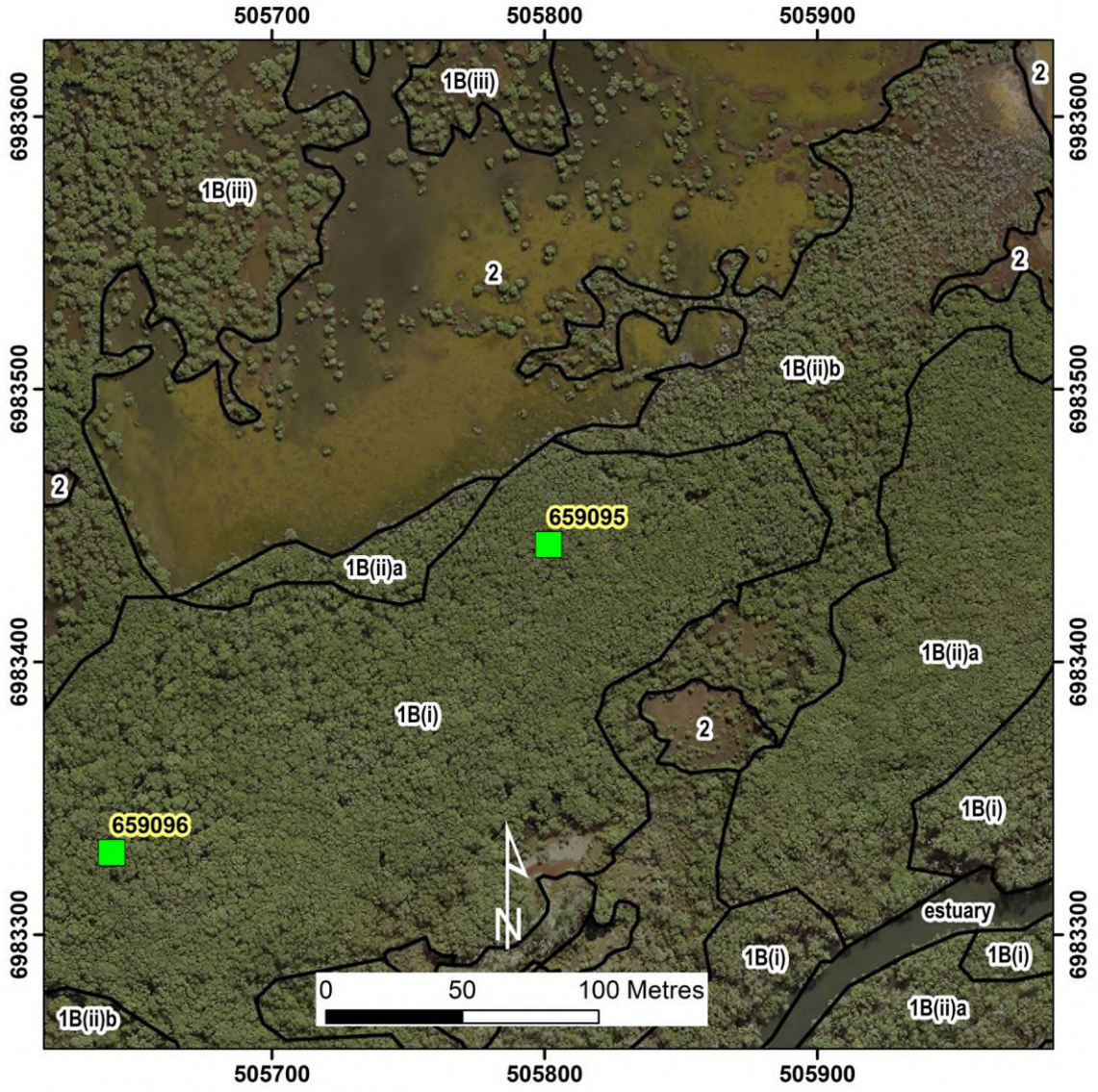
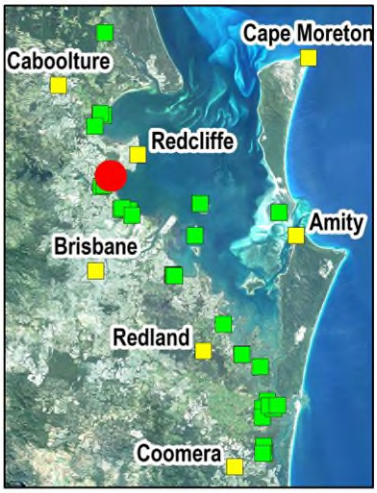
Hays Inlet Doyles Rocks (site ID = 659095) Low Open Forest





