

Agnes Water / Seventeen Seventy– Shoreline Erosion Management Plan



Welcome and introductions



Survival tips for a successful workshop

- Respect and acknowledge the past – focus on the future
- All views and perspectives are important and valued
- Be clear and succinct in sharing your thoughts
- Respect instructions – everyone's time is important
- Parking lot

..... This is just part of the process

Agenda

- Welcome and introductions
- Purpose of the SEMP/Objectives
- Physical context
- Coastal values
- Management options and assessment
- Management actions

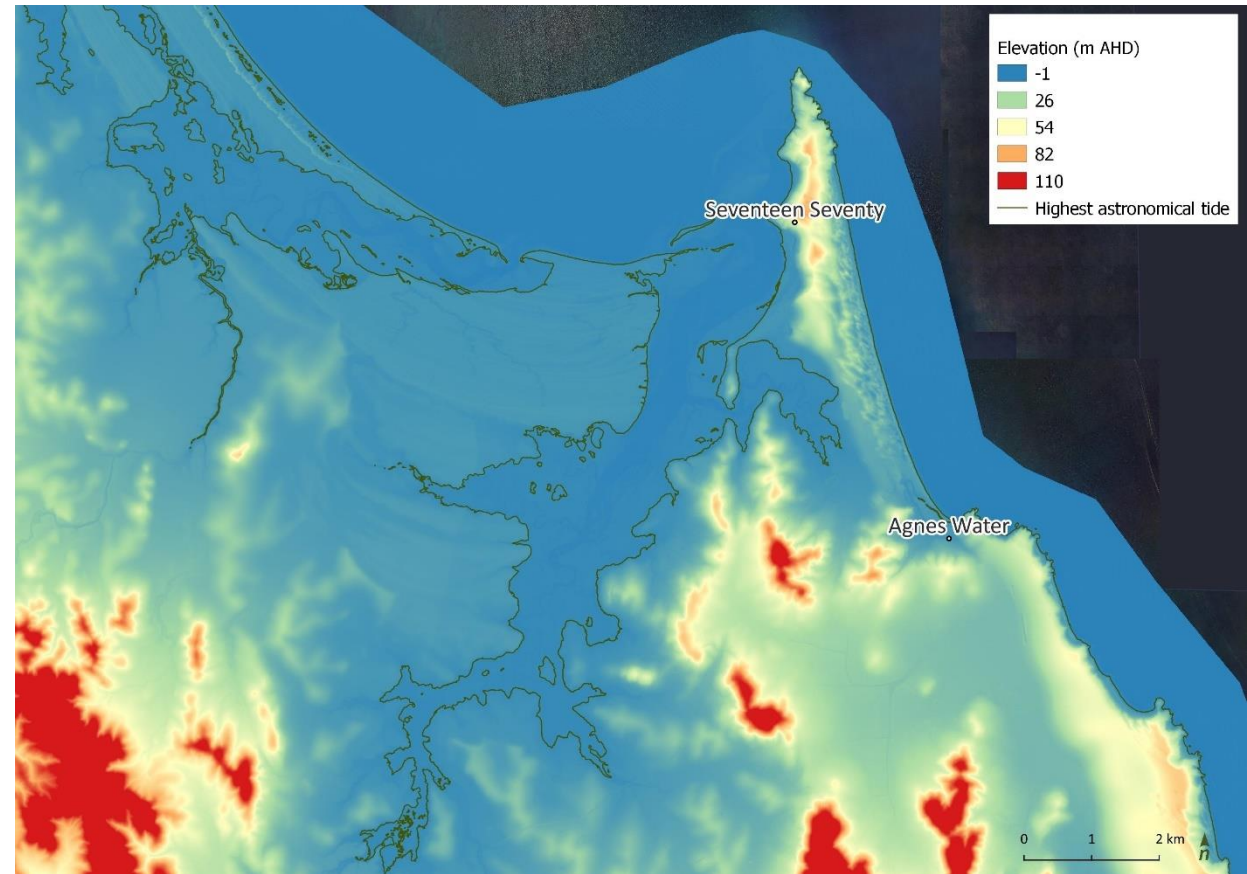
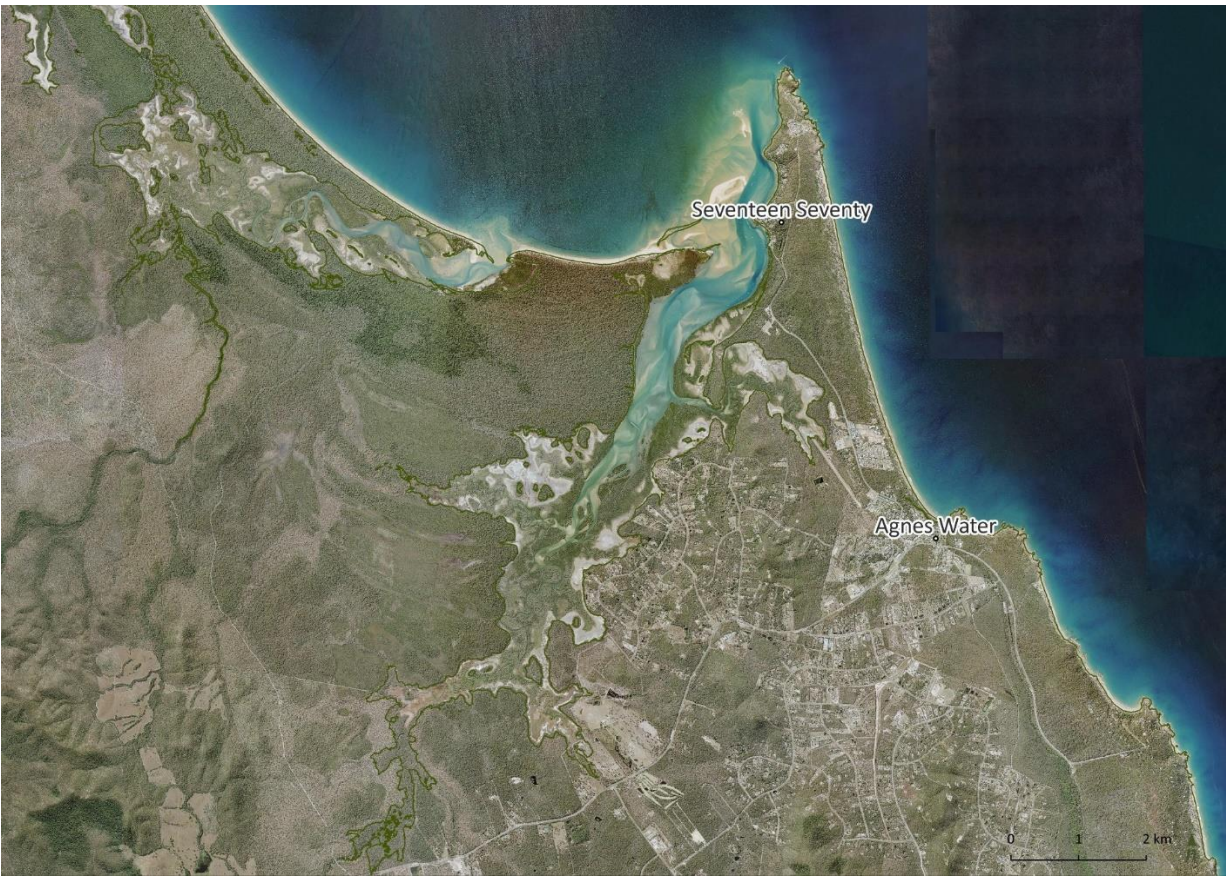


