Coastal Hazard Adaptation Strategy

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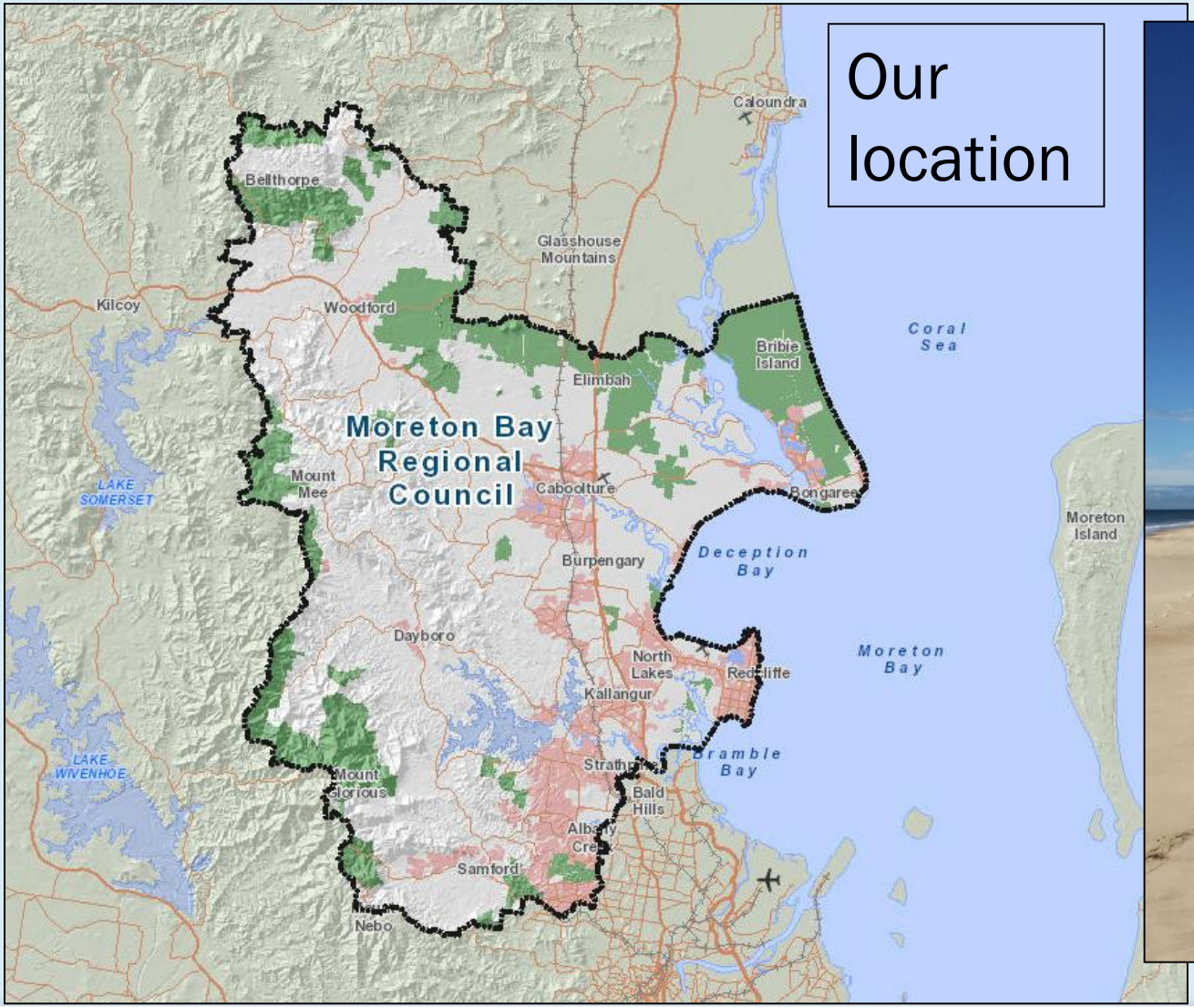

