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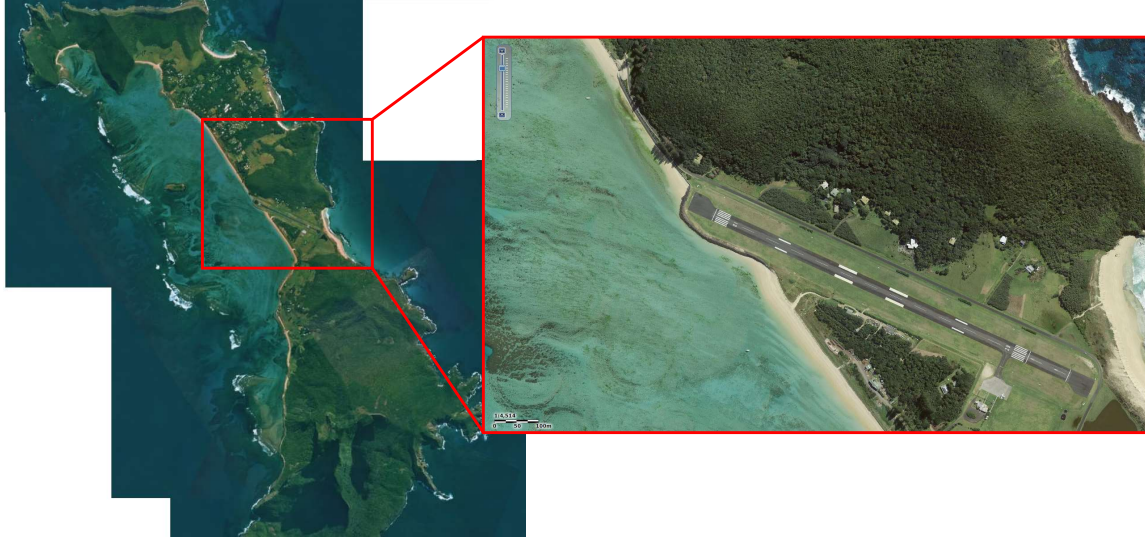
About Lord Howe Island

- Home to the world's southernmost coral reef.
- Home to the world's largest sea stack Ball's Pyramid at 551m tall.
- 1982 was listed as a UNESCO World Heritage Site. More than 70% of the island is a permanent protected park reserve, and the surrounding ocean is also protected as a Marine Park.
- Classified as part of the state of NSW, but **NOT** mapped as part of the NSW Coastal Zone.
- Lies 600 km (320 nmi) directly east of mainland Port Macquarie, 780 km (420 nmi) northeast of Sydney.
- Considerably expensive to try and do anything coastal management related on the island due to shipping costs related to plant and materials.
- The Shallows starring Hollywood A-lister Blake Lively was filmed at Ned's Beach.



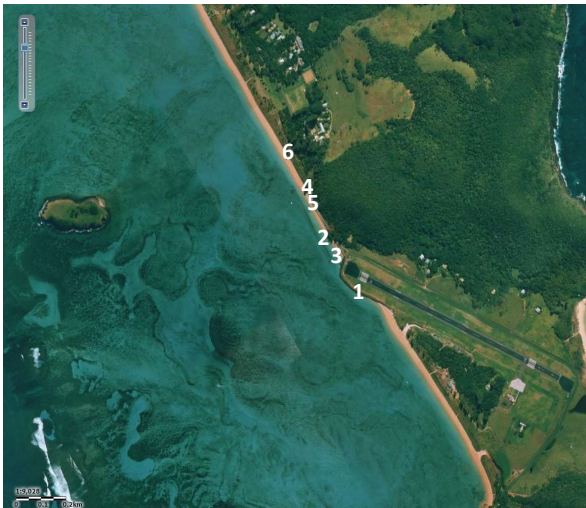
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How did we get here?



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Timeline for key structures



1974 - Lord Howe Island Runway and revetment built

Late 1980s - 44 Gallon drums and gabions placed at Windy Point

1999 - Windy Point Seabee revetment built

2011 - Geotextile sand container built at northern end of Seabee Wall

2015 - 60m rock revetment built at northern end of Seabee Wall

2016 - Pinetrees Lodge interim sandbag protection



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How much do we know?



RHDHV (2014)



RHDHV (2014)

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The Pinetree Boatshed



2012



2016



Nov-2019



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The Pinetree Boatshed



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Pinetree Boatshed through the years



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What is happening

- Lord Howe Island is subject to dynamic coastal processes
- Historically the Windy Point and Lagoon Beach site has been affected by coastal erosion and recession processes
- Previous protection structures are likely to having some influence on the coastal processes, though care needs to be taken into account in attributing their effects.
- More recent interim protection measures are by far having the biggest effect, that have caused a headlanding and end effects.
- These effects have been exacerbated by the installation of ad-hoc measures such as concrete blocks and other material that has further increased erosion and undermined any legitimacy of the geobag structure.