Purpose of the SEMP/Objectives

To provide:

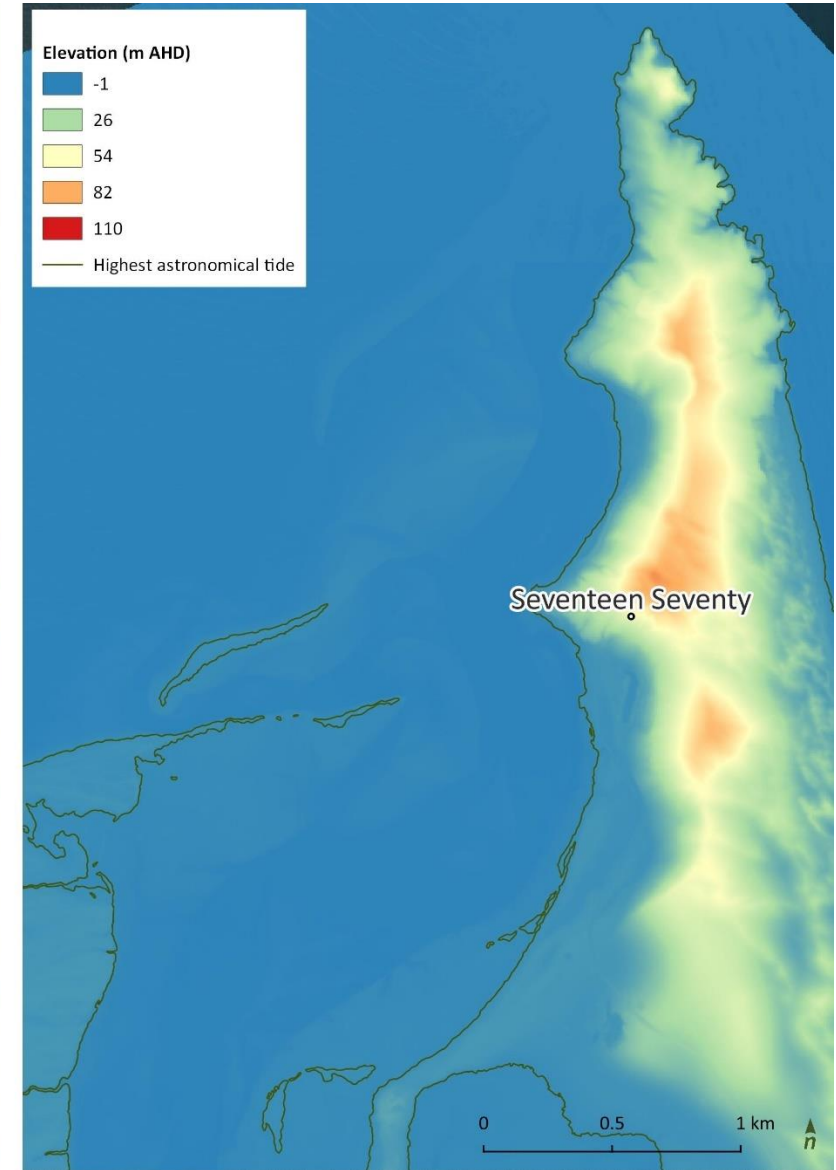
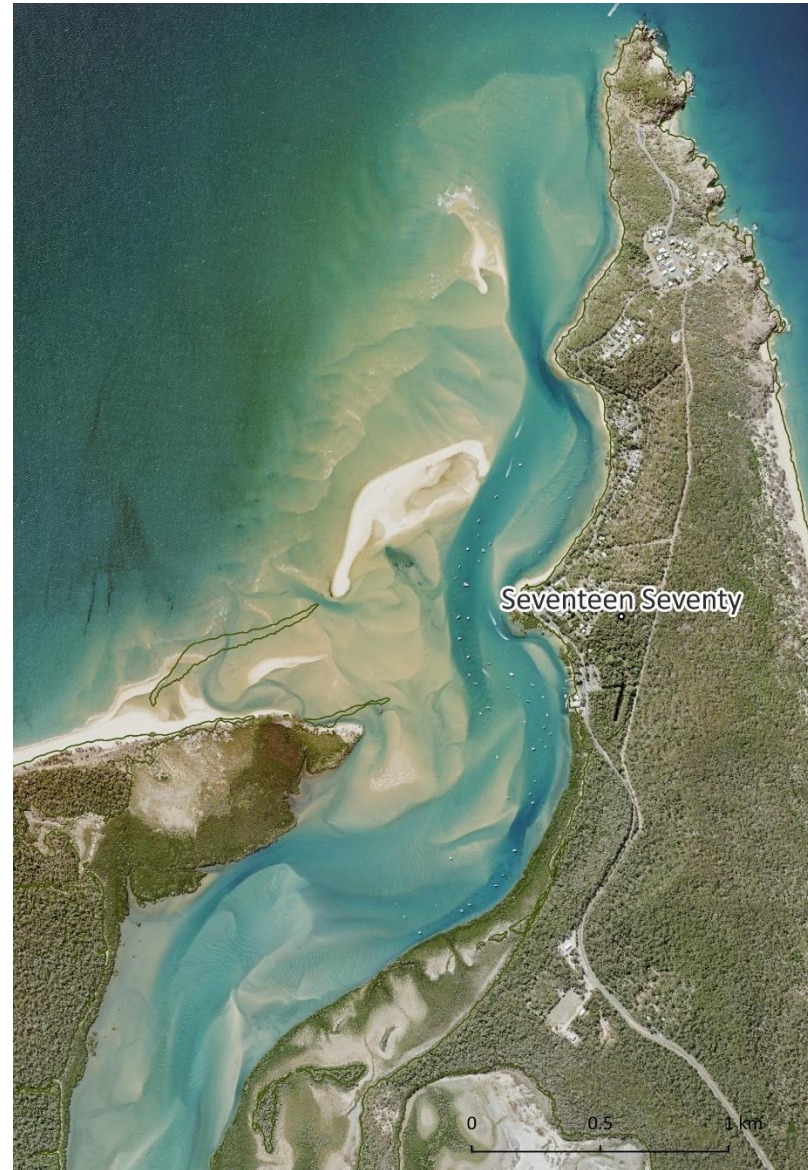
- Proactive shoreline management
 - Respond to present day issues and concerns
 - A management pathway for council and the community
-
- Intended to be a short to medium term plan.
 - Ongoing review is part of the process.

