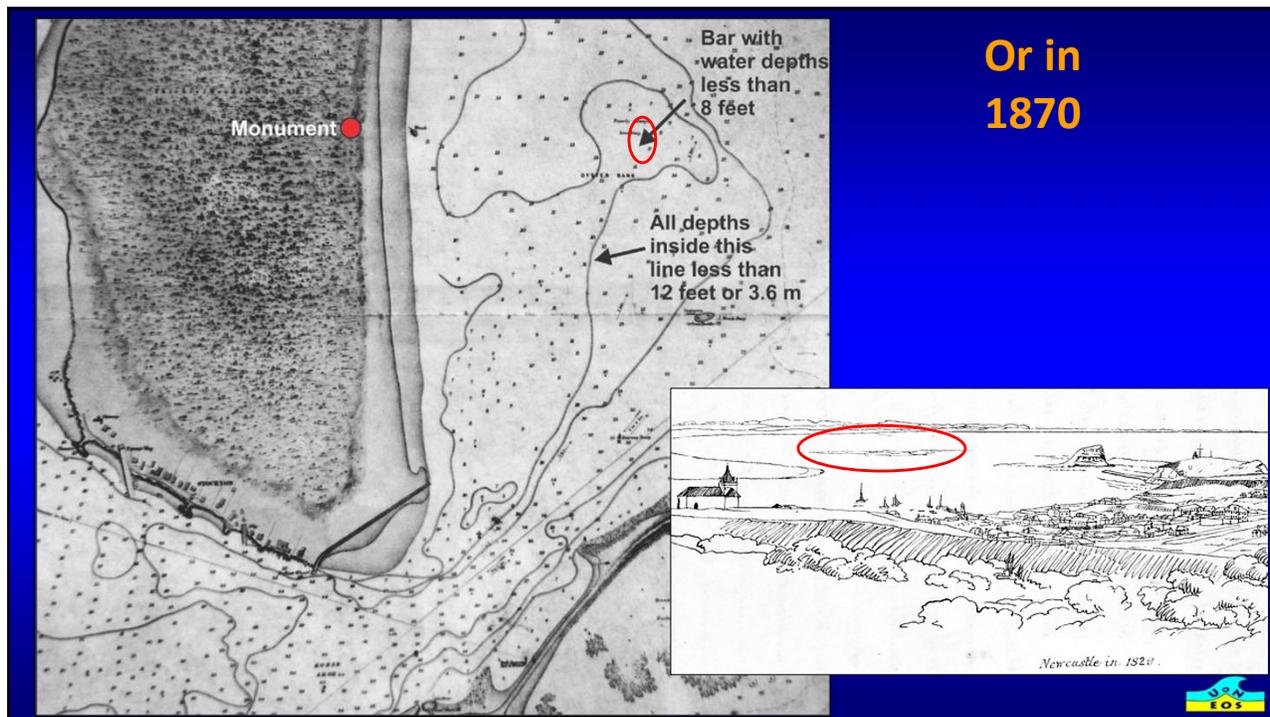


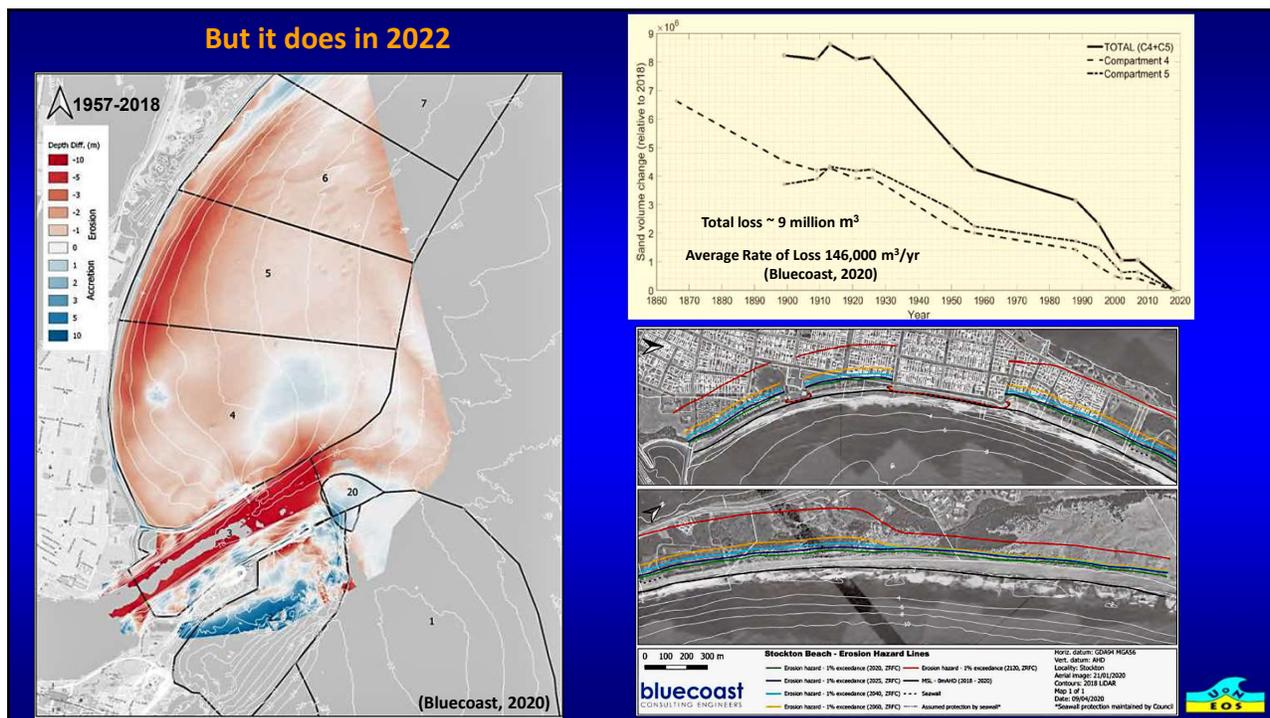
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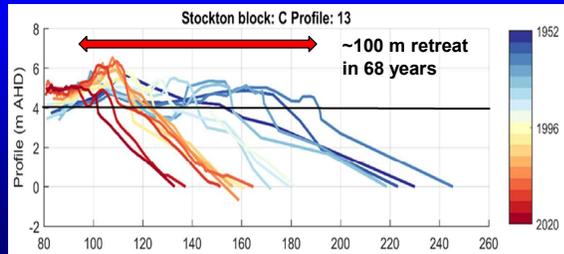
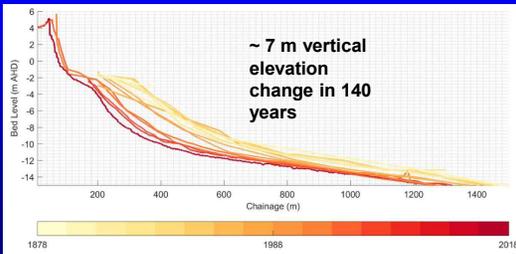