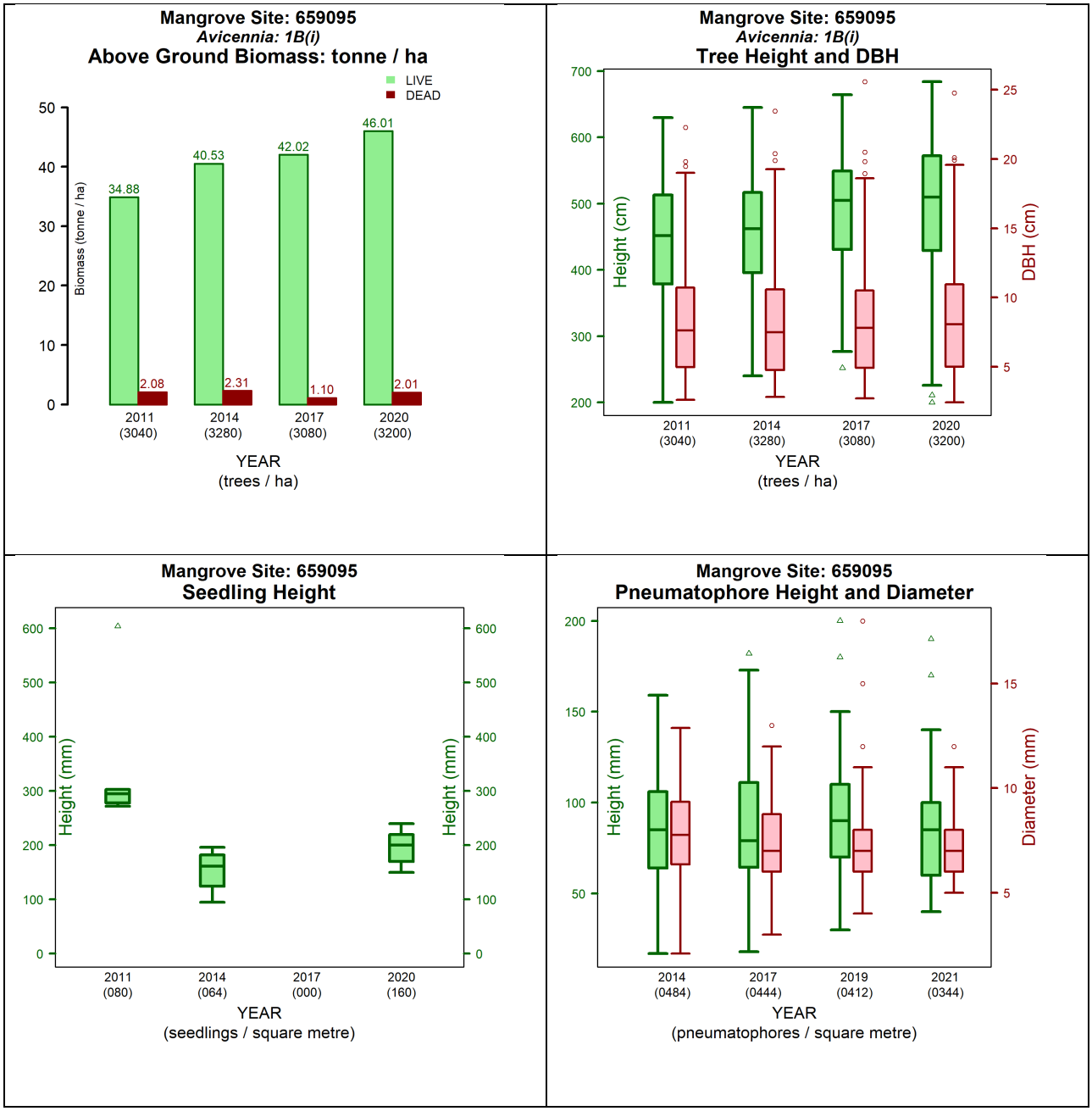


Figure 1. Measurements at site 659095 between 2011 and 2020 (left to right and top to bottom):

- **Above ground biomass and density temporal assessment**
- **Tree height, diameter at breast height (DBH) and stem density temporal assessment**
- **Pneumatophores height, diameter, and density temporal assessment**
- **Seedling height and density temporal assessment.**

