

CLARENCE VALLEY COAST AND ESTUARY MANAGEMENT COMMITTEE

MINUTES

Monday 6th November 2023 at the Maclean Chambers, 50 River Street Maclean.

ITEM 1 INTRODUCTION: WELCOME AND APOLOGIES

Meeting opened at 9:00am with Cr. Smith in the chair. Attendees introduced themselves. Cr Smith acknowledged the traditional owners:

We acknowledge the Traditional Custodian of these lands on which this event is taking place and pay tribute and respect to the Elders both past and present and emerging of the Bundjalung, Gumbaynggirr and Yaegl nations which lie within the Council boundary.

Attendance:

Voting: Cr Jeff Smith (Chair), Cr Greg Clancy (on-line), Kevin Sheehan (Community), Peter Maslen (Community), Victoria Honey (Clarence Cane Growers – alternate for Peter Rose), Imelda Jennings (Community) and Roslyn Woodward (Valley Watch – arrived 09:15 – On-line)

Observers: Doug McKenzie, Cr Steve Pickering (On-line)

Agencies: James McLeod (SIMP – On-line), Kathryn Corbell (NPWS – On-line), Mark Fletcher (NPWS – On-line), Jonathan Yantsch (DPI Fisheries – On-line), Hugh McNee (NPWS – On-line)

CVC Officers: Greg Mashiah, Scott Lenton (On-Line), Murray Lane (On-Line)

Presenters: Robyn Campbell (Hydrosphere), Dan Rodgers (JBP – On-line – left 10:05)

Apologies received from:

Name	Committee Role	Organisation/Role
Peter Rose	Appointed Member	Cane Growers
Danielle Adams	Appointed Member	CRFC
Stephen Timms	CVC Officer	CVC (Strategic Planning Coordinator)
Alex Wells	CVC Officer	CVC (Strategic Planner)
Uriah Makings	CVC Officer	CVC (Senior Coast & Estuary Officer)
Zoe Immisch	Agency	DPE
David Greenhalgh	Agency	Solitary Islands Marine Park
John Kennedy	Agency	NPWS

Cr Clancy acknowledged Peter Wilson's role in previously coordinating the Coast & Estuary Management Committee and thanked Peter for his work.

Quorum: 5

Total Members at todays CV C&EMC: 7 Quorum reached – Yes / No

ITEM 2 DECLARATIONS OF INTEREST

- Nil

ITEM 3 CONFIRMATION OF PREVIOUS MINUTES

MOTION: That the minutes of the Clarence Valley Coast and Estuary Management Committee meeting of 9 September 2022 be confirmed. (Consensus)

ITEM 4

BUSINESS ARISING FROM THE MINUTES

- Nil

ITEM 5

PRESENTATIONS

See attached PowerPoint presentations from Robyn Campbell (Hydrosphere) and Dan Rodgers (JBP)

Questions on coastal hazard assessment presentation (Dan Rodgers)

- HHWSS – how often does this event occur? DR – at least once per year (caused by tide only from sun and moon)
- Zone of reduced foundation capacity – 10 to 20m behind the beach there may be sand settlement which is called the zone of reduced foundation capacity and is included in the erosion assessment; it may cause issues such as cracks in buildings etc.
- Sea walls – because the erosion projections into the future are longer than the design life of existing sea walls, the erosion assessment assumes that there are no sea walls present (i.e. the coast is not defended).
- Bed rock – areas that were located on bed rock were included (shown as hatched in a different way) as structures may not be founded on bed rock.
- How was vegetation included in erosion assessment? It was not included in the hazard mapping as the extent to which it will stop erosion from a major storm event is unknown. Sand dunes are a dynamic environment – main advantage of vegetation is it mitigates wind erosion but when there are several erosion events in a short period of time the vegetation is unable to reestablish.

Questions on Threats and risks (Robyn Cambell)

- Timescale of inundation of Hickey Island – approximately 100 years
- Possible breakthrough of Esk River to Shark Bay in future inundation event
- SSP2 vs SSP5? SSP5 assumes no climate mitigation. SSP2 is a “middle of the road” scenario which assumes some mitigation and the Risk Frontiers Report adopted by Council in April 2021 has indicated this is the more likely scenario, and has been used in other Council hazard assessment.
- What does “storm tide” mean? Storm surge – ocean influences spreading up the river in combination with normal tides.
- Impact of elevated ocean levels on stormwater – drainage “window” is predicted to shorten, which will cause greater ponding in gravity stormwater systems.
- Angourie – issue of loss of access to beach (significant social impact) plus unstable slope at Spooky Beach is potential risk to tourists. Angourie has been assessed and mapped and is considered to the same extent as other areas at risk from coastal hazards.
- Have impacts from ocean issues like offshore wind farms been considered in the CMP? Issue has not been raised previously; issues raised in the CMP will in the future need to be considered in any future development assessment
- How has RHDV report into Lake Cakora entrance been incorporated? It was considered in study and management options will be considered in Stage 3.
- Kathryn Corbell (NPWS) gave an update on Woody Head and Sandon’s incorporation into the CMP. NPWS is developing its own Stage 3.

General Questions

- Funding of projects? When CMP is certified Council will be eligible for 2:1 financial assistance under the state’s coastal program, noting that funding

through the program is competitive. CZMPs expire on 31 December and funding for projects identified in CZMPs will not be available after that date.

- Can Council's 1/3 contribution to coastal works be funded through loans? Believe works would generally be eligible for loan funding.
- Will state government financial assistance be available were private properties to benefit from the work (e.g. Wooli beach nourishment)? Question on notice for DPE. There is an action in this year's operation plan for Council to prepare a business case for an environmental levy which would be a potential funding source for coastal works. There is also a potential option under the Local Government Act for Council to levy a coastal management service charge on properties which benefit from coastal works.

The chair gave observer Doug McKenzie leave to speak to the Committee. Doug state that geotechnical engineers have indicated that Pilot Hill properties if founded on bedrock will be safe; there was no landslip damage to properties from heavy rainfall in 2022. Property stormwater is no longer directed to Main Beach but public stormwater is still an issue to the north of the properties. Would like the "missing link for the coastal walkway between Marine Parade (between the lighthouse to Main Beach).

MOTION: *The Coast & Estuary Management Committee recommends that Council:*
1. Notes the Coastal Management Program Stage 2 Report
2. Makes the Stage 2 report publicly available on Council's website and the Clarence Conversations project pages, and
3. Proceed with the Coastal Management Program Stage 3.
Moved: Peter Maslen Secoded: Imelda Jennings CARRIED

The C&EMC recommends that Stage 3 of the CMP investigates the feasibility of completing the coastal walkway "missing link" along Marine Parade between the lighthouse and Main Beach.
Moved: Imelda Jennings Secoded: Ros Woodwood CARRIED

ITEM 6

AGENCY UPDATES

Clarence Valley Council (GPM)

- Wooli Beach Scraping – A Crown Lands licence for beach scraping was received on 17 October and expires on 19 November due to the Indigenous Land Use Agreement (ILUA) expiring on that date. DPE Staff and Uriah Makings are at Wooli this morning assessing whether there is sufficient sand available to undertake a beach scraping program.
- Brooms Head Revetment Wall Modelling – RHDV have been engaged to undertake the first part of the modelling which is scheduled to be completed in March 2024. The physical modelling will then be undertaken. At this stage there is no funding to implement the design; it is listed as one of Council's "Major Projects" if funding is available from State or Federal Governments
- Funding Applications have been submitted to DPE for CMP (Estuary) Stage 2-4 & future Wooli Beach Scraping. While funding for CZMP projects is not available after 31 December, beach scraping is eligible outside of the CMP process.
- Following adoption of the Stage 2 report, Stage 3 should take around 3 to 4 months. The timeframe for Stage 4 is unknown as it requires Ministerial approval but it would likely be a minimum of 6 months.

Fisheries (Jonathan Yantsch)

- Permit requirements on CVC stormwater drains have been discussed with the Floodplain Section.
- MEMA funded Floodplain Prioritisation Studies have been released by the

State Government and are available on the MEMA website

- DPI Fisheries has received \$29 million for riparian stabilisation package – with \$34 million allocated to LLS (2-year funding horizon). Finer details of project not yet determined. Funding is likely to be towards strategic work such as bank management strategies but may be potential for some on ground works in the Clarence.

Solitary Island Marine Park (James McLeod)

- SIMP is providing comment to DAs at Woolli
- Progressing signage upgrade – much in disrepair. Linking in with NPWS for signage.

NPWS (MF)

- Everlasting Swamp – impact from Dilkoon Road fire – over 50% of the area on the North of Sportsmans Creek (as well as some to the south) burned.
- A draft Ecological Values report has been prepared to support a Blue Carbon project.

ITEM 7

GENERAL BUSINESS

- Nil

ITEM 8

NEXT MEETING

- *Provisionally 25 March (subject to completion of Stage 3 report)*

ITEM 9

CLOSE OF MEETING

Meeting closed at 11:35

Clarence Valley Coastline and Estuaries CMP Stage 2

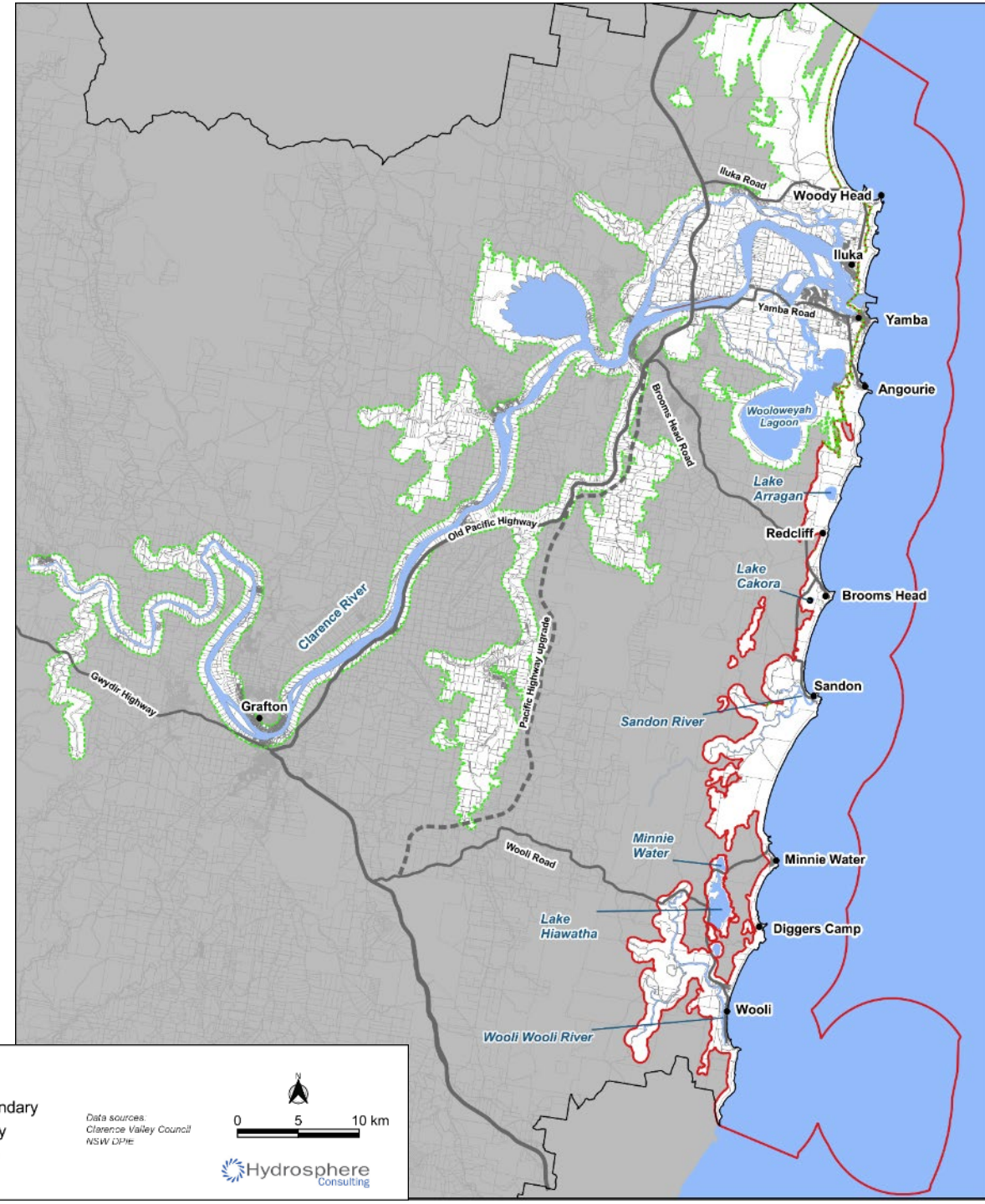


Presentation Outline

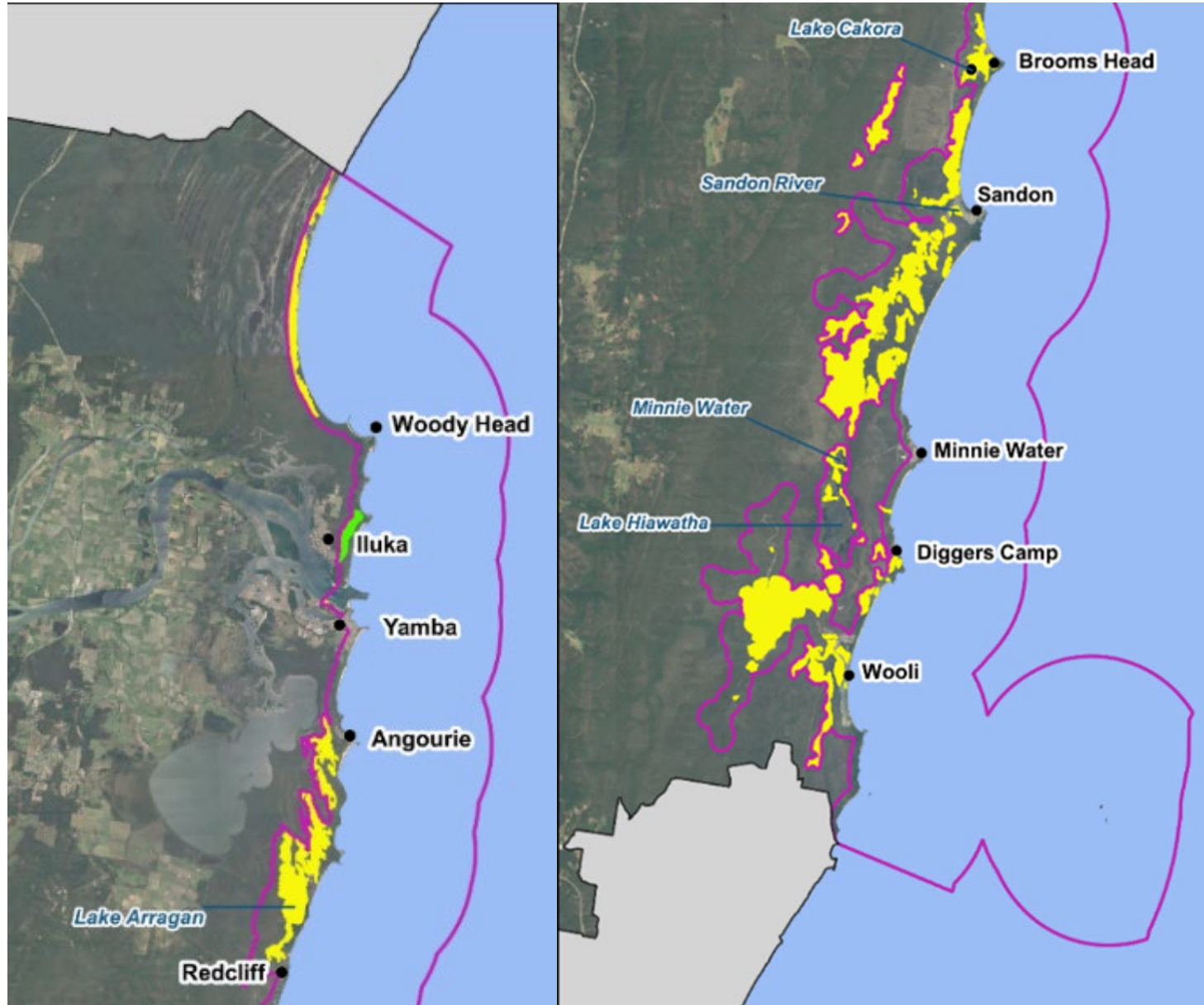
1. Recap – study area, CMP stages, Stage 2 scope: Robyn Campbell, Hydrosphere Consulting
2. Coastal hazard assessments – tidal/ coastal inundation and erosion/ recession: Daniel Rodger, JBPacific
3. Stage 2 outcomes: vulnerability, threat and risk assessment: Robyn Campbell
4. Discussion – Stage 2 outcomes: All
5. Stage 3 introduction: Robyn Campbell
6. Committee recommendations: All

Clarence Valley LGA Coastal Management Strategy

- Coastline and smaller estuaries (this CMP)
- Clarence River estuary including Wooloweyah Lagoon (separate CMP)
- Woody Head and Sandon campgrounds (NPWS Coastal Hazard Response Plans, potential actions included in this CMP)

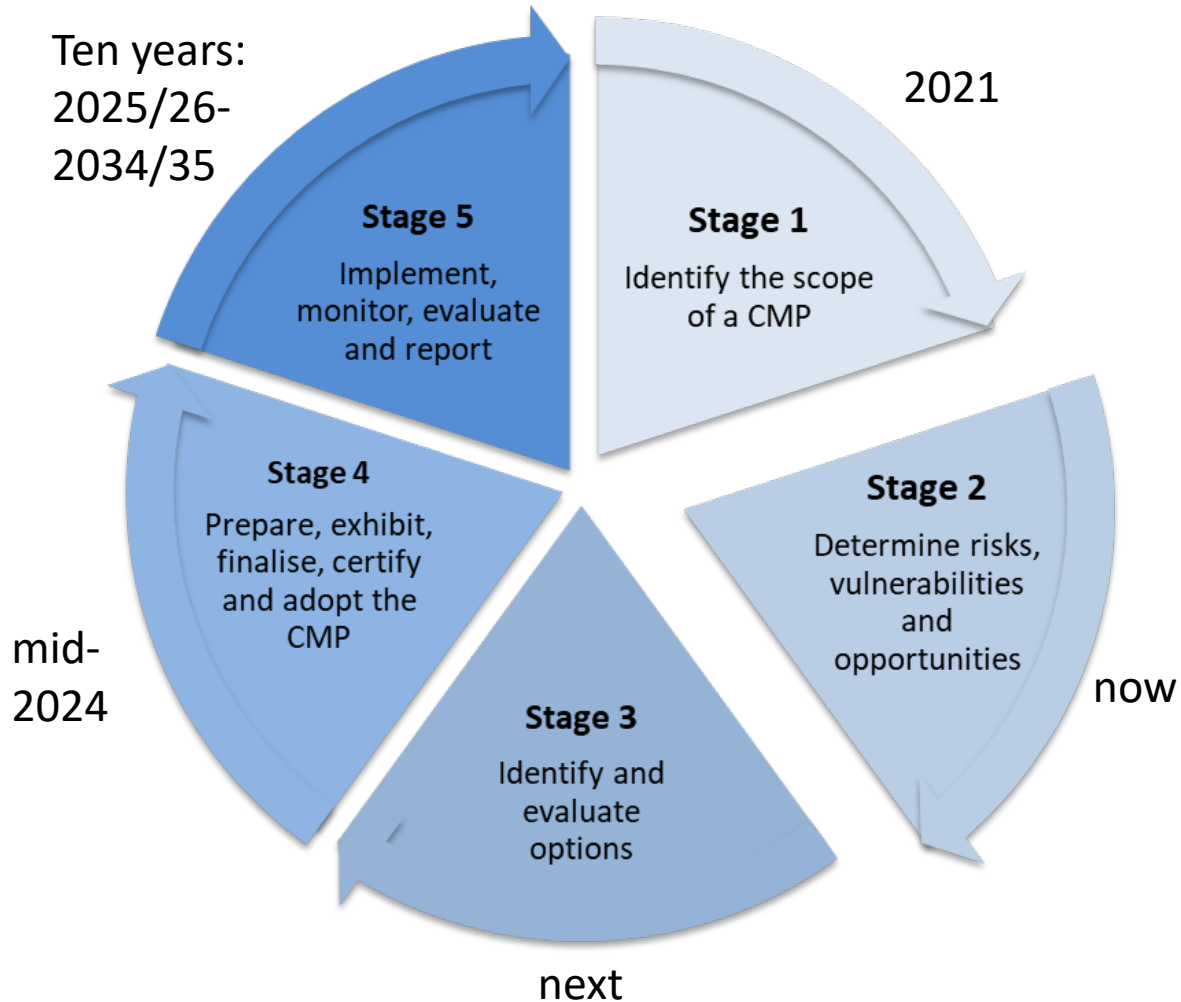


CMP area



- Areas mapped in SEPP
 - Coastal environment area
 - Coastal use area
 - Coastal wetlands and littoral rainforest area
- Townships and beaches: Woody Head, Iluka, Yamba, Angourie, Brooms Head, Sandon, Minnie Water, Diggers Camp and Woolli
- Estuaries: Lake Cakora, Lake Arragan, Sandon River, Woolli Woolli River and Clarence River entrance
- Bundjalung and Yuraygir National Parks

CMP Stages



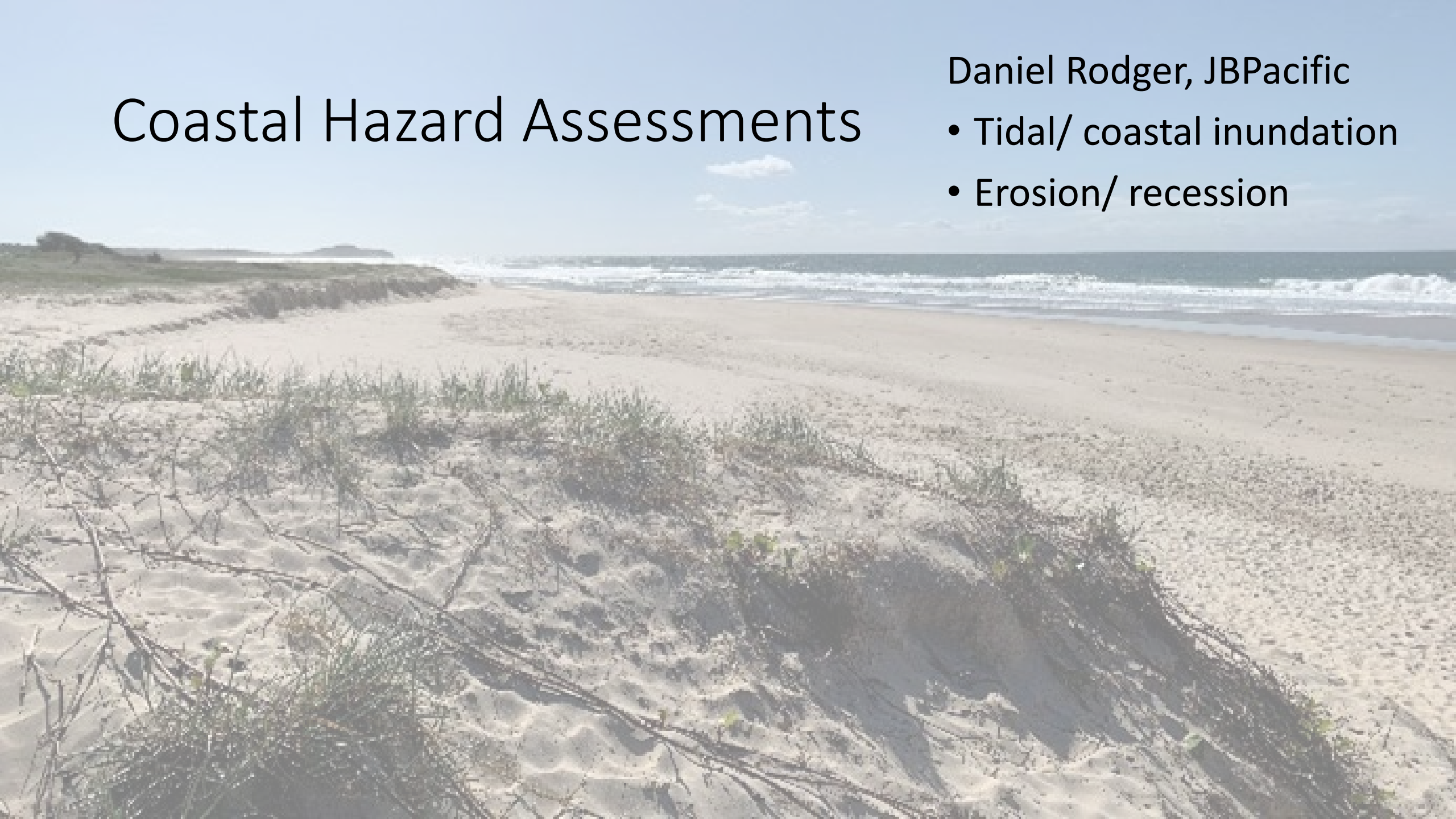
Stage 2 work:

- Coastal hazard assessments:
 - Detailed erosion/recession assessment for all urban areas and high-risk areas
 - Regional scale erosion mapping – other NP areas
 - Detailed inundation assessment for all study area
 - Preliminary slope stability assessment – Pilot Hill, Convent Beach, Cakora Point
- CVC asset and infrastructure risk assessment
- Update study area threat and risk assessment
- Review of planning controls
- Stakeholder engagement

Coastal Hazard Assessments

Daniel Rodger, JBPacific

- Tidal/ coastal inundation
- Erosion/ recession



Areas vulnerable to erosion/ recession and inundation

- Inundation (lower estuaries and entrances)
 - Iluka and Bundjalung NP north of Clarence River
 - Hickey Island
 - Brooms Head
 - Sandon and Yuraygir NP
 - Wooli
- Erosion/ recession
 - Shark Bay
 - Woody Bay
 - Whiting Beach
 - Pippi Beach
 - Brooms Head
 - Sandon
 - Minnie Water
 - Diggers Camp
 - Wooli
- Threat level varies and increases over time

