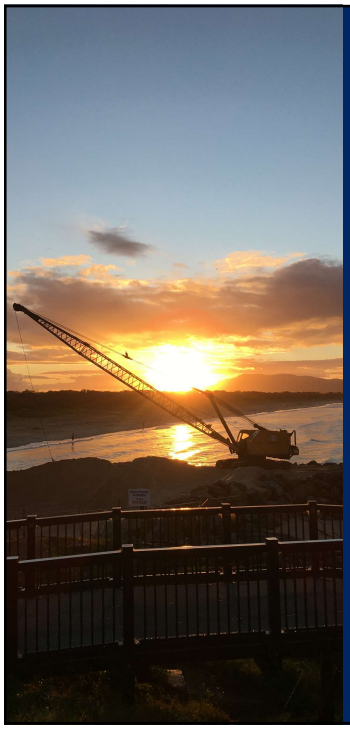

Shifting Sands on Coastal Crown Land

Coastal Conference 2022

Department of Planning and Environment

Crown Lands

Malcolm Robertson
Senior Project Officer – Crown Lands
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31 May 2022

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Contents

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Uses of Sand

Highly valued public resource:

Provides for protection

Recreation

Amenity

Sand nourishment

Habitat

Other uses:

Concrete
Glass
Paint
Mortar, brick
Agriculture
Abrasion
Filtration of water
Silicon
Sand blasting
Landscaping
Roads
Children sand pit

Figure Boambee Beach 2022

Descriptor

3

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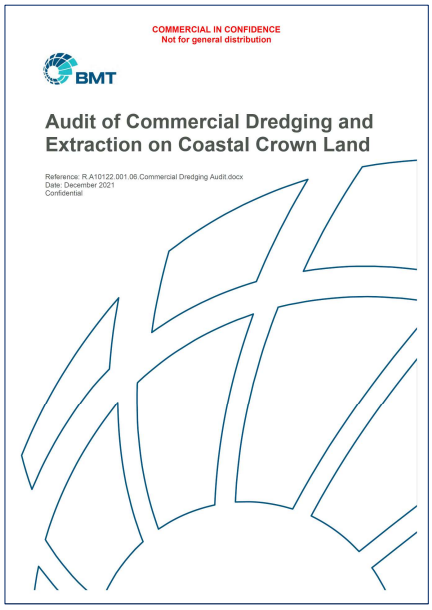

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Marine Estate Management Strategy (MEMS) – Threats and Risk

Activity/Resource use

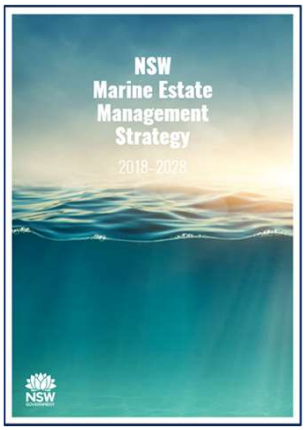
- Dredging
- Sand and aggregate extraction

Stressors

- Water pollution and sedimentation
- Wildlife disturbance
- Physical disturbance
- Changes in tidal prism

Receptors

- Saltmarsh, mangroves, seagrass, soft benthic sediment, rocky shores, reefs
- Threatened and protected species



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2 MANAGEMENT OBJECTIVE:

To protect coastal and marine habitats and associated species and enhance the health of the marine estate by improving the design, quality and ongoing management of foreshore development, use and waterway infrastructure