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- Total area of 2037 sq. km.
- Population ~417,000

  ~ 533,000 by 2031
- 170km of coastline
  - ❖ Bribie Island
  - ❖ Redcliffe Peninsular
  - ❖ Deception Bay
  - ❖ A number of smaller coastal villages

Presentation Overview

- CHAS progress to date
- Phase 1 outcomes
- Phase 2 preliminary findings
- Climate change ‘triggers’
- Phase 3 overview
- Phase 4 options

CHAS: Progress to date

CHAS Phases:

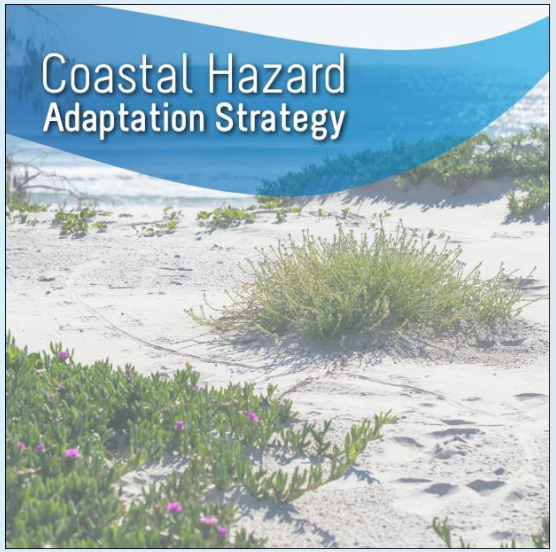
1. Communication & Engagement 
2. Scoping Study (gap analysis) 
3. Identifying areas exposed to current & future hazards 
4. Identifying assets potentially affected 
5. Risk assessment of potentially affected assets 
6. Potential adaptation options 
7. Socio-economic appraisal of potential adaptation options 
8. Finalise: Coastal Hazard Adaptation Strategy 

CHAS: Progress to date

Phase 1:

Key outcomes

- Community Survey
  - Commenced 6 November
- Document Historic Coastal Events
- Community Reference Group



CHAS: Progress to date

Phase 2: Preliminary Consultant findings:

Storm tide

1. 2017 updated study
2. Next step - update storm tide inundation mapping

Erosion Prone Areas

- 2016 update of seawalls and revetment walls.
  - Remotely Piloted Aircraft
- Next step – review EPA.

CHAS: Progress to date

Phase 2 findings:

Environmental

MBRC Environmental Catchment Management Plans

- Do not consider climate change!
- Not critical at this stage.

Assets

- General lack of governance
  - Interface between private and public marine infrastructure?
  - Community awareness program for dune and shoreline revegetation on private land?

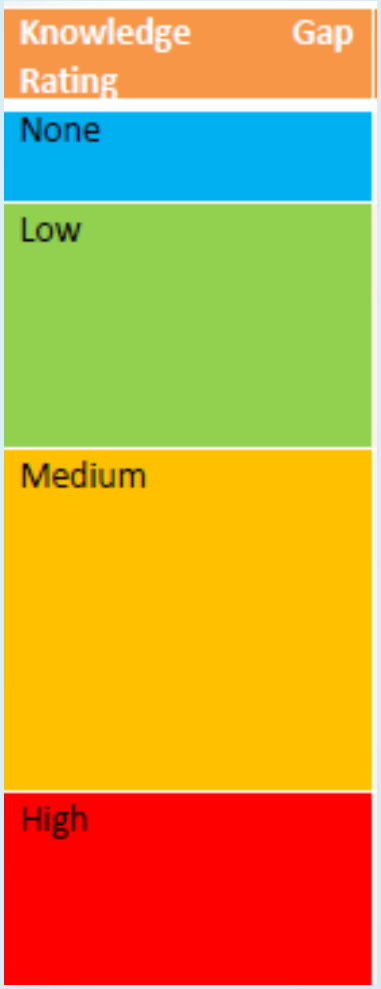
CHAS: Progress to date

Phase 2 findings:

Overall Knowledge Gap Rating

- Medium

- Primarily as a result of Erosion Prone Mapping



Project Management

‘Triggers’

Need to consider:

- Short
- Medium
- Long Term

Proposal to use projected sea level rise NOT year:

- 0.15 (2030)
- 0.5 (2070)
- 0.8 (2100)
- >0.8 (> 2100)

The three scenarios developed by CSIRO for sea level rise between 2030-2100 (relative to 1990) are presented below.