Example – Wooli Inundation

- HHWSS
- 10% AEP Storm Tide Level
- 2% AEP Storm Tide Level
- 1% AEP Storm Tide Level



Present day

Example – Wooli Inundation



- HHWSS
- 10% AEP Storm Tide Level
- 2% AEP Storm Tide Level
- 1% AEP Storm Tide Level

2043, SSP2

Example – Wooli Inundation

- HHWSS
- 10% AEP Storm Tide Level
- 2% AEP Storm Tide Level
- 1% AEP Storm Tide Level



2073, SSP2

Example – Wooli Inundation

- HHWSS
- 10% AEP Storm Tide Level
- 2% AEP Storm Tide Level
- 1% AEP Storm Tide Level




2123, SSP2


Example – Brooms Head erosion (undefended)


Present day




Erosion and recession hazard zones
(without protection)

50% exceedance probability 

10% exceedance probability 

2% exceedance probability 

1% exceedance probability 


Bedrock 


Example – Brooms Head erosion (undefended)


2043, SSP2




Erosion and recession hazard zones
(without protection)

50% exceedance probability 

10% exceedance probability 

2% exceedance probability 

1% exceedance probability 


Bedrock 


Example – Brooms Head erosion (undefended)


2073, SSP2




Erosion and recession hazard zones
(without protection)

50% exceedance probability 

10% exceedance probability 

2% exceedance probability 

1% exceedance probability 


Bedrock 


Example – Brooms Head erosion (undefended)


2123, SSP2




Erosion and recession hazard zones
(without protection)

50% exceedance probability 

10% exceedance probability 

2% exceedance probability 

1% exceedance probability 

Bedrock 

Estuary entrance areas

- Woolli, Sandon, Brooms Head, Hickey Island

Erosion/ recession,
2123, SSP2



Erosion and recession hazard zones
(without protection)

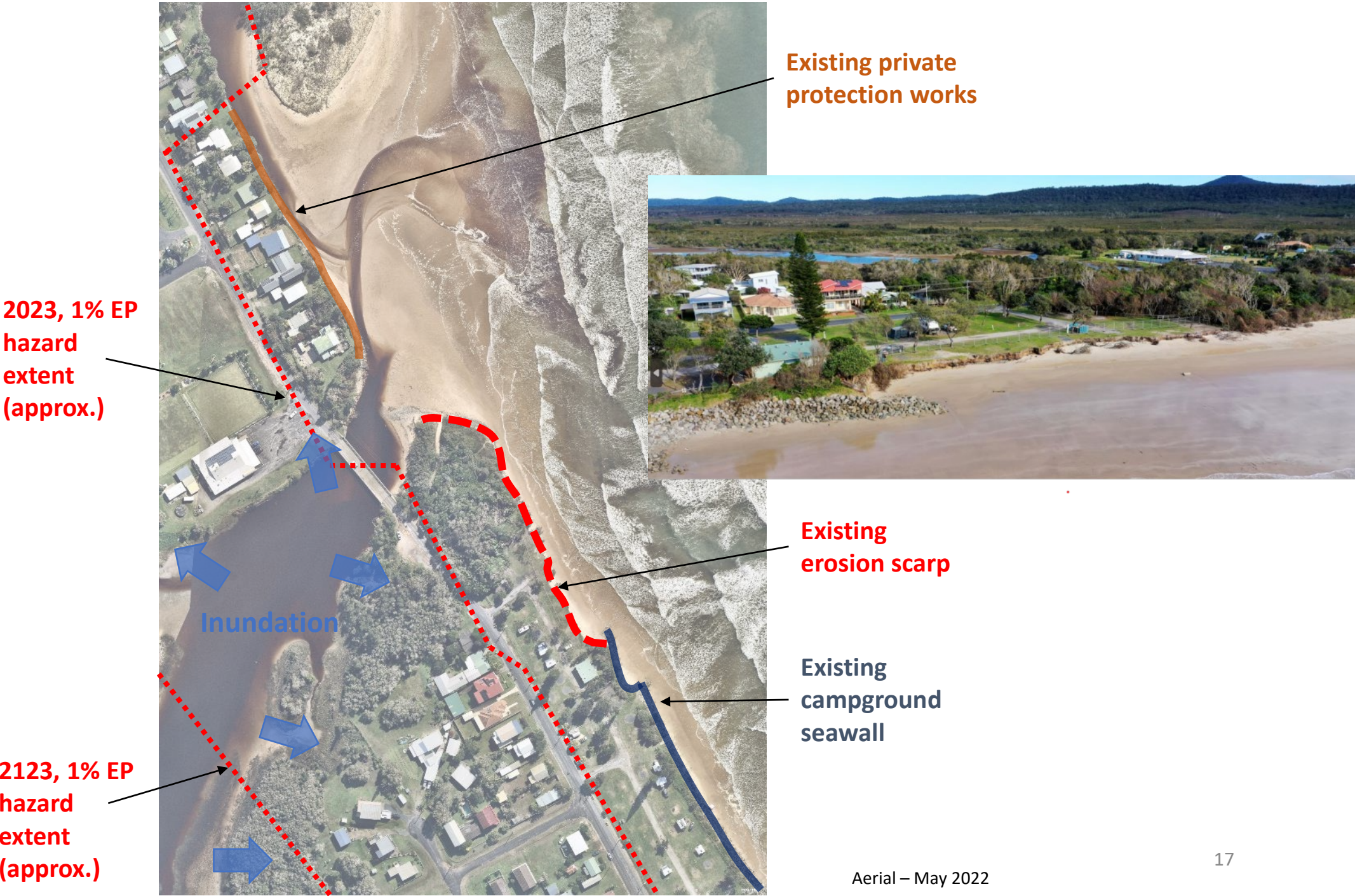
- 50% exceedance probability ■
- 10% exceedance probability ■
- 2% exceedance probability ■
- 1% exceedance probability ■



Inundation,
2123, SSP2

- HHWSS
- 10% AEP Storm Tide Level
- 2% AEP Storm Tide Level
- 1% AEP Storm Tide Level

Brooms Head



Slope instability

- Pilot Hill and Convent Beach – primary coastal hazard is cliff instability, erosion/ recession assessment not undertaken (yet)
- FSG report – Pilot Hill, Convent Beach and Cakora Point:
 - Review of previous assessments, management strategies, recent data
 - Recommendations:
 - Monitoring program review, additional geotechnical investigations, update slope stability analysis and risk assessments
 - Review emergency management strategy for Pilot Hill (alert levels and application area)
 - Review planning/ development controls
- Stage 3/4 or potential Stage 5 CMP actions

Key present-day threats – coastal hazards (various areas)

- Beach erosion
- Shoreline recession
- Tidal/ coastal inundation
- Slope instability/ landslip
- Entrance instability
- Erosion of foreshores
- Modification of coastal wetland habitat
- Damage to beach access points
- Reduced accessible beach at high tide due to coastal protection works
- Fallen/ dangerous trees on eroded beaches
- Damage to cultural heritage items/ sites



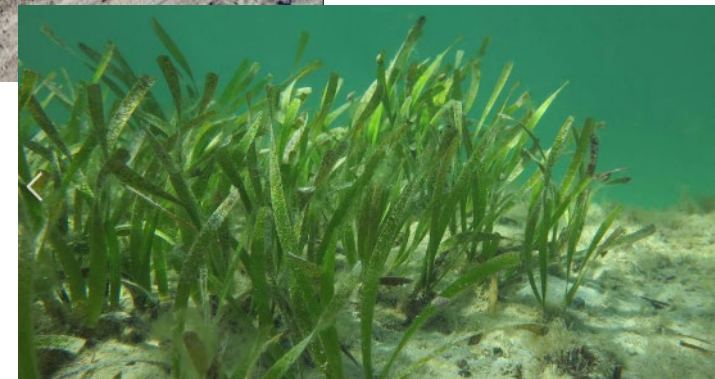
Vulnerability to coastal hazards

Present day to 2123 (and onwards):

- Council managed reserves – Iluka, Hickey Island, Brooms Head, Sandon, Wooli
- Council water, sewer, stormwater, roads, bridges, carparks etc within vulnerable areas
- Cultural heritage within vulnerable areas
- Private property within vulnerable areas
- National Parks/ reserves and facilities along coastline
- Coastal Wetland areas and other natural assets – Bundjalung NP, Hickey Island, Yuraygir NP and bordering areas

Other key present-day threats (various areas)

- Invasive weeds
- 4WD/ motorbikes on beaches
- Predation and invasion by introduced animals
- Shoaling and sediment movement within estuaries
- Erosion and sedimentation affecting navigation
- Foreshore development
- Uncontrolled dog access
- Poor flushing of ICOLLs
- Seagrass decline
- Inaccurate or incomplete mapping of coastal management areas
- Inadequate land use planning and development controls
- Litter



Planning controls

Potential planning amendments to incorporate coastal hazard information:

- Coastal Vulnerability Area in Resilience and Hazards SEPP or LEP:
 - Erosion/recession zone e.g. 1% EP 2123 SSP2
 - Coastal inundation zone e.g. 1% AEP 2123 SSP2
- Modify Coastal Wetlands area in Resilience and Hazards SEPP – reduce or increase area based on additional assessment
- Slope instability area (CVA) – based on additional assessment
- Erosion of foreshores e.g. Woolli – based on additional assessment

Discussion – Stage 2 outcomes



Stage 3

- Develop strategic approach
- Assess feasibility, viability and acceptability of options
- Develop adaptive responses
- Planning controls, monitoring, emergency response
- Stakeholder engagement



Clarence Valley Council Coastal Management Program: Stage 2 Hazard Assessment

Agenda



- Project goals
- Approach
- Results

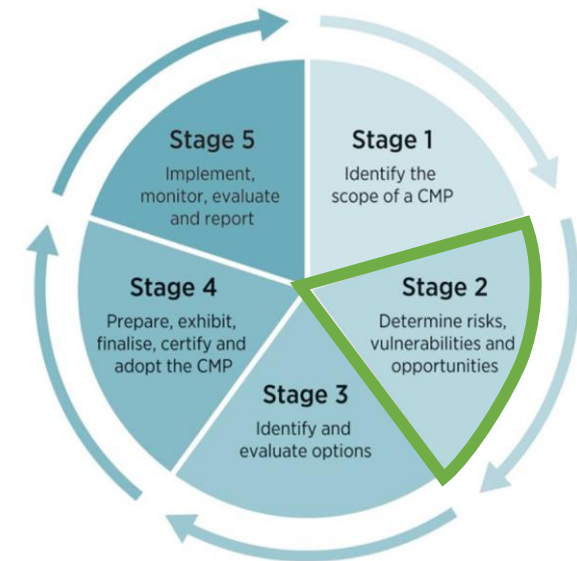
- Part 2 of the Clarence Coastline CMP
- This Stage 2 Study: Determines Risks, Vulnerabilities, Opportunities
- Needs to be undertaken in accordance with the NSW Coastal Management Manual

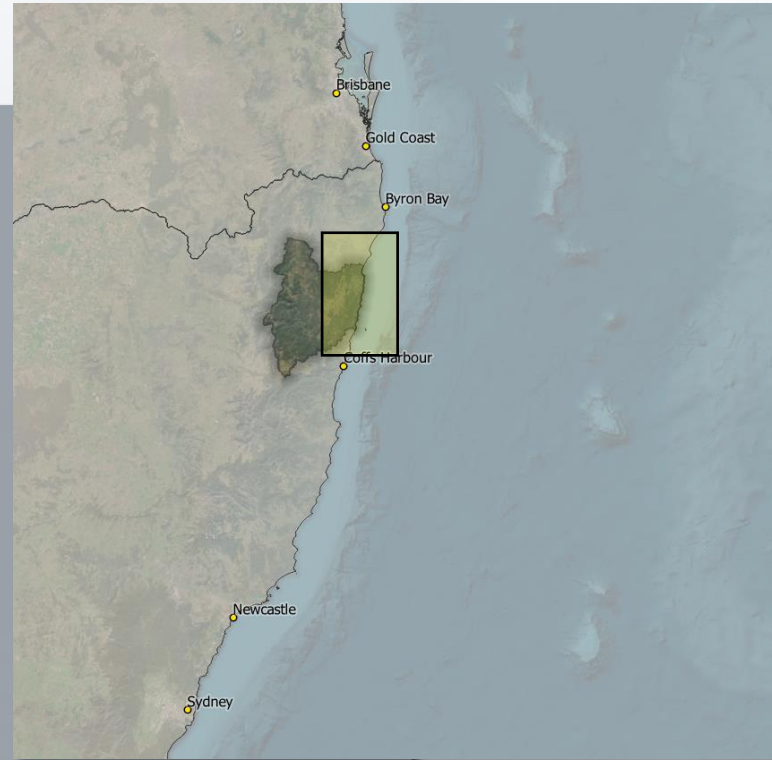
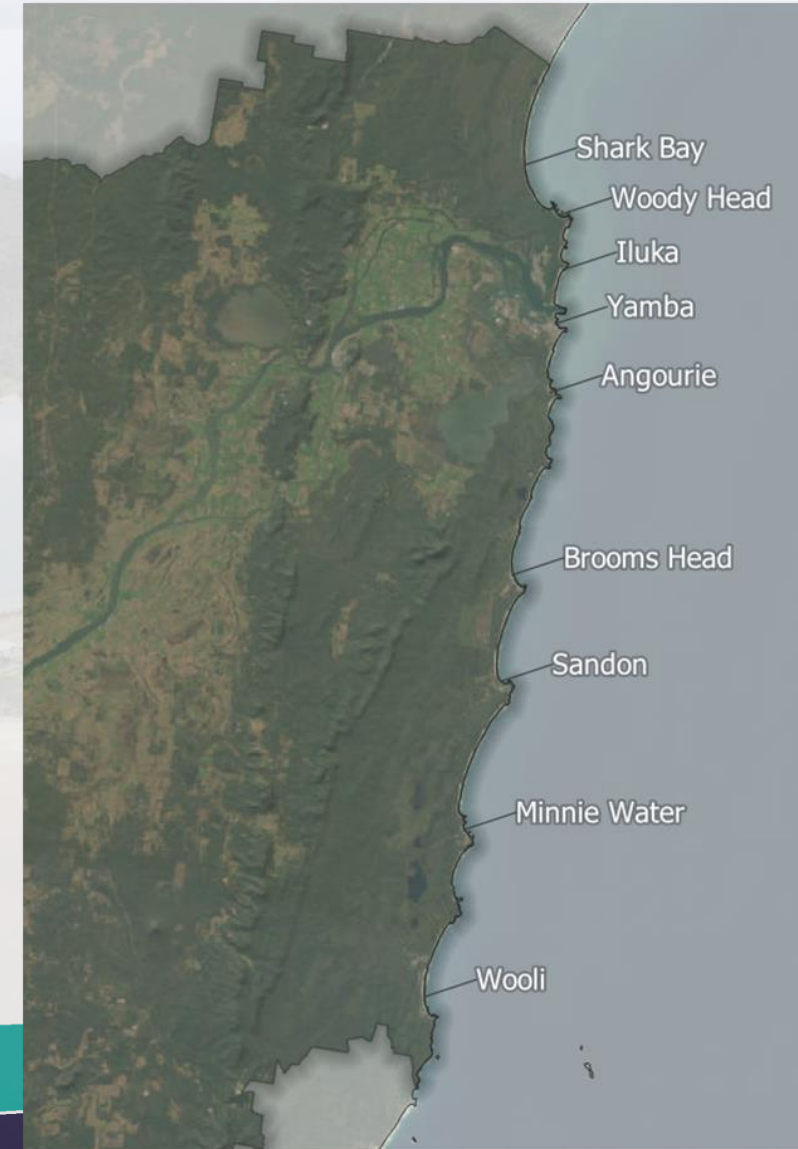


Requirements for taking coastal change into account when preparing a CMP

13. A CMP must demonstrate how a council has considered:
- current and future risks, at timeframes of **immediate, 20 years, 50 years, 100 years** and (if council considers it relevant based on expert advice) beyond;
 - (if council considers it relevant) current and future risks of potentially high consequence, **low probability events** that may affect the relevant area;
 - the effects of projected **climate change and** how it may affect the relevant area;
 - the local and regional scale effects of coastal processes; and
 - the ambulatory and **dynamic nature of the shoreline** and how it may affect the relevant area.

Plus we need coastal inundation and erosion





Clarence Valley Council

- 80km of coastline
- Open coast beaches
- Embayed pocket beaches
- Rocky headlands