	Statewide priority threats	Stressors	Management actions
Environment TARA	Dredging (navigation, entrance and harbour management) – affects water, seagrass, beaches and mudflats, shallow soft sediment, planktonic assemblages, species and communities protected under the FMA	Altered flow patterns, physical disturbance of sediment (e.g. dredging for navigation), altered tidal salinity patterns and magnitude, reduced water quality (increased water turbidity), and altered substrate transport (natural beach nourishment).	2.1 Assess and manage cumulative and legacy impacts for estuary entrance modification and dredging by: • strategically dredging trained entrances to minimise the impact of interruptions to sand movement caused by entrance infrastructure and redeploying sand at erosion and sediment deprived locations • developing and incorporating practical design features that maximise marine habitat and recreational values into existing training walls during maintenance and upgrade works • auditing commercial dredging in estuaries.
	Hydrological modifications (estuary entrance modifications) – affect water, saltmarsh, seagrass, mangrove, beaches and mudflats, shallow soft sediment, planktonic assemblages and species and communities protected under the FMA and BCA		
	Modified freshwater flows – (extraction and artificial barriers) losses and changes to water, saltmarsh, seagrass, planktonic assemblages, shallow soft sediment and species and communities protected under FMA and BCA	Water pollution in the form of low dissolved oxygen acid sulfate soil leaching into waterways, lowering pH and increasing turbidity. Changes to tidal flows, watertable levels, inundation regimes and floodplain and catchment hydrology also contribute. Impacts on aquatic habitat connectivity, including between fresh, estuarine and marine waters.	2.2 Assess and manage cumulative and legacy impacts on foreshore development and land-use change in the coastal zone by: • reviewing and updating existing coastal design guidelines to promote best-practice designs in coastal urban environments. • implementing policy changes to enable adequate assessment of and response to the impact of existing infrastructure that modifies freshwater flows or drains wetlands when rezoning or when land-use change is considered to remediate the legacy impacts of older infrastructure.
	Foreshore development – impacts on saltmarsh, mangrove, beaches and mudflats and species and communities protected under the FMA and BCA	Physical disturbance from habitat removal and destruction, legacy issues associated with clearing and development, changes to tidal flows and wave patterns, changes to sediment (grain size) and freshwater inputs, impacts on nesting shorebirds and turtles due to habitat loss, possible impacts on inshore dolphins.	2.3 Develop and implement a statewide policy for the management of coastal Crown lands (including submerged lands) in collaboration with local government Coastal Management Programs in priority areas to: • develop estuary-wide strategies that reduce red tape and inform the assessment of foreshore structures strategies for private works spanning the intertidal foreshore (such as pontoons and boat ramps)
	Clearing riparian vegetation – affects water, saltmarsh, shallow soft sediment, planktonic assemblages and species and communities protected under the FMA and BCA		
	Beach nourishment and grooming – affects beaches and mudflats		

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Purpose of the Audit

To undertake an audit of commercial dredging and extraction operations on coastal Crown land, and to develop and implement recommendations for improving management to address threats to the marine estate

Basic Methodology

- Desktop review or audit of licences for extraction activities on coastal Crown land.
- Supplemented with agency feedback, local government and industry stakeholder engagement

Figure. https://www.ccaa.com.au/CCAA/

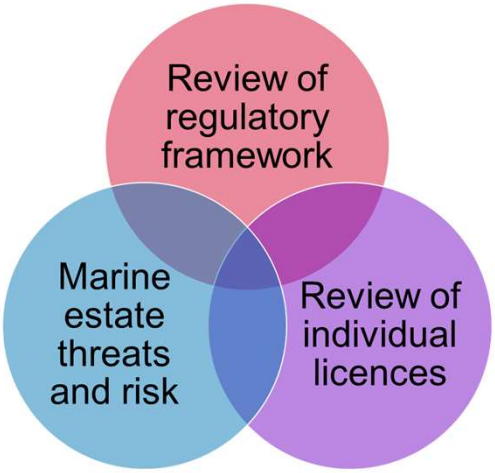
Commercial Dredging and Extraction in NSW

- 26 licences in the coastal zone – 10 latent, 13 active and 3 expired
- Active operations in Tweed River, Clarence River, Nambucca River, Bellinger River, South West Rocks, Oyster Cove, Anna Bay, Shoalhaven River
- Operations are primarily aimed at commercial extraction but may include secondary outcomes (e.g. managing sand drift, providing navigation)
- Operations include both riverine/estuarine dredging and land-based excavation
- Theoretical total allocated volume (active operations) is 1.3Mm^3 or 1.8Mt per year
- The total volume extracted under the active licences in 2019 estimated at 275,000m^3