Physical context



○ Landscape setting

- Sandy beach ridges formed as barrier features across the Round Hill Creek estuary/delta zone
- Round Hill Creek
- Mangroves

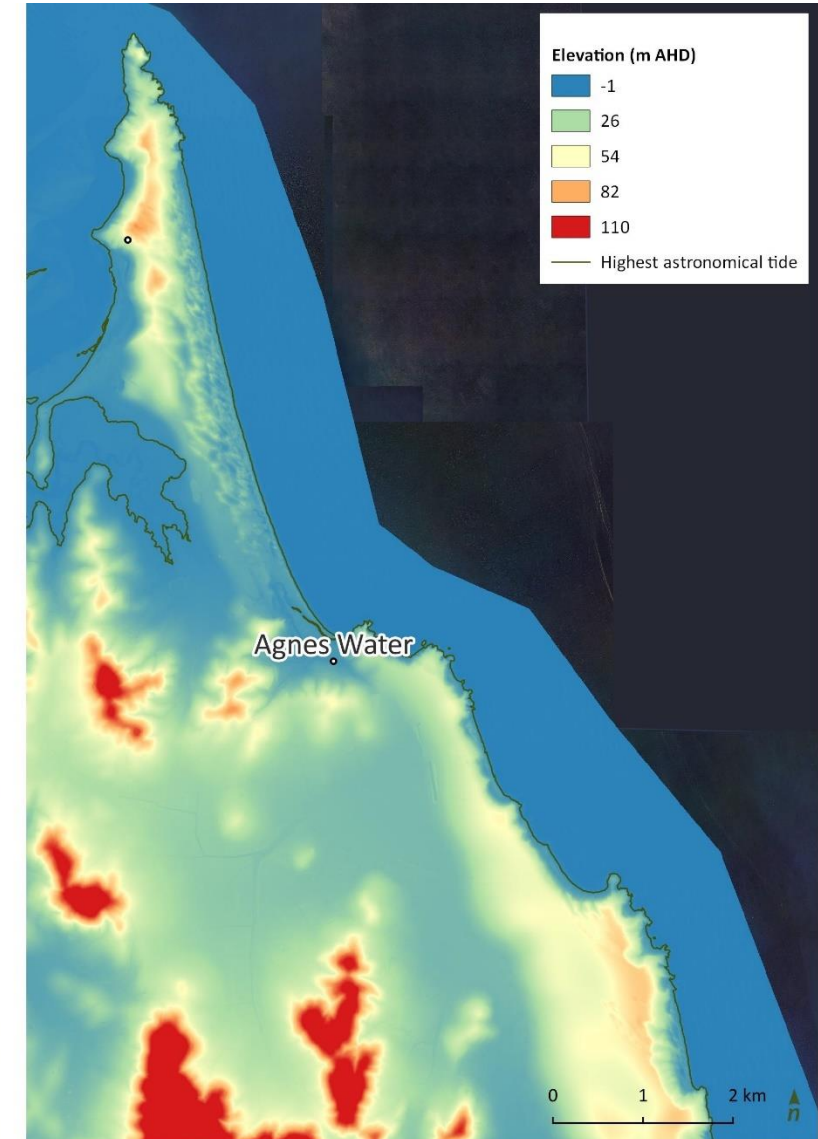
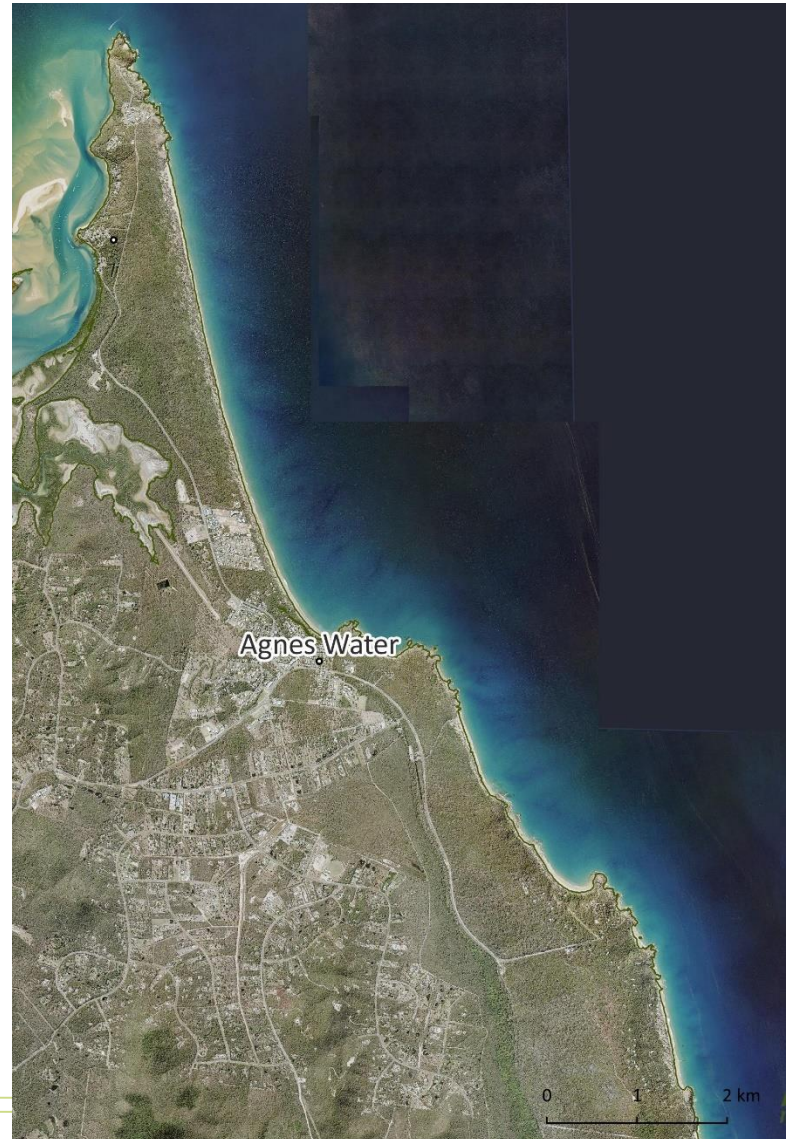