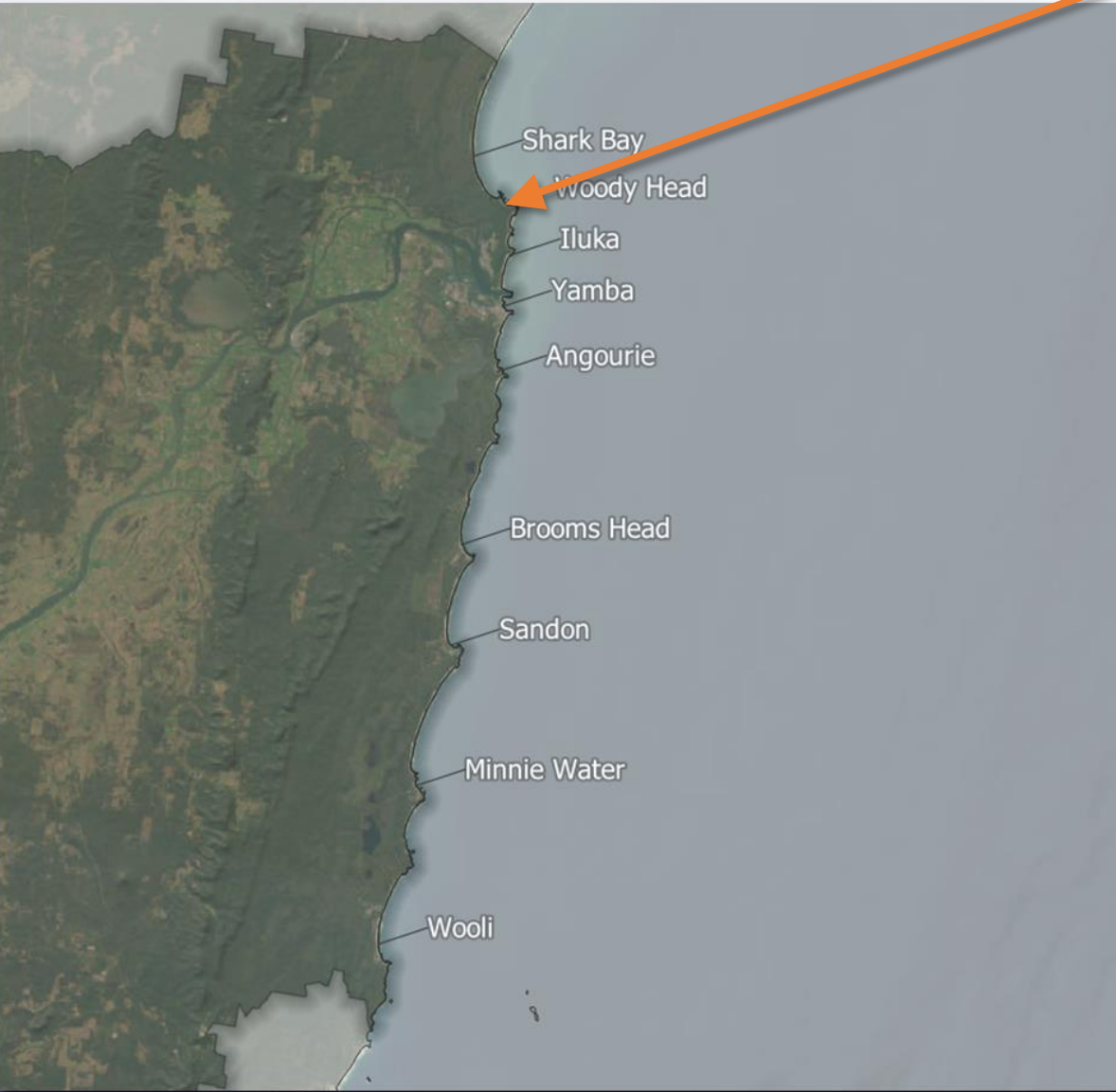
Approach

JBA
group

JBP
scientists
and engineers

JBA
consulting

JBA
risk
management



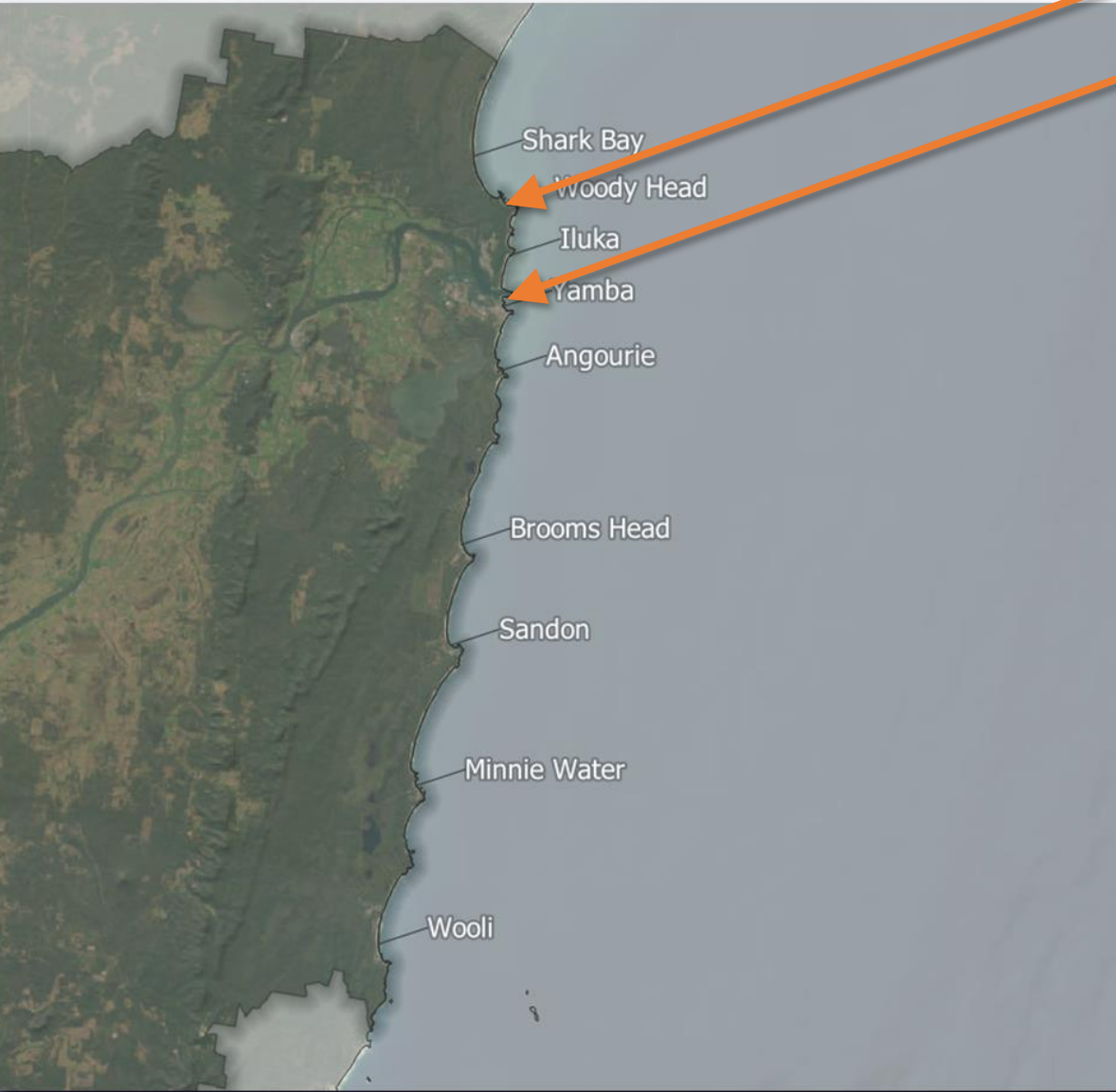
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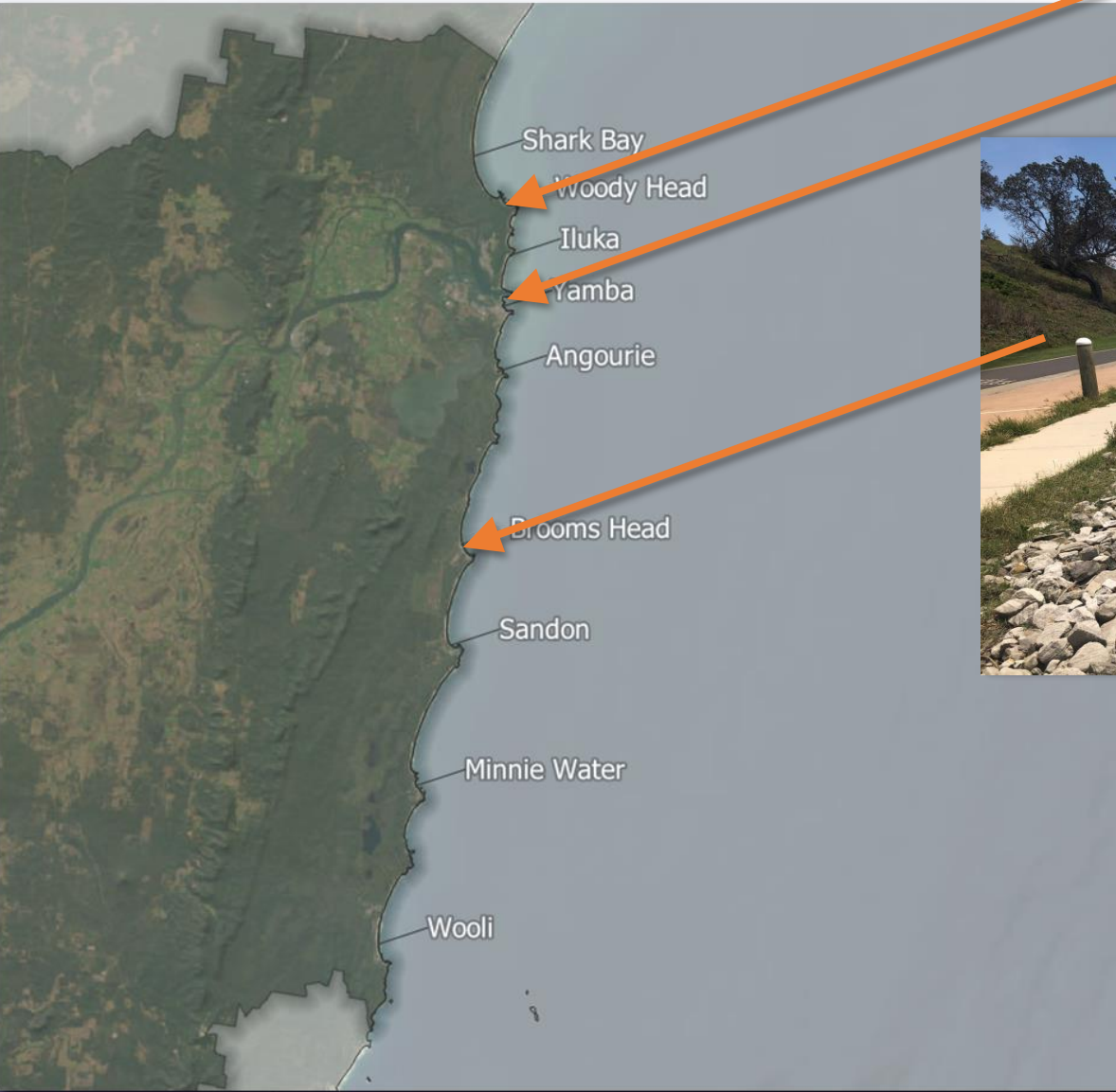
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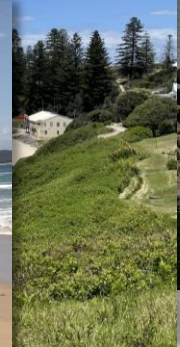
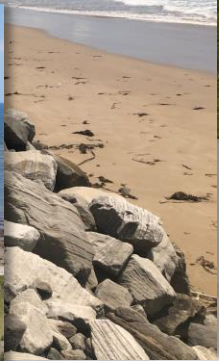
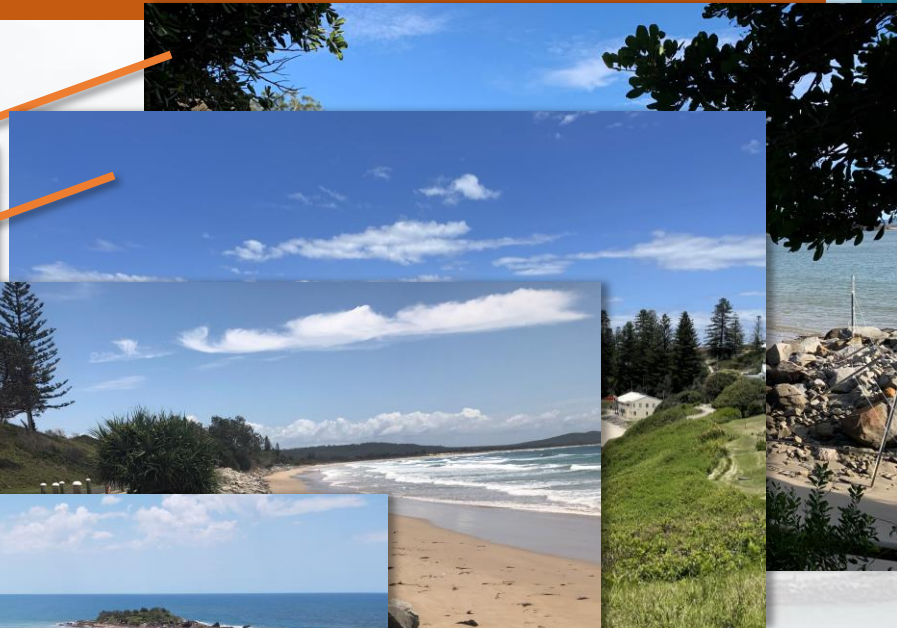
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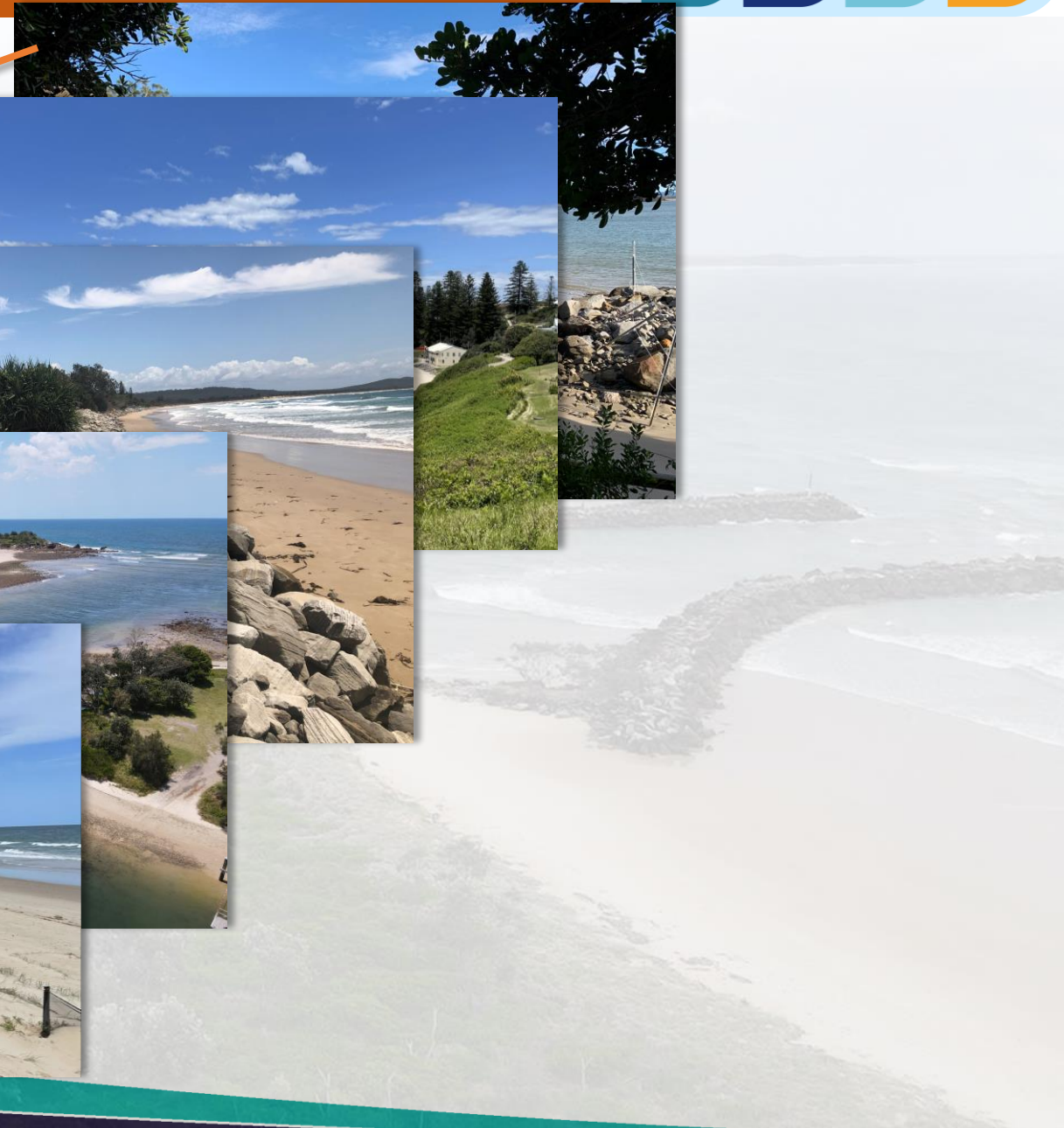
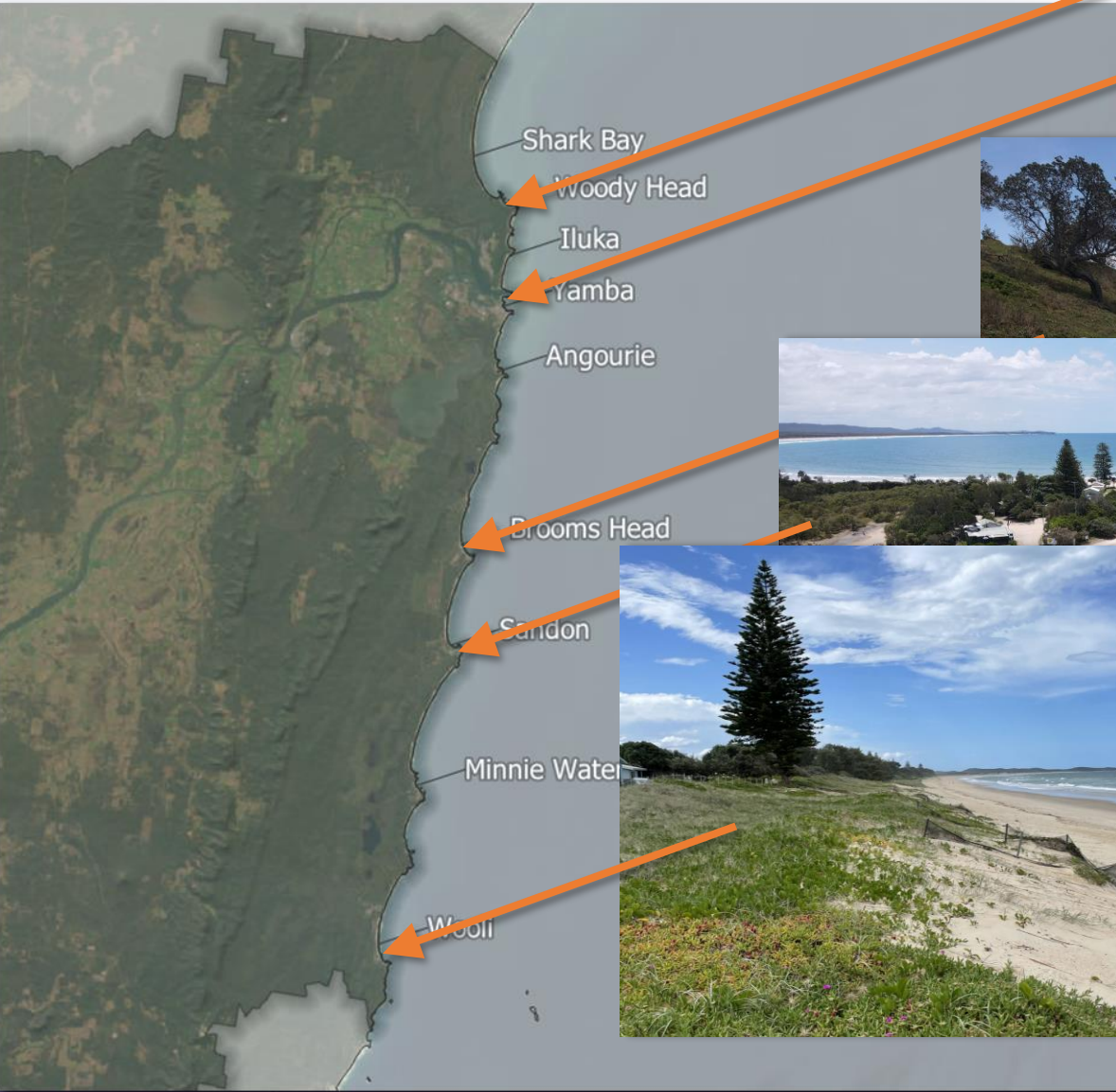
Approach

JBA
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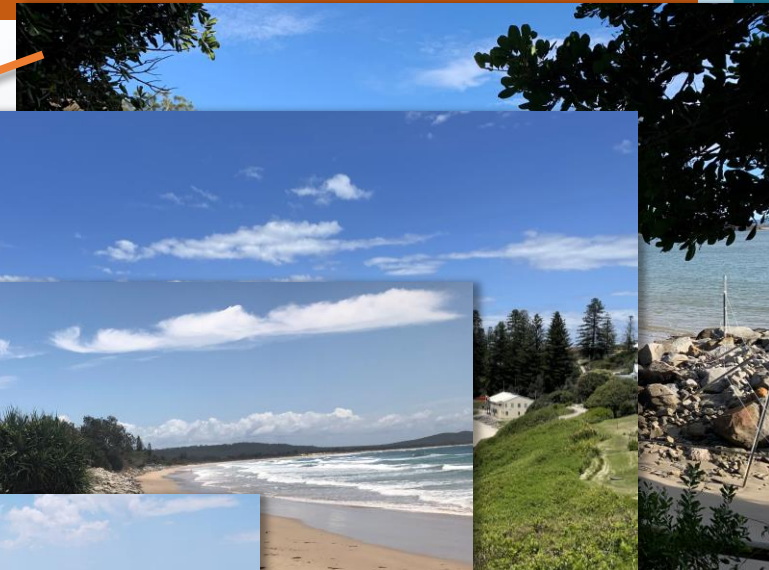
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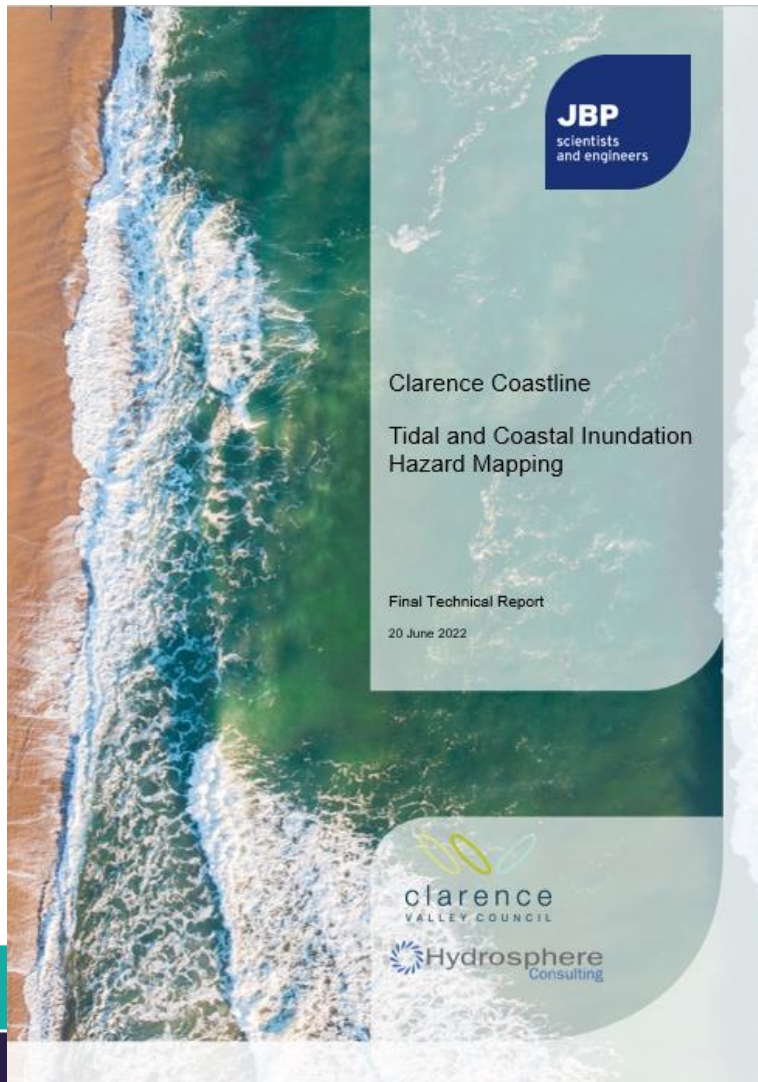


Approach



How to assess
inundation and erosion
risk for each location?

- Coastal Inundation



Maps have been developed for the open coastline, the Clarence River, Lake Cakora, Sandon River, and Woolli River.

Hazard mapping has been produced using hydrodynamic modelling and spatial projection methods

- Present day (2023),
- + 20 years (2043),
- + 50 years (2073),
- + 100 years (2123) planning timeframes.

Included:

- Higher High Water Spring Solstice (HHWSS),
- 10% Annual Exceedance Probability (AEP) (Common),
- 2% AEP (Rare),
- 1% AEP (Very Rare)
- Two climate scenarios

- Coastal Inundation

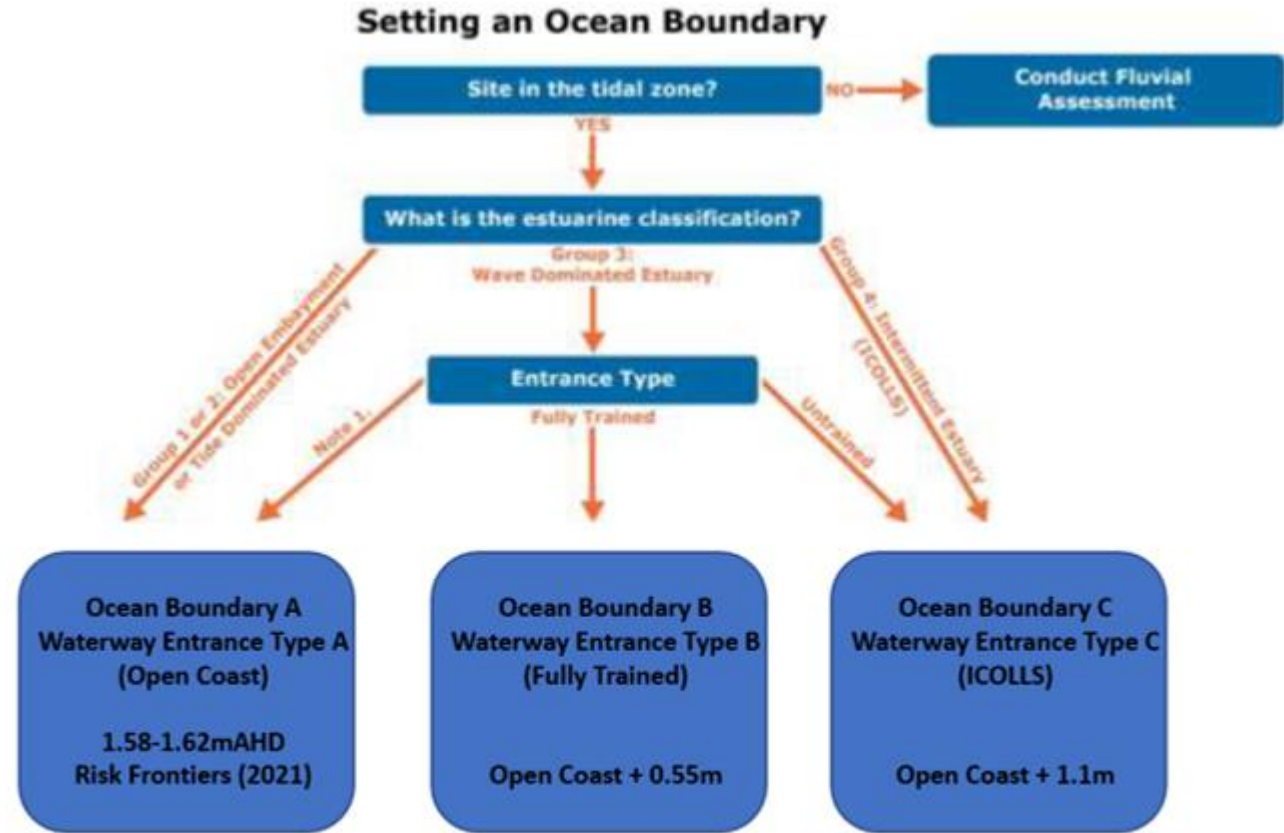
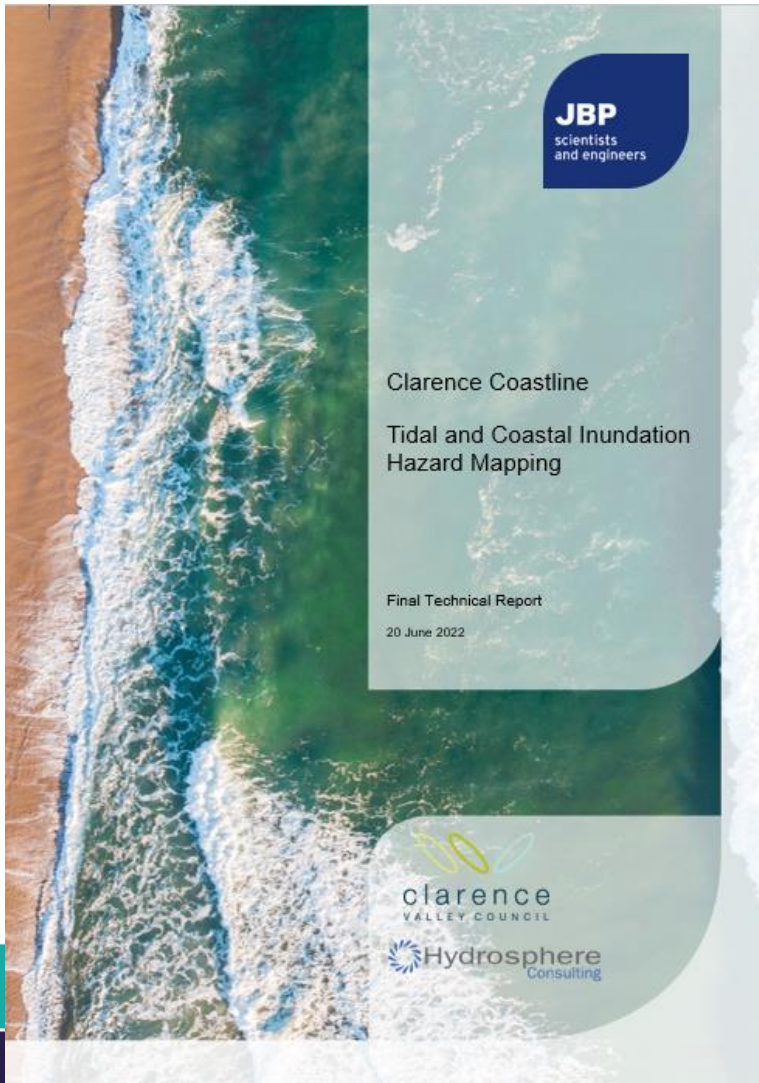
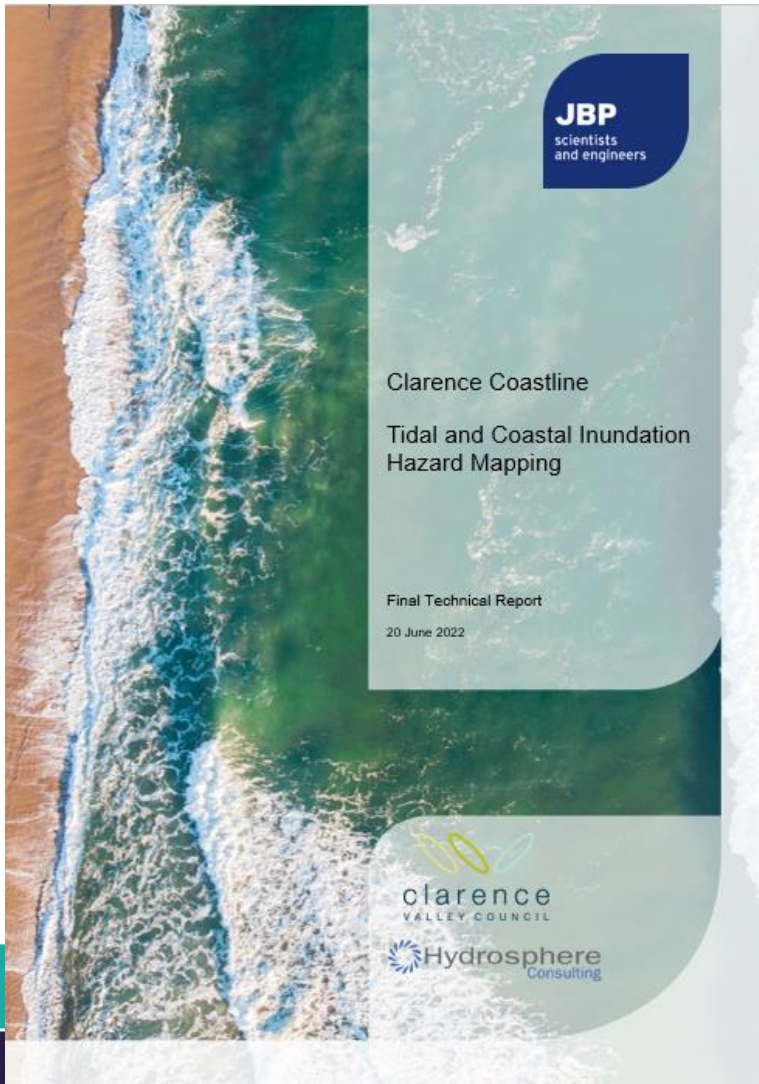


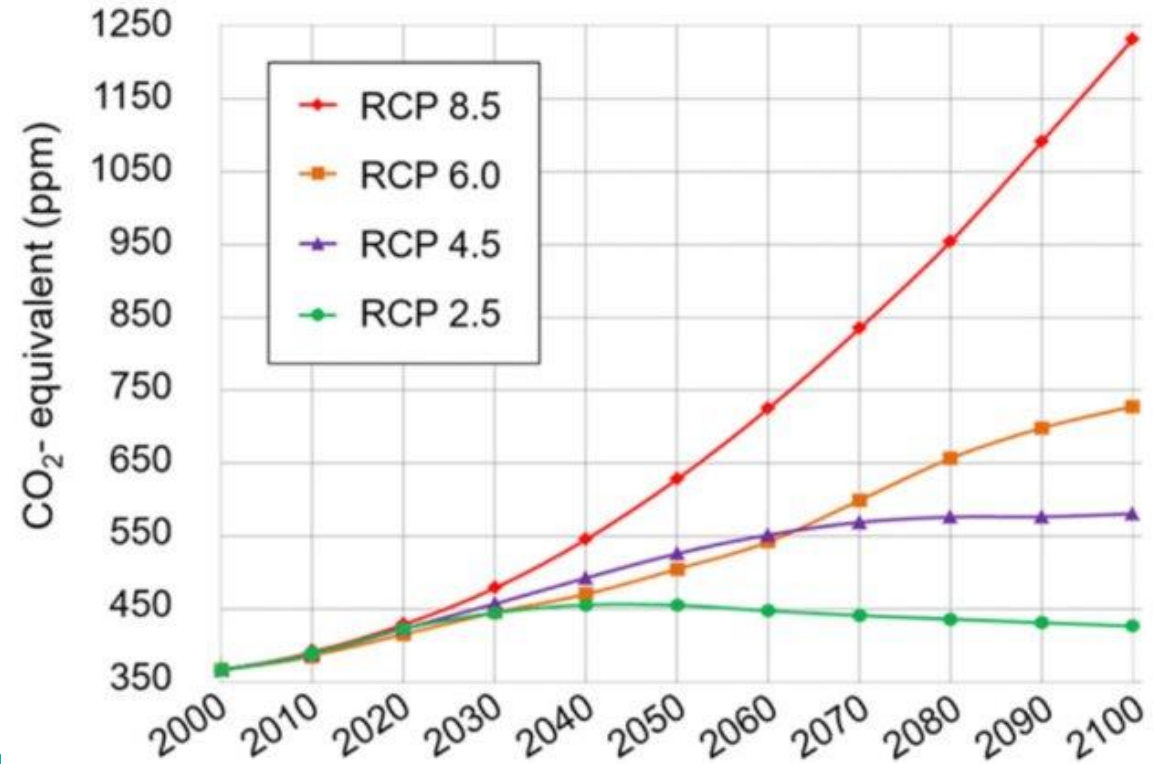
Figure 2-2: Water level boundary conditions (adapted from OEH 2015).

