Trial Bay Visitor Precincts
Coast and Foreshore Protection Strategy

29th NSW Coastal Conference, Kingscliff, NSW

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Project setting

- Trial Bay is part of Arakoon National Park, on the NSW Mid North Coast.
- Nearby towns include Arakoon and South West Rocks.
- Two parcels of land comprise Trial Bay's key visitor precincts.
- These precincts contain historically significant gaol ruins, memorials and graves.
- Also contain over 100 sites for camping and caravanning.
- Trial Bay is also culturally significant to local Aboriginal people and communities.
- Annual visitation to Trial Bay and Arakoon National Park exceeds 1 million people.

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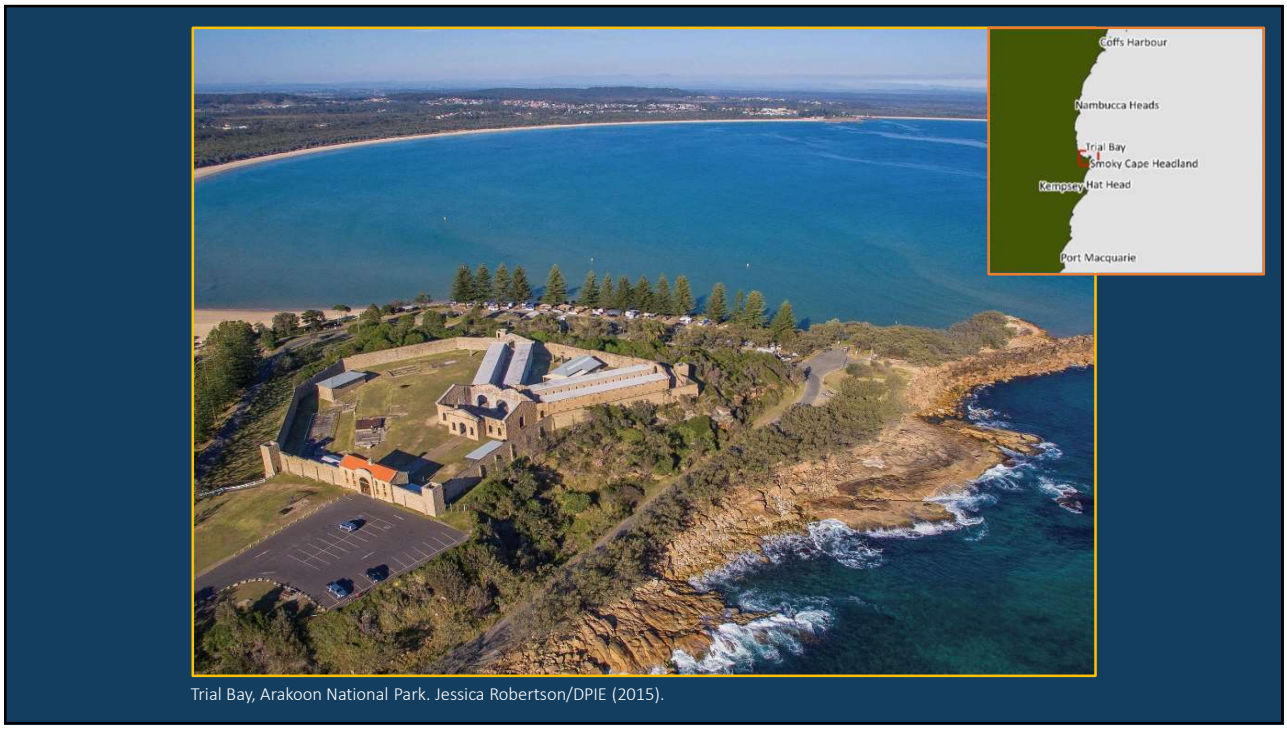

Trial Bay, Arakoon National Park. Jessica Robertson/DPIE (2015).

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Trial Bay, Arakoon National Park. Andrew Baker/NPWS (2022).

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Study area

- Extends from Laggers Point to the Fisherman's Track (approx. 1km).
- Incorporates a semi-sheltered, low-energy coastal environment.
- Used for a wide range of aquatic-based recreation.
- A popular destination for camping and caravanning.
- Beach and foreshore subject to frequent and severe erosion.

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Impacts of coastal erosion at Trial Bay , NSW. Andrew Baker/NPWS (2021).

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Broad objectives of strategy

- Seed and grow stakeholder support for NPWS coastal recovery measures.
- Facilitate adaptive coastal management through continuous learning, applied research and monitoring.
- Align NPWS coastal management with relevant NSW legislation, CMPs and good practice.
- Inform and optimise NPWS investment decisions so Trial Bay remains a premier NSW visitor destination.
- Mitigate beach and foreshore erosion, while maintaining the cultural and natural landscape of Trial Bay.