The low scenario (B1): considers sea-level rise in the context of a global agreement which brings about dramatic reductions in global emissions and represents the upper end of the range for sea-level rise by 2100 which is likely to be unavoidable.

The medium scenario (A1FI): Represents the upper end of IPCC's 4th Assessment Report (AR4) A1FI projections and is in line with recent global emissions and observations of sea-level rise.

The high-end scenario: considers the possible high end risk identified in the AR4 and more specifically in post IPCC AR4 research. This scenario factors in recent publications that explore the impacts of recent warming trends on ice sheet dynamics beyond those already included in the IPCC projections.

Table: Three global sea-level rise scenarios, 2030-2100 (metres)

Year	Scenario 1 (B1)	Scenario 2 (A1FI)	Scenario 3 (High end)
2030	0.13	0.15	0.2
2070	0.3	0.5	0.7
2100	0.5	0.8	1.1

CHAS: Phase 3

Completed:

Seawall condition assessment (Nov. 2016)

1. Public and private sea walls
2. Using Remotely Piloted Aircraft (RPA)
3. Supplemented by visual inspection (walking + boat)

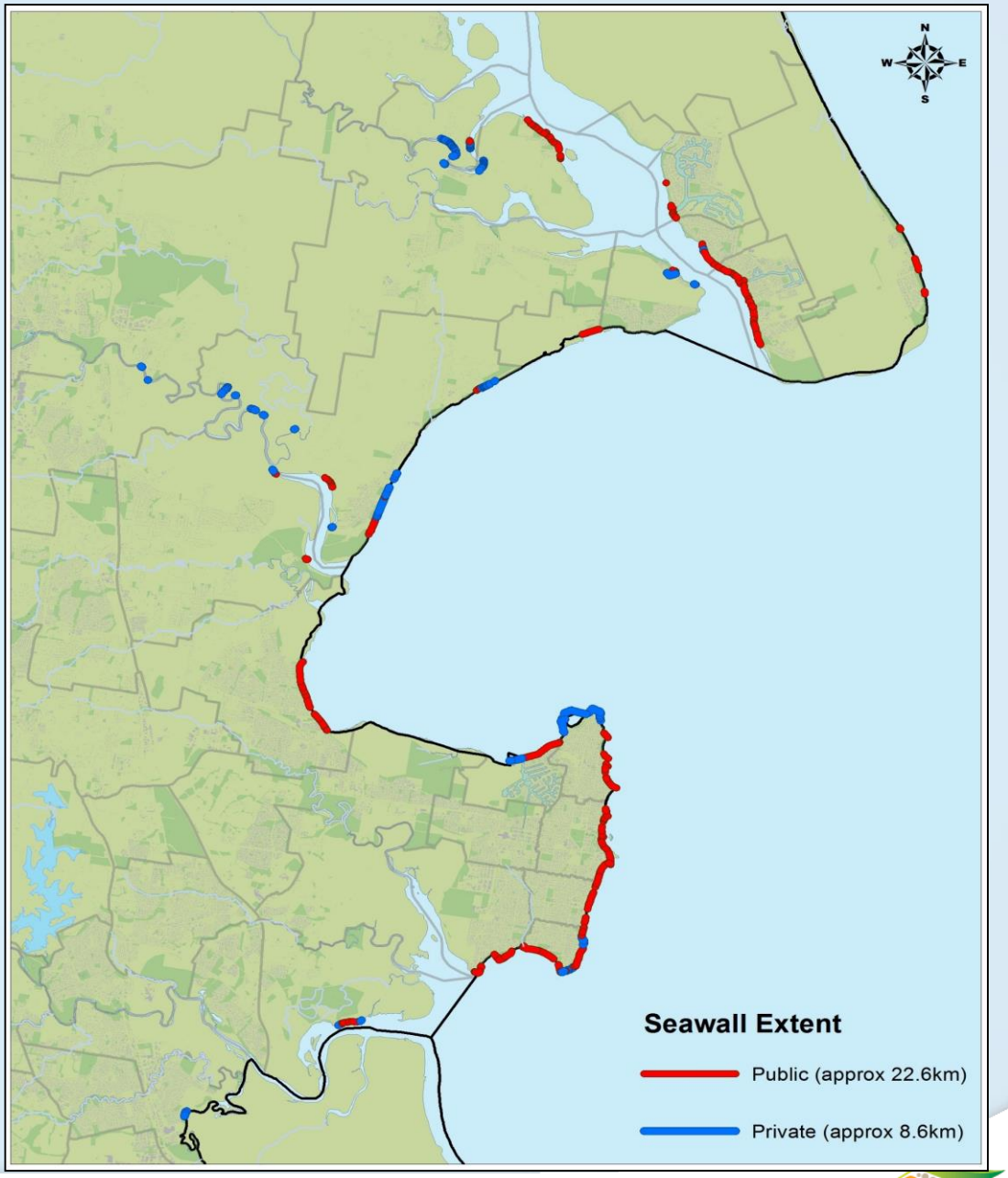
Outputs

1. Ownership (public, private)
2. Type
3. Geographic data
4. Condition rating (1-5)

CHAS: Phase 3

Seawall condition assessment

- Findings:
  - 31.2km of seawalls identified
    - 22.6km public & 8.6km private
    - 402 assets (144 public & 258 private)
  - Council records for 26km only!



CHAS: Phase 3

Completed:

