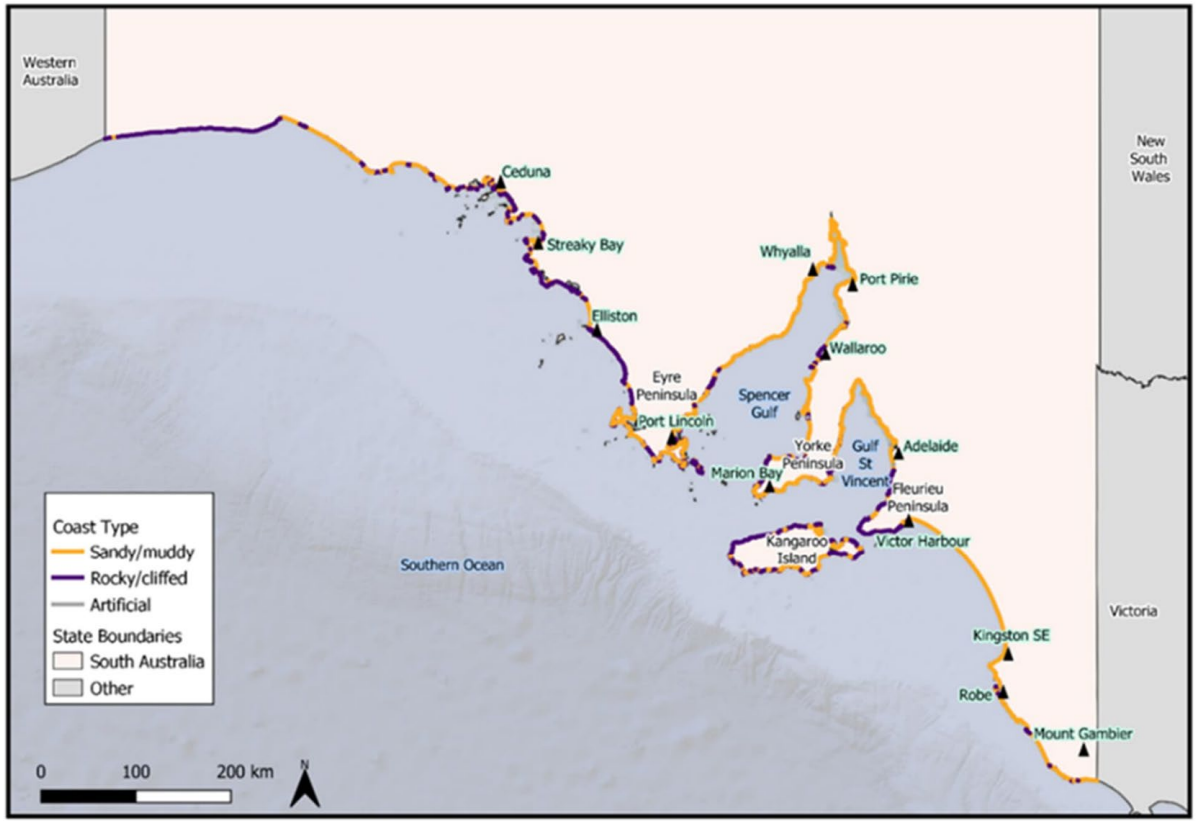


Scales of erosion assessments



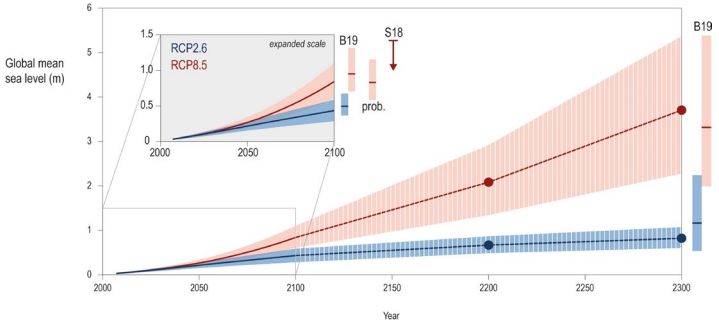
Methodology – Coastal characterisation

- Coastline characteristics impact their susceptibility to erosion and require varying methods of assessment.
- Estuaries are not included in the assessment.
- Where data is available and coastline is within close proximity to assets, a more detailed has been performed.