- Coastal Inundation



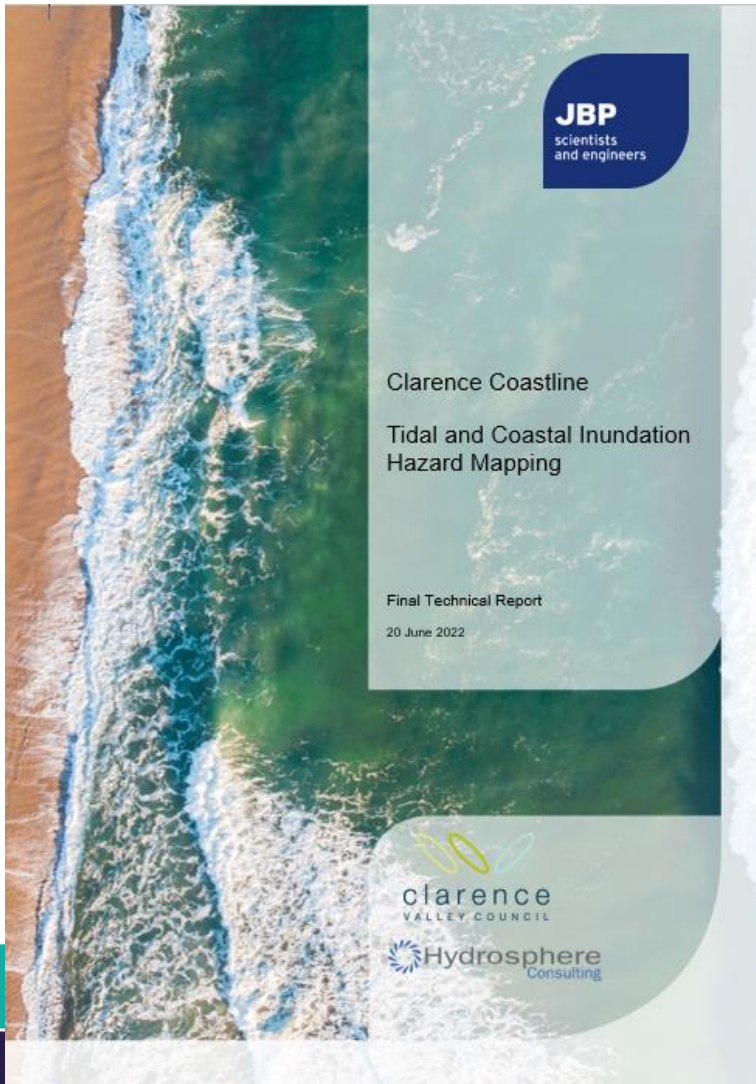
IPCC AR5 Greenhouse Gas Concentration Pathways

Representative Concentration Pathways (RCPs) from the fifth Assessment Report by the International Panel on Climate Change



Approach

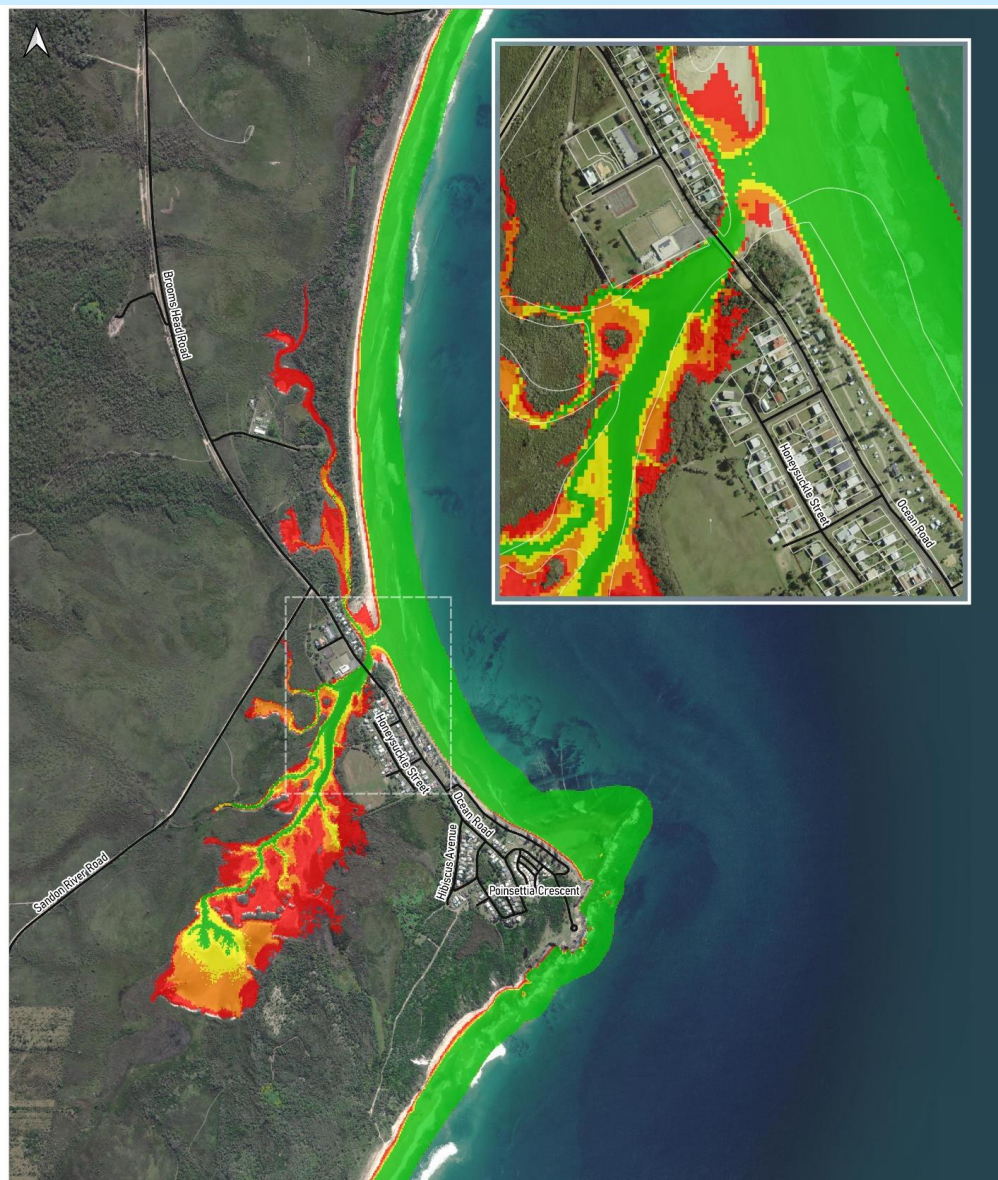
- Coastal Inundation



Legend

- Flood Extents
- PD HHWSS
 - 2043 HHWSS SSP2
 - 2073 HHWSS SSP2
 - 2123 HHWSS SSP2

Title
 Brooms Head Flood Extents - HHWSS SSP2



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 477 Boundary Street
 Spring Hill
 QLD 4004

Scale
 0 250 500 m

Date
 20/06/2022

- Legend**
- Flood Extents
- PD HHWSS
 - 2043 HHWSS SSP2
 - 2073 HHWSS SSP2
 - 2123 HHWSS SSP2

Flood results are based on regional events

PROJECT ID	20211471
AUTHOR	CS
LAST MODIFIED	20/06/2022
VERSION	1

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Title
 Brooms Head Flood Extents - HHWSS SSP2

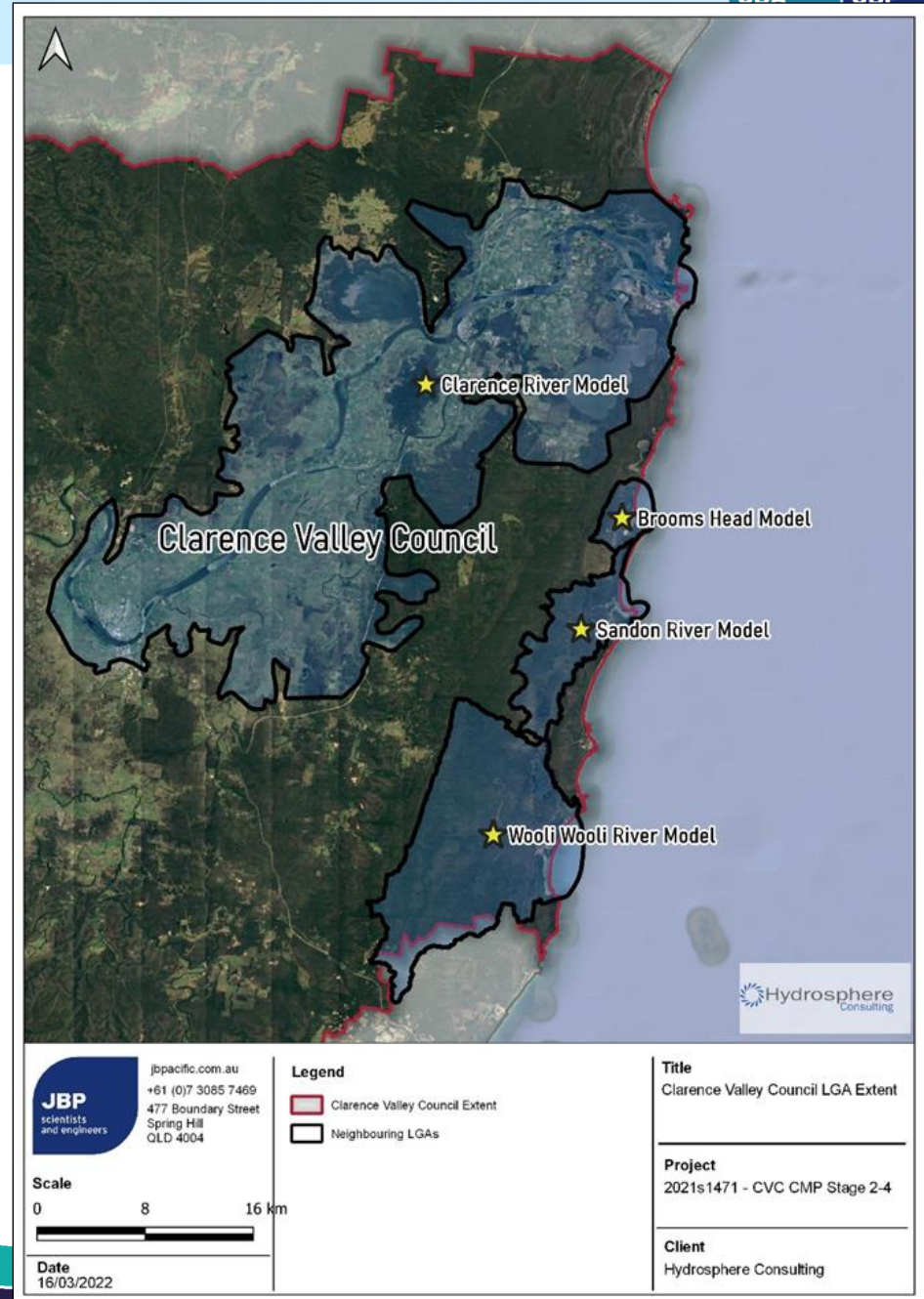
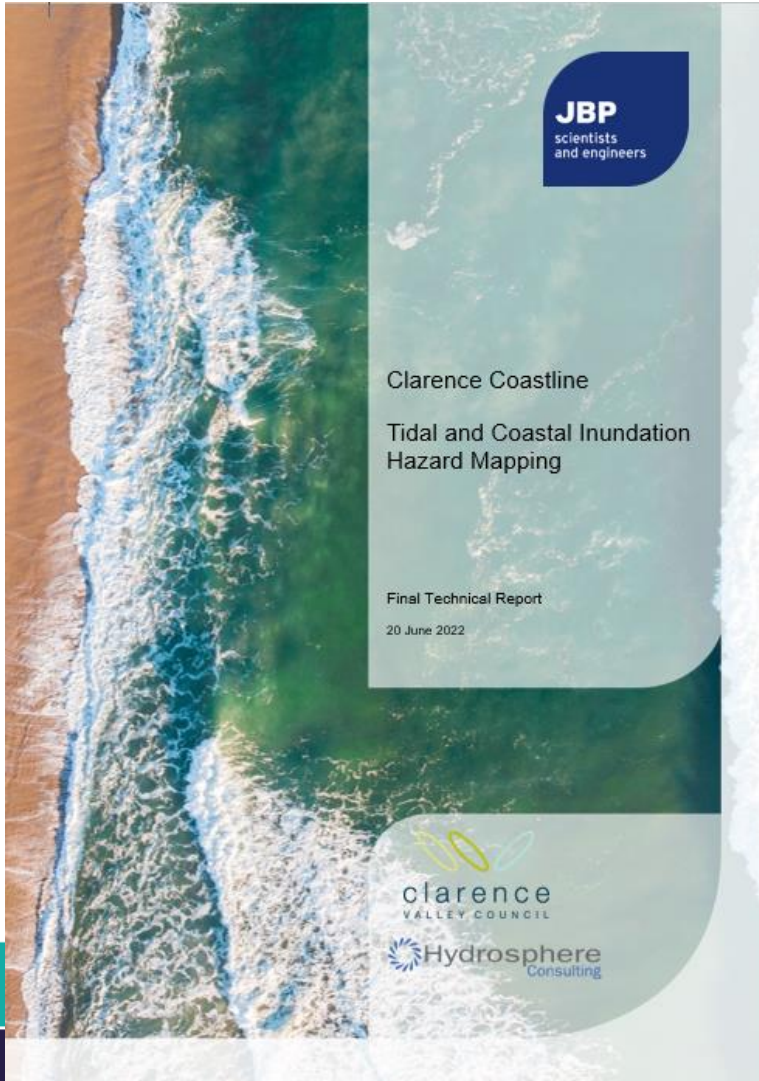
Project
 2021s1471 - Hydrosphere - CVC CMP Stage 2 - 4

Client
 Hydrosphere Consulting

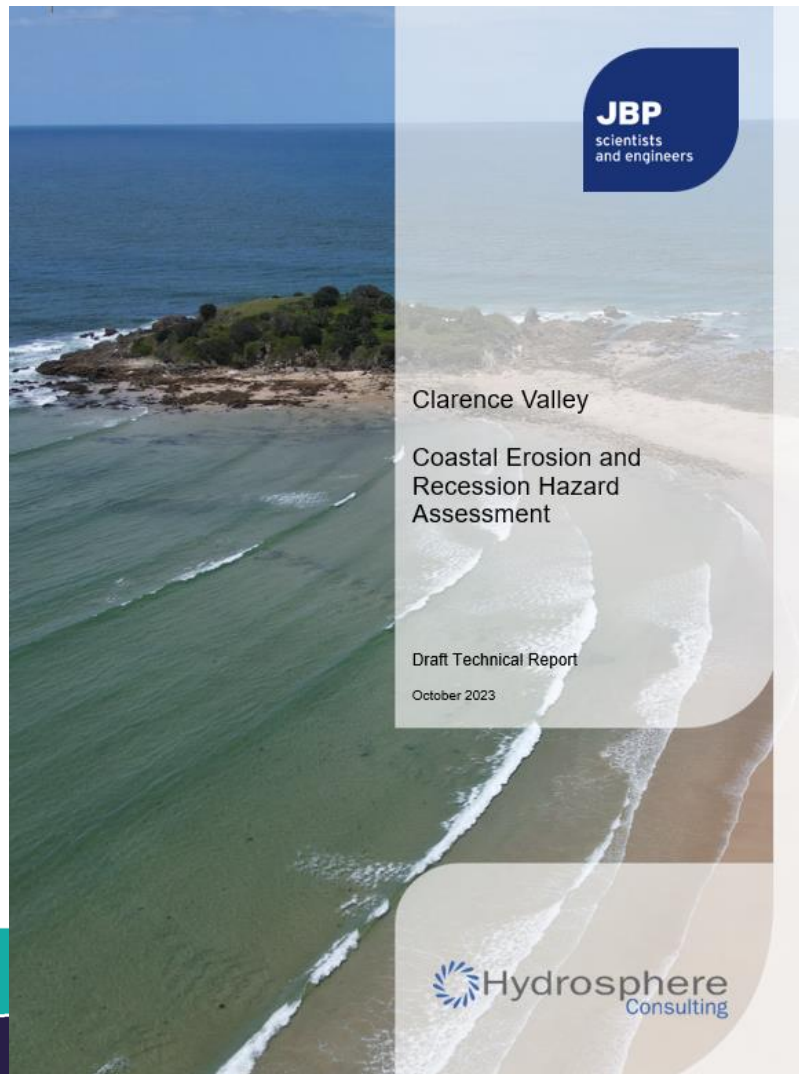
Data Sources:
 Roads © 2019 NSW Government
 DOCS 10 2017 NSW Government
 Imagery © 2021 NSW SRA Maps

Approach

- Coastal Inundation



- Erosion and recession



Hazard mapping has been produced using a probabilistic methods, which includes

- Present day (2023),
- + 20 years (2043),
- + 50 years (2073),
- + 100 years (2123) planning timeframes.

Included:

- 10% Annual Exceedance Probability (AEP) (Common),
- 2% AEP (Rare),
- 1% AEP (Very Rare)
- Two climate scenarios





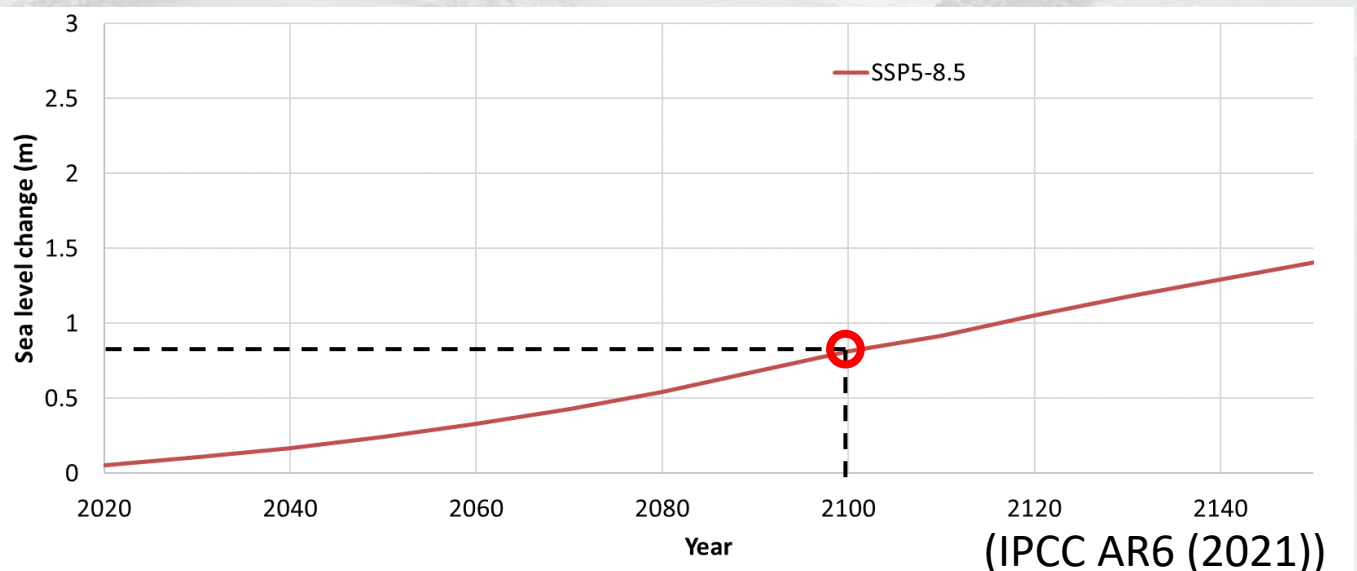
Erosion prone area width assessment formula

The formula adopted by the Department of Environment and Heritage Protection (EHP) for the calculation of the necessary erosion prone area width is as follows:

$$E = [(NxR) + C + S] \times (1 + F) + D \text{ (equation 1)}$$

Where:

- E = erosion prone area width (metres)
- N = planning period (years)
- R = rate of long-term erosion (metres per year)
- C = short-term erosion from the design storm or cyclone (metres)
- S = erosion due to sea level rise (metres)
- F = factor of safety (0.4 has been adopted)
- D = dune scarp component to allow for slumping of the erosion scarp (metres).