Audit Approach – Three-way Assessment

Regulatory Context

- Multiple players and approvals
  - Crown Lands – land owners consent, Crown Land Licence or Tenure
  - Consent authority (usually local government) – Part 4 EP&A Act consent
  - DPI Fisheries – fisheries referral
  - Transport for NSW – maritime safety referral
  - EPA – Environment Protection Licence (EPL)
  - EES – environmental referral and wildlife
  - Commonwealth – matters of national environmental significance
- Some operations also trigger mining safety regulations
- Multiple agencies means multiple conditions and compliance touch-points
- Older operations work under a series of historical and/or transitional provisions under various legislation



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Audit Approach - Benchmarking

Regulatory, licensing and threats review identified current state of play

Benchmarking was used to compare this to best practice and identify targeted opportunities for improvement

Benchmarking were derived from review of the following standards:

- NSW EIS Guidelines: Extractive Industries Dredging and Other Extraction in Riparian and Coastal Areas
- NSW NRAR Publication TD3 500 Guide to completing and submitting a new or amended controlled activity approval
- Qld DES Publication ESR/2016/1979 Version 5.02 Guideline: Dredging and allocation of quarry material
- Qld DES Publication ESR/2015/1680 Version 1.06 Allocation of quarry material model conditions
- Qld DES Publication ESR/2015/1666 Version 4.05 ERA 16—Extractive and screening activities model operating conditions TD4

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Slide 10

TD3 year or reference
Timothy Deverell, 30/05/2022

TD4 is QLD material relevant?
Timothy Deverell, 30/05/2022

Audit Approach - Benchmarking

Five benchmarking features derived:

- Managing sensitive habitats
- Managing water quality
- Managing morphological and hydrodynamic change (including coastal processes)
- Managing contamination
- Risk management (incl. management plans and monitoring

Benchmarks applied to regulatory framework and each active Crown licence

Operator	Environmental controls				
	Habitats	Water quality	Morphology	Contamination	Mgmt. plans
1	DC	CL/ EPL	CL/ DC	DC/ EPL	DC
2	N/A	CL/ EPL			
3	N/A				
4	N/A				
5	N/A	N/A	CL	N/A	CL
6	CL/ DC	CL/ EPL	CL	DC/ EPL	CL
7	CL	N/A	N/A	N/A	
8	N/A	CL		REF	REF
9	N/A	N/A	N/A	N/A	DC
10	N/A	N/A	N/A	N/A	EPL
11	N/A	N/A	N/A	N/A	??
12	N/A	N/A	N/A	N/A	??
13	N/A	N/A	N/A	N/A	
14	CL/ DC	??	CL/ DC	DC	DC

Findings

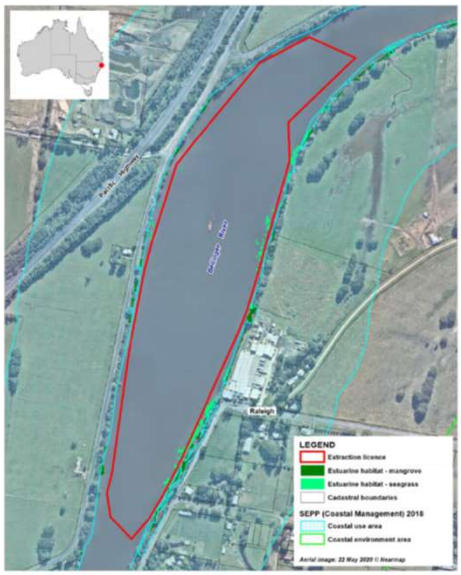


Figure – Bellingen River environmental features

Typical regulatory divide:

- Development consents often have more site specific requirement relating to local habitats and management plans.
- Crown land licences typically used to capture extraction limits (time or quantity), royalties, water quality and footprint. There are also termination requirements.
- EPLs mainly used for water and sediment quality

Due to lack of standardised assessment/conditions, many of these benchmarking elements fall between the gaps (e.g. assumed to be covered by a different approval).

This is especially the case for historical operations.

Of all the benchmarks, one key gap was in availability of conditions associated with managing and tracking morphological and hydrodynamic changes from dredging and extraction (including coastal processes).

