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Wetland Habitats of Torres Strait

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Forum Title: What does the future hold for the Torres Strait and its Indigenous People?

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RELEVANCE OF WORK

Values of wetlands

- Tidal and freshwater wetlands important for habitat and fishery production
- Provide drinking water
- Provide a range of ecosystem services and cultural uses
- Provide coastal protection against storm surges

Status of wetlands

- They are very poorly known/ documented in Torres Strait
- No information on condition, extent, status.
- Proper mgt requires this knowledge
- Numerous threats exist and need to be understood and managed

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Status of Wetlands in Torres Strait

RESULTS

Boigu senior ranger Nelson Gibuma standing next to the only Sonneratia ovata tree known in Australia

Biodiversity

~ 124 wetland species, including >39 mangrove species

– 2 new mangrove species for Australia & 2 new species for Torres Strait.

- Many new records on each island visited

Extent

31,390 ha of wetland area within Torres Strait, comprising 21 vegetation communities of which 3 are unique to the region.

83% of wetlands in Torres Strait are tidal, mostly mangrove communities (Boigu and Saibai islands have the largest areas

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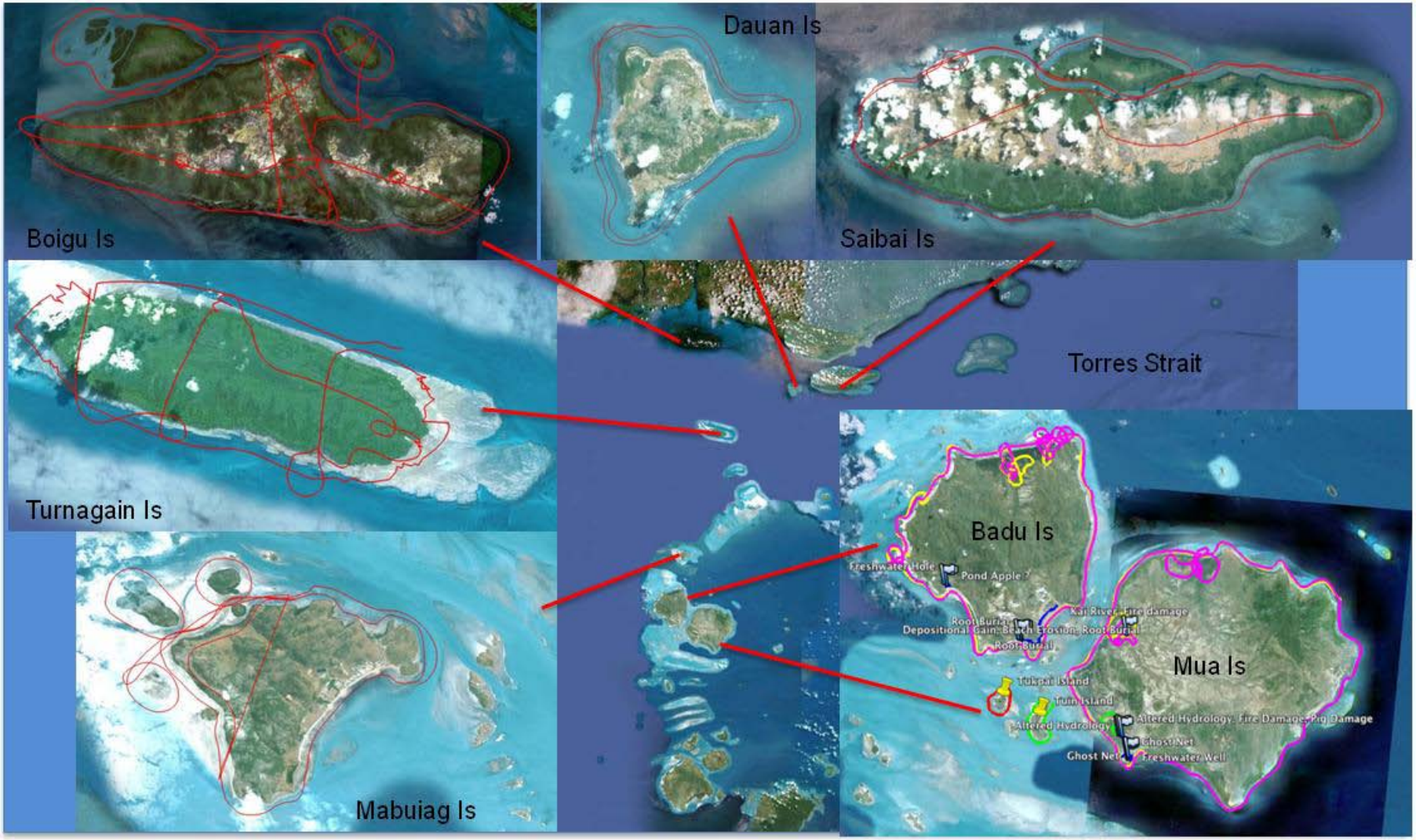
Surveys conducted by boat, helicopter and on foot