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4

Scale of the Problem – Beach Loss



5

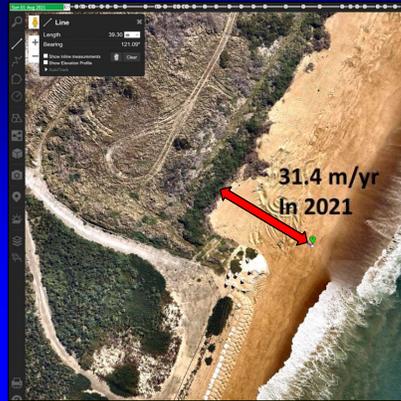
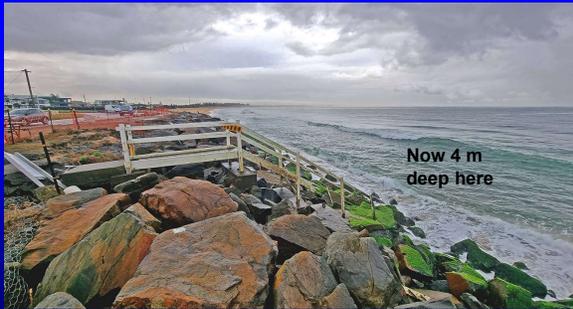
Scale of the Problem Stockton Caravan Park 2020-2022



CN 5-year planning horizon - 2025 Zone of Slope Adjustment
 — Adopted recession threshold

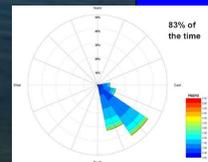
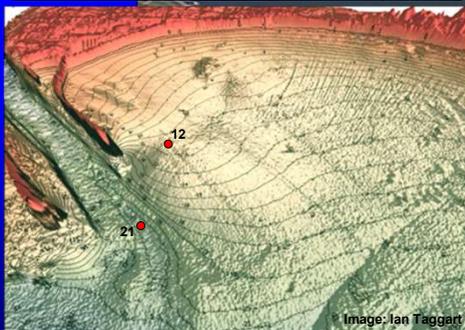
6

Scale of the Problem



7

Cause of the Problem? Harbour construction, dredging and longshore drift

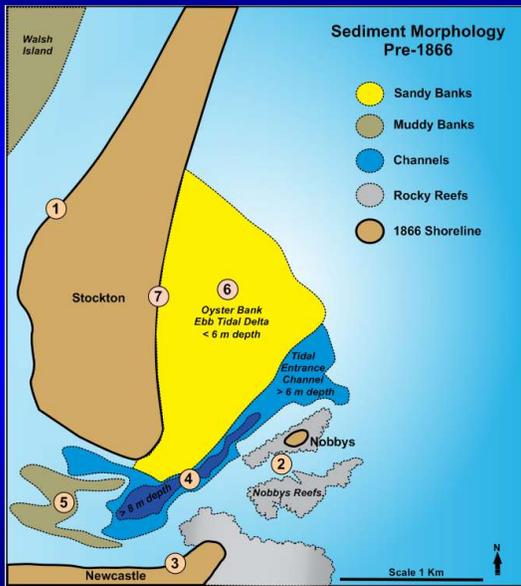


Buildup at Nobbys



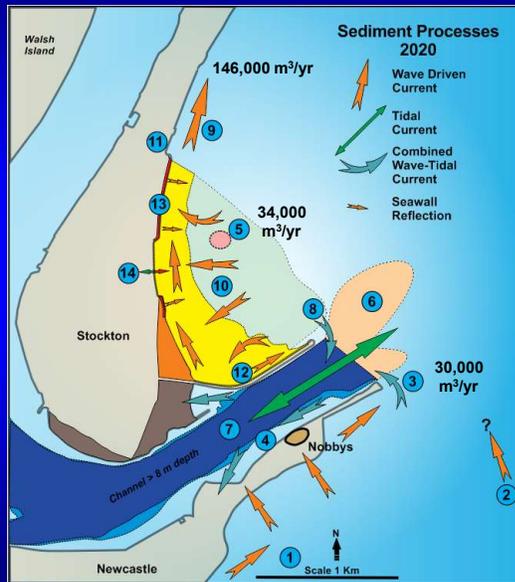
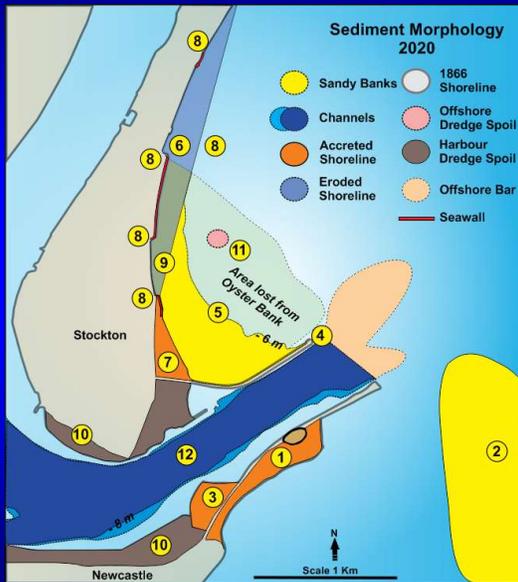
8

