

# Turkey Beach – 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

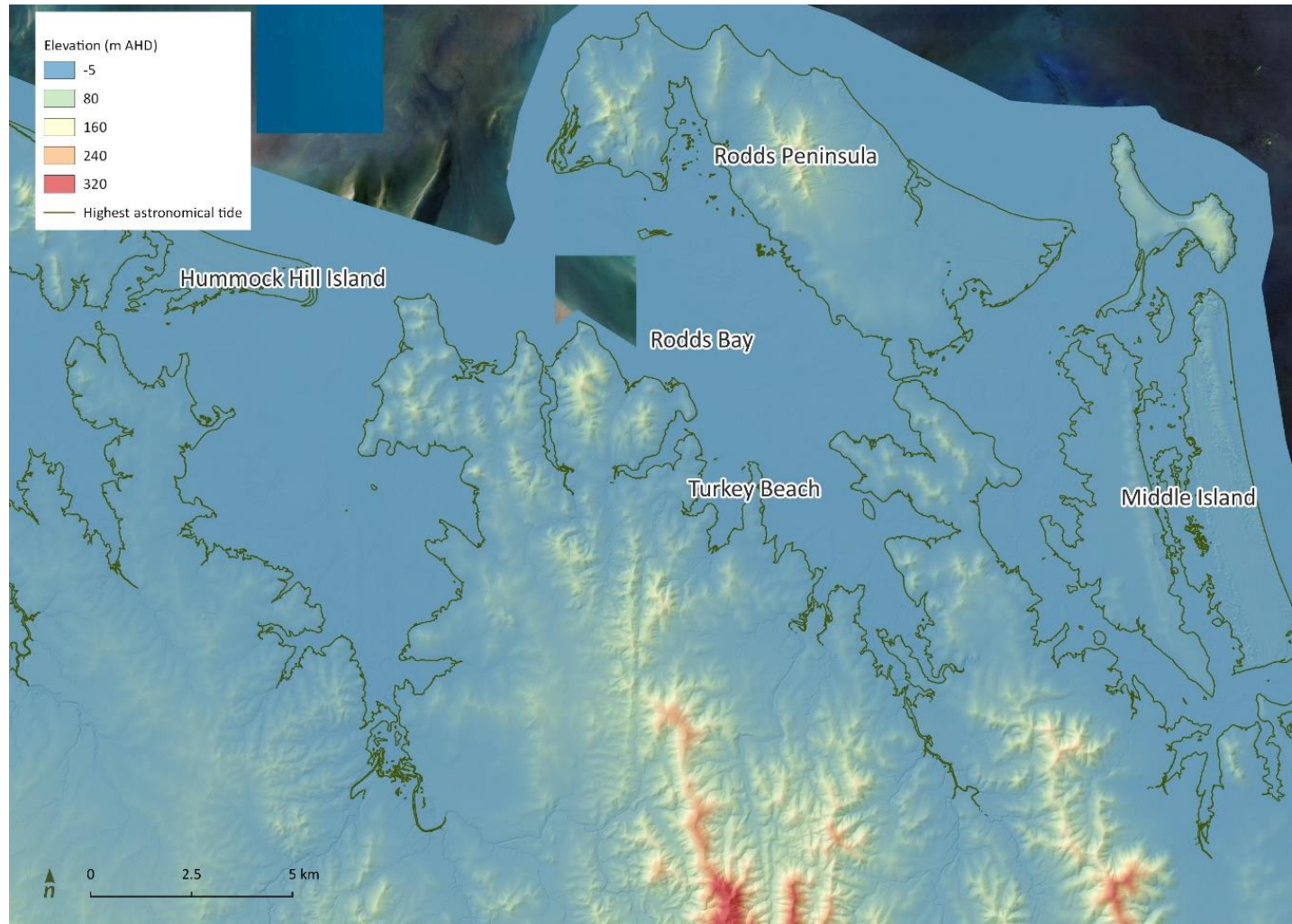