Methodology – Setback components

Setback
= S1 + S2 + S3
= Present day exposure to storms + Historic coastline trend + Impact of SLR

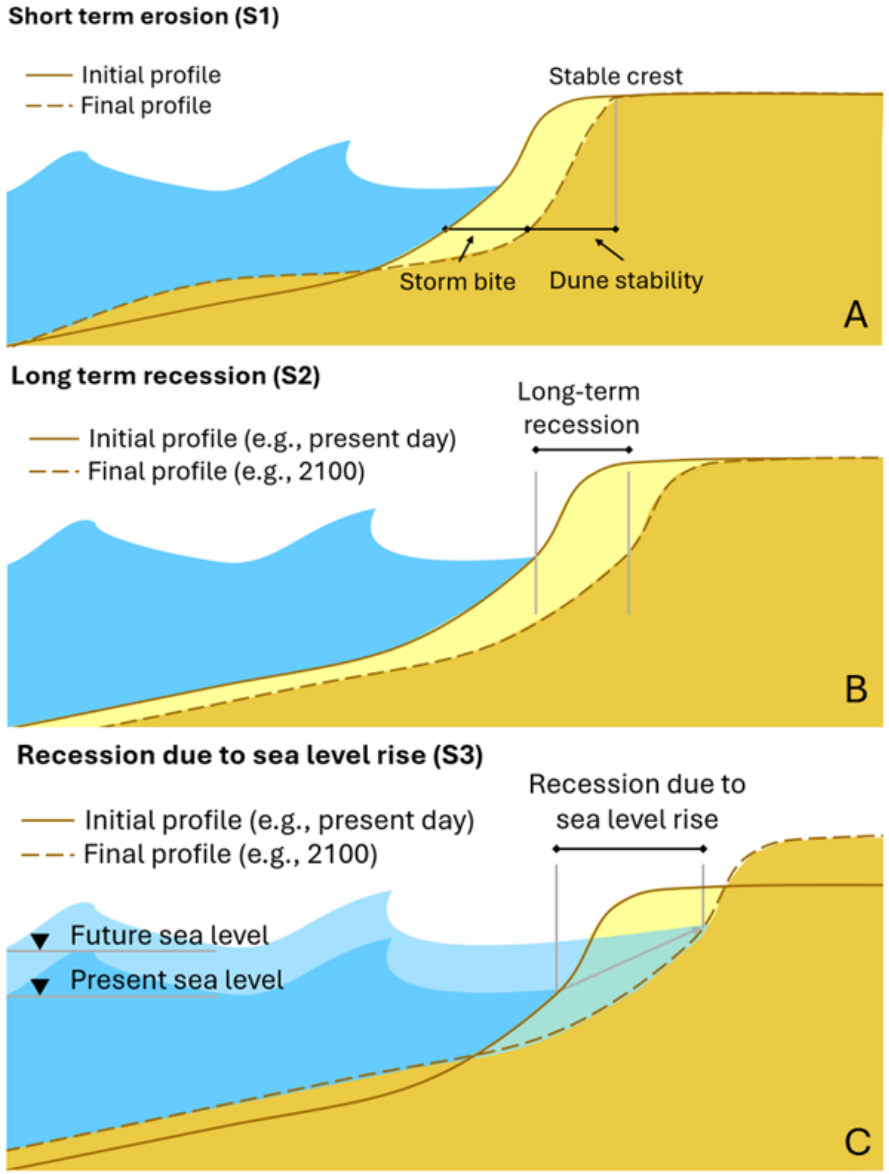


Methodology Sandy Coasts

S1: XBeach modelling of cross shore profiles (300+)