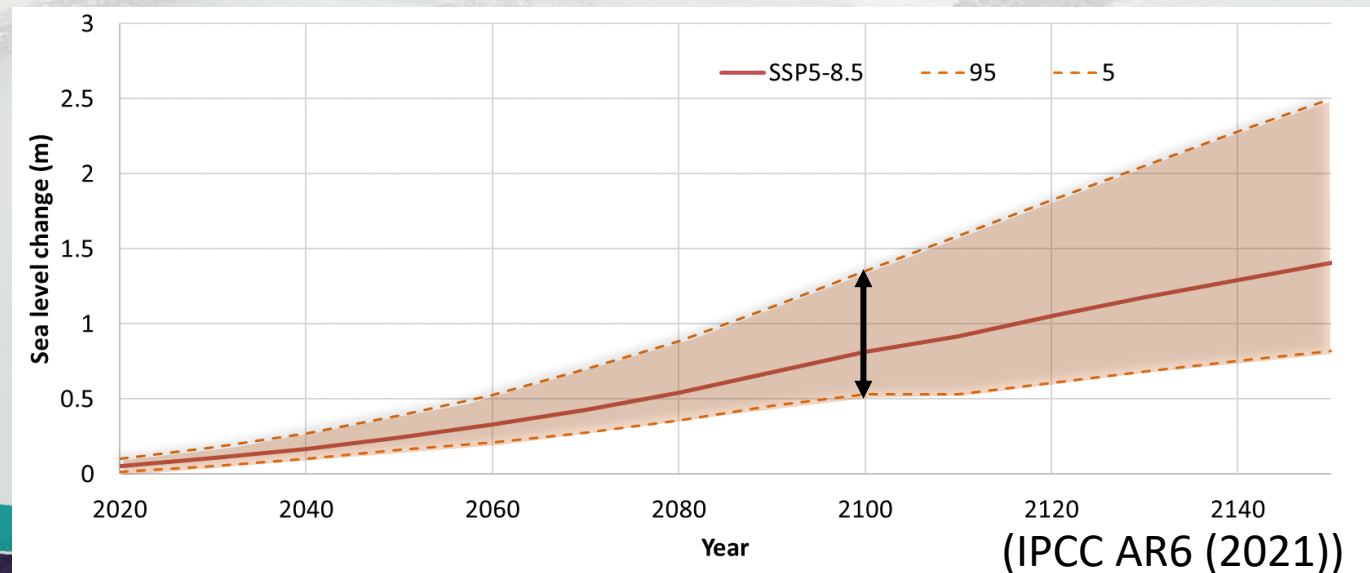
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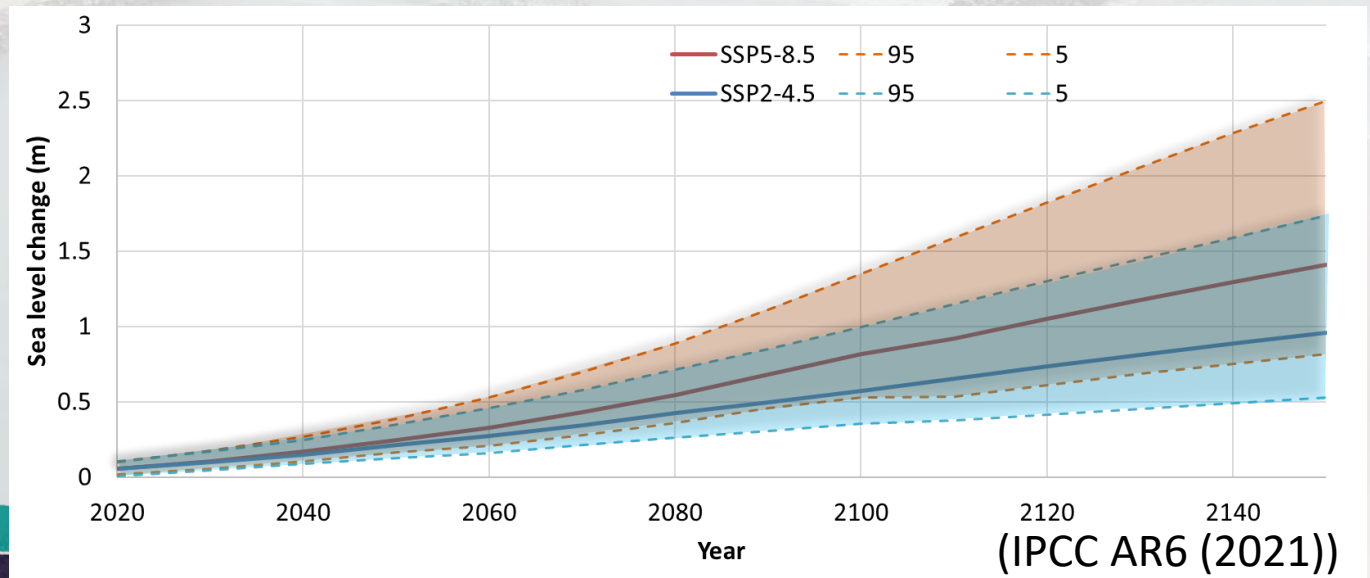
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(IPCC AR6 (2021))



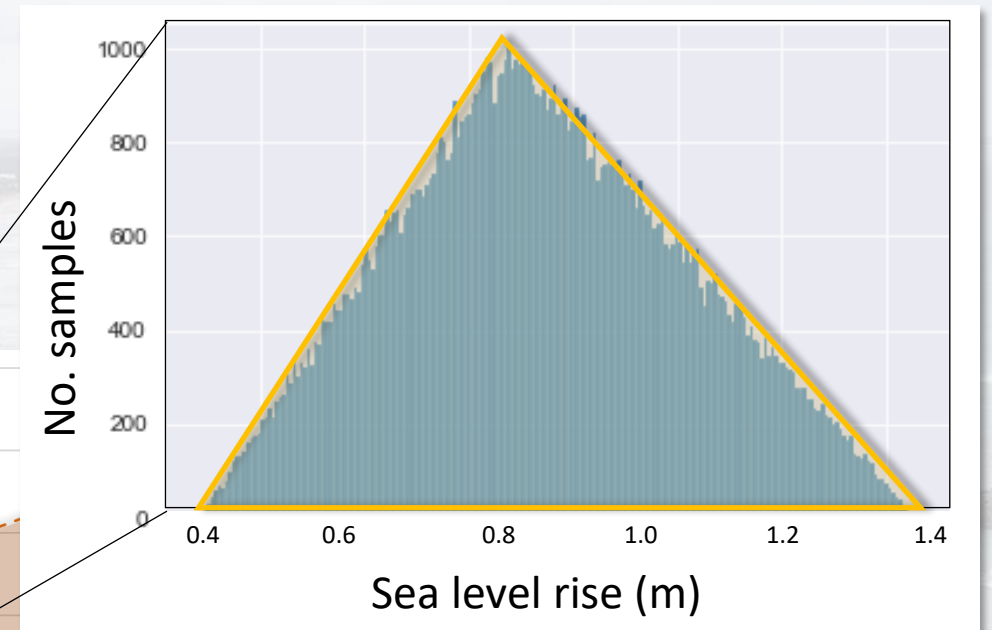
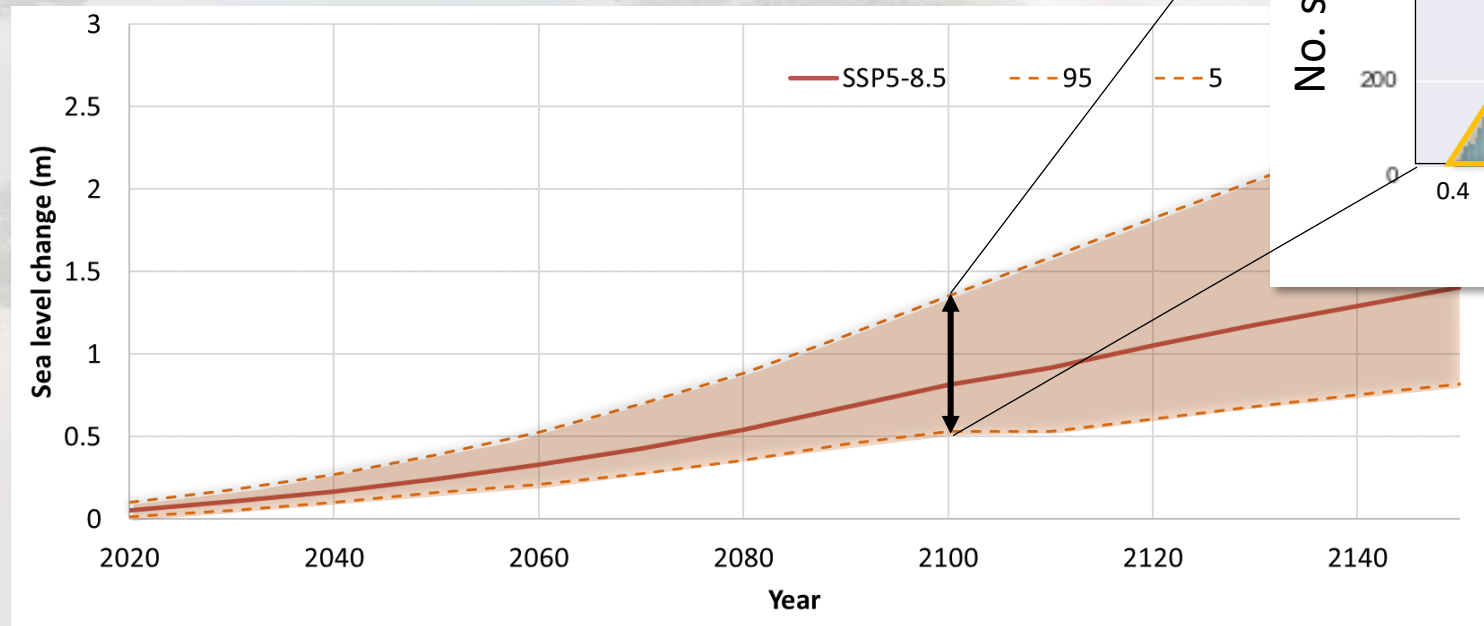
How do we account for variability of each?
How do we combine to produce total hazard?



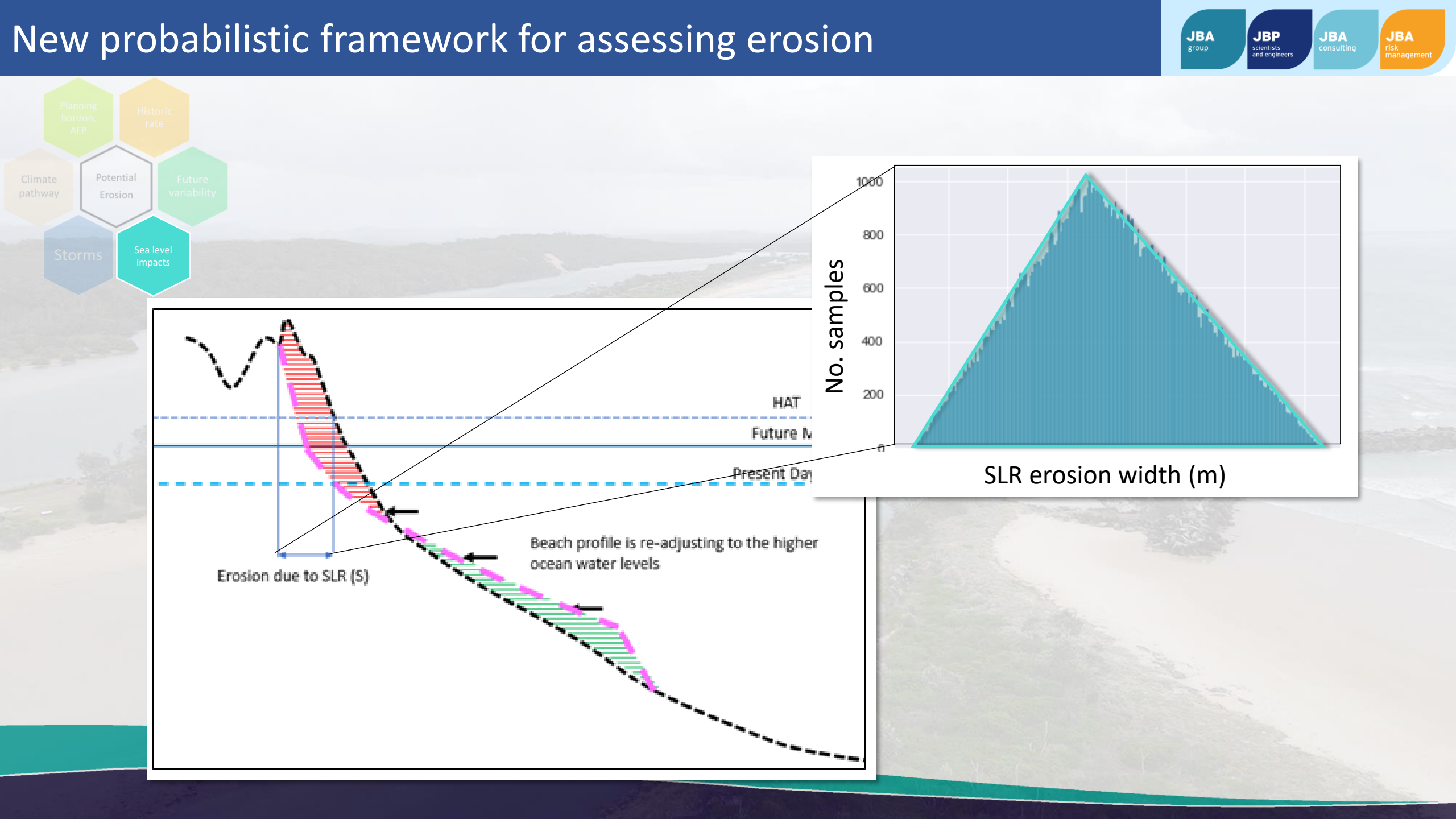
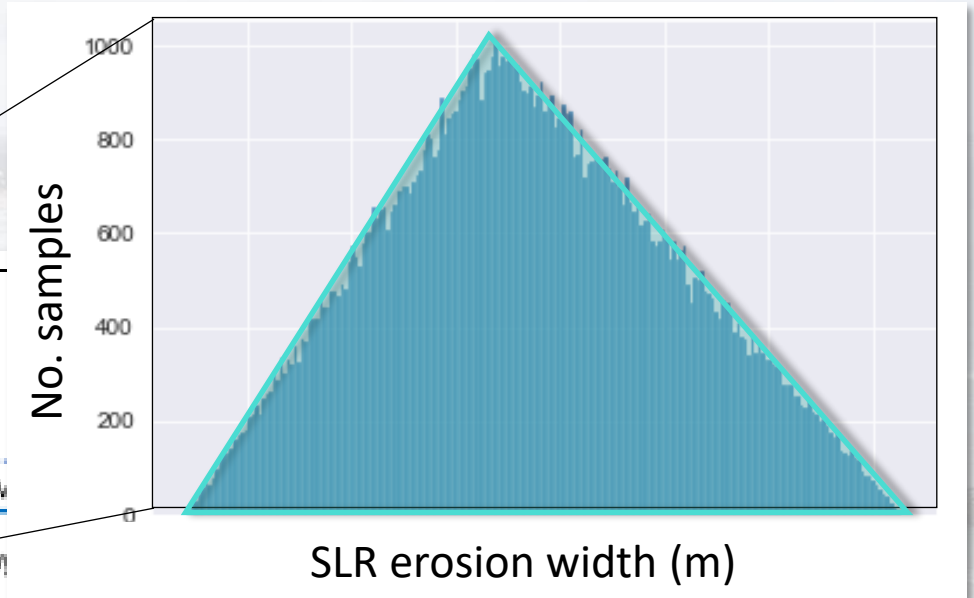
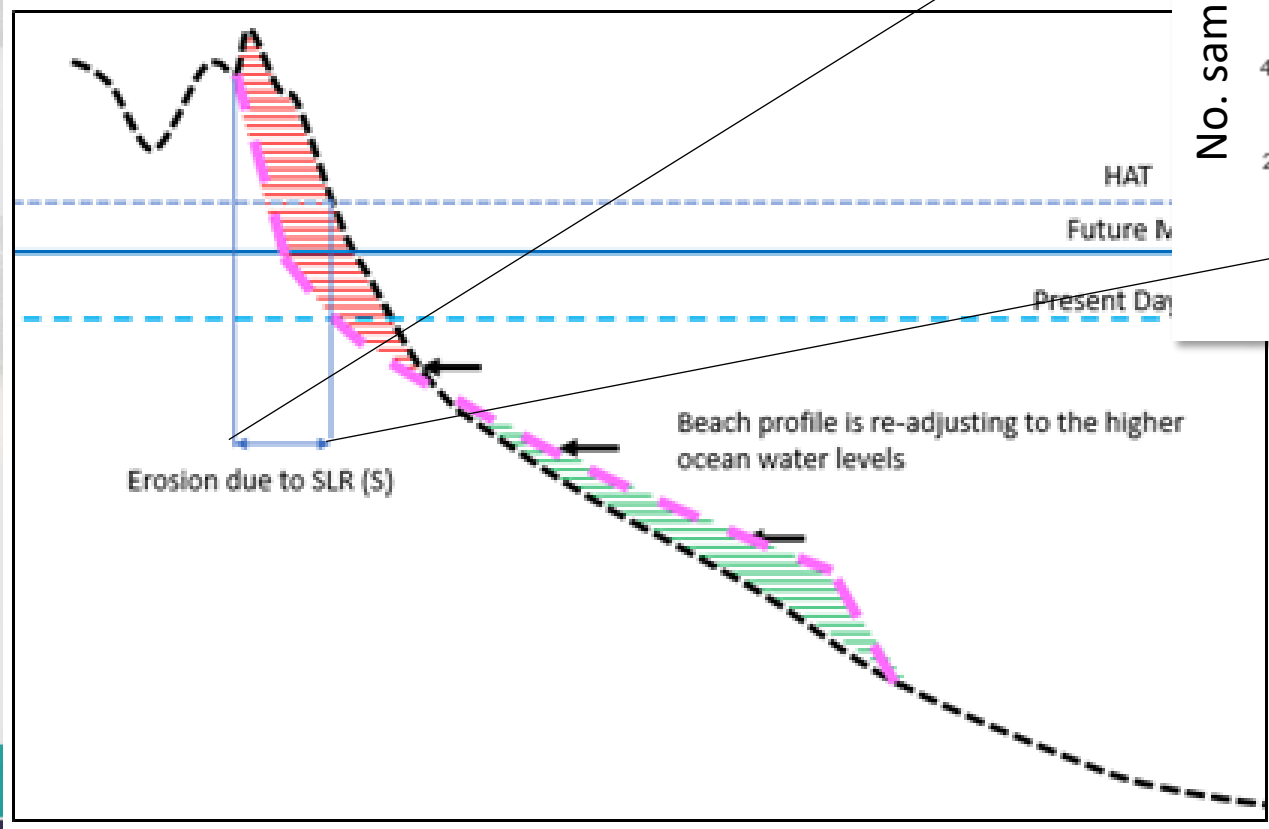
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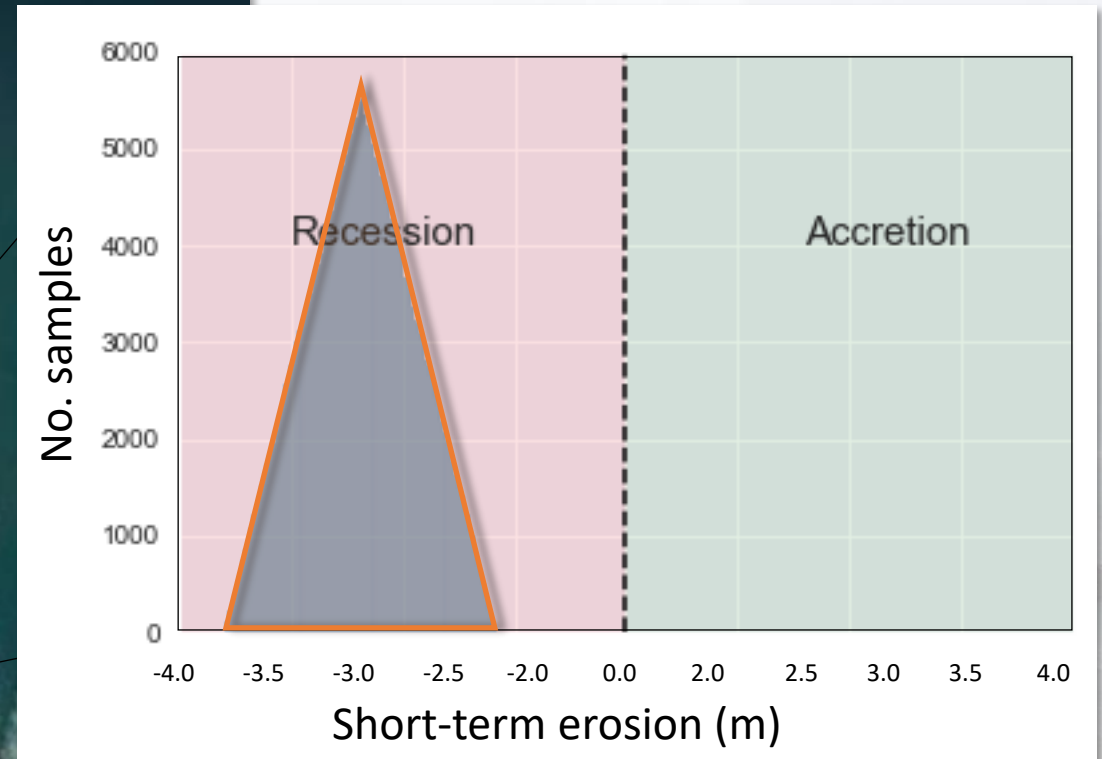
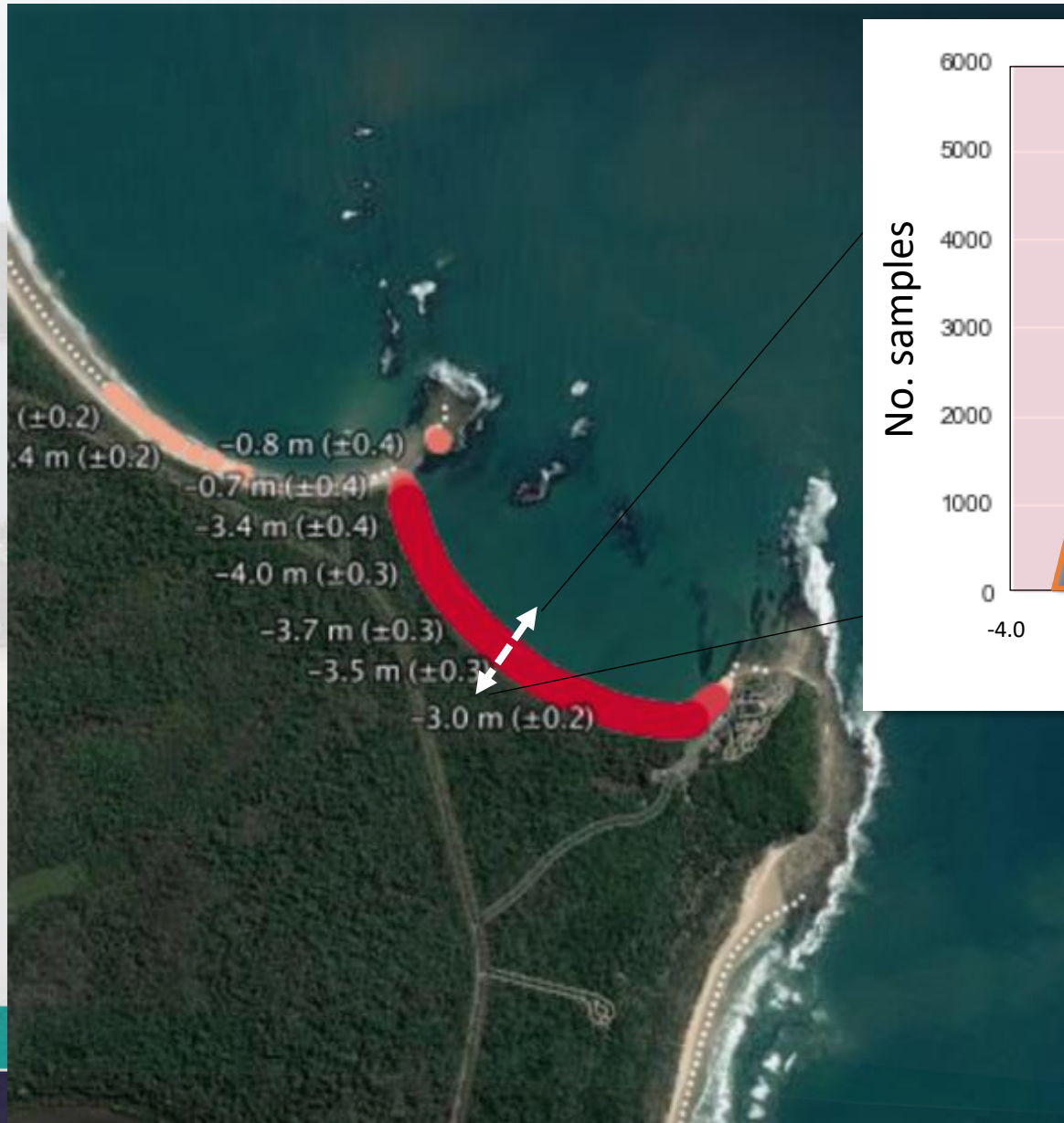
New probabilistic framework for assessing erosion



New probabilistic framework for assessing erosion



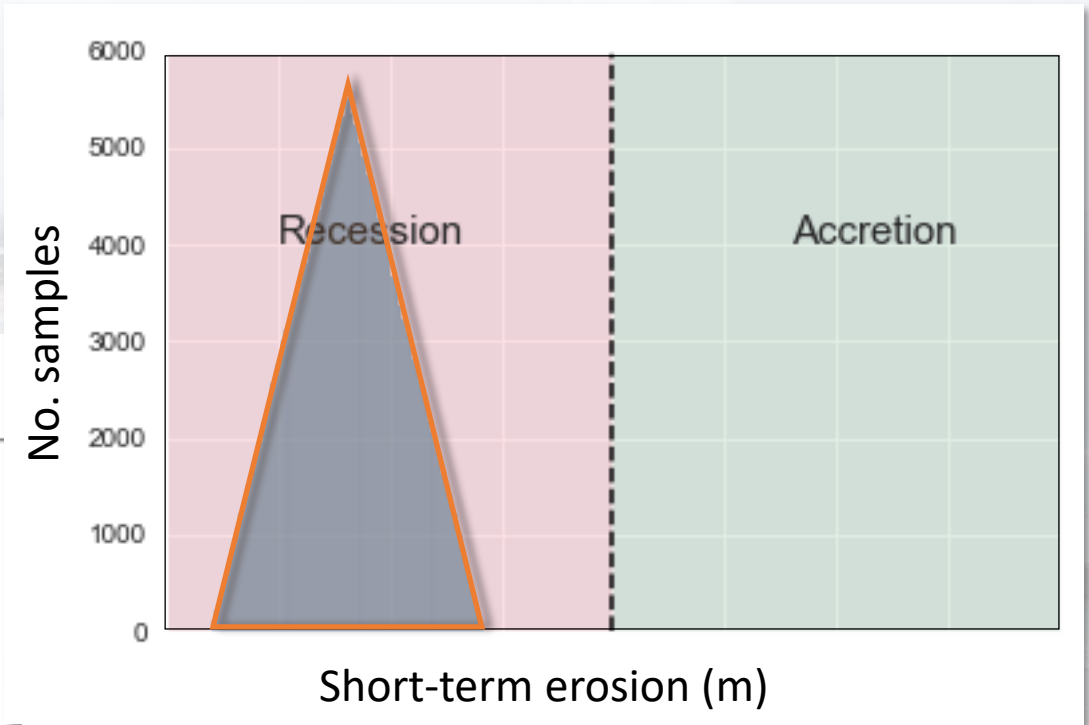
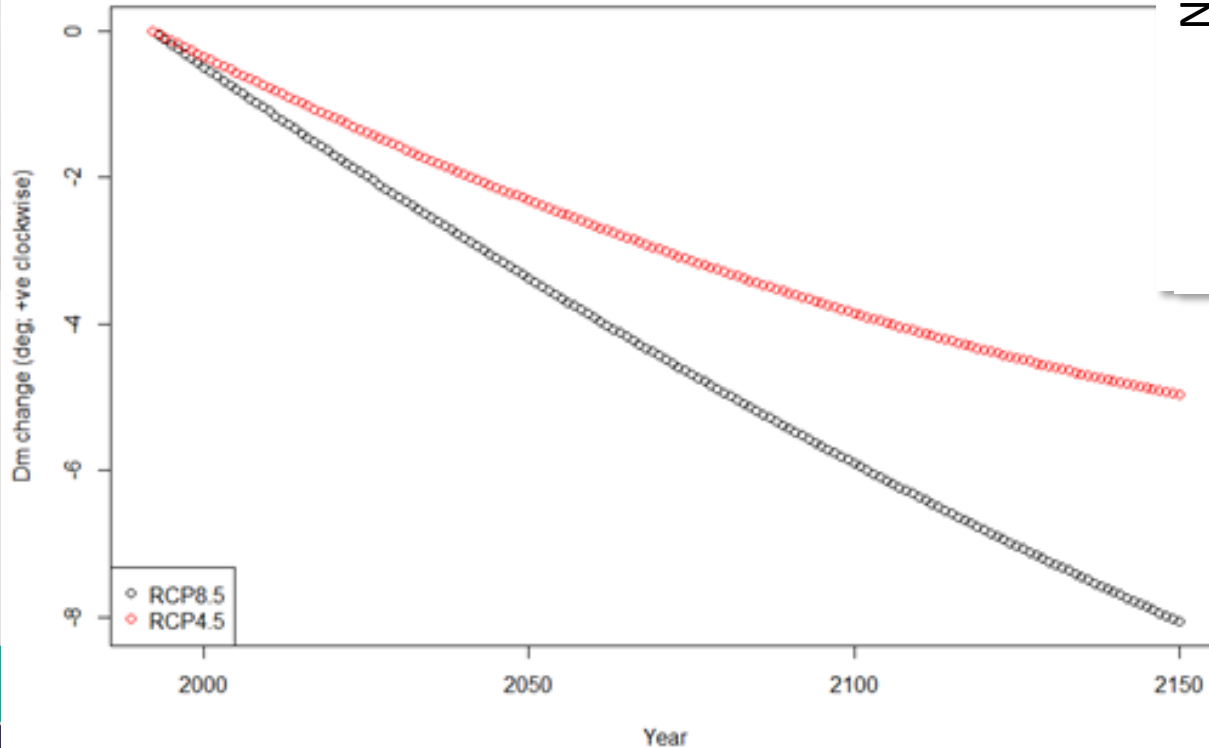
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Change in median wave direction