# Physical context – Landscape setting

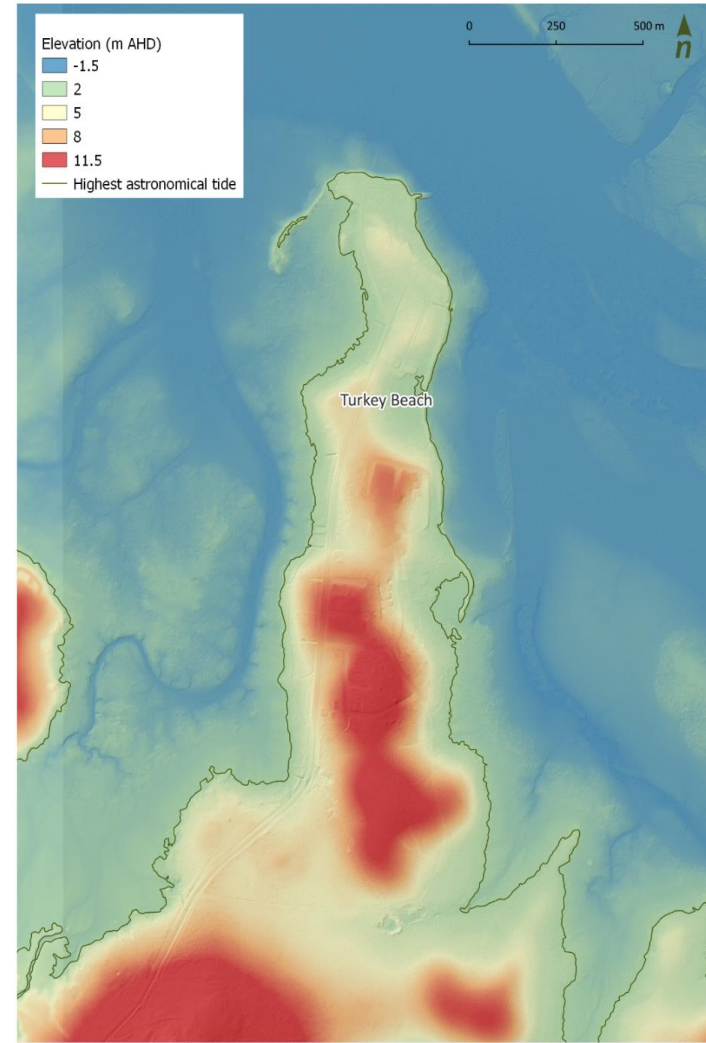
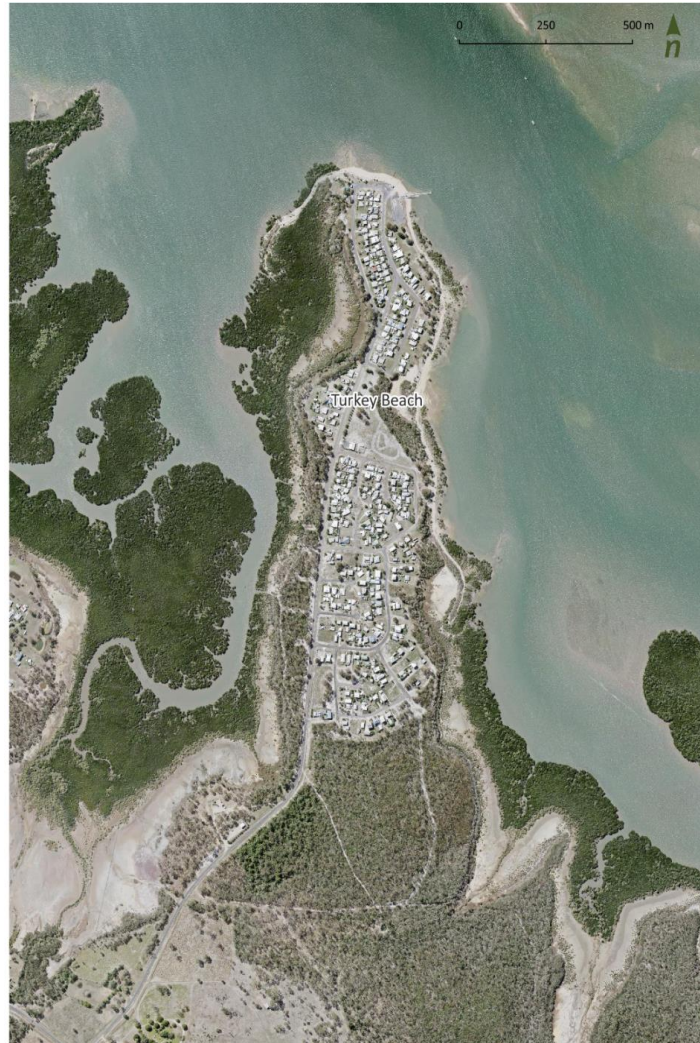