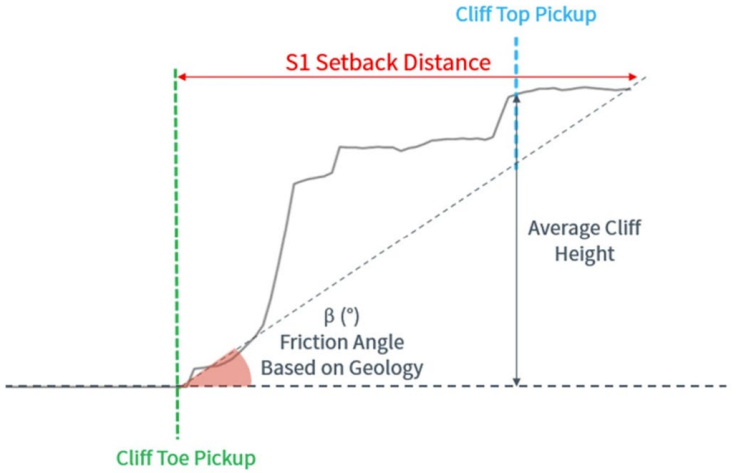
S2: Shoreline change rates from surveyed cross shore profiles and satellite derived shorelines (DEA Coastlines)

S3: Geometric profile translation (Bruun Rule)



Methodology Cliff Coasts

S1: Geometric setback based on cliff height and geology (stable angle)



S2: Typical recession rates based on geology

S3: Geology informed response to sea level rise

Methodology – probabilistic approach

Deterministic VS Probabilistic

Uncertainty across a number of variables is generally accounted for by 'stacking' conservative assumptions which may have a low probability of occurring

Uncertainty is quantified across variables which are then simulated (e.g. using Monte Carlo) to capture the range of likely outcomes