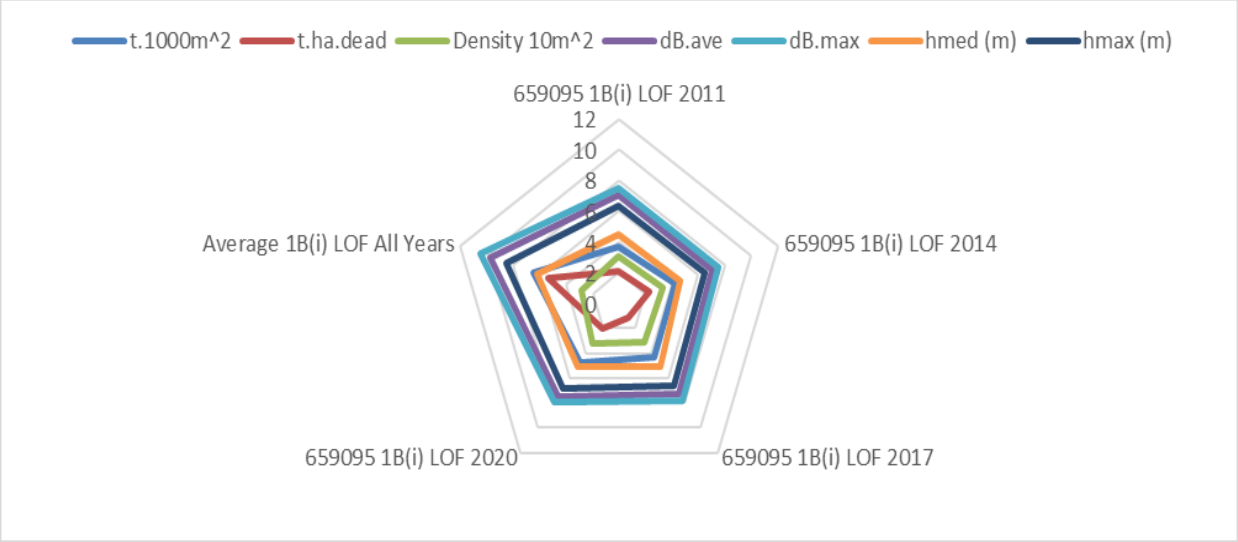


Figure 2. Structural changes over the years for Site 659095 in comparison to average of all sites of vegetation community type 1B(i) by structural formations. The graph indices: t.1000m^2 is the tonne of live biomass (tonnes) in 1000m square; t.ha.dead is the dead biomass (tonnes) in a hectare; Density 10m^2 is the number of trees in 10m square; dB.ave is the average diameter at breast height in centimetres ; dB.maxis the maximum diameter at breast height in centimetres; hmed (m) is the median tree height (meters); hmax (m) is the maximum tree height (meters).

Table 1. Queensland Biodiversity Ecological Information System (QBEIS) temporal assessment for site 659095.

Date	11.08.2011	4.09.2014	30.10.2017	14.10.2020
E Spp.				
T1 Spp.	*Avicennia marina* subsp. *australasica*	*Avicennia marina* subsp. *australasica; Dead tree*	*Avicennia marina* subsp. *australasica; Dead tree*	*Avicennia marina* subsp. *australasica; Dead tree*
T1 Med Canopy Height	4.5	5.5	5.4	5.5
T1 Range low	4.3	5	5	5
T1 Range High	4.8	6.5	6.5	6.5
T1 Crown Cover	78	80	88	87
T1 Stem Count	136	119, 3	63	74
T2 Spp.		*Avicennia marina subsp. australasica; Dead tree*	*Avicennia marina subsp. australasica; Dead tree*	*Avicennia marina subsp. australasica; Dead tree*
T2 Med Canopy Height		3	3	3
T2 Range low		2	2	2
T2 Range high		4	5	5
T2 Crown Cover		5	5	5
T2 stem count		23; 2	42; 1	15, 11
S1 Spp.	*Avicennia marina* subsp. *australasica; Ceriops australis*	*Avicennia marina* subsp. *australasica; Ceriops australis*	*Avicennia marina* subsp. *australasica; Ceriops australis; Dead tree*	*Avicennia marina* subsp. *australasica; Ceriops australis; Dead tree*
S1 Med Canopy Height	1.5	1.5	1.5	1.5
S1 Range low	1	1	0.5	0.5
S1 Range high	2	2	2	2