# Physical context – Landscape setting

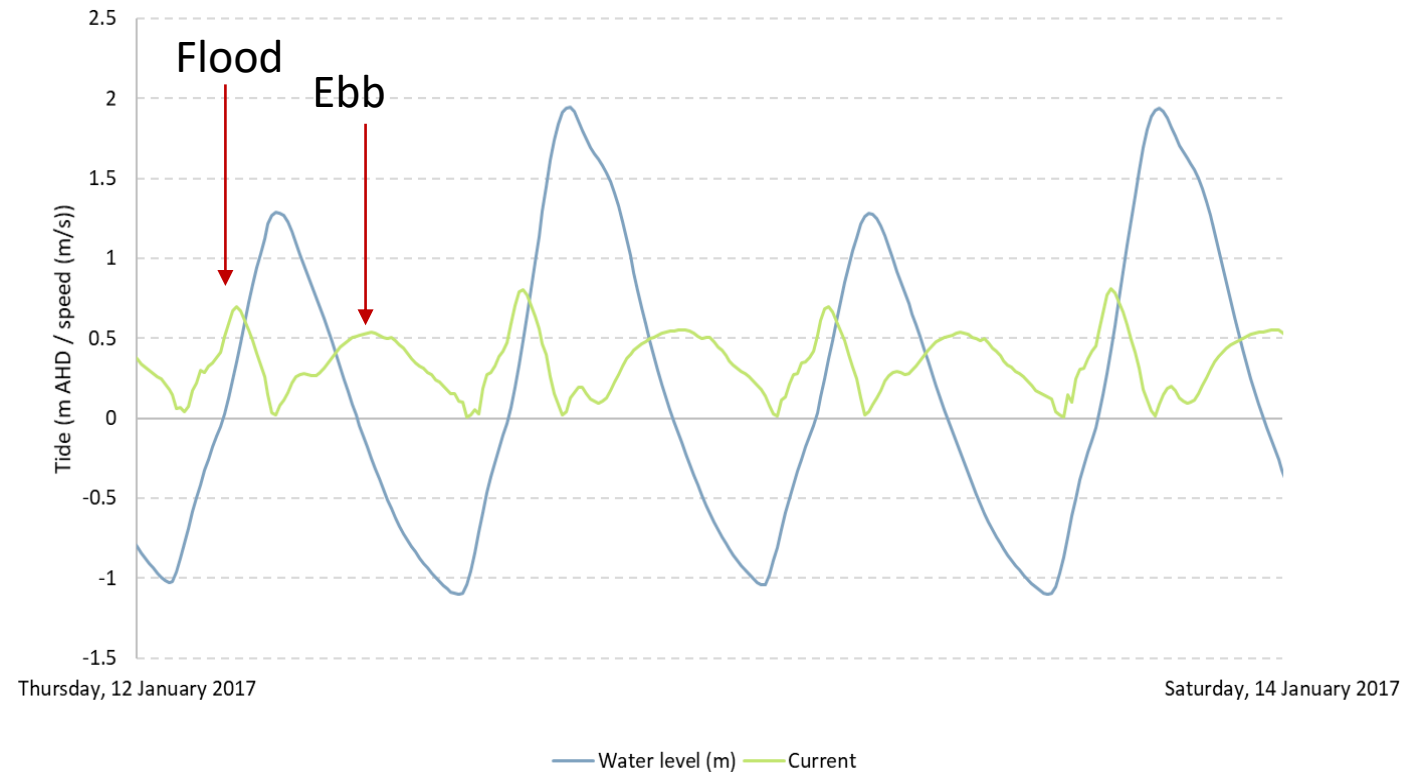


# Physical context – Landscape setting





# Physical context – tides and tidal currents

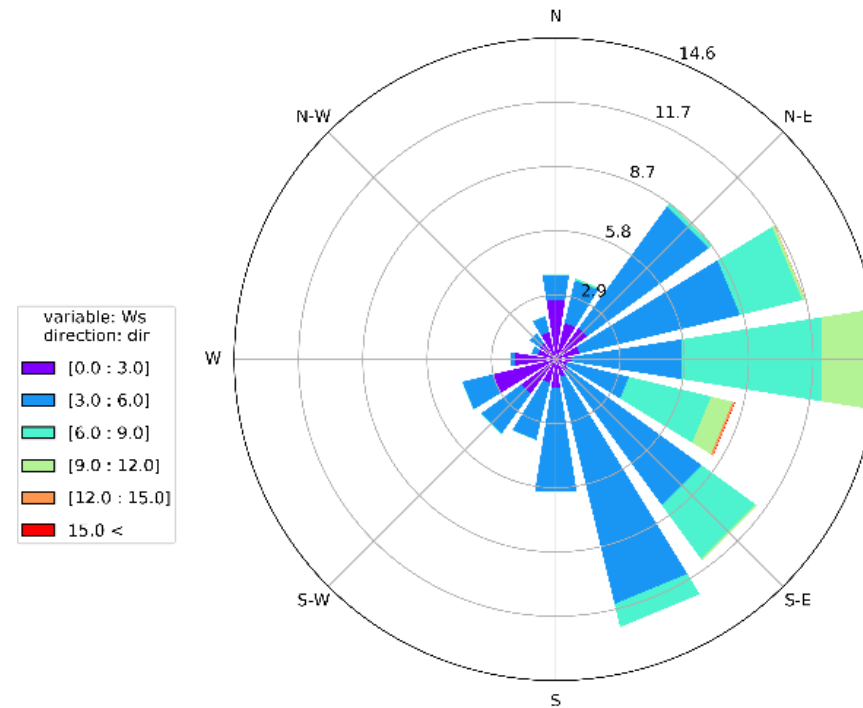


# Physical context – tides and tidal currents

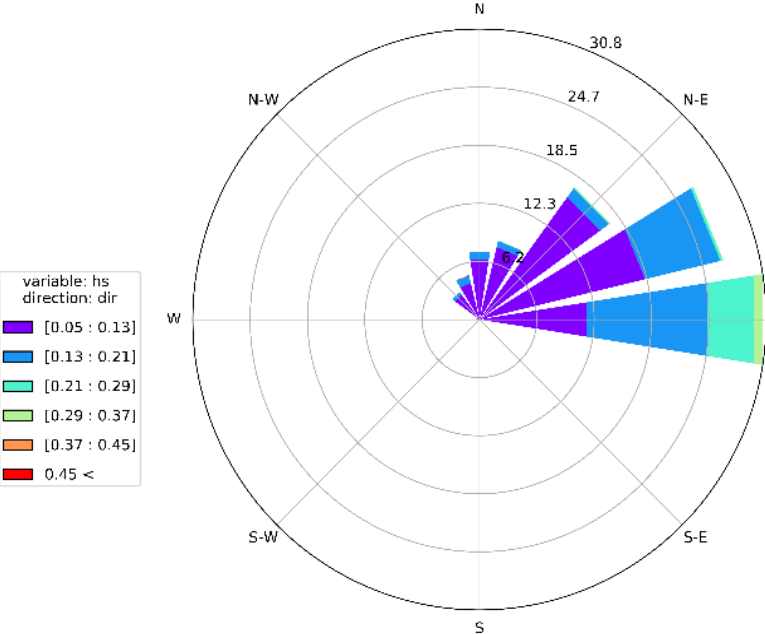




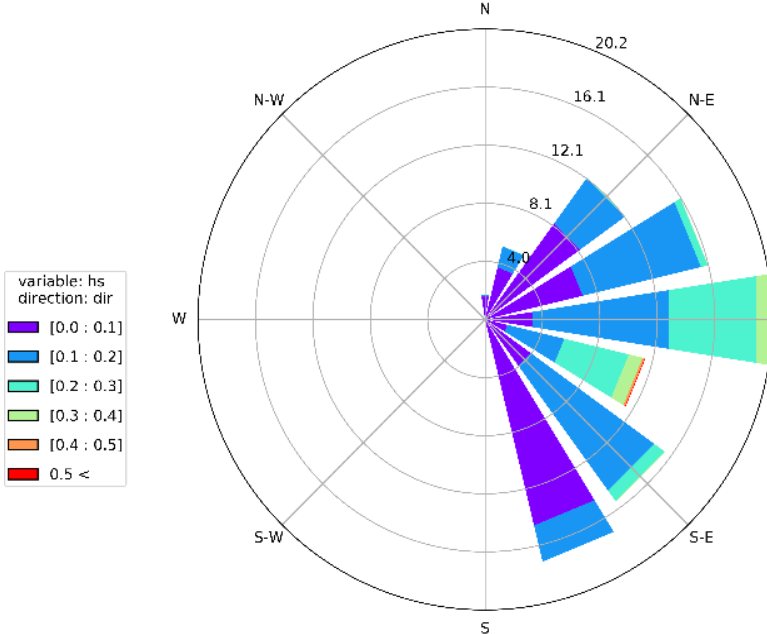
# Physical context - Wind



# Physical context – Waves and sediment transport



*northern beach*