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Legislative and planning context

- National Parks and Wildlife Act 1974.
- Coastal Management Act 2016.
- State Environmental Planning Policy (coastal management) 2018.
- NSW Heritage Act 1977.
- Arakoon State Recreation Area Plan of Management 1987.
- Other environmental and heritage legislation and policy.

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Planning considerations

Natural variability of coastal processes…

- The collective influence of waves, tides, longshore sediment distribution and major storms, are key determinants for natural beach development.
- These determinants occur at varying spatial and temporal scales, resulting in routine changes to the width, shape and profile of beaches.
- The natural variability of beaches is a key factor when considering coastal recovery measures. Proposed measures should be well-planned and not reactionary.

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Conceptual model - Trial Bay coastal processes. Alluvium Consulting (2021).

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Planning considerations

Influence of Laggers Point Breakwater on shoreline configuration…

- The Breakwater's construction over 100 years ago altered the shape of Trial Bay Headland.
- This re-configuration changed local wave direction and sediment dynamics in the embayment.
- Along with major storms, this has led to net accretionary trend over 100+ years, and a new shoreline equilibrium.
- Wave attack has shortened the breakwater, resulting in the recent erosional trend.

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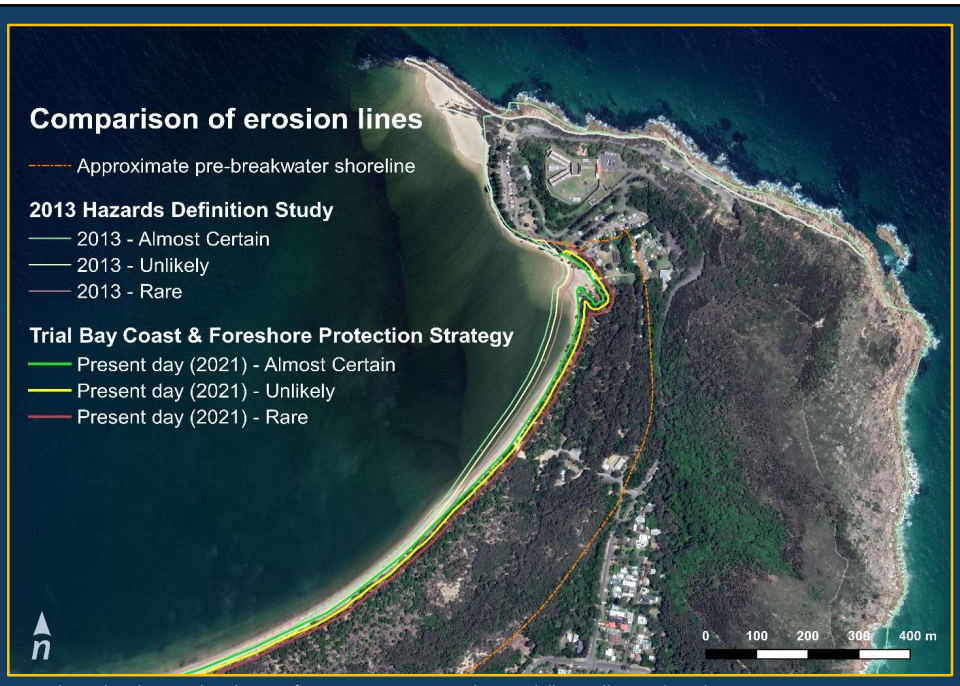

Pre and post breakwater shoreline configuration using erosion line modelling. Alluvium (2021).

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Planning considerations

Meeting stakeholder expectations…

- Nature-based recreation, including camping and caravanning, is the preferred locality use.
- The urgent upgrade of infrastructure is required to meet projected increases in visitation.
- Precinct development should integrate with the existing natural and cultural landscape.
- The embayment's low-energy surf zone is a key attractant for families with small children and the elderly.
- Coastal recovery measures should be evidence-based, comprehensively planned and proportionate.
- Aboriginal cultural practice should be incorporated into broader precinct planning.

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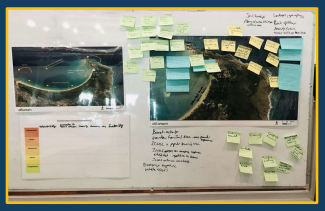

Photos courtesy of Alluvium (2021)

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Planning considerations

Acknowledging the need for adaptive coastal management…

- Two geographically-linked coastal adaptation zones are defined under the Strategy
- 'Front Beach Zone' and 'Campground Foreshore Zone, include both discrete and overlapping values, uses and coastal hazards.
- Each zone was assessed under different coastal adaptation scenarios over multiple planning horizons.
- The evolving risk profile for each zone was considered using information from the Coastal Hazard Risk Assessment.