○ Landscape setting

Parabolic dunes

- sand builds up in arcs over underlying rock

Grasses, vines small shrubs and trees along the dunes



○ Coastal processes

SEVENTEEN SEVENTY

Tides and currents are a dominant driver of change

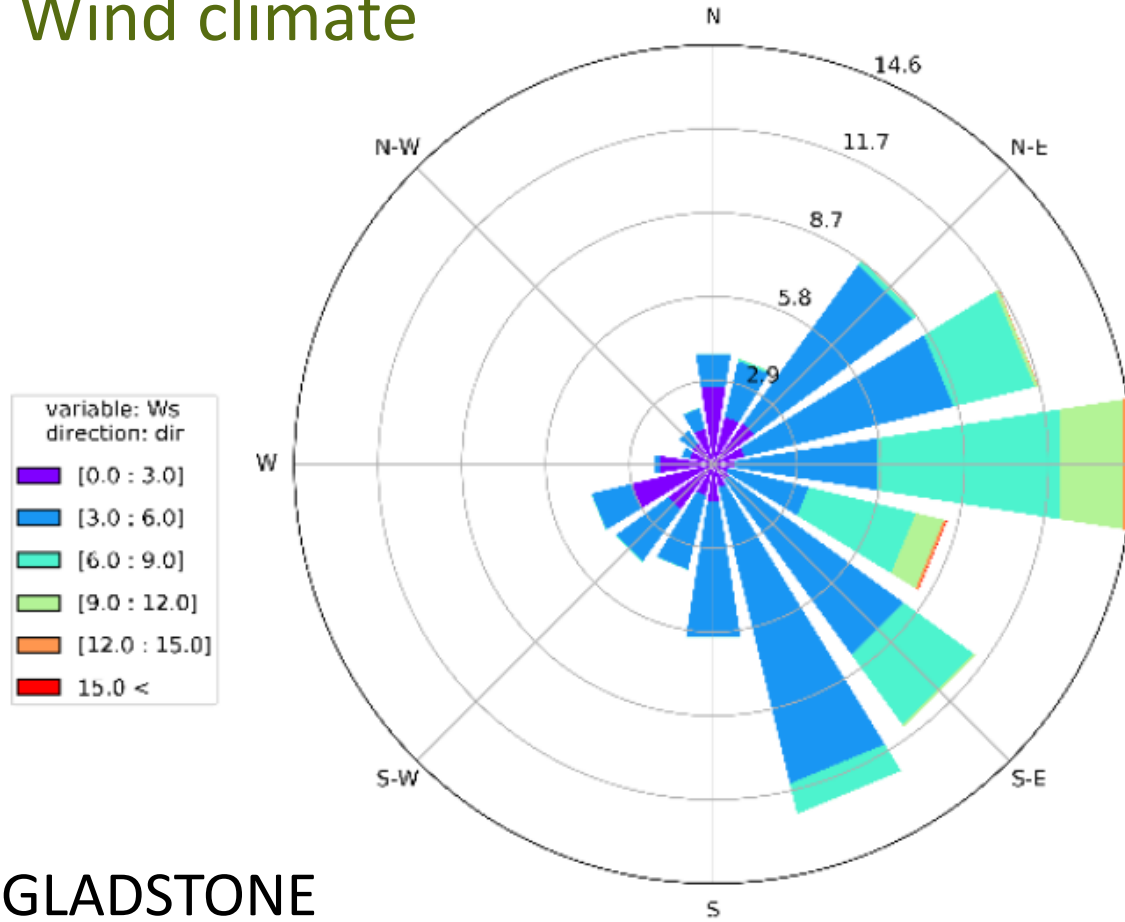
~3m tidal range, semi diurnal

Stronger currents on the flood tide

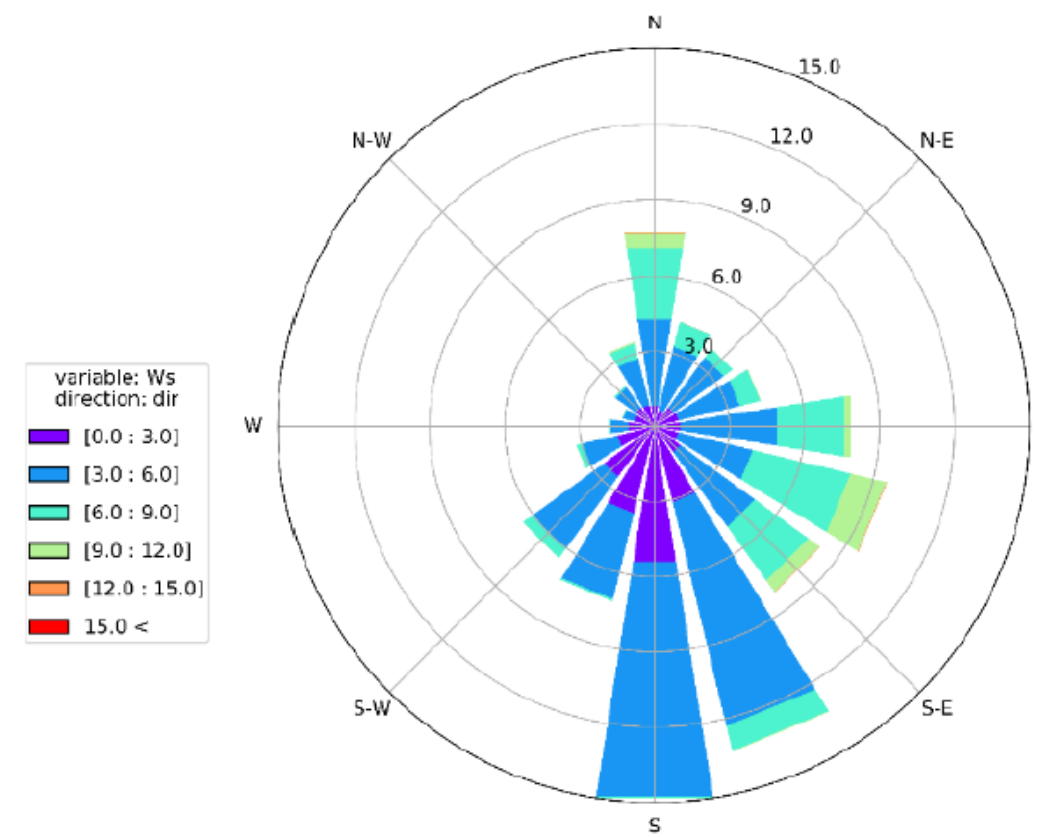
Currents (esp. ebb tide) influencing shoreline dynamics



○ Wind climate



GLADSTONE



BUNDABERG

○ Coastal processes

AGNES WATER

- Waves are a driver of change
- Longshore sediment transport regime driven by wave action