*eastern Beach*



# Physical context – Waves and sediment transport



# Physical context – Erosion prone areas



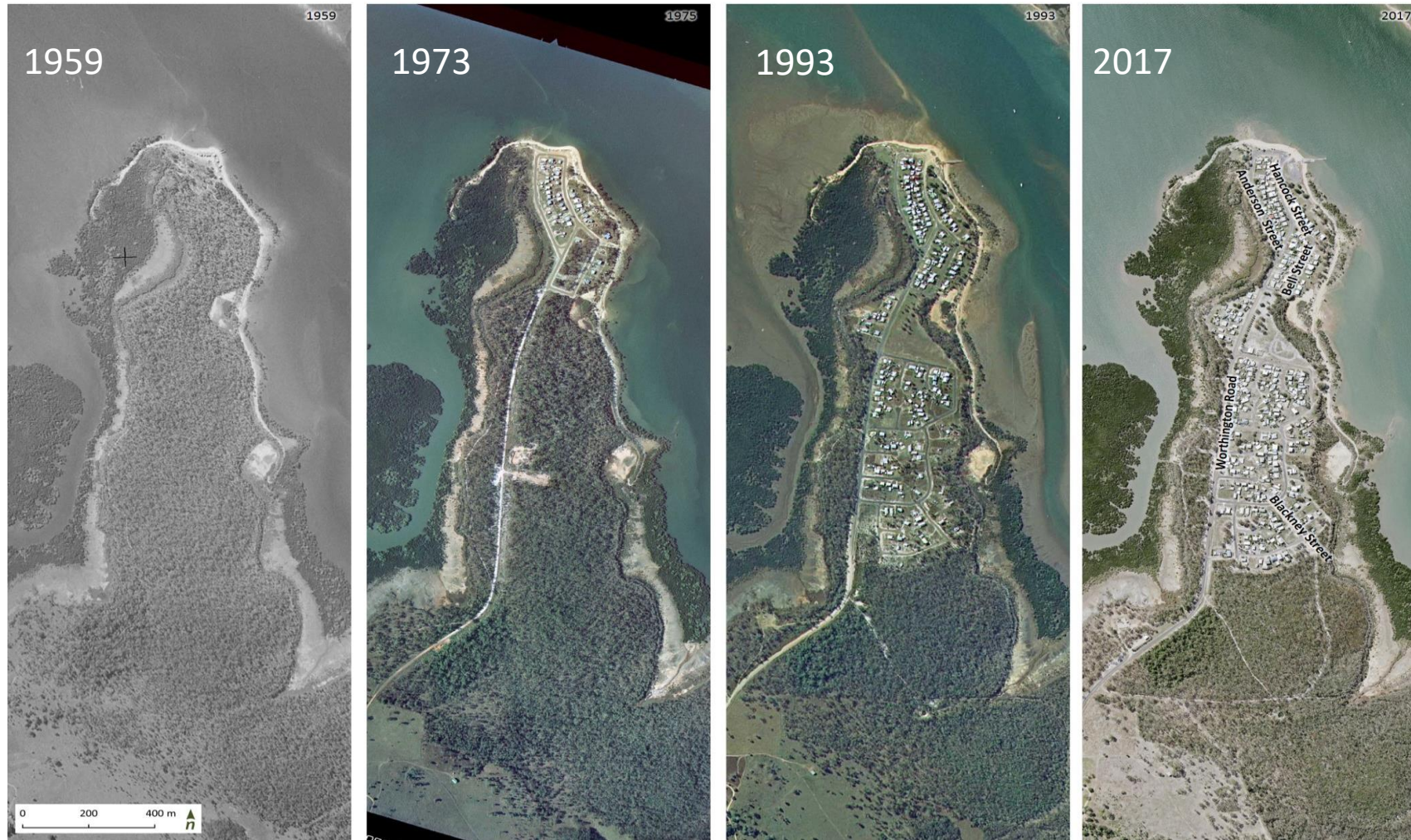


# Physical context – Historical shoreline analysis

Observations from the historical aerial imagery spanning 1959 to 2107 include:

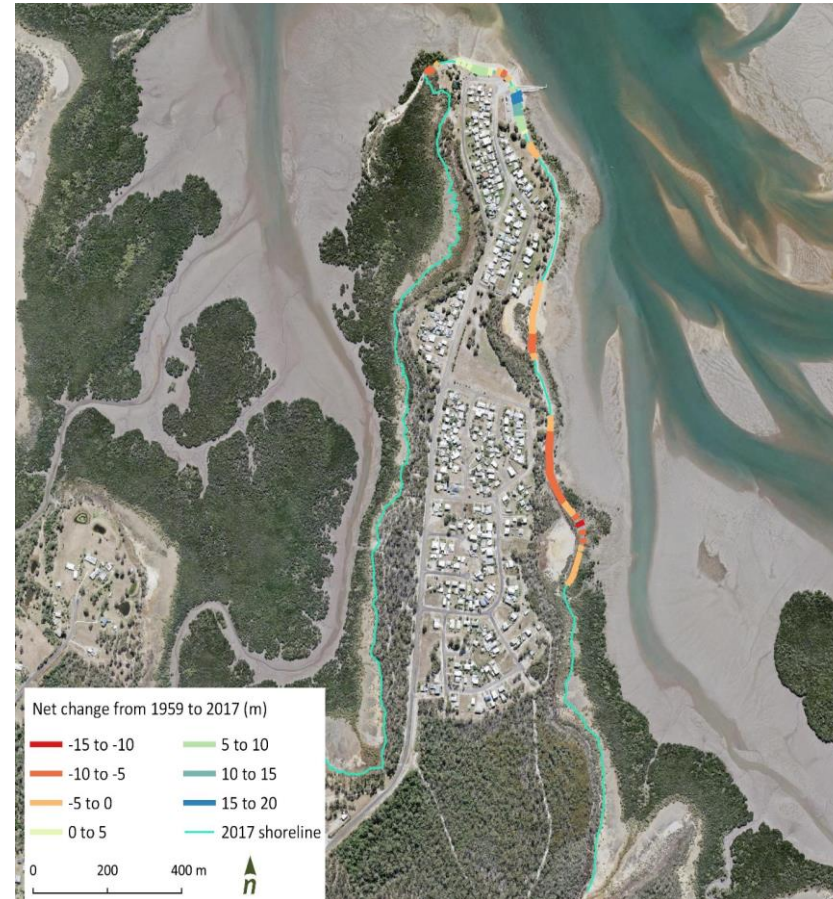
- Minimal change in overall shoreline position over this time
- Minimal (no discernible) change in the distribution and extent of mangrove communities around the peninsula
- Similar patterns in offshore sediment bars and deposits over the decades
- No major losses or gains of sediment in particular locations along the peninsula
- Some minor changes in shoreline position and vegetation extents evident along the northern and eastern shorelines.