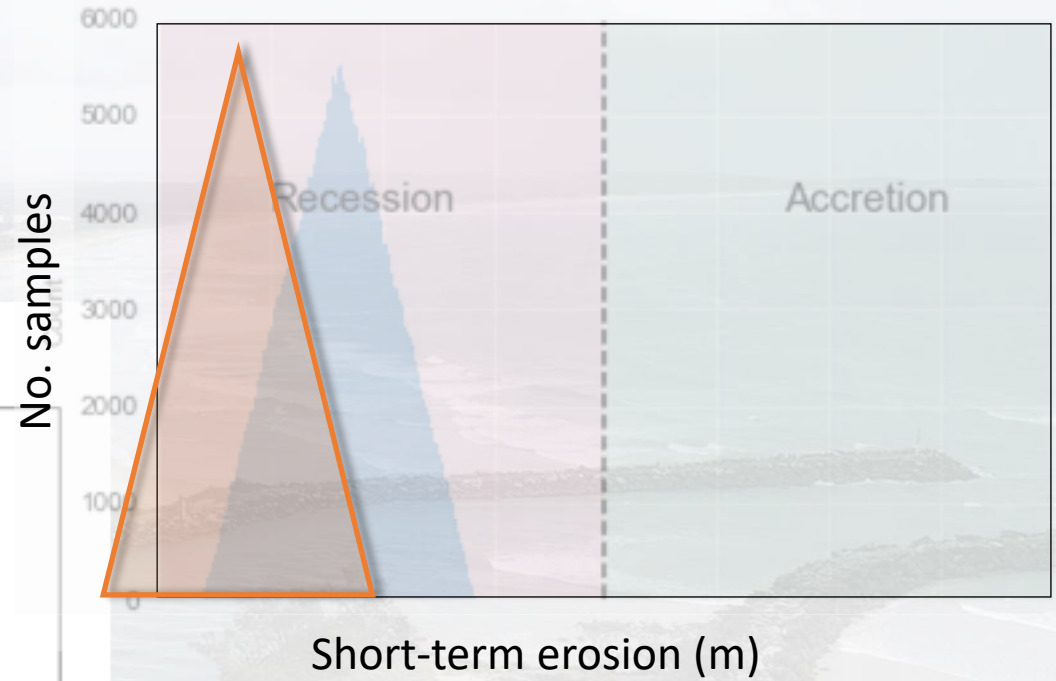
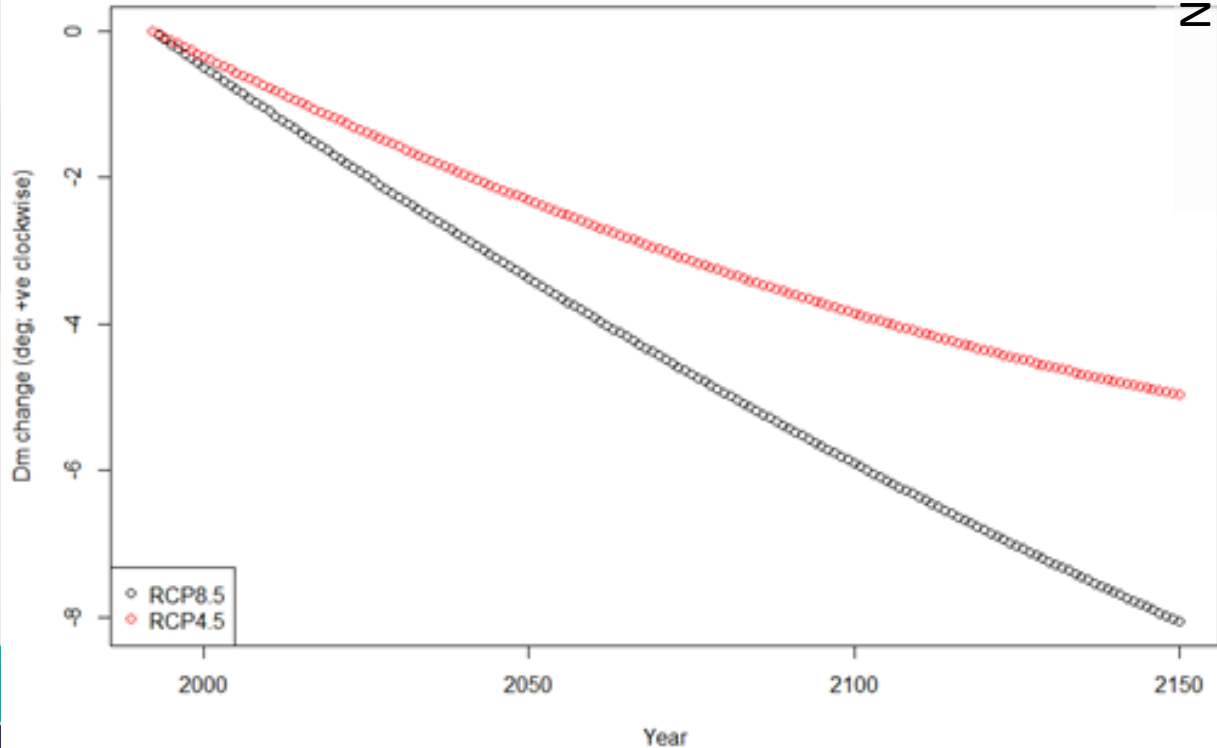


(COWCLIP2 data - Morim et al (2020))

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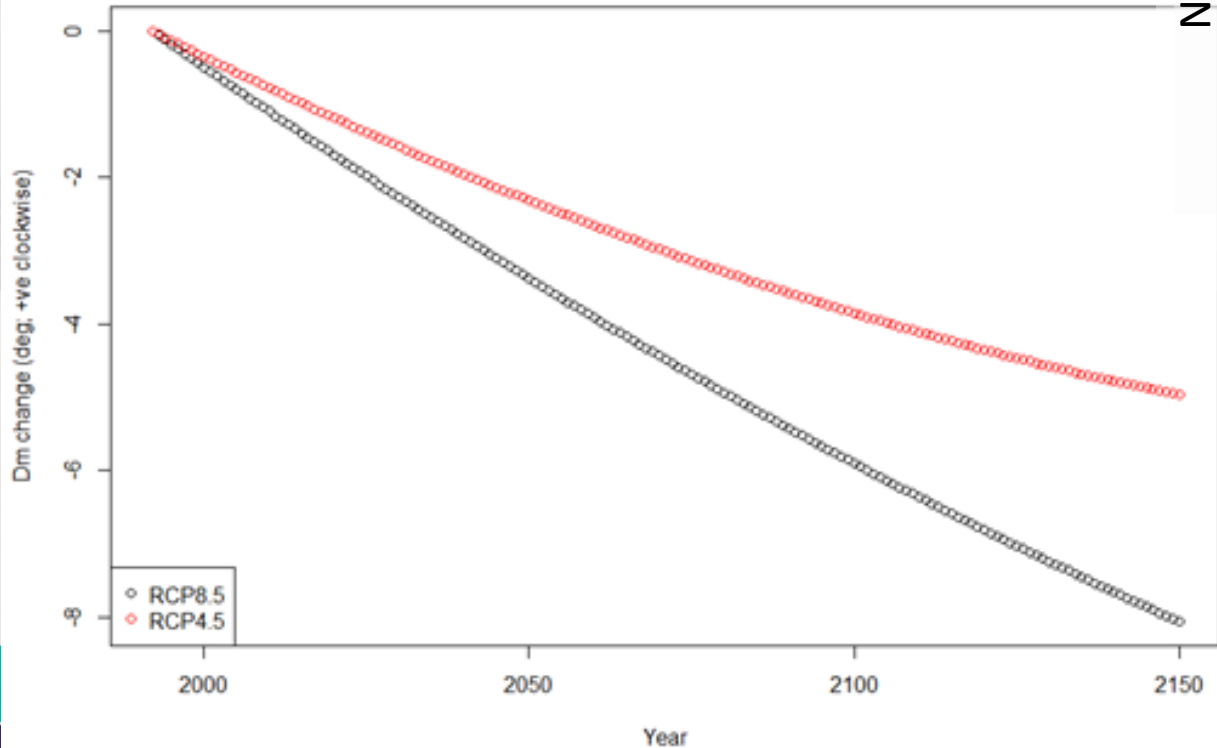


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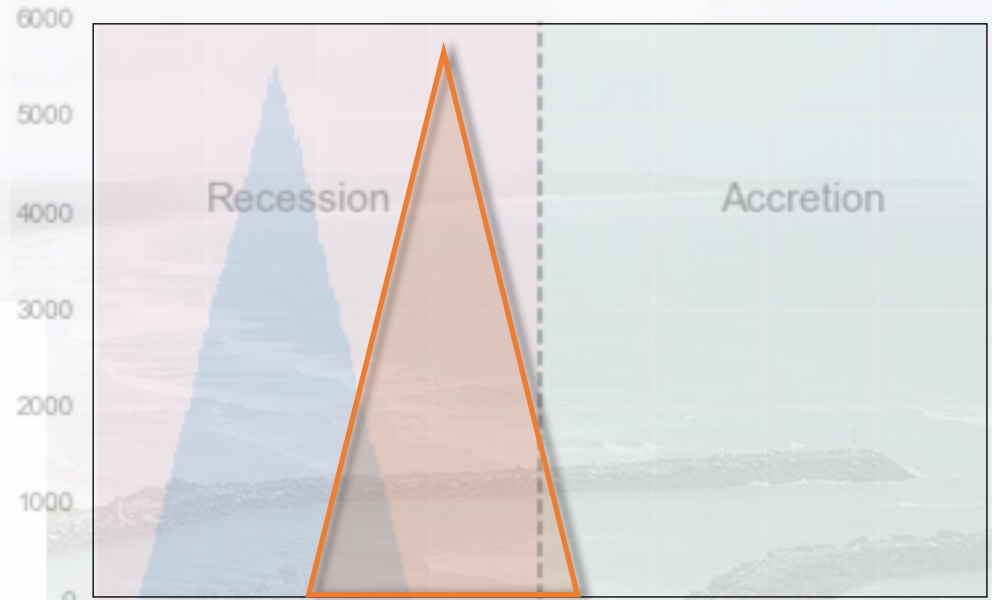
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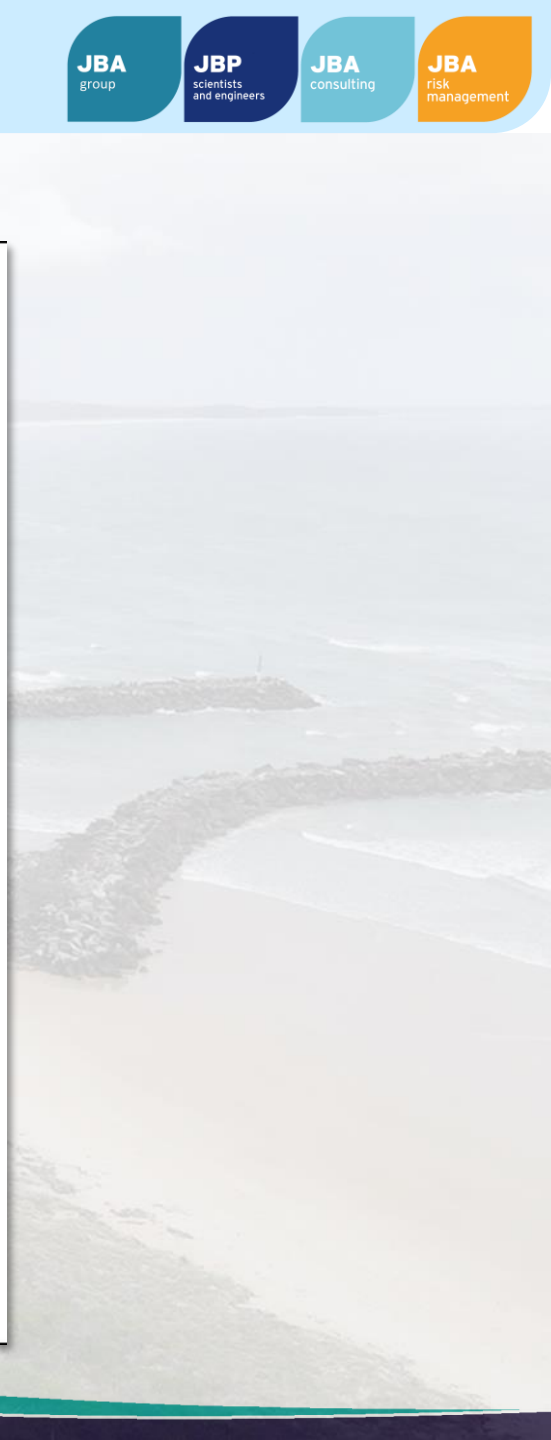
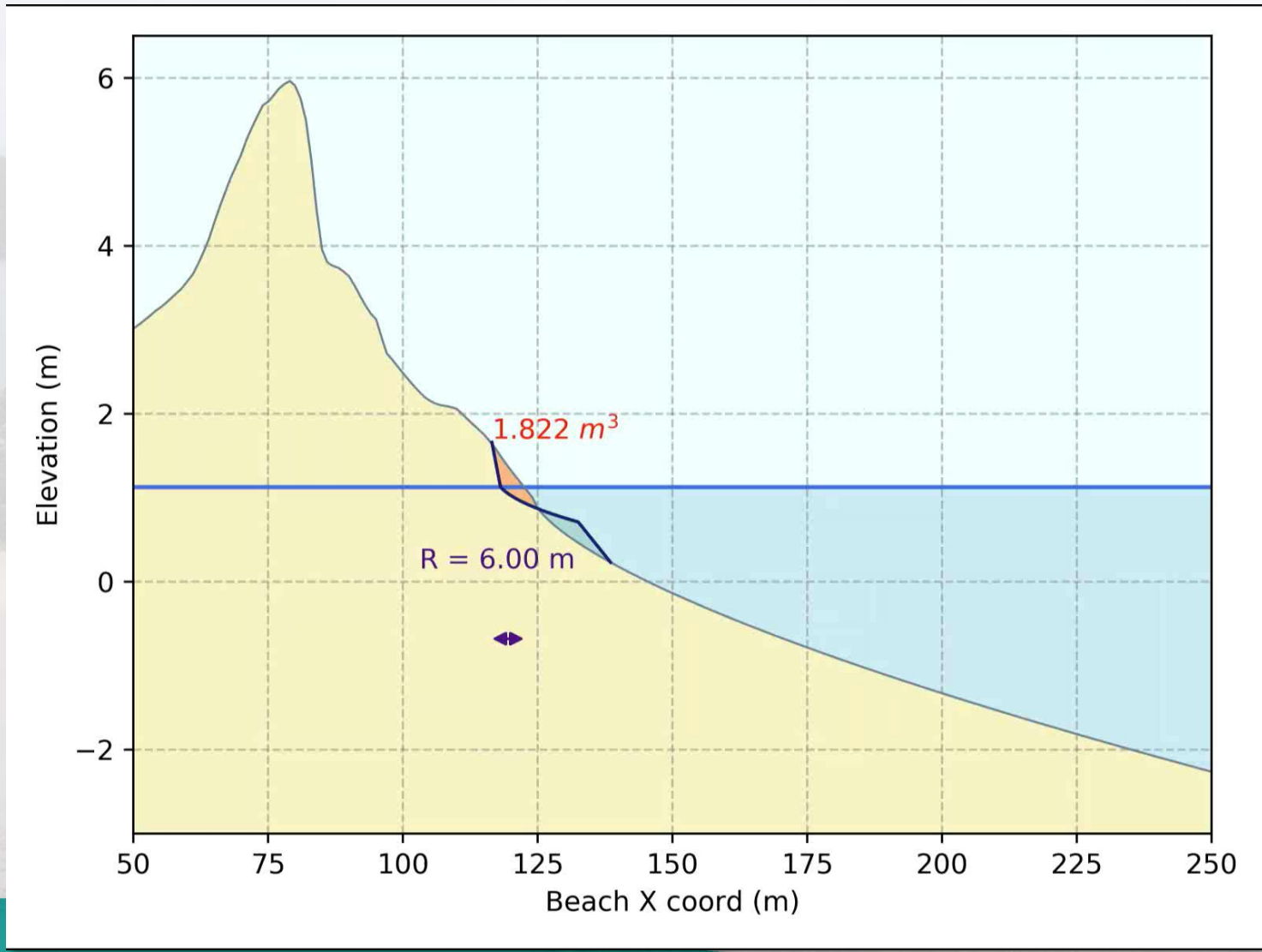
No. samples



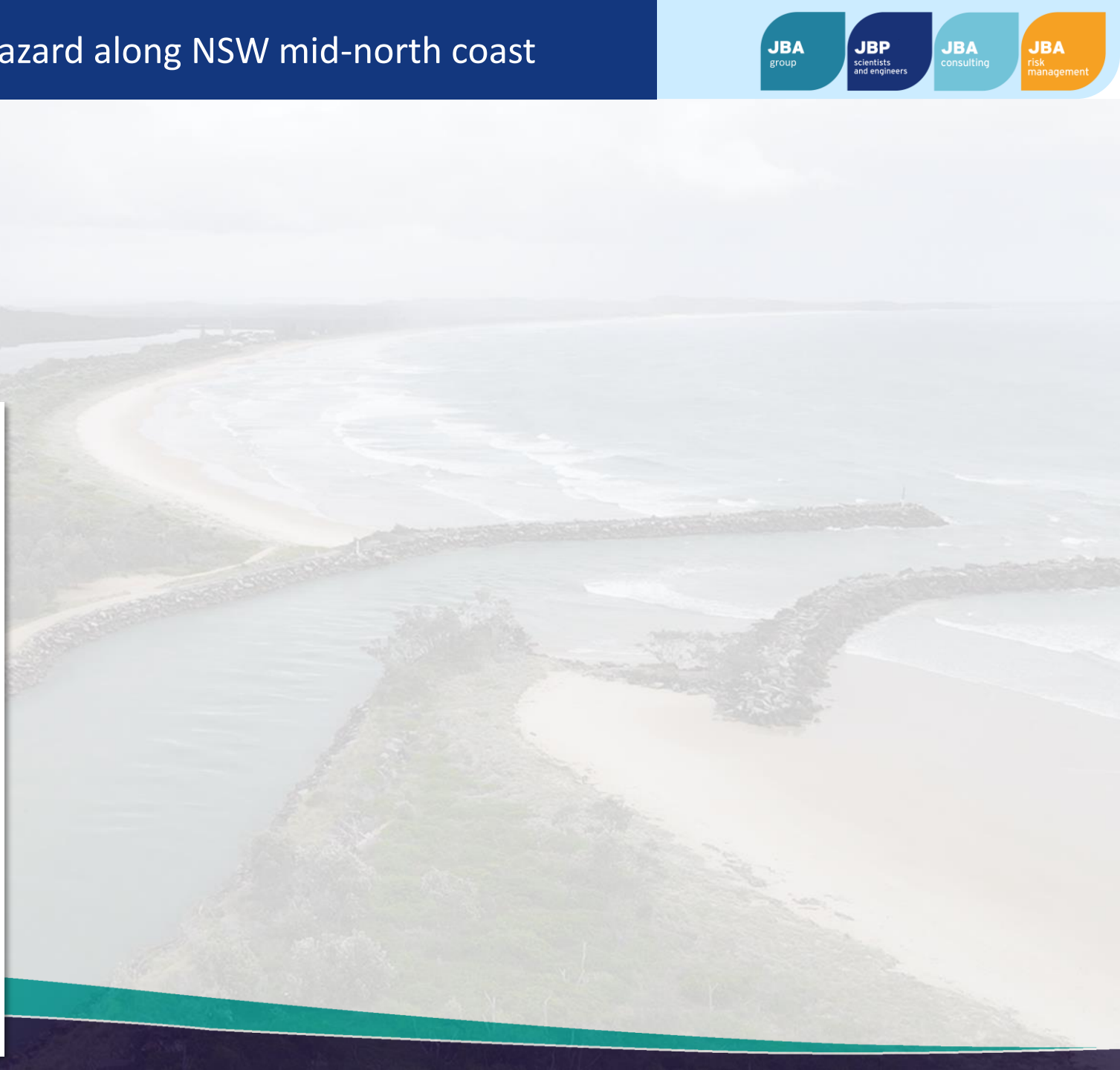
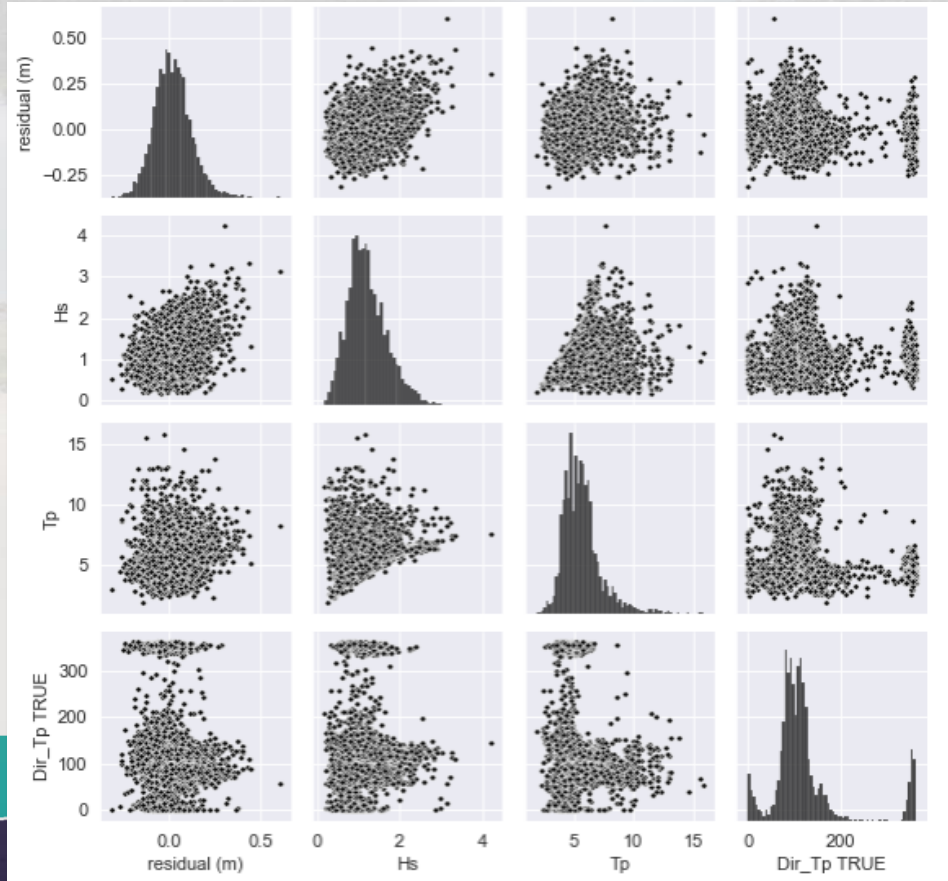
Short-term erosion (m)