 - waves break at an angle to the shore – “push it along’
- Dominant northerly direction



○ Identified present and future erosion risks - State data

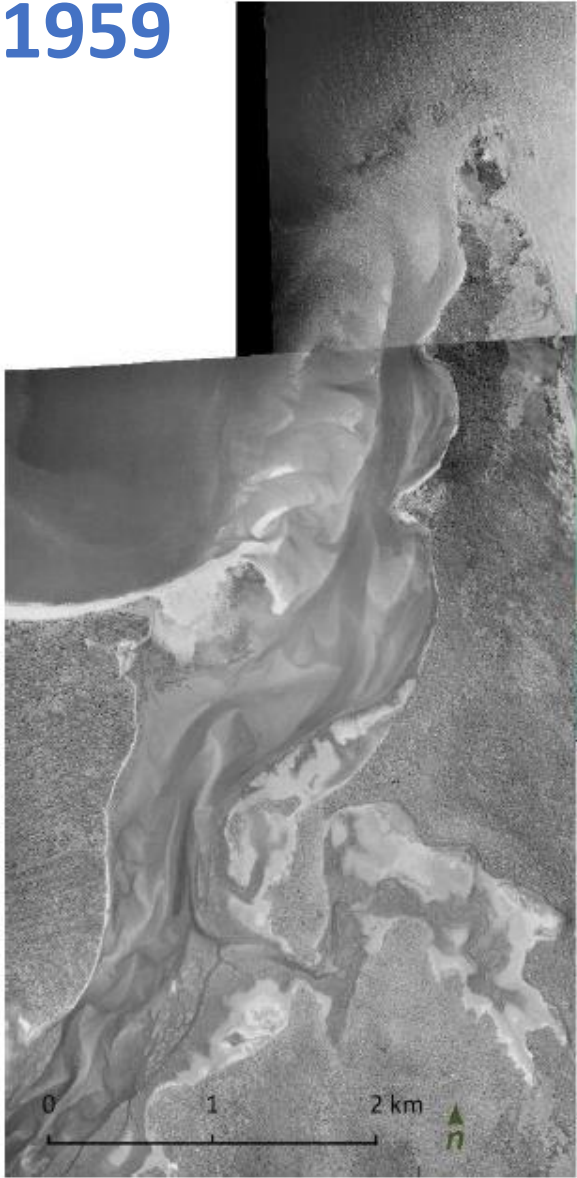
SEVENTEEN SEVENTY

- Length of Captain Cook Drive at northern end
- Captain Cook Drive in the central area of Endeavour Park
- Foreshore area - including the boardwalk
- No residential properties or other critical infrastructure likely to be impacted

AGNES WATER

- Erosion width extends across upper beach and into the toe of the vegetated dune system
- May impact on access points
- No residential properties or other critical infrastructure likely to be impacted.