# Physical context – Historical shoreline analysis





# Physical context – Historical shoreline analysis





# Physical context – Current condition

## Western shoreline

- Sheltered environment lined with extensive mangrove communities
- A tidal channel runs parallel to the shoreline, however there are no formal boat access points
- Some informal access to the channel occurs, with associated local disturbance to the sandy shoreline and vegetation communities
- The mangroves provide protection to the shoreline from wind and wave energy.



# Physical context – Current condition

## Northern shoreline

- Relatively exposed section of coast
- Influenced by strong tidal currents and prevailing easterly winds
- Main recreational zone for Turkey Beach, including a swimming enclosure, boat ramp, war memorial, car parking, amenities block and picnic area



# Physical context – Current condition

## Boat ramp





# Physical context – Current condition

## Northern shoreline



# Physical context – Current condition

## Northern shoreline

Feb 2017: Pre TC Debbie



April 2017: Post TC Debbie



August 2017: Post sand renourishment



June 2019: Current condition





# Physical context – Current condition

## Eastern shoreline

- Sandy shoreline and intertidal rock and mud flats
- Mangroves extend along much of the shoreline, although less dense than the western shoreline communities, and provide some protection from wind and wave energy
- A small erosion scarp (0.2 m) is present in some areas behind the mangroves that aligns with observed shoreline recession
- Stormwater runoff drains to the beach (e.g. Bell Street drain)
- Timber bollards and signage indicating tidal influences and soft sands have been established to deter vehicle access in some areas