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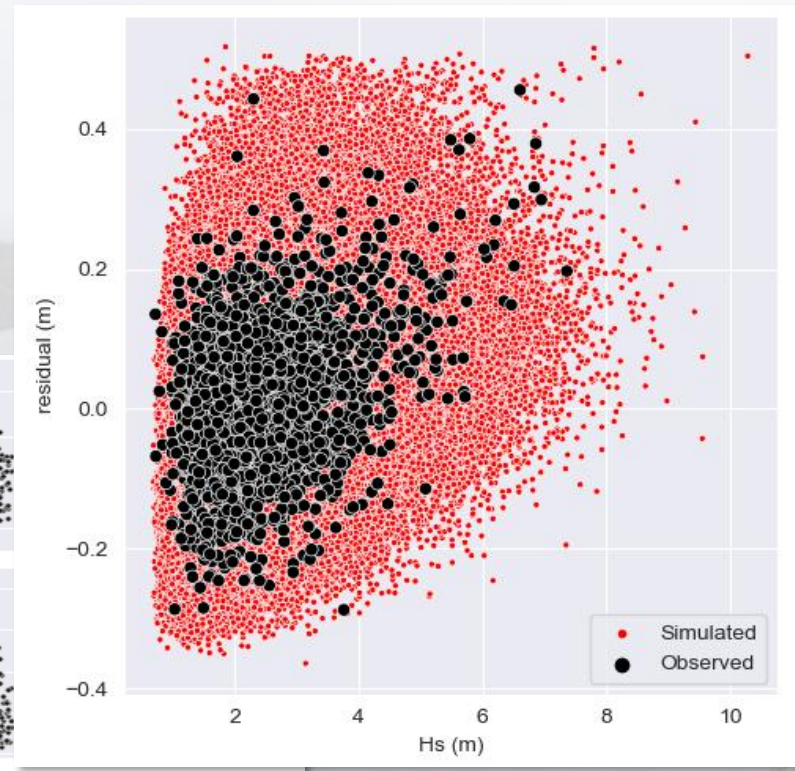
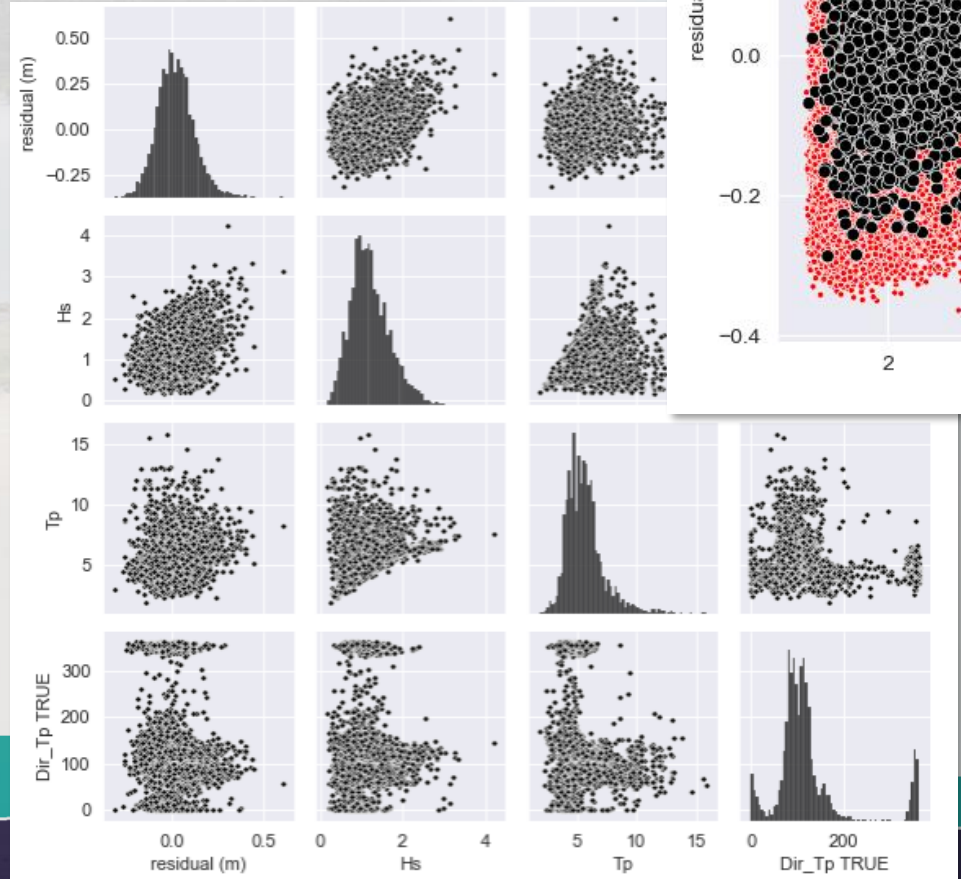
Probabilistic approaches for assessing erosion hazard along NSW mid-north coast



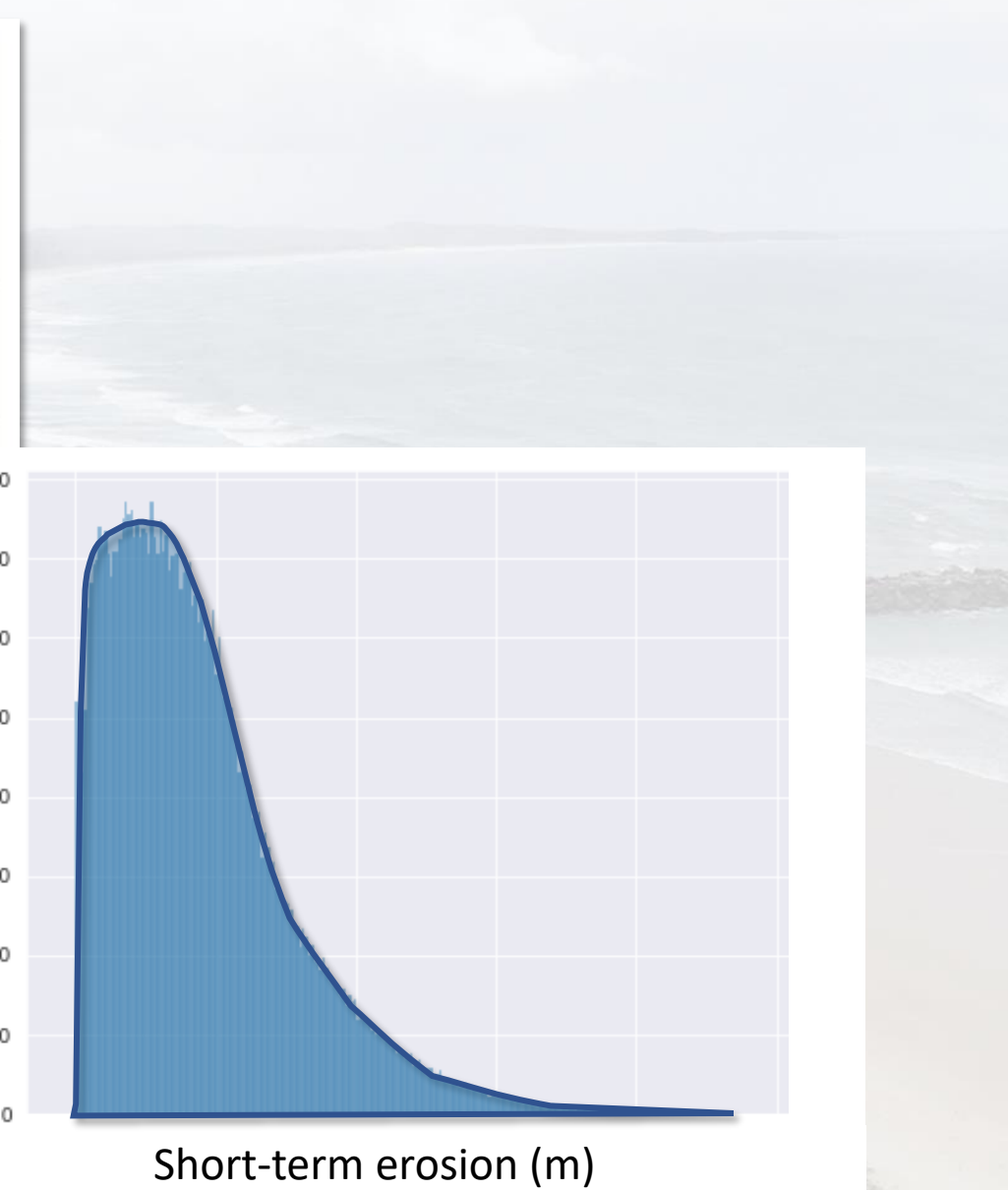
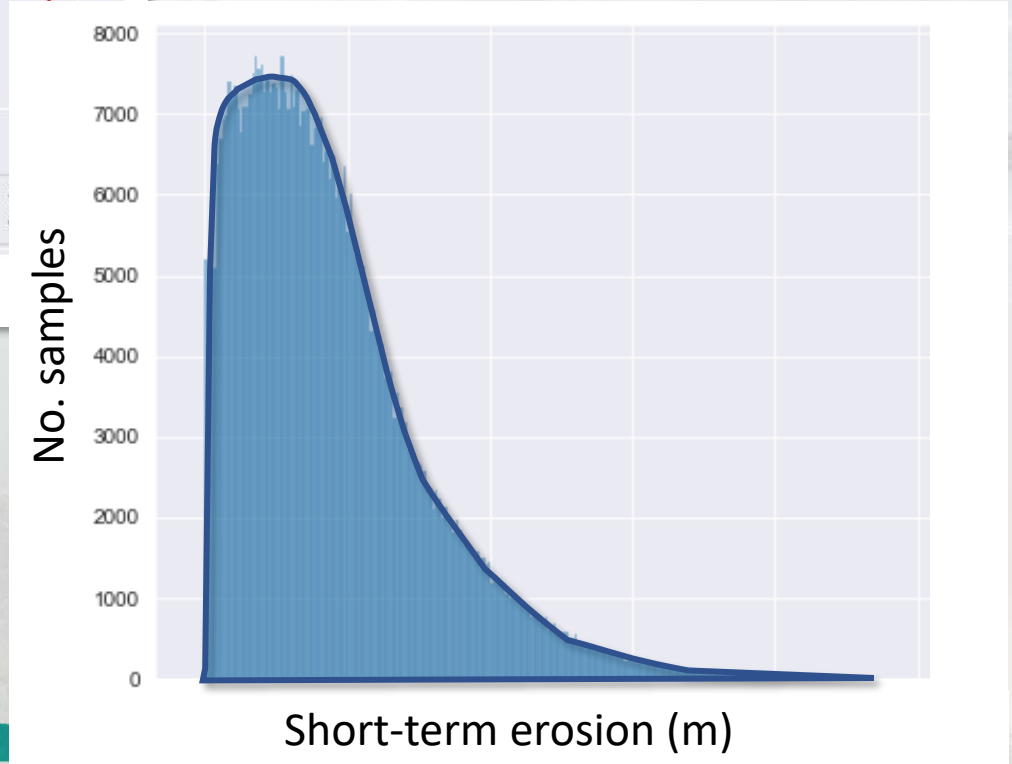
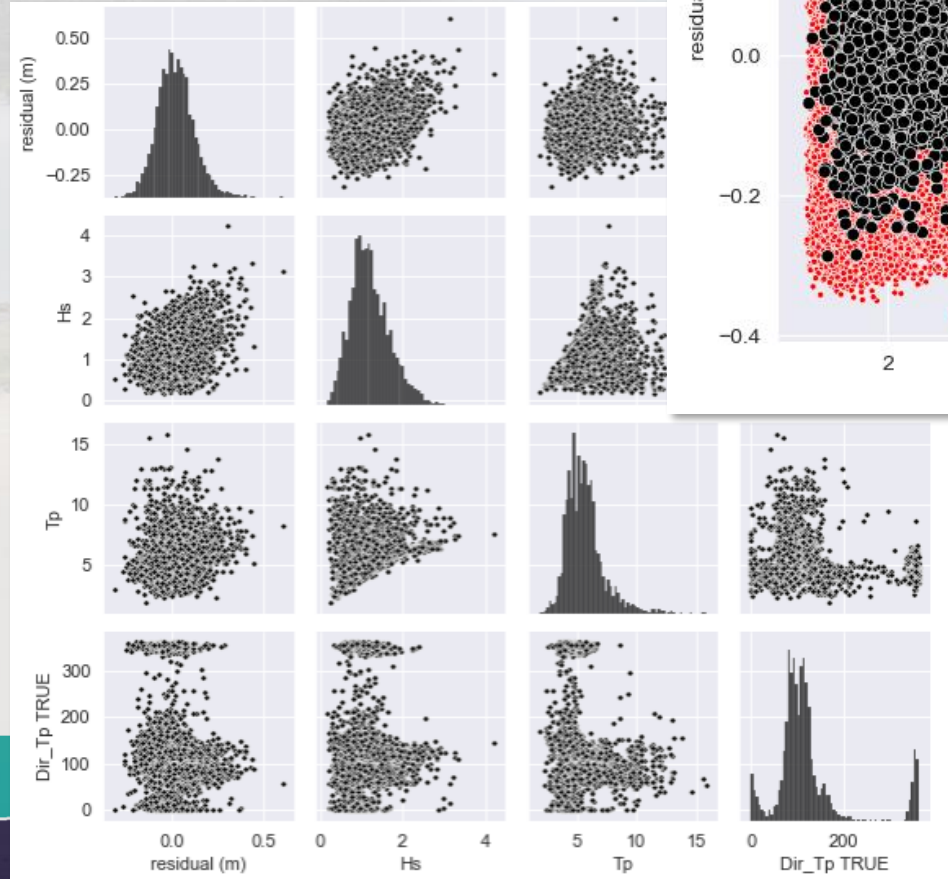
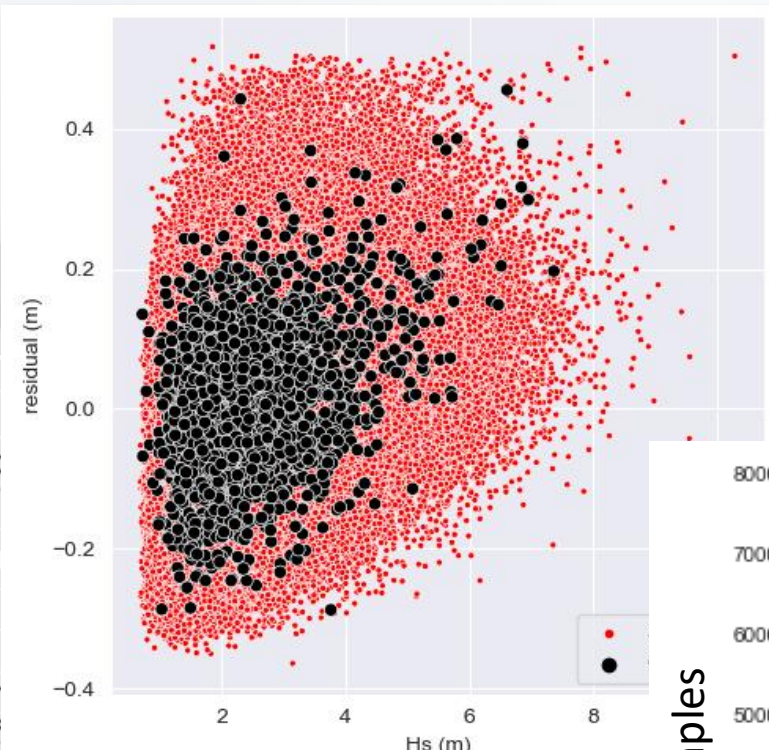
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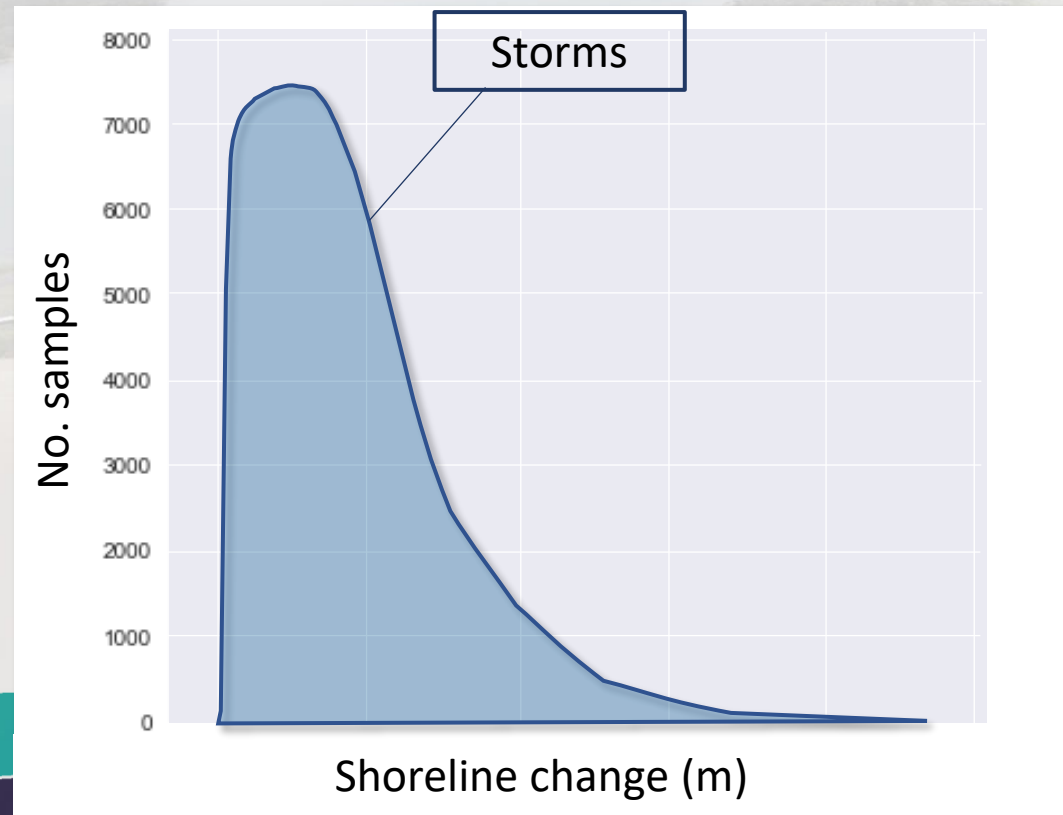