1959



1975



2001



2018



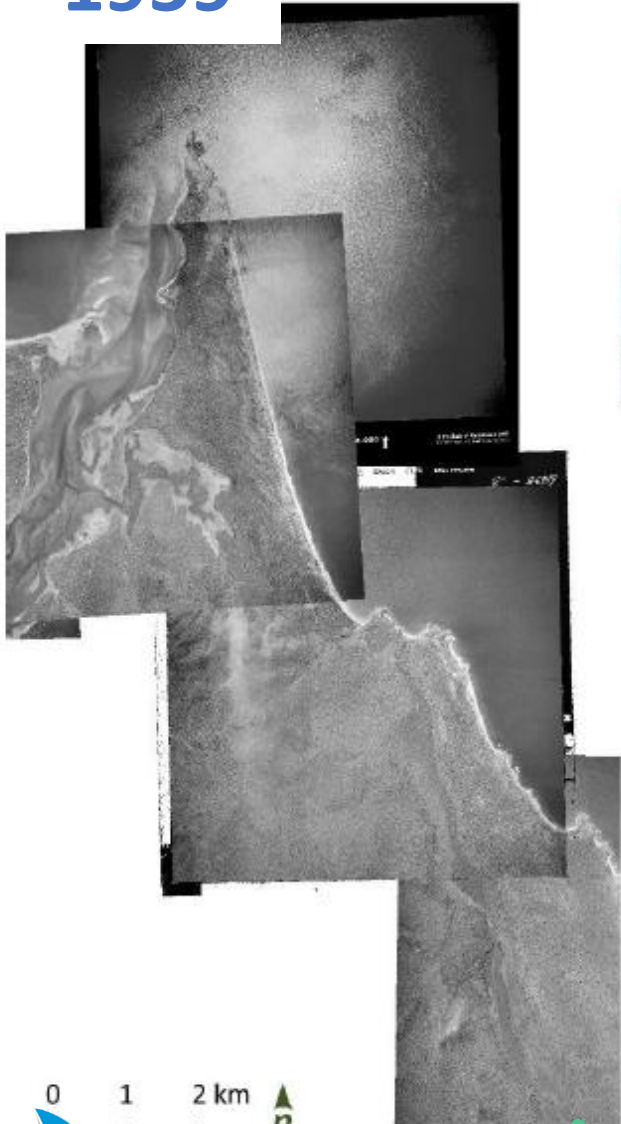
Figure 16. Historical aerial imagery for Seventeen Seventy (1959 to 2018)


1959

1975

2001

2018



0 1 2 km 

○ Trends in shoreline changes – historical imagery

Observations from 1959 to 2018 include:

- Broader coastline is relatively stable over recent decades
- Regular shifting of tidal channels, sand banks and shoals at the mouth of Round Hill Creek estuary and adjacent to the Seventeen Seventy shoreline
 - linked to dynamic process and likely dredging operations as well
- No major sediment losses/gains along coastline north and south of Agnes Water
- Road and residential development commencing from early 1970s, and expanding to present day extents.

○ Shoreline changes – Seventeen Seventy

- localised recession at northern extent of Seventeen Seventy shoreline – Captain Cook Drive runs close to coast.
- shoreline recession at Seventeen Seventy slowed from 1975 onwards, and shoreline has been in a relatively stable position since 2001.



○ Shoreline changes – Agnes Water

- moderate incremental recession at the southern end of the Agnes Water coastline,
- accretion further north towards Round Head headland.
- variable pockets of accretion and recession along the sandy pocket beaches of the rocky coastline to south of Agnes Water.



| Seventeen Seventy | Agnes Water Main Beach | Agnes Water surrounds (North, South) |
|--|--|--|
| Road at risk – Captain Cook Dve | Erosion hotspots – scarping | Erosion scarps – Workmans |
| | Loss of dune buffer | |
| Boardwalk failing, impacting connectivity , safety | Bare dunes Damaged/sparse vegetation | Erosion hotspots around desal infrastructure |
| Erosion hotspots | Informal access | |
| Slumping around existing rock protection | Failing access structures | |
| Other considerations | | |
| Low-lying assets may be inundated in longer term | Creek opening/closing Freehold properties | |
| Current management | | |
| <ul style="list-style-type: none"> - Closure of boardwalk - Some geobags and protection of erosion areas | <ul style="list-style-type: none"> - Access maintenance - Planting and fencing | |





○ Trajectory of change and management focus

- Prevailing coastal processes will continue to drive episodes of erosion
- With a changing climate and projected sea level rise, areas prone to erosion and tidal inundation, and the magnitude of erosion in storm events, is expected to increase.
- Assets and infrastructure are positioned such that erosion has already impacted on key infrastructure. This is likely to continue.
- Erosion will continue to have an effect on shoreline amenity, recreation and other social and economic values for the towns and region.

Questions/ Comments?



Values - Environmental

-  MSES - Marine Park
-  MSES - Declared fish habitat area
-  MSES - 'High Ecological Significance' wetlands
-  MSES - Regulated vegetation