# Physical context – Current condition

## Eastern shoreline



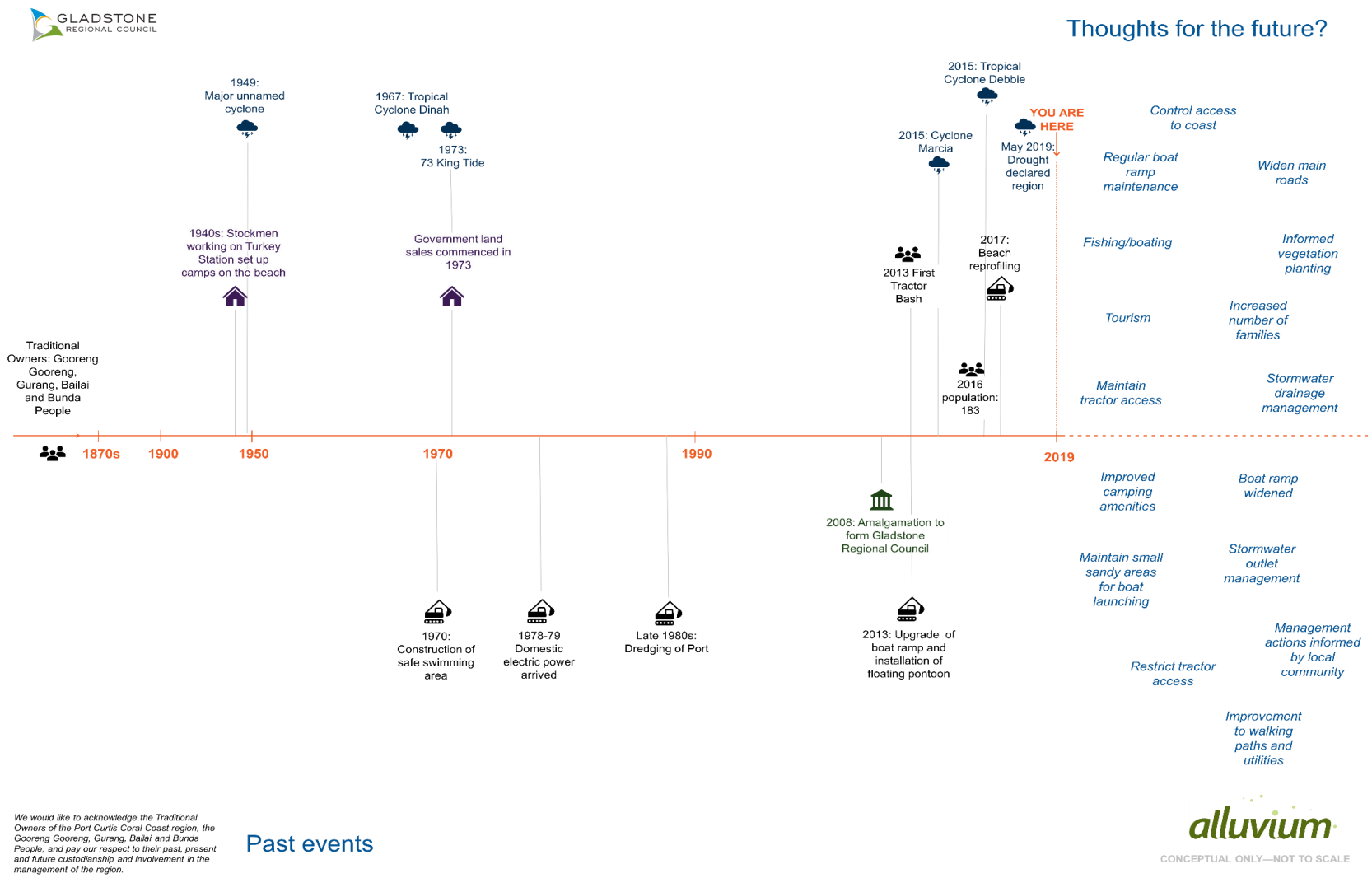
# Physical context - trajectory

- The prevailing coastal processes will continue to drive episodes of erosion along the Turkey Beach shoreline over the coming decades, mainly impacting the **northern point** and **eastern shorelines**.
- With a changing climate and projected sea level rise, the area prone to erosion and tidal inundation, and the magnitude of erosion in storm events, is expected to increase.
- The majority of Turkey Beach is well positioned (at elevation, set back from the shoreline) to avoid erosion impacts on residential areas and key infrastructure. However, erosion currently has, and will continue to have, an impact on shoreline amenity, recreation and other social and economic values for the town and region.

Questions/comments?



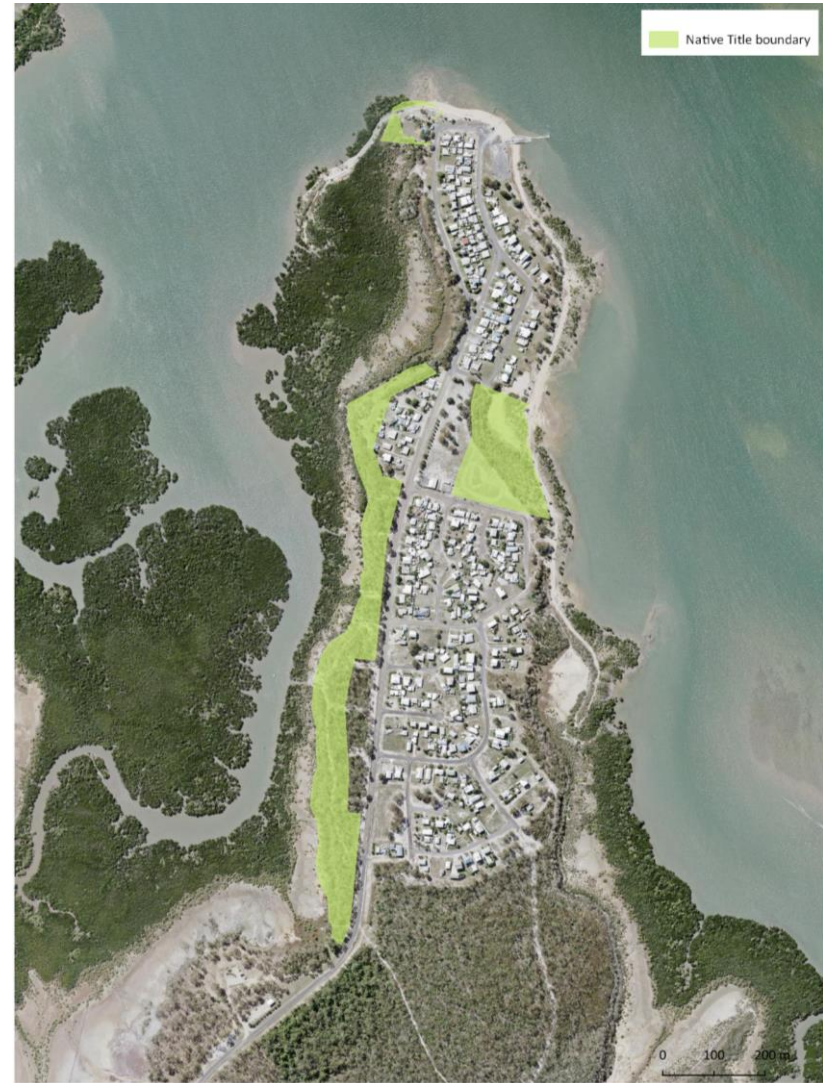
# Coastal values – Community values



# Coastal values – Environmental values



# Coastal values – Cultural values





# Coastal values – Economic values



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Live Music 6pm - 10pm






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[www.turkeybeach.org.au](http://www.turkeybeach.org.au)

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**Paywave Available for Food, Bar, Raffles, Sorry NO Cash Out**

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# Coastal values – Community values