Hunter River Mouth Pre-1866 – No Problem



9

Cause of the Problem, Breakwaters and Dredging Hunter River Mouth 2020



10



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What is NOT the cause

- Only Natural Events
- Building too close to the water (originally over 100 m landward)
- Climate cycles – it will come back? (only a S Stockton problem, not Nobbys or N Stockton)
- Rising sea levels (see #3, but this will increase any future problems)
- Stockton IS different to most other coastal erosion hotspots in NSW (Collaroy, Wamberal, Byron Bay)

U.S.A. EOS

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The Solution: Options and Ranking

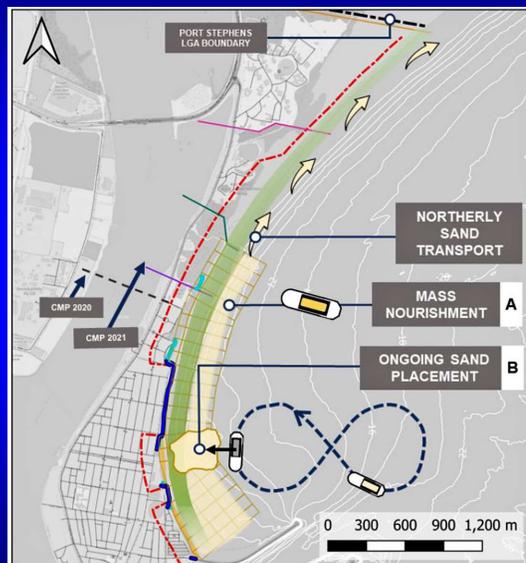
Coastal management scheme	Economic		Non-economic	
	Benefit/Cost Ratio BCR	Rank	MultiCriteria Assessment MCA score	Rank
Scheme 1 – MN + Sand top-ups	3.4	1	3.2	1
Scheme 2 – MN + Artificial headland	1.9	3	2.3	4
Scheme 3 – MN + Artificial reef	2.1	2	2.8	2
Scheme 4 – MN + Backpassing	2.1	2	2.5	3