Values - Cultural

- Native title

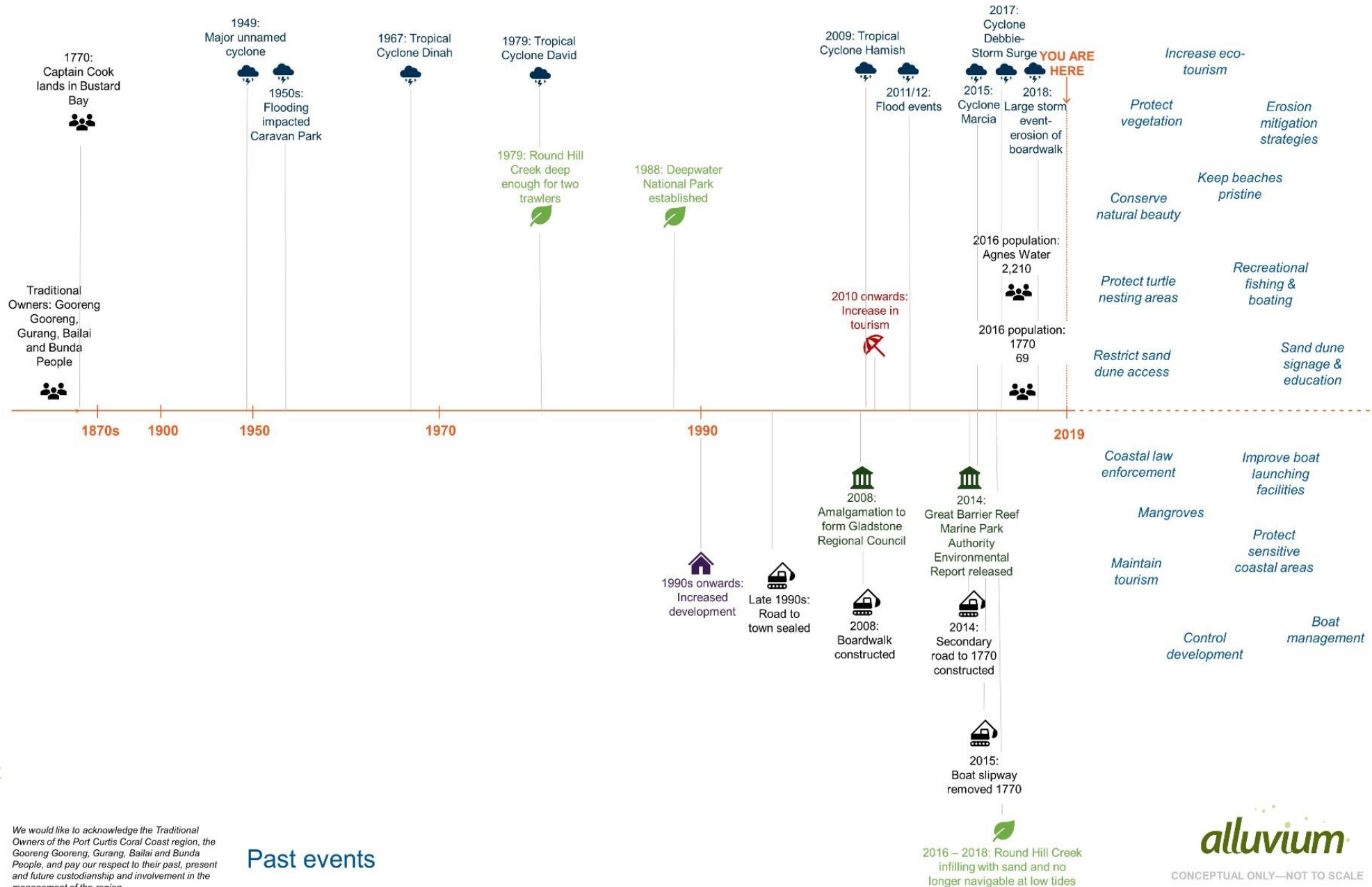


Values – Economy

- Tourism is the economic driver
 - Northernmost surf beach
 - Great Barrier Reef – gateway
 - Heritage and history
 - Fishing

Values and experiences - recap





We would like to acknowledge the Traditional Owners of the Port Curtis Coral Coast region, the Gooreng Gooreng, Gurang, Bailai and Bunda People, and pay our respect to their past, present and future custodianship and involvement in the management of the region.

Past events

Thoughts for the future?

Thoughts for the future?



○ Key values



Coastal ecosystem (natural beauty)



Coastal flora and fauna (terrestrial and aquatic), in particular EPBC listed flora and fauna (e.g. turtles)



Recreational fishing and boating



Tourism (economic driver)



Coastal infrastructure

○ Key issues

- Erosion and retreat of dunes following major storm/cyclone events
- Anthropogenic impacts from unauthorised access to sand dunes (e.g. sand boarding and informal beach access)
- Development impacts – increase in population
- Tree plantings being damaged and lost due to continued access
- Sand infilling into Round Hill Creek outlet
- Boat wake contributing to erosion in Round Hill Creek
- Beach fires
- Low pressure sewer system exposed and fail during storm events.
- Insufficient boat landing facilities
- Weed infestations (including Lantana)
- Damage to infrastructure following major storm/cyclone events including 1770 boardwalk and beach stair accesses
- Smothering of infrastructure from sand
- Existing erosion protection is deteriorating (e.g. sandbags)

○ Outcomes

- Protect sand dunes
- Protect and enhance habitat and remnant vegetation
- Maintain aesthetics and recreation value
- Maintain tourism
- Maintain historical connection
- Maintain fishing access

Questions/Comments?

○ Management objectives

Suitable options for erosion management should:

- Be in accord with QLD State Government policy for coastal management
- Meet necessary planning approvals requirements for the site setting
- Be feasible for available budgets and funding sources
- Be in accord with community expectations - The option should align with expectation of local community stakeholders. This includes the values of the site and desired outcomes from management actions.
- Enable prompt action.

Management options

Seawall/revetment



Groynes



Breakwater



Artificial reef



Sand renourishment



Vegetation



Management options & assessment

Part A – Seventeen Seventy

Site 1 – Captain Cook Drive

Site 2 – Main beach

Part B – Agnes Water Main Beach

Part C – North and south of Agnes Water



○ General principals for management

General principles for management that **apply to all sites** include:

- Minimise disturbance to dunes and vegetation
 - limiting access points across dunes, dune toe
- Enhance dune vegetation – which assists to trap windblown sand and assist dunes to accrete / build up.
- Boost additional dune care actions
 - including sand fencing and revegetation of dunes, to enhance natural dune building processes between storm events.

Seventeen Seventy –

SITE 1 : Captain Cook Drive

Road is main/last access road to Round Hill headland

Considered a “critical asset”

Recommendations :

