6.4 Reporting region 4: Boyne Island/ Tannum Sands

Landscape

Boyne Island and Tannum Sands are coastal communities situated south of Gladstone, and are separated by the Boyne River (Figure 11). Wild Cattle Island and Hummock Hill Island are located offshore, south west of the Tannum Sands. A number of small settlements are located within the coastal areas of this region.

Boyne Island, with Australia's largest aluminium smelter, is separated from the mainland by a series of narrow channels branching from the Boyne River. Lilley's Beach, a sensitive foreshore area on Boyne Island east coast, with tidal flats and seagrass meadows, is a popular spot for camping and 4WD.

Tannum Sands, east of the Boyne River, has a wide, sandy main beach along the east coast, and a sandy beach with low rock flats towards the north at Canoe Point.

Riverine flows from the Boyne River and Wild Cattle Creek have a role in sediment supply, water quality and sustaining coastal and estuarine habitats and influence the formation of sandy plains along sections of this coast.

Wild Cattle Island is a low-lying, vegetated sand island that is valued for recreation, including camping and fishing. The island is a National Park and has mangroves, turtle nesting beaches and fish habitat areas.

Hummock Hill Island is currently reserved for residential and tourism development. There are high ecological significance wetlands, fish habitat areas and mangrove habitats on Hummock Hill Island.

Reporting region 4 also holds significant cultural values with large areas covered by Native Title, held by the Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda Peoples.

Coastal hazards exposure and implications

Areas of Boyne Island and Tannum Sands are exposed to periodic storm tide and tidal inundation, particularly along the Boyne River. These areas are likely to be increasingly exposed in the future. Low-lying areas on Wild Cattle Island and Hummock Hill island are at increasing risk of inundation.

Assets that may be increasingly at risk from inundation include low-lying residential areas, riverfront foreshore buildings and facilities, remote



Figure 11. Reporting region 4 (Boyne Island/Tannum Sands)

coastal settlements, roads and infrastructure, including sections of the main access road, Gladstone-Benaraby Road. Increasing inundation may also impact sensitive and significant ecological and cultural assets within the region. By 2100 the level of inundation exposure for some areas in these communities may be beyond tolerance levels for current land uses.

There are some known erosion hotspot risks at the mouth of Boyne River and the mouth of Wild Cattle Creek, likely driven by combined riverine and coastal processes. Some Island Esplanade residences and the Olunda Street carpark are currently impacted by erosion. An informal geofabric bag structure has been constructed to mitigate some of this erosion risk. In the longer term, a row of houses close to the Tannum Sands foreshore (on The Oaks Road), may be at risk of erosion.

The present day adaptation response for Reporting region 4 is to mitigate coastal hazard risk and begin preparations for transition of some areas (land use / assets in inundation areas) in the longer term (Table 16). This includes active mitigation of erosion hotspots for Boyne Island and Wild Cattle Creek.

The adaptation pathway for this area focusses on asset management planning, enhancing community adaptive capacity, updating disaster management arrangements, maintaining and upgrading existing infrastructure while undertaking some location-based transition planning for the long-term (2100). Region-wide actions also apply as applicable.

The future planning and development on Hummock Hill Island should consider potential tidal and storm tide inundation risks.



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	Present Day	2060	2100
Adaptation response	Mitigate	Mitigate	Transition*
Adaptation actions			
1. Capacity building	As per region-wide actions, including:		
1.2 Knowledge sharing and collaboration	Enhance community adaptive capacity to coastal hazards, including awareness of increasing coastal hazard exposure and risk (particularly inundation) and ways to improve individual preparedness and adaptive capacity		
2. Planning updates	As per region-wide actions, including:		
2.1 Land use planning	In collaboration with relevant stakeholders, develop an approach, including triggers, for a transition response for targeted areas of region in response to increasing long-term inundation exposure and risk. Includes low lying areas in Boyne Island, Wild Cattle Island, and smaller remote settlements in Reporting region 4		Implement transition plan
	Consult with State Government regarding the Hummock Hill redevelopment, with consideration of future coastal hazard risks		
	Consult with State Government on permit to occupy arrangements, with consideration of future coastal hazard risks for relevant properties		Revise permit to occupy conditions to inform transition planning
2.2 Disaster management	Update local disaster management planning for this locality based on updated coastal hazard maps		
3. Modifying infrastructure	As per region-wide actions, including:		
3.1 Build resilience	Review and update Council asset management plans to incorporate upgrades and modifications in inundation prone areas and assets, and to other relevant infrastructure (where practical)		
	Consult with relevant asset managers and owners, to review and update asset management plans to incorporate upgrades and modifications in inundation and erosion prone areas, and to other relevant infrastructure. This may include Gladstone Benaraby Road, private infrastructure and assets along Boyne River, Boyne River Boat Ramp		
	Promote resilient homes within the community		
3.2 Relocate infrastructure	Review and update Council asset management plans to develop a transition response for Olunda Street /Island Esplanade carparks		Relocate infrastructure

**A transition response may be appropriate for limited areas within zone*

Table 16. Reporting region 4 adaptation pathway

	Present Day	2060	2100
Adaptation response	Mitigate	Mitigate	Transition*
Adaptation actions			
4. Coastal management and engineering	As per region-wide actions, including:		
4.1 Dune protection and maintenance	Continue and expand the dune protection and maintenance programs at Canoe Point and Tannum Beach, Wild Cattle Creek using existing Wild Cattle Creek SEMP, including minimising disturbance to sensitive areas.		
4.3 Targeted investigations	Undertake coincident flood modelling for Boyne River estuary, to understand implications of the combined coastal and riverine processes for inundation and erosion vulnerability for the Gladstone coast (potential link to research collaboration)		
	Review and revise existing Shoreline Erosion Management Plans (SEMP) with a focus on Boyne River mouth and Wild Cattle Creek		
4.4 Additional coastal hazard protection works	Consult with State Government regarding unapproved coastal hazard protection structures to determine the management approach to existing and future structures		
		Scope potential future works at Boyne River and Tannum Sands, in accordance with adaptation pathway planning, including concept options to manage increasing coastal hazards on Boyne River foreshore and Tannum Sands Main Beach.	

Table 16. Continued.