S1 Crown Cover	2	2	2	2
S1 stem count	8, 2	6; 3	25; 2; 2	6; 2; 7
S2 Spp.				
S2 Med Canopy Height				
S2 Range low				
S2 Range high				
S2 Crown Cover				
S2 stem count				
G Spp.	*Avicennia marina* subsp. *australasica; Sporobolus virginicus; Suaeda arbusculoides*	*Avicennia marina* subsp. *australasica; Sporobolus virginicus; Suaeda arbusculoides; Ceriops australis*	*Avicennia marina* subsp. *australasica; Sporobolus virginicus; Suaeda arbusculoides; Ceriops australis; Suaeda australis; Salicornia quinqueflora* subsp. *quinqueflora*	*Avicennia marina* subsp. *australasica; Sporobolus virginicus; Ceriops australis; Suaeda australis;*
G Med Canopy Height	0.2	0.3	0.3	0.3
G Range low	0.1	0.2	0.1	0.1
G Range high	0.2	0.5	0.4	0.4
G Cover	22	16	20	16
Individual Covers	20; 2; 1	15, 1; < 1; <1	16; 3; +; +; +; 1	15; 1; +; +;

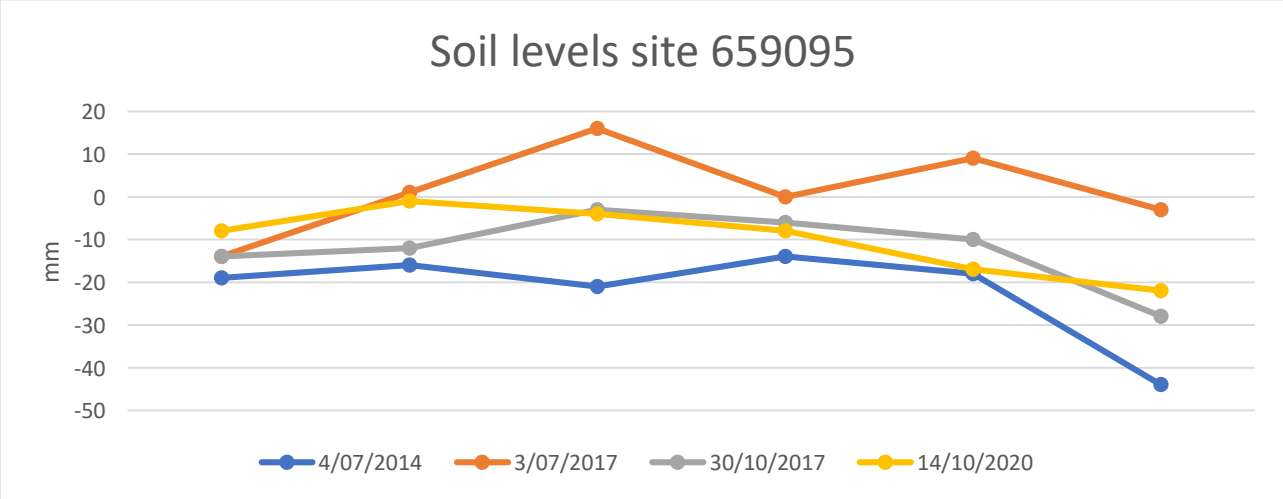


Figure 3. Soil surface elevation measurements (mm) are taken across the QBEIS sites using dumpy level.

Summary

1. Stable species composition in T1 and S1 over the years with only few dead *Avicennia marina* subsp. australasica. Occurrence of *Suaeda arbusculoides*; *Ceriops australis*; *Suaeda australis*; *Salicornia quinqueflora* in G layers could be due to change in soil elevation.

2. Increase in T1 height (0.9m)

3. Increase in mean tree heights; stable DBH and fluctuating densities has resulted in over a 16% increase in site above ground biomass.

4. Reduction (from 5.6% in 2011 to 2.6% in 2017) of the proportion of dead to live biomass within the site.

5. Pneumatophores mean height has increased slightly overall - potentially reflecting higher inundation levels.

6. Seedlings reducing in density and height over the years, while no seedlings were recorded in 2017 in the quadrats but are present elsewhere in the site.

7. Soil max range level has been stable but recording up to 20mm erosion patterns

8. Soil levels have fluctuated but overall have accreted from the beginning of the study period.

Figure 4. Photograph of Site 659095 *Avicennia marina* subsp. *australasica* community type 1B(i) Low Open Forest.