Properly designed revetment protection

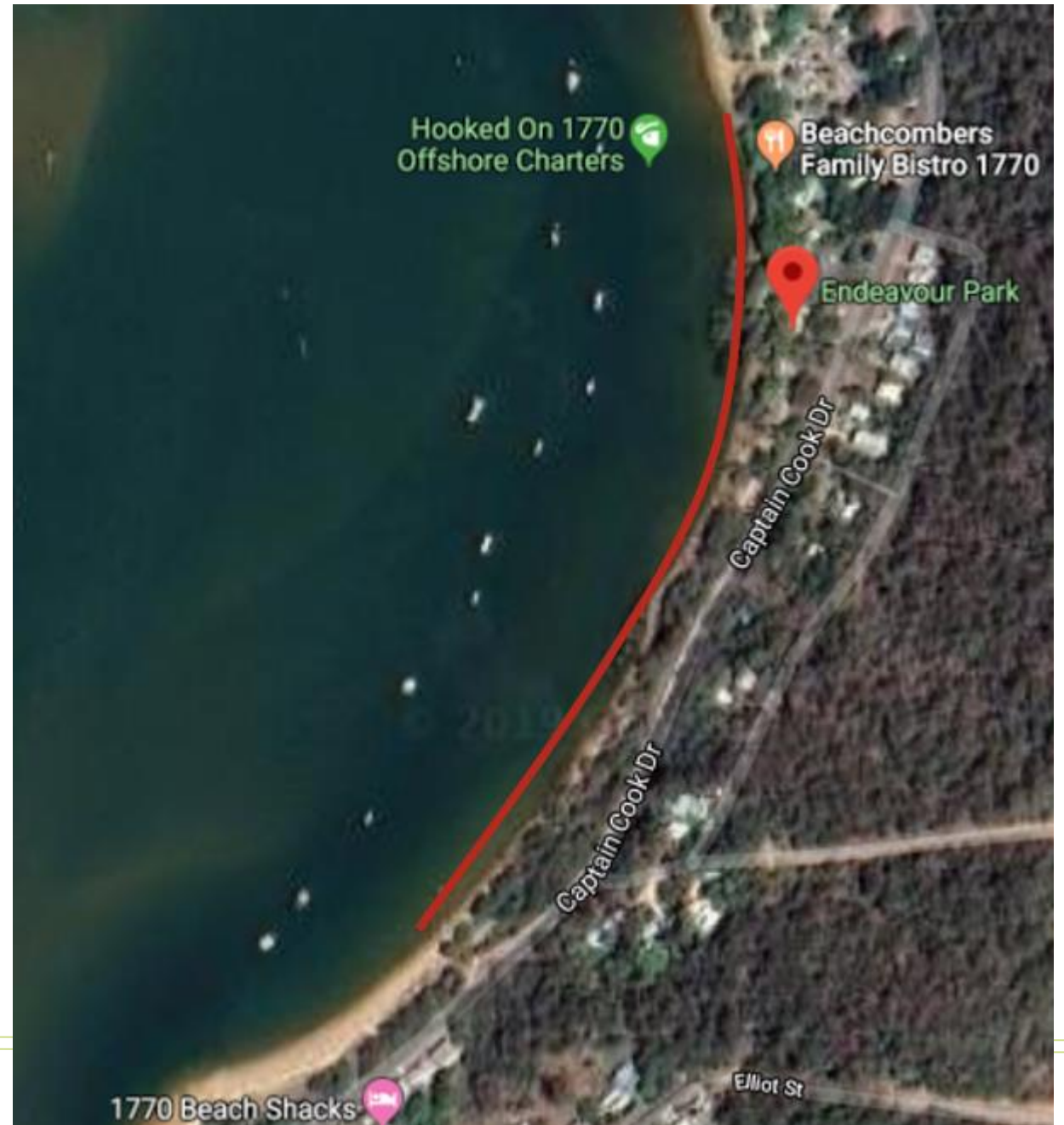
~150 m

Rock material – design life



Seventeen Seventy –

SITE 2 : Main Beach



Seventeen Seventy –

SITE 2 : Main Beach

Recommendations:

- Embrace an alternative future state – may include gradual transition
- Upgrade boardwalk – improve design and functionality
- ‘Trigger’ for future seawall establishment
- Active management to maintain sandy shoreline/buffer
 - Longer term – sand nourishment, groynes

| | | | Be in accord with State planning policy | Meet planning approvals requirements | Be feasible within budgets and funding sources | Be in accord with community expectations | Enable prompt action |
|------------------|--------|--|---|--------------------------------------|--|--|---------------------------|
| Formal seawall | Rock | | Unlikely to meet criteria | May meet criteria | May meet criteria | May meet criteria | Unlikely to meet criteria |
| | Geobag | | Unlikely to meet criteria | May meet criteria | May meet criteria | May meet criteria | Unlikely to meet criteria |
| Formal groyne | Rock | | May meet criteria | May meet criteria | May meet criteria | May meet criteria | Unlikely to meet criteria |
| | Geobag | | May meet criteria | May meet criteria | May meet criteria | May meet criteria | Unlikely to meet criteria |
| Breakwater | | | May meet criteria | Unlikely to meet criteria | Unlikely to meet criteria | Unlikely to meet criteria | Unlikely to meet criteria |
| Artificial reef | | | May meet criteria | Unlikely to meet criteria | Unlikely to meet criteria | Unlikely to meet criteria | Unlikely to meet criteria |
| Sand nourishment | | | Best meets criteria | May meet criteria | May meet criteria | Best meets criteria | Best meets criteria |
| Revegetation | | | Best meets criteria | Best meets criteria | Best meets criteria | Best meets criteria | Best meets criteria |

| | |
|--|---------------------------|
| | Best meets criteria |
| | May meet criteria |
| | Unlikely to meet criteria |

Part B – Agnes Water Main Beach

Recommendations :

- Dune protection and maintenance – enhance dune building/accretion and recovery after storm events, including minimising disturbance, revegetation, sand fencing.
- Management of access points (and dune ‘steepening’)
- Potential sand scraping after events
- Monitoring – including Coast snap



Part C – North and south of Agnes Water



Recommendations:

- Dune protection and maintenance
 - enhance dune building/accretion and recovery after storm events, including minimising disturbance, revegetation, sand fencing.
- Ensuring geobags and desal infrastructure remain buried (post-storm sand scraping).

○ Recommendations

Part A – Seventeen Seventy

Site 1 – Captain Cook Drive

Rock revetment

Site 2 – Main beach

Active management, with trigger for seawall

Longer term – sand nourishment, groynes

Boardwalk repair/upgrade, consider transition

Part B – Agnes Water Main Beach

Active management - revegetation, fencing, access control, signage
Monitor

Part C – North and south of Agnes Water

Monitor

○ Monitoring

- Establishment of monitoring points (photo and depth markers) for monthly beach profile monitoring, and potential coast snap program.
- Annual and event-based review of shoreline profile change
- Annual update of triggers for a SEMP review or change in management



○ Triggers for change

A review of the SEMP should be completed every 5 years to confirm and update the plan.

Triggers for an earlier review include:

- Loss of >50 % of placed sand within 2 years or 1 event – triggering review of SEMP and sand volumes
- 1%AEP event erodes greater width than anticipated
- Erosion of shoreline to within 15 m of critical asset/s (road, services) triggering the need to initiate seawall consideration and design.

Next steps

- Stakeholder feedback
- Recommendations through the SEMP
- Develop an action plan for implementation
Including : scheduling, budgets and funding, maintenance, capital works