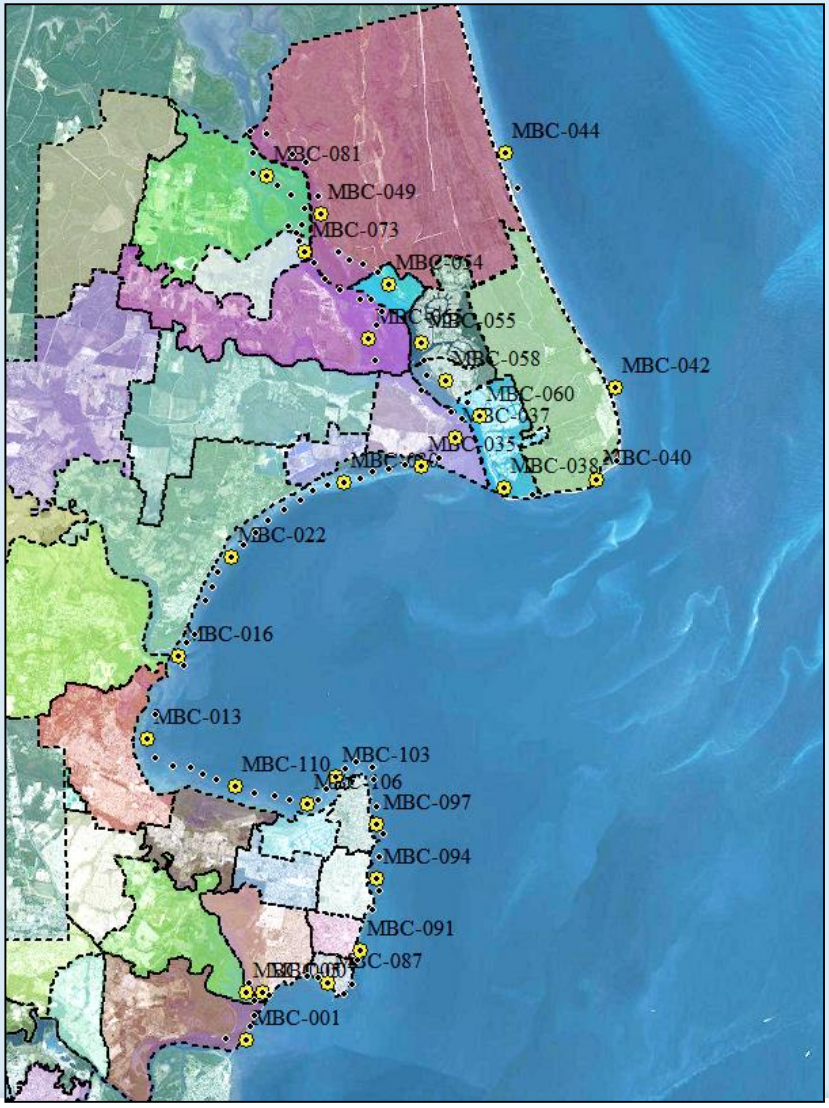
Storm Tide Study

- Previous study completed in 2009
- Updated 2017
- Current storm tide inundation modelling
  - Based on 2009 study findings
  - To be updated using 2017 Storm Tide Study

Findings of 2017 Storm Tide Study:

1. Events up to 100 year return period ‘controlled’ by East Coast Lows
2. Events above 100 year return period ‘controlled’ by Cyclones