X Seawalls



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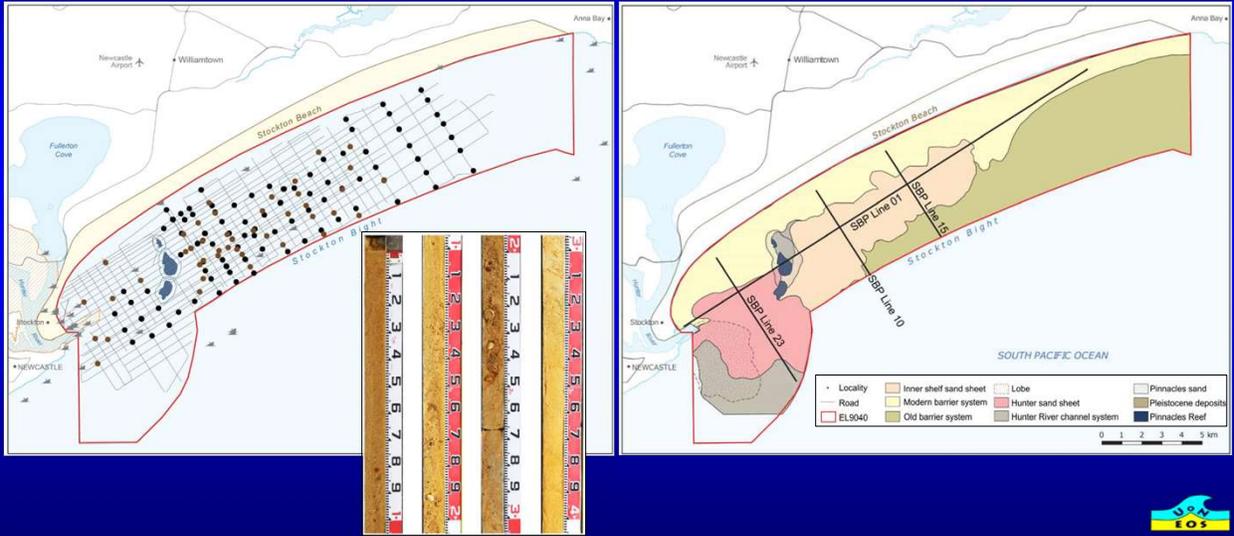
Preferred Solution: Mass Nourishment with Ongoing Sand Replacement



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The Offshore Option

Via the DP Task Force. Requires an Exploration Licence, an EIS, and a Mining Licence, plus a dredging program



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The Harbour Option

Via a South Arm Hydrogen/GasDock facility, a Container Port facility, North Arm or NSW Gov/CoN action. Requires scoping study, placement permits, dredging program



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The Obstacles: A Painfully Slow Process

Example: Stockton Coastal Erosion Studies – So Far

- 1966 – PWD
- 1977 – PWD
- 1978 – PWD
- 1995 – DLWC
- 1995 – HLA Envirosciences
- 1996 – WBM Oceanics
- 1998 – WBM Oceanics
- 2002 – Umwelt
- 2003 – CN NCHD
- 2006 – DHI
- 2009 – DHI
- 2009 – Worley Parsons
- 2011 – Worley Parsons
- 2012 – Worley Parsons
- 2010 – Urbis
- 2013 – NCC
- 2014 BMT WBM
- 2017 CN CZMP
- 2018 Royal Haskoning
- 2020 CN/Royal Haskoning CMP
- 2020 Bluecoast
- 2021 MEG



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The Obstacles

- **Cost, but what is the alternative? Huge mismatch between harbour-generated profits and cost of coastal remediation. \$1.75 B Lease Sale, (+ \$40 m consultants fees), \$20 M annual profit for foreign-owned Port Corporation, \$1-2 B in annual coal royalties from Newcastle Port**
- **National and state scale problem ~ Now costs \$21-39 M, unable to be resolved or funded by local government.**
- **Painfully slow decision making and resolution process – Maintenance and emergency works now ~ \$18 M ~ 80% Final Cost. Drip feed process of submission, application and possible completion.**
- **Inappropriate and Byzantine NSW legislation. Offshore mining vs environment focus, multiple acts and agencies – CN, DPIE, Crown Lands, TFNSW, Regional NSW, Community/Justice, PSSC, NPWS, Worimi, HW, Defence Housing, PON,**
- **Who takes responsibility and who provides the necessary funding?? Less than 50% of original \$83.6 M Coast and Estuary Grant Funds now remaining. A better and faster process required for larger scale problems like Stockton.**



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The Proposal:
An offshore dredge that is periodically contracted to move along the SE Qld and NSW coast to replenish lost sand

An Integrated Approach

A Template for the Future



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Summary

- **Scale:** Problem has reached critical tipping point
- **Cause:** Harbour breakwaters and dredging
- **Solution:** Mass sand nourishment, ongoing topups
- **Obstacles:** Cost, Speed, Co-ordination, Responsibility
- **Proposal:** Offshore Environmental Renourishment



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