Knowledge exchange with island communities.

Shoreline Video Assessment – 12 islands thus far, >500km



Shoreline video survey tracks *(Red/Pink line)* of 7 Islands displayed

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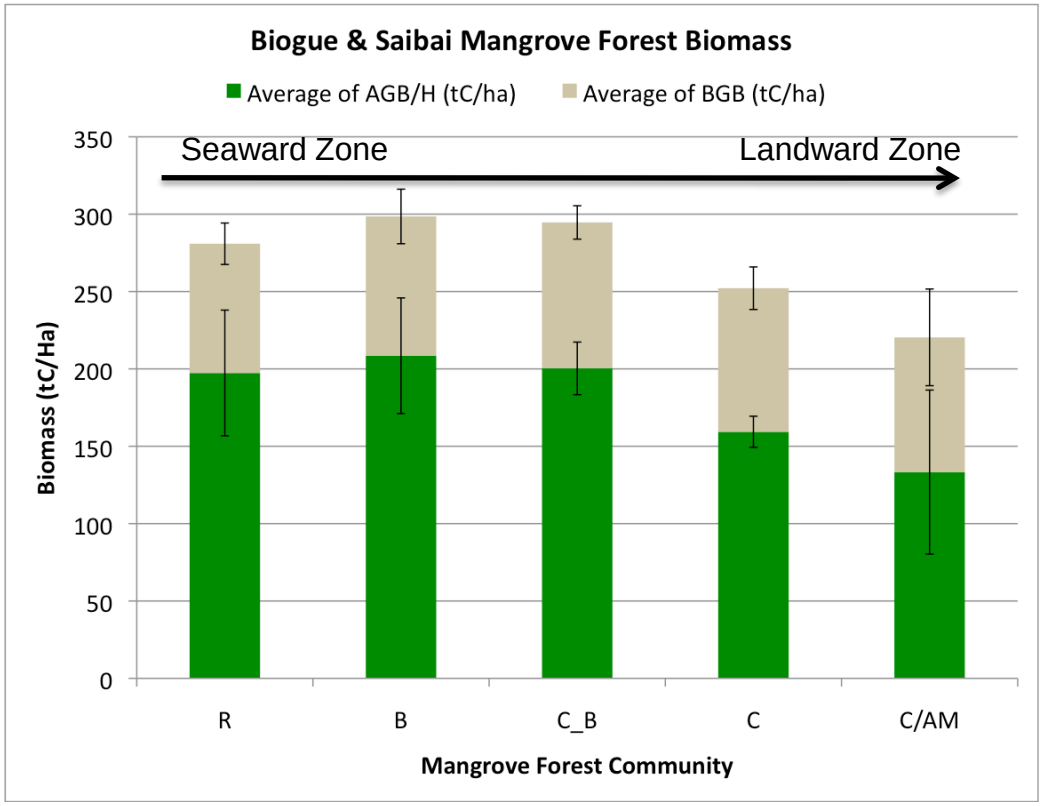
Biomass – *Blue Carbon*

Mean Mangrove Biomass = 360t/Ha*

= 268tC/Ha Carbon Storage



Graph of mangrove forest biomass, showing above and below ground carbon storage for each major mangrove vegetation community. *R= Rhizophora forest, B = Bruguiera forest, C_B = Mixed Ceriops and Bruguiera forest, C = Ceriops forest and C/AM = Ceriops with emergent Avicennia forest. AGB = Above-ground biomass, BGB= Below-ground biomass*

*Data from Boigu & Saibai Islands

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FRESHWATER HABITATS AND FAUNA