CHAS: Phase 3



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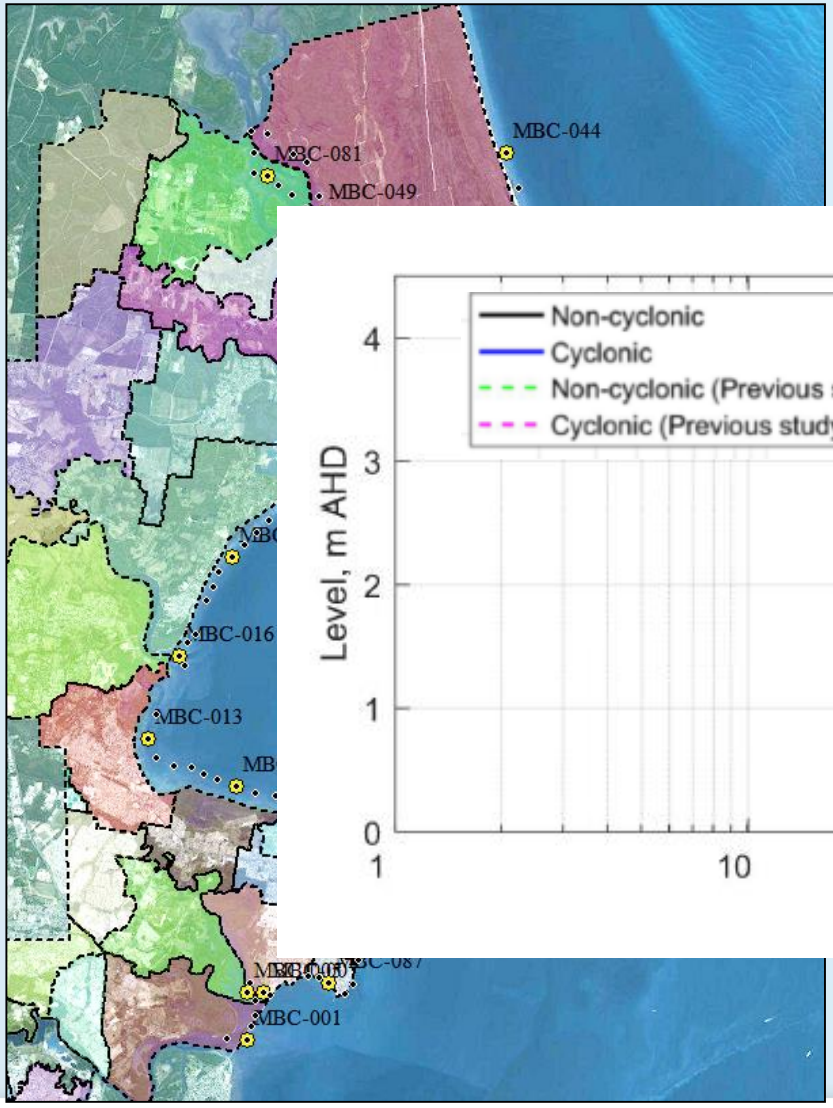
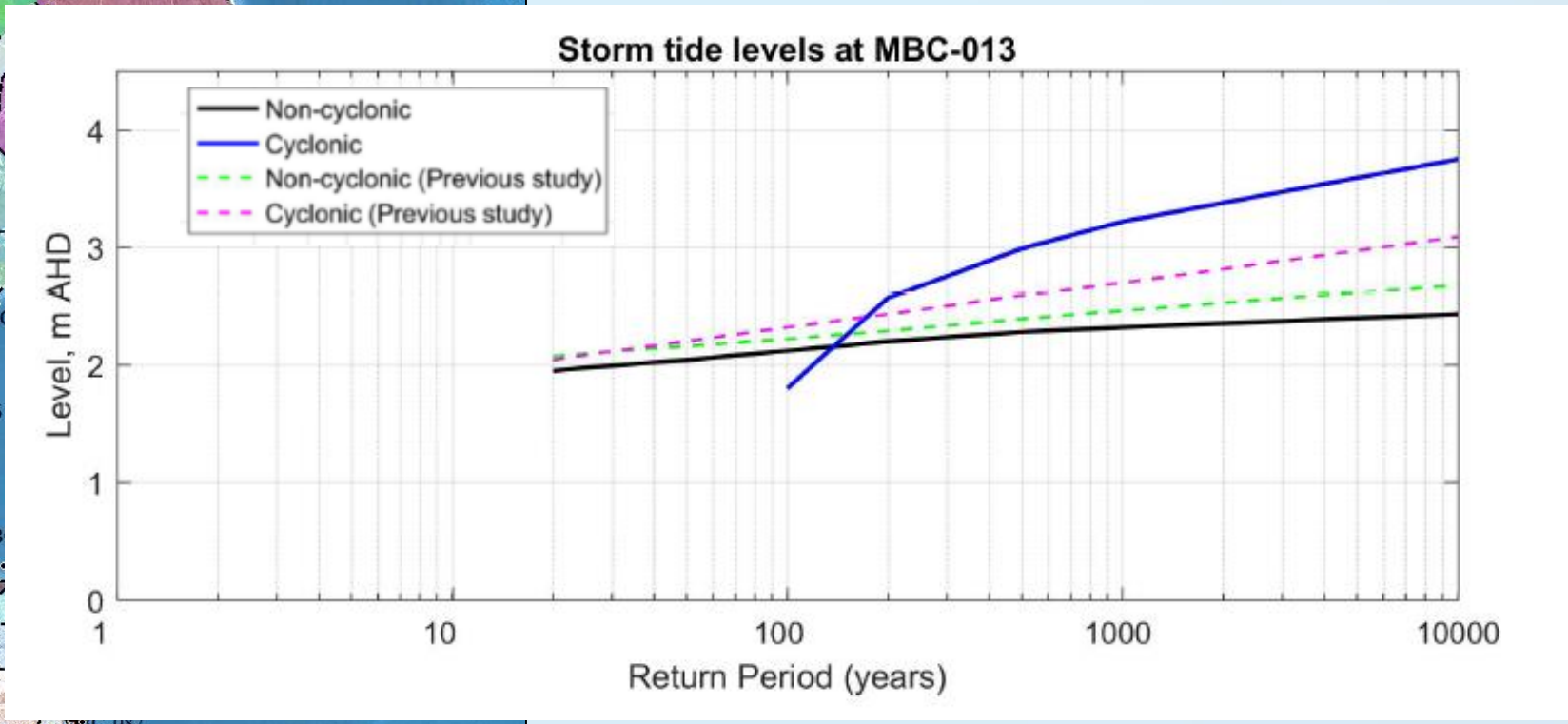
CHAS: Phase 3