TD6

Recommendations

Development Assessment and Compliance Framework

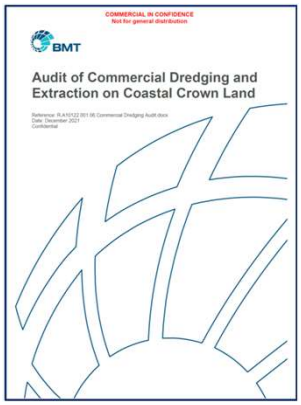
- Development Assessment and Approval under EP&A Act (SEARS + update 1996 EIS guidelines)
- Interagency compliance (governance responsibilities and oversight)

Crown Lands Management Framework

- Develop guiding principles and supporting materials for commercial dredging processes and approvals under the CLM Act
- Review licence conditions (standard set condition of license conditions)
- Crown Lands resourcing
- Review Tenure Audit process
- Royalties (investigate potential to commit to resources)

Licences

- Strengthen conditions to incorporate improved environmental management upon review of licencing
- investigation process of terminating latent tenures with unspecified expiry dates



Key recommendations for specific licences Boambee Beach Sand Extraction

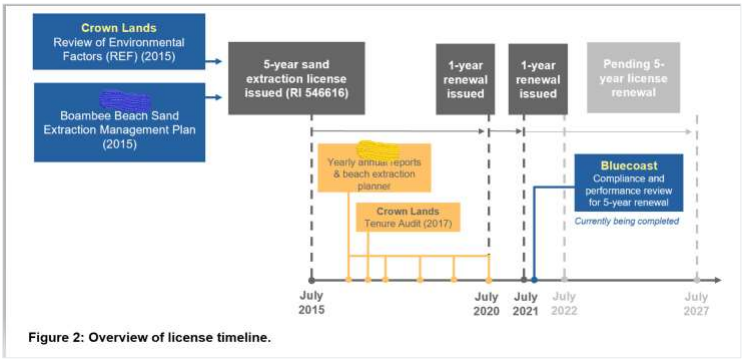
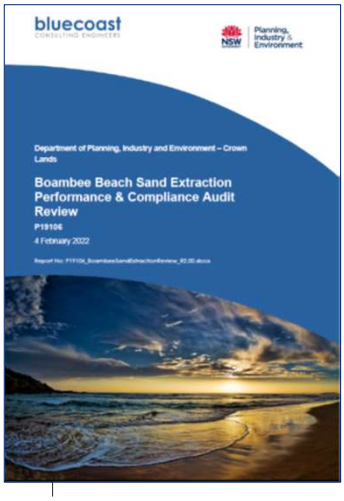


Figure 2: Overview of license timeline.



Slide 13

TD6 should licences be leases?
Timothy Deverell, 30/05/2022

Coastal processes

Updrift effects:

- Accretion evident along Boambee Beach

Downdrift effects:

- Interception caused by the harbour has reduced sand supply to the north
- Park Beach in slow on-set coastal erosion or long term recession of the shoreline

Boambee Beach

- Est. 48,000m^3/yr (accreting)

Harbour & Jetty Beach

- Est. 40,000m^3/yr infilling rate
- No evidence to suggest the extraction has reduce the rate of harbour infilling

Park Beach

- Est. 13,680m^3/yr (eroding)

Sand Budget

Sub-compartment	Item	Annual rate of change (m^3/year)			Total volume since 1965 (m^3)	Total volume over 5-year period (m^3)
		Best estimate	Uncertainty (± 30%) Upper limit	Uncertainty (± 30%) Lower limit		
Boambee Beach	Net accretion**	62,415	81,140	43,691	3,495,252	312,076
	Sand extraction	-14,415	-	-	-725,141	-72,076
	NET SAND BUDGET	**48,000**	66,725	29,275	-	-
Coffs Harbour/Jetty Beach	Net accretion**	38,200	49,660	26,740	2,139,200	191,000
	Sand dredging	-8,200	-10,660	-5,740	197,000	-41,000
	NET SAND BUDGET	**30,000**	39,000	21,000	-	-
Park Beach	Net erosion (sand loss)	-21,980	-15,386	-28,574	-1,230,880	-109,900
	Sand placements	8,300	10,790	5,810	258,000	41,500
	NET SAND BUDGET	**-13,680**	-4,596	-22,764	-	-

Shoreline change