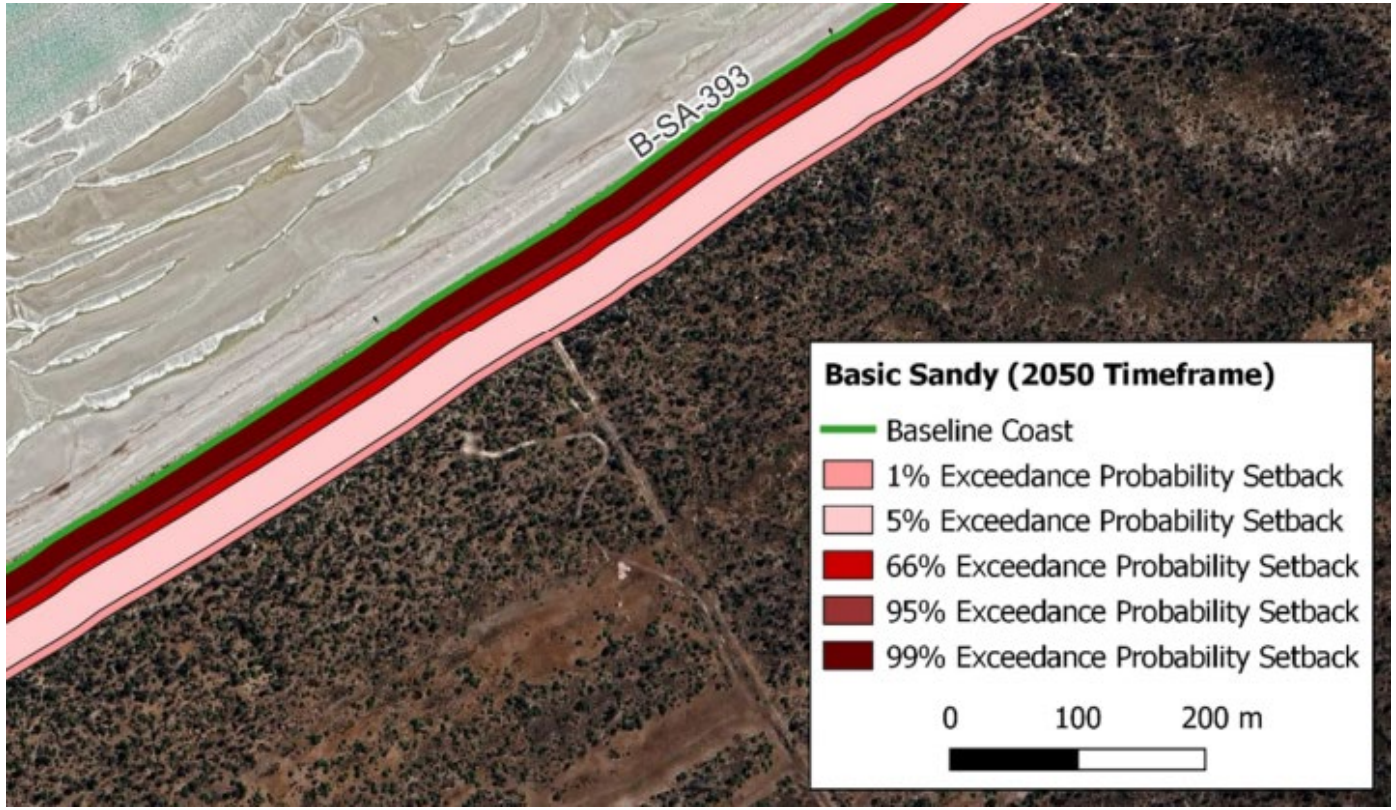
Methodology – probabilistic approach

Deterministic VS Probabilistic

Next Friday there will be 5mm of rain

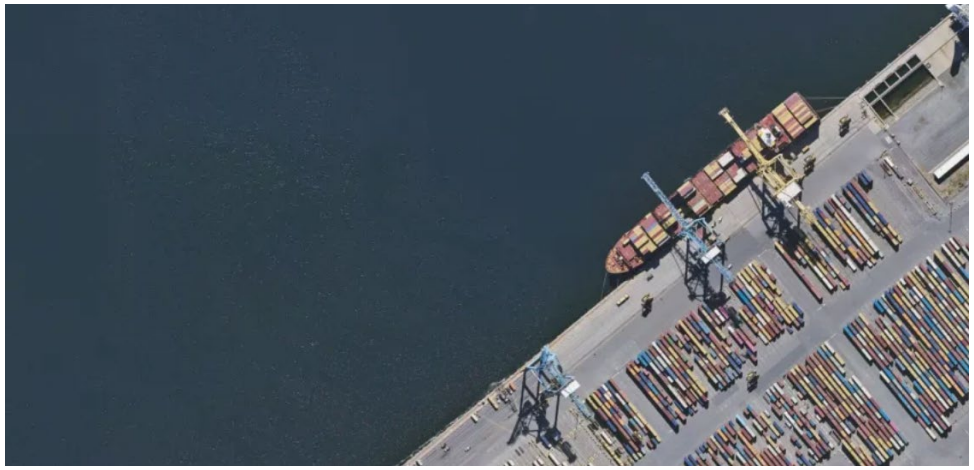
Next Friday there is a 90% chance of any rain and 50% chance of 3mm or more of rain

Results – probabilistic approach



Results – coastal structures

- Areas with an artificial backshore (e.g. ports) have not been assessed
- Areas with coastal protection structures (e.g. seawalls) have been mapped but their condition/suitability were not assessed



Results – what to consider?

- First-pass assessment, does not replace more detailed assessments.
- Detailed coastal management practices have not been captured in the assessment (e.g. beach nourishment)
- Areas of high uncertainty and high hazard exposure may be good candidates for further analysis and/or data collection.

What's next

- Help with statewide prioritisation
- Feed into more local scale assessment
- 2026 rollout, with targeted engagement (currently planning)
- Reach out to DEW coasts email: DEWCoasts@sa.gov.au

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