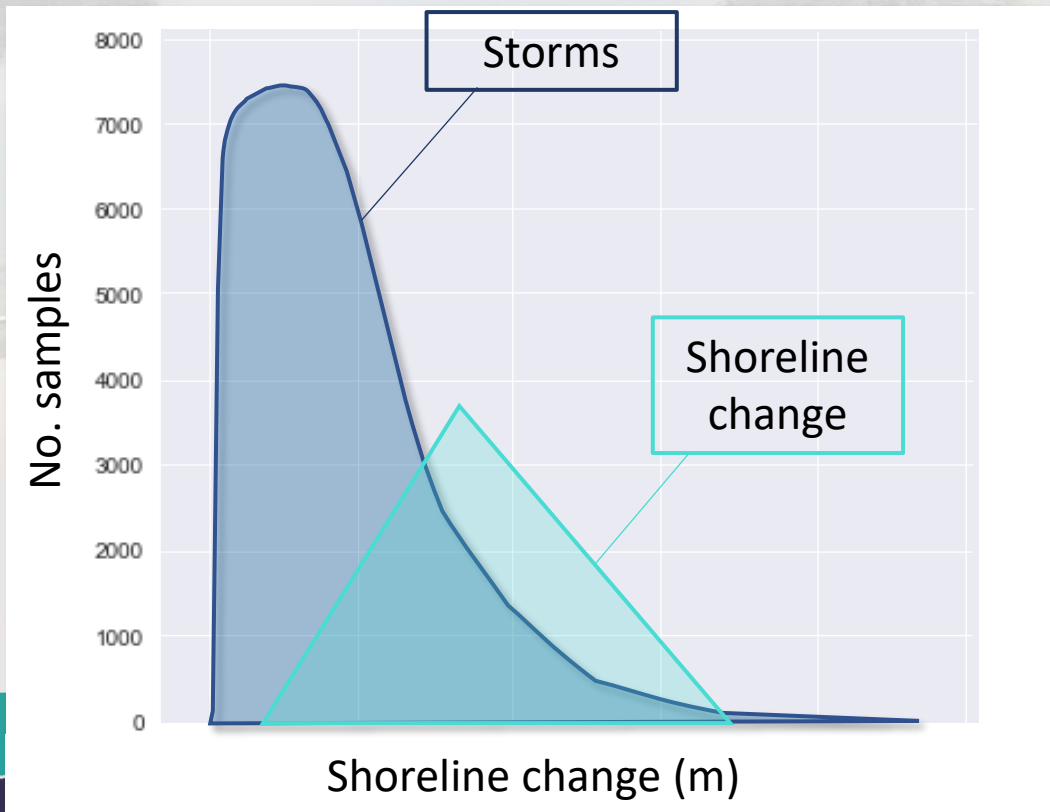
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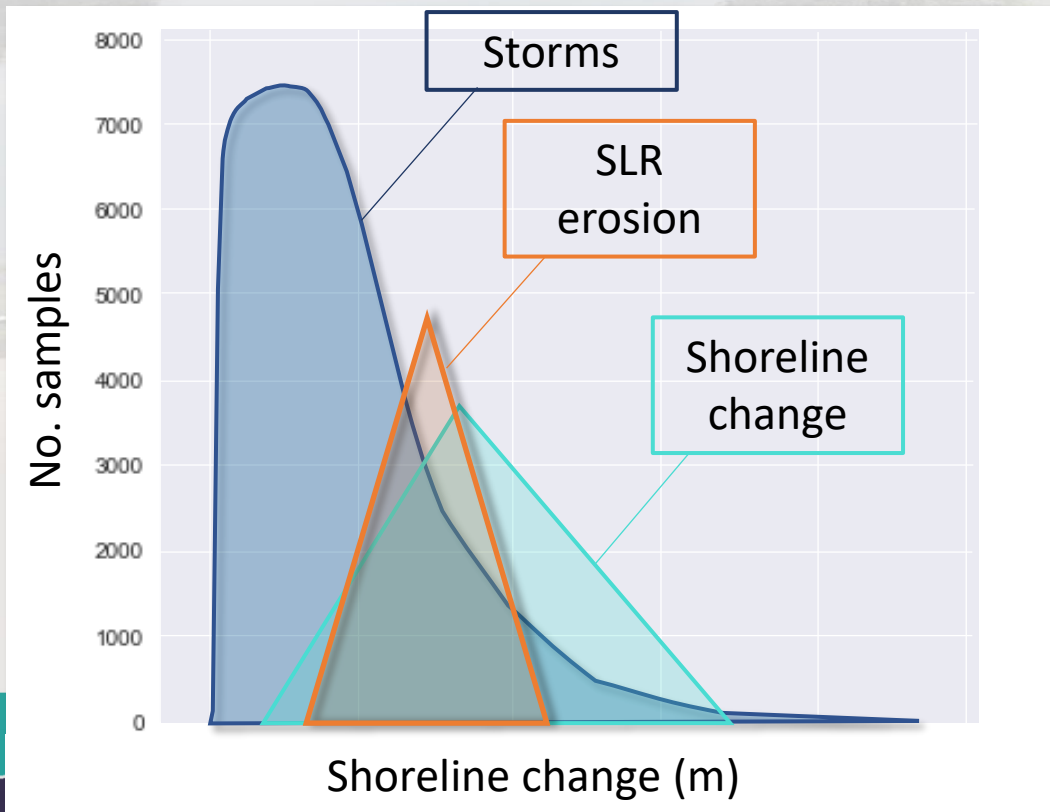
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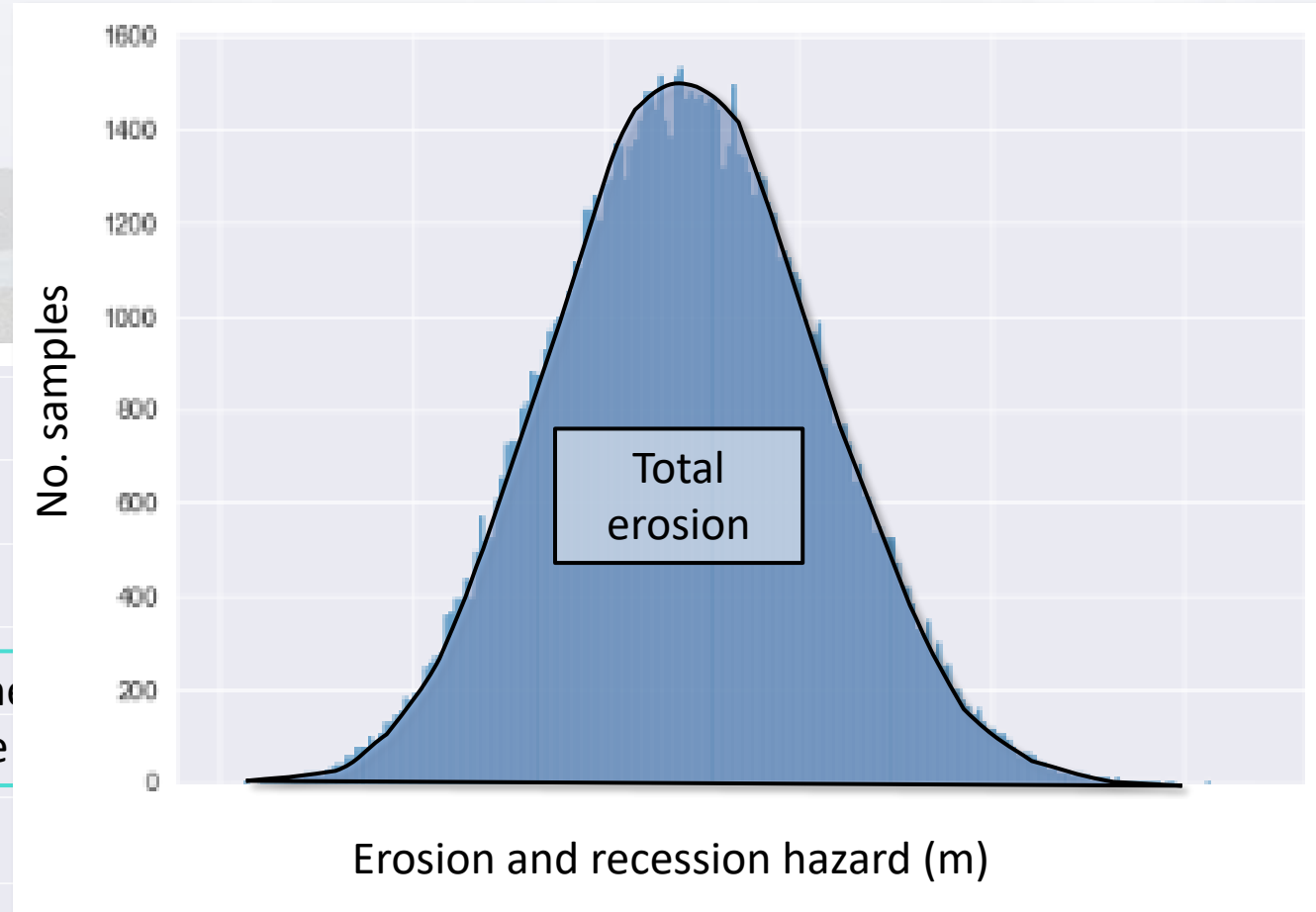
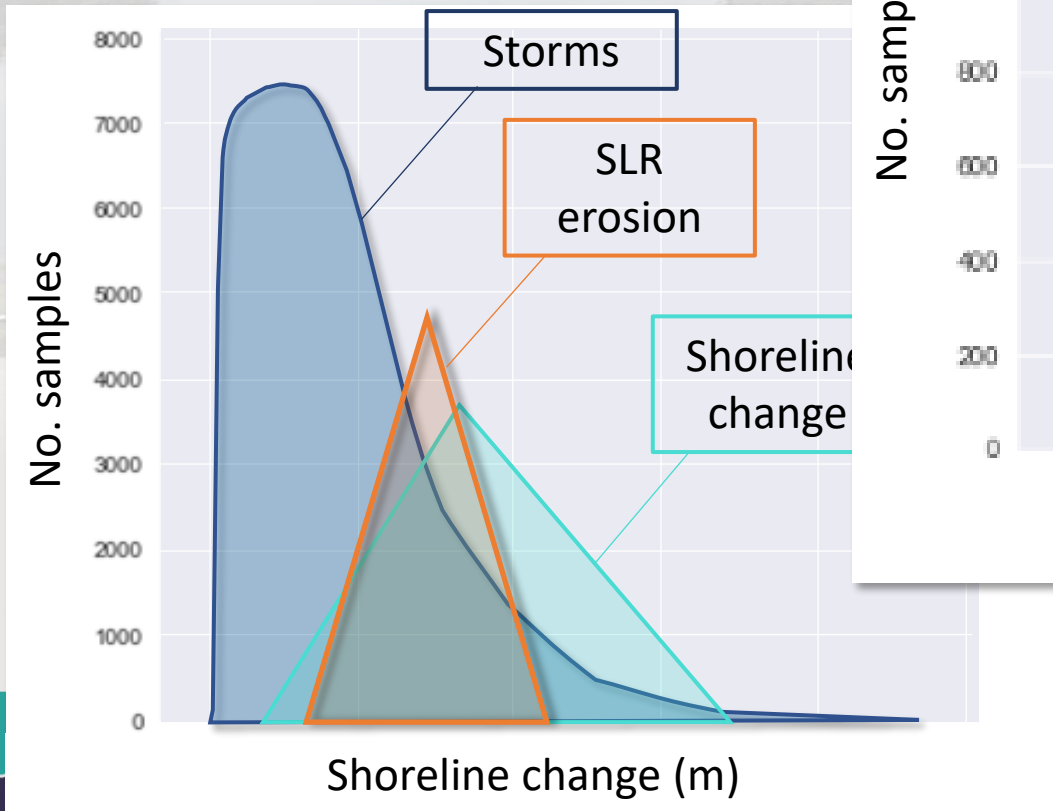
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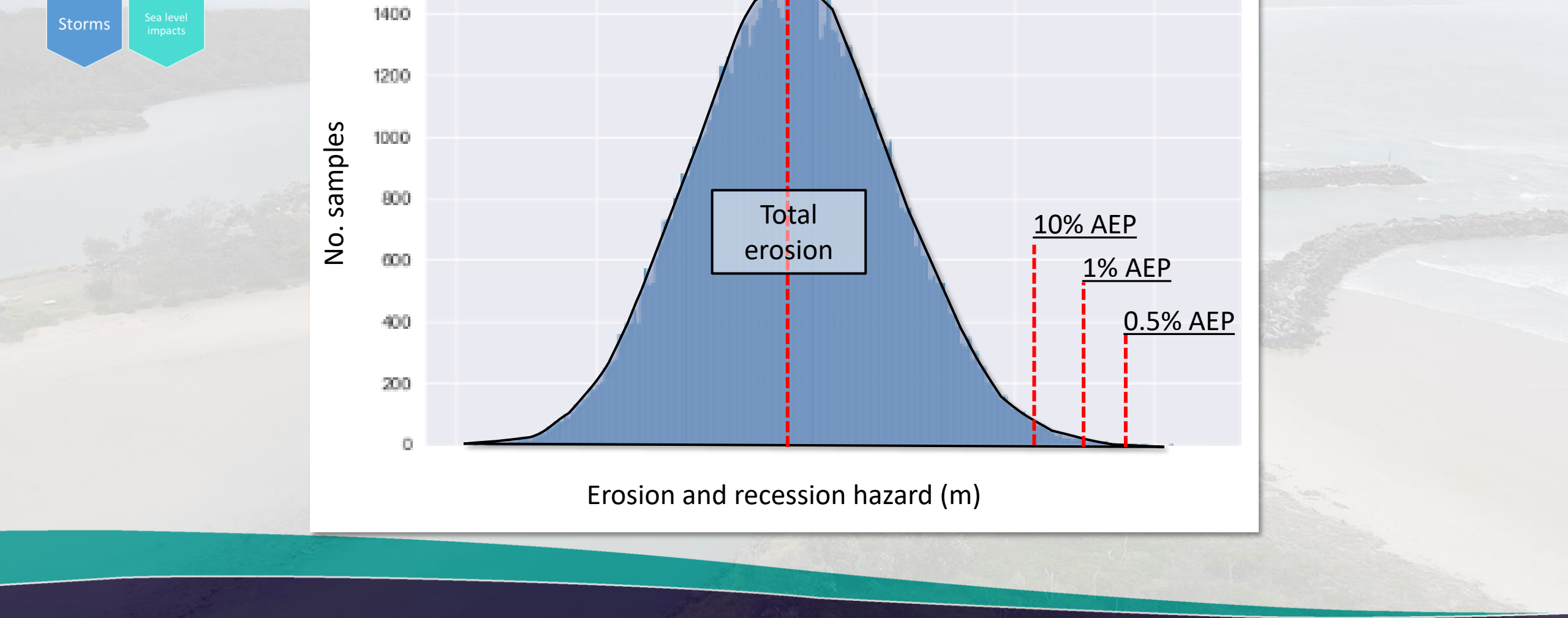
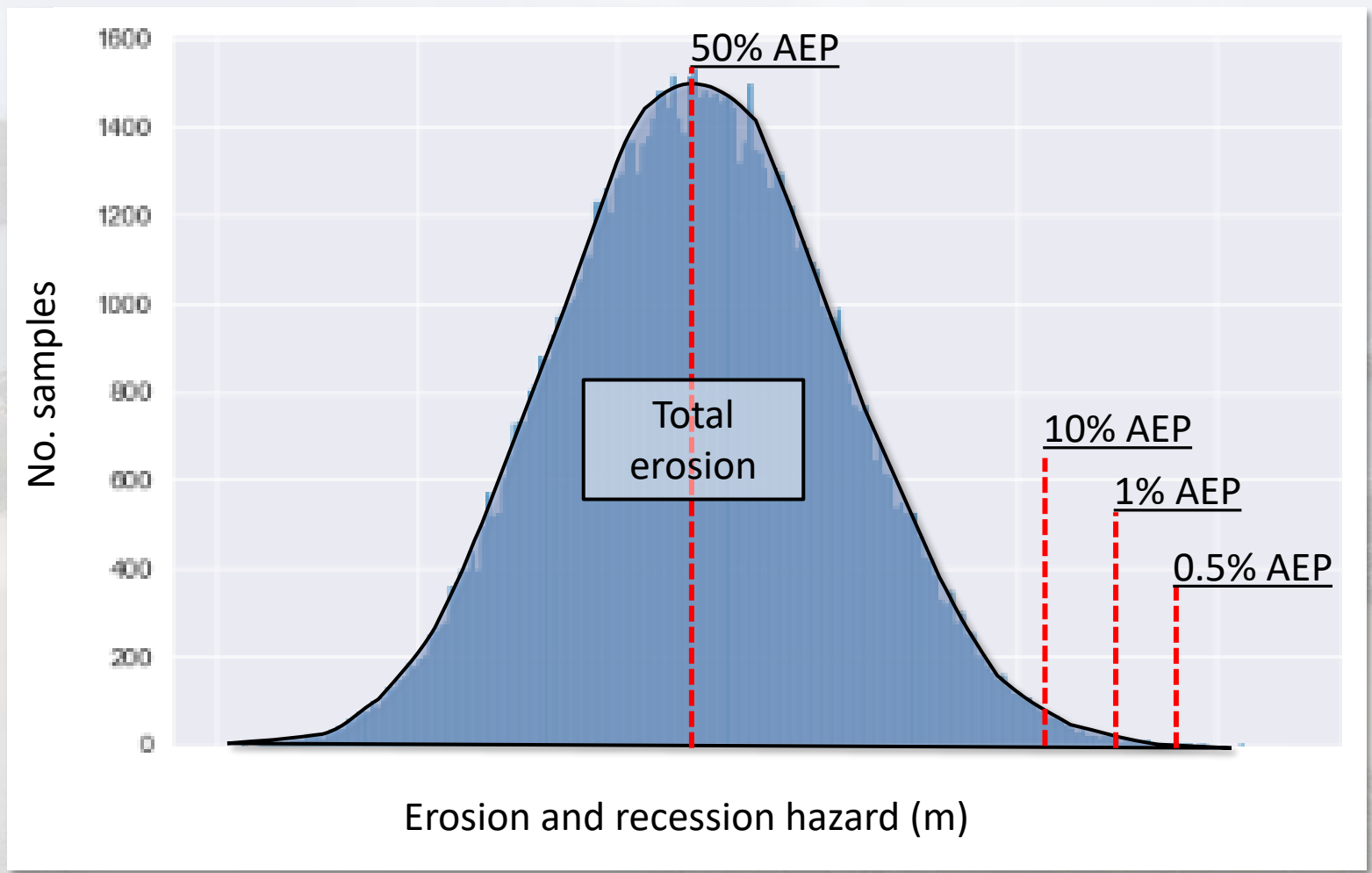
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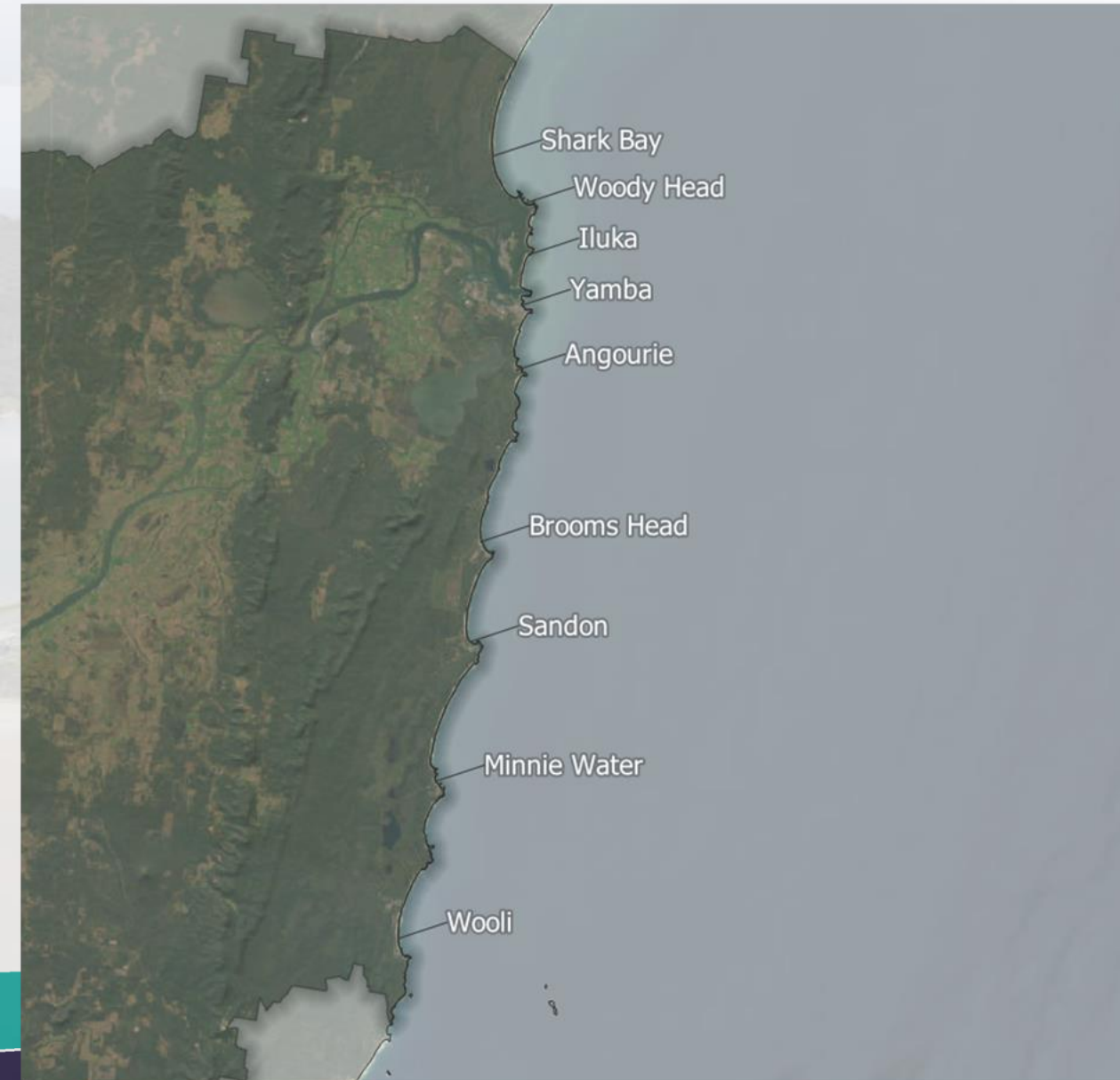


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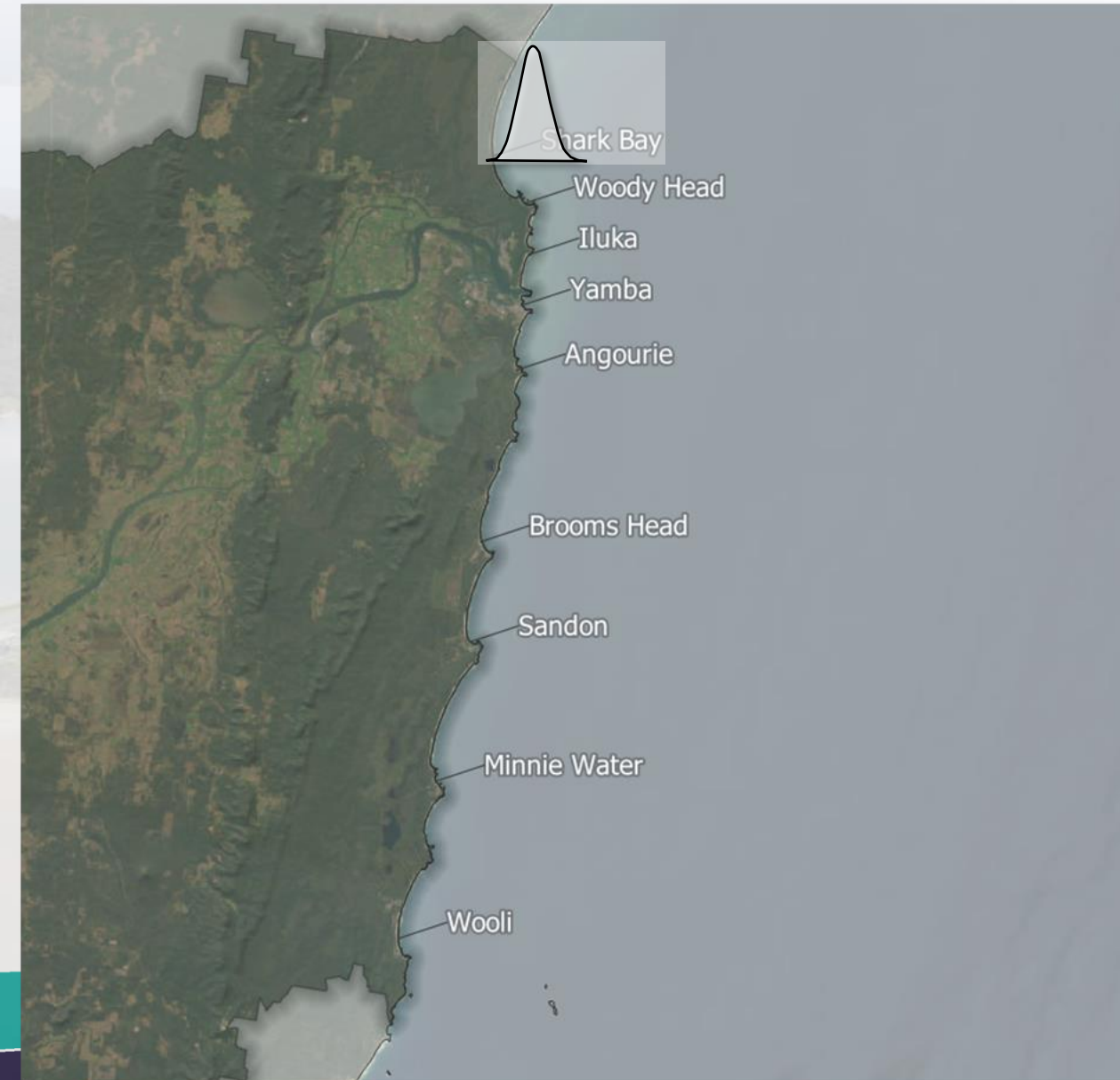
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- 8 coastal sections
- ~60 beach locations
- 4 planning horizons
- SSP5 and SSP2
- Range of likelihoods



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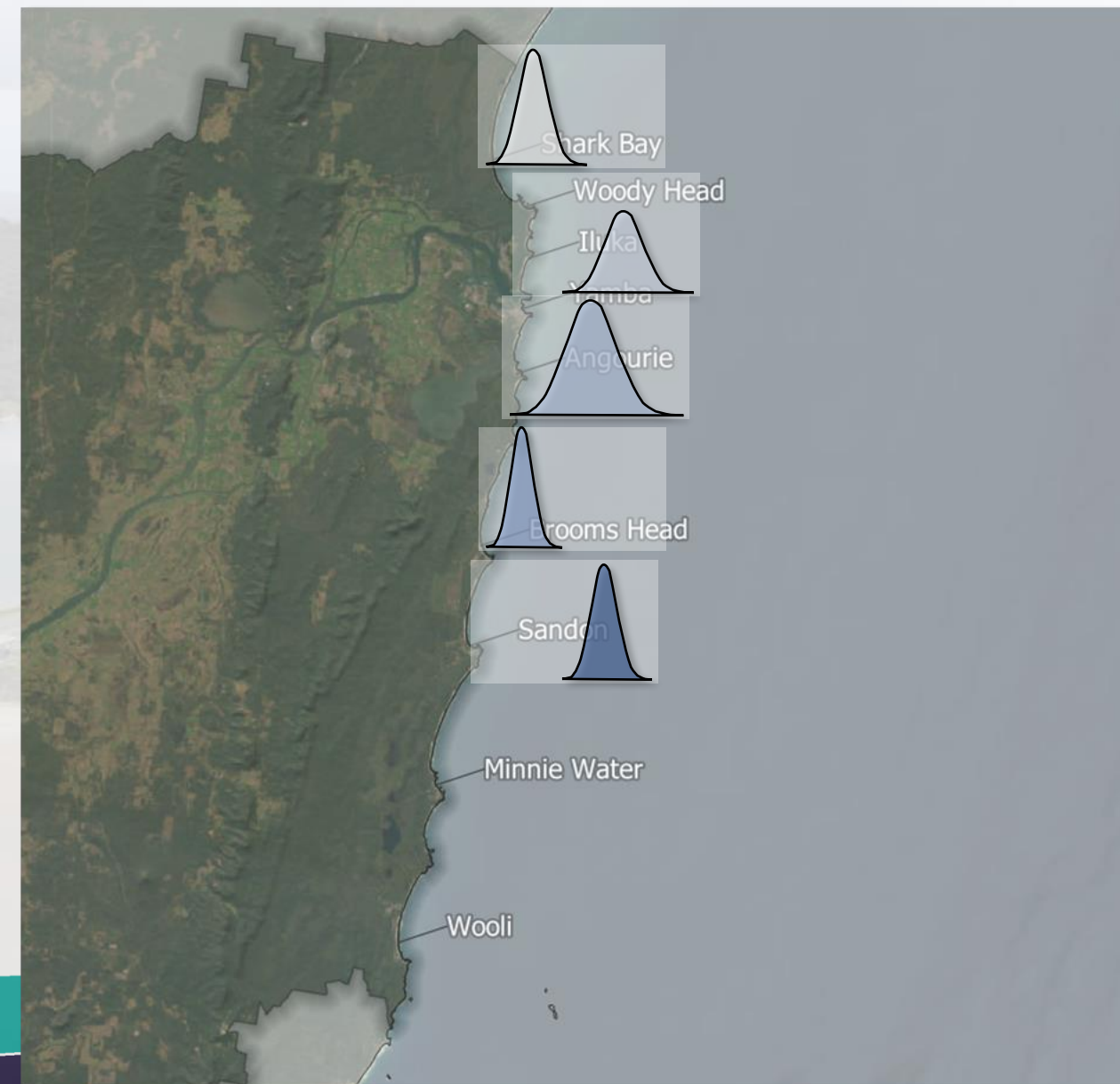
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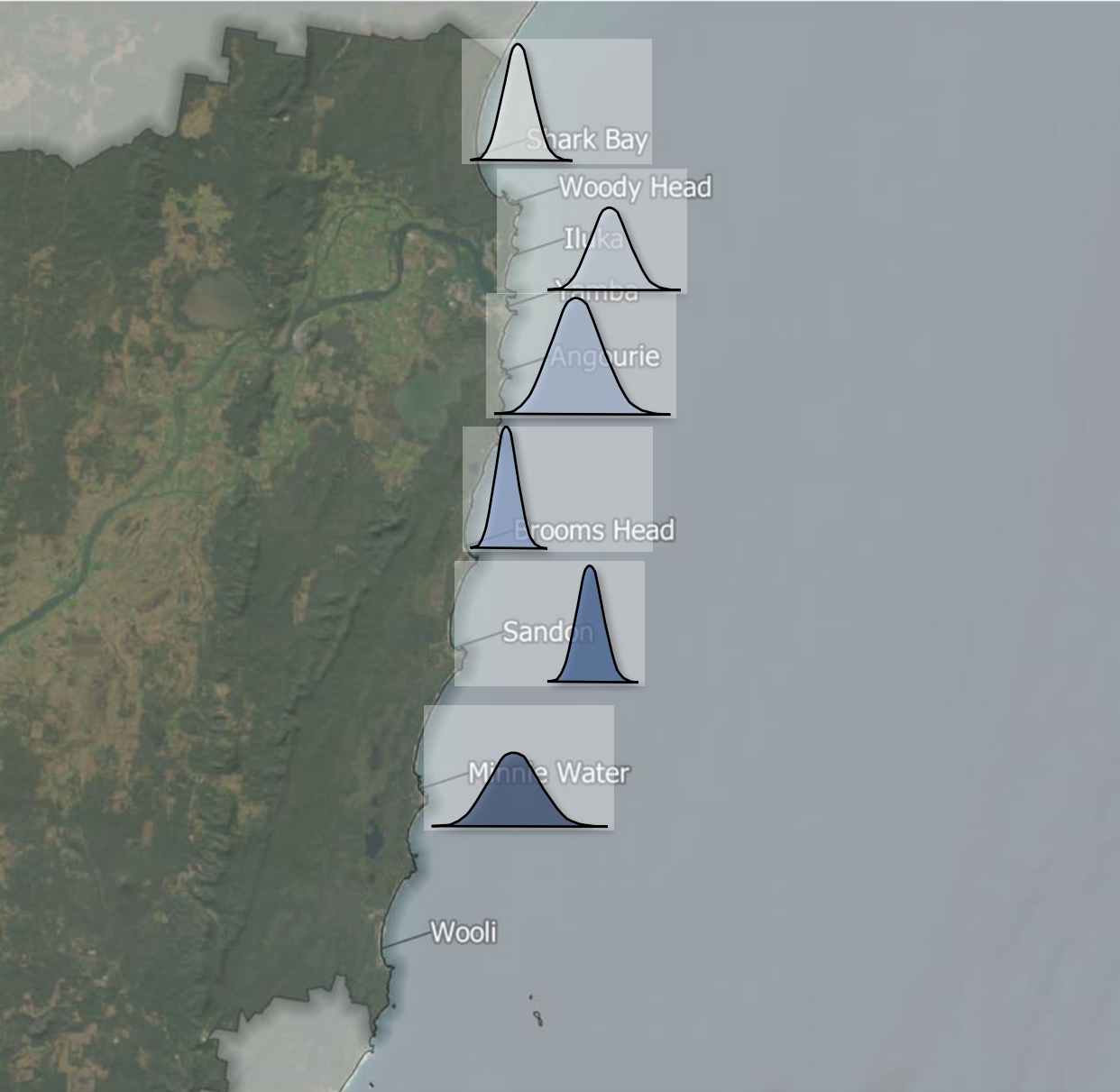
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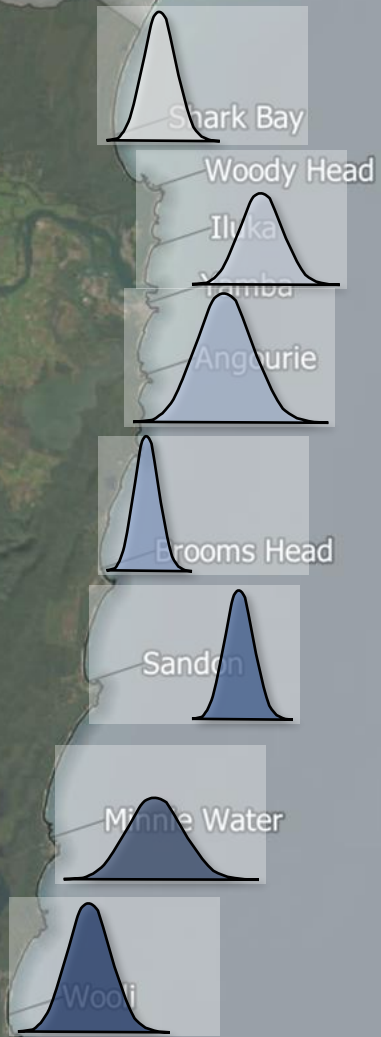
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