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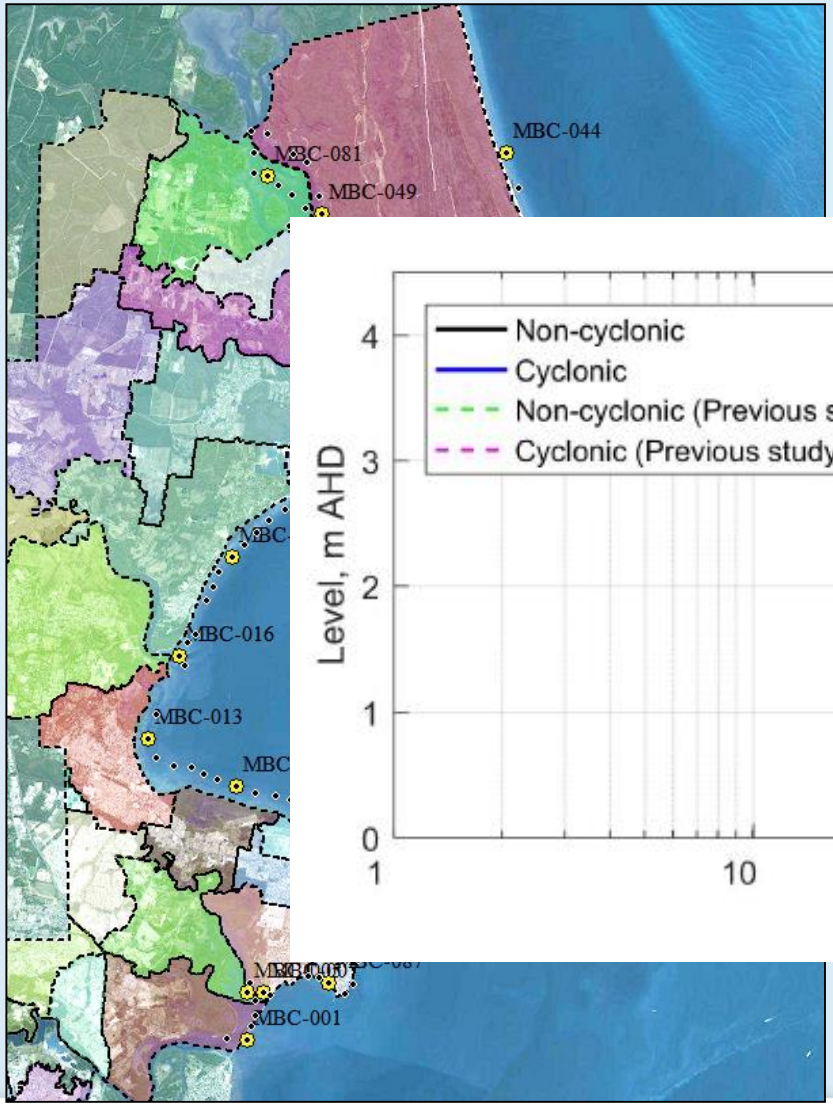
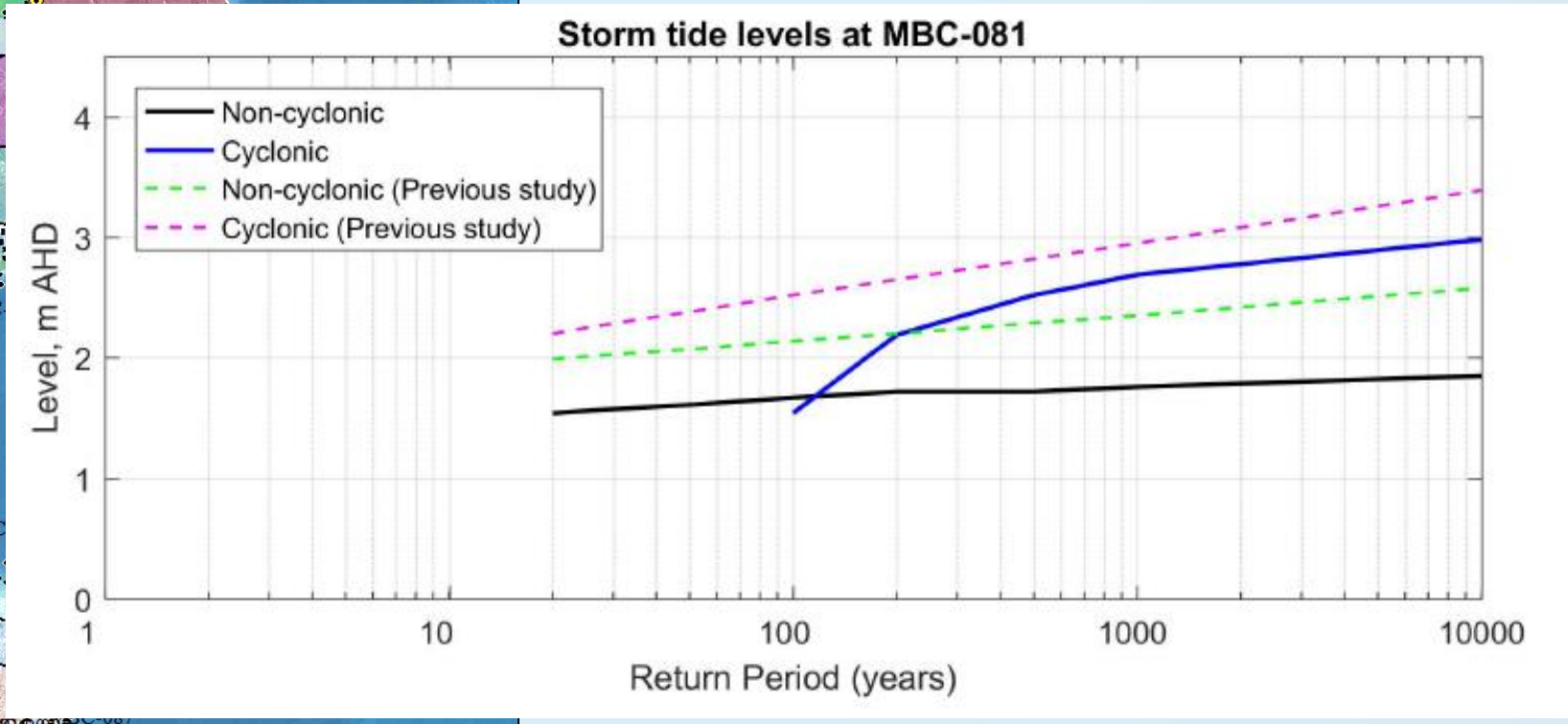
CHAS: Phase 3





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CHAS: Phase 4

Proposed:

Complete in 2 stages

1. Stage 1 – Initial assessment
   - using current storm-tide inundation modelling.
2. Stage 2 – Updated assessment update
   - Using 2017 storm-tide inundation modelling.

Questions to be resolved

- Complete Phase 4 as a discrete body of work?
  - Phases 5 to 8 completed as a single body of work.
- Complete Phases 4 & 5 as a combined body of work?
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- Complete Phases 4 to 8 together?

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CHAS: Phase 4

Assets at Risk within Coastal Planning Area

14,969

415 km

5 bulk supply substations

2 STW

20 towers

45 boat ramps

9 parks

225 sites

Absolute ‘worst case’ scenario!

WATER TECHNOLOGY
WATER, COASTAL & ENVIRONMENTAL CONSULTANTS

MWH now part of Stantec

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Questions