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The solution

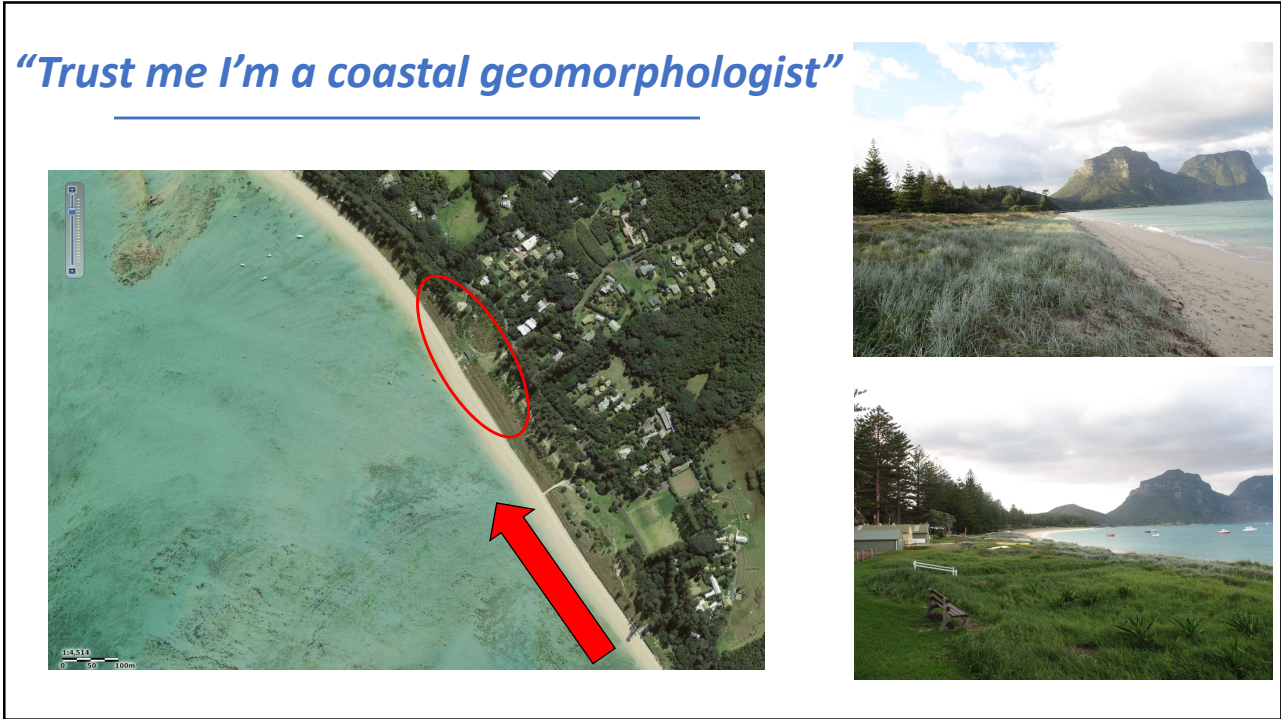
- A range of proposed short- and medium-term holistically focused management actions.
 - **Not to continue** with the ad-hoc protection strategy, given as any additional works would simply serve to displace the current erosion issues and create similar erosion issues further along Lagoon Beach. (Not to mention the cost).
1. Fill the end scour margins either side of the geobag wall in front of the boat shed and to build a natural buffer against storm impacts anticipated throughout the winter season.
 2. Re-location of the boat shed facility to a more suitable location landward of the influence of erosion threats.
 3. Removal of the ad-hoc and interim protection works currently in the vicinity of the boat shed.
 4. Re-instatement of original dune system and beach via a sand nourishment strategy.
 5. Monitoring on the utility of the strategy via Drone surveys (partnership SCU).



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Achieving “Buy In” - WIFM

LHI Board

- Concerns regarding longevity of the service track and underground power cables, public safety, visual amenity, holistic management solution

Pinetrees lodge

- Boatshed for guest use, public safety, amenity, costs for upkeep of work
- Permissive Occupancy requirements

Marine Parks

- Licencing for beach scraping and nourishment, Reduced impacts on the Marine Park from ad-hoc works, Visual amenity



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Delivering the Strategy



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Delivering the Strategy



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Did it Work?



Kelaher and Litchfield, SCU 2022

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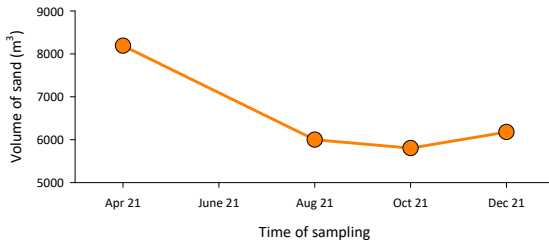
Did it Work?



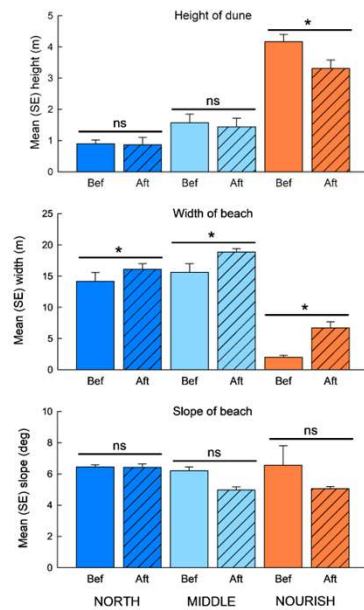
Kelaher and Litchfield, SCU 2022

- 8565 m³ of sand was translocated from the northern end to the southern end of Lagoon beach over a three-month period (Feb – April).
- This sand was then distributed across 210 meters at the southern end of the beach, with the final load of sand was moved in April 2021.

Did it Work?



Kelaher and Litchfield, SCU 2022



Conclusions

- Beach scraping/longshore nourishment strategy proved to be highly successful and a cost effective strategy.
- Strategy has delivered mutually beneficial outcomes for all parties and the environment.
- Drone Monitoring has been an efficient and cost effective tool to inform of the utility of the strategy.
- Future nourishment will be required to maintain an effective buffer/protection to the southern end of lagoon beach.
- For now erosion and recession processes appear to have stabilised and is equilibrating into a more consistent alignment and profile in accordance the natural longshore profile.
- A ongoing drone monitoring program should be established to continue to assess the efficacy of beach nourishment and to provide an evidence-based approach on the timing of an future campaigns.



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Thank you



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