Assets/values	
	Recreational fishing
	Boat ramp (including safe access and egress under all tidal conditions)
	Sandy beaches (for both boat launch and recreational use)
	Flora and fauna (terrestrial and aquatic), in particular EPBC listed flora and fauna (e.g. dugongs)
	Recreational access, aesthetics and facilities

# Coastal values – Community values

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## Current issues

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- Boat ramp can be a safety issue when slippery
  - Long wait times on ramp during busy periods
  - Illegal rubbish dumping in the tidal zone
  - Tractor/vehicle access in inappropriate areas contributing to coastal erosion and vegetation damage (including mangroves)
  - Tidal inundation (height and duration of high tides increasing)
  - Shoreline erosion
  - Erosion at stormwater outlet
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# Coastal values – Community values

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## Desired outcomes

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- Maintain fishing and boat access
  - Protect and enhance habitat
  - Maintain tourism
  - Maintain sense of pride in community
  - Protect mudflats and sea grass meadows
  - Protect and enhance habitat and remnant vegetation
  - Maintain aesthetics and recreation value (including swimming access)
  - Ensure a diversity of vegetation
  - Protect nursery habitat for fish
  - Protect vegetation buffer against coastal erosion
  - Protect infrastructure (swimming enclosure) and water quality for swimming
  - Protect infrastructure such as walkways, amenity blocks and shade structures
  - Protect foreshore
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# Management options and suitability

- Part A - Minimise erosion along western and eastern shorelines
- Part B - Minimise erosion from the northern point shoreline

The overall intent of actions associated with Part A and Part B of the SEMP is to manage erosion in a way that maximises social, economic and environmental benefits for the community.

# Management options and suitability – western and eastern shorelines

- Protect/enhance existing mangrove communities
- Priority areas experiencing notable erosion

## Recommendation:







- Access management
- Community awareness





# Management options and suitability – northern point shoreline

- Maintain sandy shore
- Amenity, community value
- Economic value

<p><b>Seawall / revetment</b></p> <p>Typically made of rock, concrete, geo-fabric bags or wood, seawalls provide an artificial barrier to erosive processes and protect the coastal assets behind them. They can be either exposed or buried and generally require extensive excavation. A seawall also has limited ability to dissipate energy and generally results in accelerated scour of sand from the base of the wall.</p> <p>Less formal revetments can also be implemented through placement of rock or geo-bags.</p>	
<p><b>Groynes</b></p> <p>Built perpendicular to the coast, groynes can be constructed from a variety of materials, including rock, geo-bags, concrete or wood. Groynes assist with sand retention in areas prone to longshore drift. Sediment is captured on the updrift side, while erosion generally occurs on the downdrift side.</p> <p>Groynes can be formally engineered with excavation, or less formally constructed. They can vary in length, dependent on the sediment transport environment at the site and level of protection required. In some cases, groynes can also be orientated to provide a barrier to wave energy.</p>	
<p><b>Breakwater</b></p> <p>Constructed offshore and generally parallel to the shore, breakwaters dissipate wave energy prior to impacting the beach. Breakwaters are generally constructed of rock or concrete and can be partially or entirely submerged.</p>	
<p><b>Artificial reef</b></p> <p>Similar to a breakwater, an artificial reef also reduces the wave energy impacting on the beach. Artificial reefs often have greater habitat value and encourage marine life to establish, mimicking natural reef systems.</p>	
<p><b>Sand nourishment</b></p> <p>Sand can be sourced from offshore through dredging or other sources and can be imported or sprayed onto the beach to increase the volume of sand on the beach. Sand can be nourished utilising an external sand source (e.g. river mouth or offshore deposits), or sand scraping can be used to redistribute sand already on the beach.</p> <p>Sand can be shaped to provide a dune system that is stabilised with fencing and vegetation.</p>	
<p><b>Vegetation establishment</b></p> <p>Native coastal vegetation can be sourced and planted to provide stability to a newly established sand dune. This can be through direct seeding or the planting of established vegetation to diffuse wind and wave action and allow for sand retention. Revegetation species will be dependent on the coastal environment, level of protection and salinity.</p>	

Seawall/ revetment

Groynes

Breakwater

Artificial reef

Nourishment

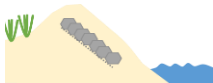
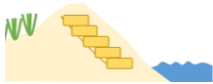
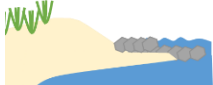





Vegetation and nourishment

# Management options and suitability – northern point shoreline

Suitable options for erosion management of the northern point 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 and suitability – northern point shoreline

			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						
	Geobag						
Formal groyne	Rock						
	Geobag						
Breakwater							
Artificial reef							
Sand nourishment							
Revegetation							



# Management options and suitability – northern point shoreline

Recommendation:

- Nourishment
- Vegetation



# Next steps

- Stakeholder feedback
- Recommendation through the
- Develop an action plan for implementation