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Adaptive coastal management - Trial Bay Visitor Precincts. Alluvium (2022)

	Present Day	2050	2100
Campground Foreshore Zone	**Alert: Active intervention** A relatively stable and low risk are of shoreline, with beach width expected to grow and shrink due to natural variability. Formal access points should be safe in all conditions. Campsites closest to the shoreline are currently protected by the seawall. Recommendations - Monitor and maintain of rock seawall and informal beach access points. - Develop emergency response procedures for severe wave overtopping, land slip, or other public safety hazards. - Prohibit non-relocatable assets. - Restrict additional land uses requiring infrastructure and utilities.	**Alert: Active intervention - planning for change** Monitoring focus on seawall condition and the proliferation of informal beach access points. Active intervention in the form of maintenance and repairs of the seawall. Should coastal hazards reduce seawall effectiveness, planning to strengthen the seawall; relocate at-risk built assets; and amend historical land uses should commence.	**Alert: Active intervention - planning for change** Monitoring focus on seawall condition and the proliferation of informal beach access points. Active intervention in the form of maintenance and repairs of the seawall. Should coastal hazards reduce seawall effectiveness, planning to strengthen the seawall; relocate at-risk built assets; and amend historical land uses should commence.
Front Beach Zone	**Alert: Active intervention** This section of the shoreline is exposed to coastal hazards including erosion of the beaches and dunes and inundation in Runaway Creek, however there are few built assets at risk. The beach and dune system are significant natural assets with actions to enhance beach amenity considered appropriate.	**Alert: Active intervention - planning for change** Increased coastal erosion is anticipated, potentially threatening built assets. The condition and length of the Lagger's Point Breakwater requires careful monitoring with its further deterioration likely to increase coastal erosion and shoreline recession. Continue active interventions including seawall repair/enhancement, the phased re-location of at-risk built assets and the transition to alternative land uses is recommended.	**Alert: Active intervention - planning for change** Increased coastal erosion is anticipated, potentially threatening built assets. The condition and length of the Lagger's Point Breakwater requires careful monitoring with its further deterioration likely to increase coastal erosion and shoreline recession. Continue active interventions including seawall repair/enhancement, the phased re-location of at-risk built assets and the transition to alternative land uses is recommended.

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Key steps in developing the strategy

Step 1 Identify key stakeholders and establish stakeholder reference groups.

Step 2: Undertake desktop review of existing coastal studies and data.

Step 3: Assess known and potential coastal hazards.

Step 4: Conduct risk assessment of identified hazards (as above).

Step 5: Apply coastal adaptation framework to planning processes.

Step 6: Identify coastal management adaptation zones based on the information collected and analysis.

Step 7: Undertake multi-criteria analysis of proposed actions and measures.

Step 8: 'Sense check' proposed actions and measures with stakeholder groups.

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Key management actions

Where coastal protection measures have proven ineffective, plan for the phased re-location of camping and caravanning sites at high risk of coastal erosion, to less vulnerable areas.

Trial Bay Campground. Robert Mullaly/DPIE (2019).

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Key management actions

In collaboration with NSW Crown Lands, model the impacts of maintaining or extending the Laggers Point Breakwater on shoreline alignment.

Laggers Point Breakwater. Andrew Baker/NPWS (April 2021

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Key management actions

Re-design, strengthen and/or extend the seawall near the entrance to Runaway Creek and other identified locations

Stormwater runoff from Runaway Creek is threatening built assets.
Andrew Baker/NPWS (2021).

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Key management actions

Assess existing rock wall in front of TBVP campground and identify areas for re-instatement or strengthening.

Circled area denotes area of existing seawall proposed for re-instatement.
Photo courtesy Andrew Baker/NPWS (2022).

2m

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Key management actions

Develop Runaway Creek Entrance Management Guidelines

Accumulated debris and illegal weirs impede tidal flow in/out of Runaway Creek.
Photo Andrew Baker/NPWS (April 2021).

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Other key management actions

- Incorporate TBVP coastal hazard areas into new plan of management for Arakoon National Park, Trial Bay Gaol Precinct Master Plan and other relevant documents.
- In collaboration with the NSW Crown Lands, model the impacts of maintaining or extending the Laggers Point Breakwater on shoreline alignment.
- Incorporate TBVP coastal hazard areas, including erosion buffers for 2050 and 2100, into new plan of management for Arakoon National Park, Trial Bay Master Plan and other relevant planning documents.
- Determine the impacts of existing stormwater drainage systems on foreshore stability.
- Develop a Trial Bay Coastal Zone Emergency Action Sub-plan, as recommended under the NSW Coastal Management Framework.
- Implement a Dune and Foreshore Revegetation Plan incorporating areas currently identified for revegetation.

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THANK YOU

To more learn about the Trial Bay Visitor Precincts Coast and Foreshore Strategy please contact

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