- More limited compared to mangrove habitat
- Paucity of published data (local information and unpublished data very important)
- Freshwater turtles anecdotally reported from Horn, Badu, Mua, Erub and Saibai – only Saibai confirmed
- Native water rat only known from road kill specimen at Badu
- Recording exotic flora and fauna (deer, pigs, cane toads) and their impact
- 31 fish species recorded from freshwater habitats on 7 islands recorded
- 2 exotic species – mosquitofish (Thursday Is.) and climbing perch (Saibai, Boigu)
- Key islands Saibai, Boigu, Mua, POW, Horn

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Koi Mai – the big well, Boigu

APPLICATION OF WORK

- Understanding and managing changes to these habitats
- Understanding and reducing impacts on these habitats
- There are numerous drivers of change/impact that vary widely across the islands.

Melaleuca dieback – seawater intrusion

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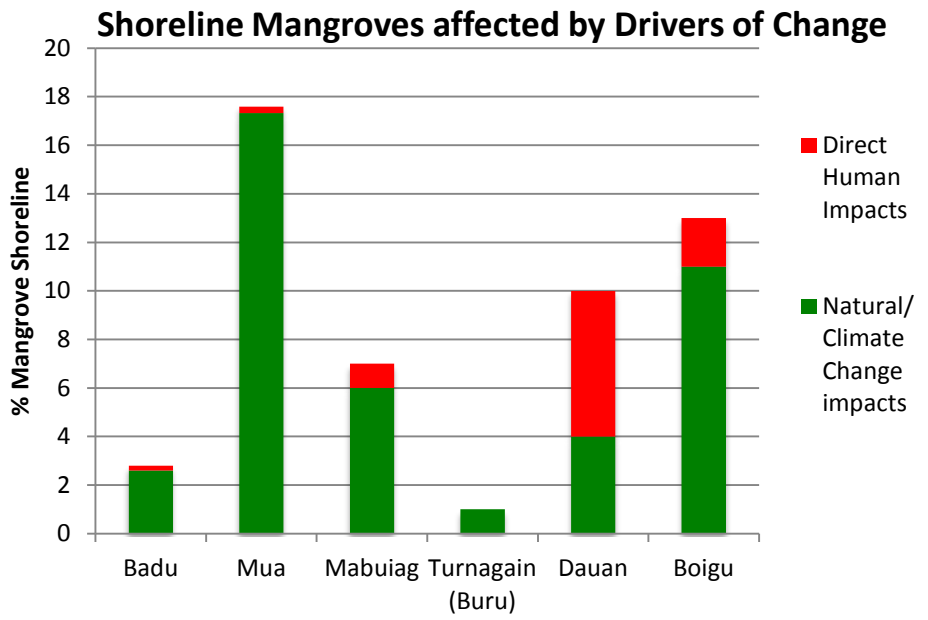

OBSERVED DRIVERS OF CHANGE

Obviously human related

- Clearing and cutting
- Root burial – dredge spoil
- Pollutants – albino mutations in *Rhizophora*
- Fire (freshwater wetlands)

Not Obviously human related

- Shoreline Erosion
- Mangrove upland migration (SLR)
- Storms damage – wind, lightning & sediment deposition
- Feral animals & weeds (pigs, deer, pond apple)

Mangrove dieback due to root burial from sand deposition caused by storm waves or storm surge, North-east Mua Is.

Shoreline erosion, Masig island

PREDICTED CLIMATE CHANGE IMPACTS

More severe storms

Increased lightning and wind disturbance in mangroves – loss of ecosystem integrity

Sea Level Rise

Loss of seaward mangrove extent and mangrove encroachment into saline/freshwater wetlands – *already occurring.*

Increased temperature and altered rainfall

- Species migrations from New Guinea
- Mangrove species range extension
- Ecotone shift
- Pest fish species into wetlands e.g. Climbing perch
- Loss of ephemeral pools
- Increased fire risk to wetlands

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FUTURE DIRECTIONS

Workplan

• Shoreline and Mangrove survey Warraber, Erub, Ugar and Murray Islands (August)

•Inner Islands (eg, POW, Horn) are also hopeful

•Pursue freshwater fauna on Mua, Saibai and inner islands

Goals

•Improved condition and mgt of wetlands

•Establish mangrove, shoreline and freshwater monitoring as part of ranger routine workplans

•Potential for blue carbon, given these mangroves are in relatively good condition.

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Centre for Tropical Water and Aquatic Ecosystem Research

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