

TWEED SAND BYPASSING

ENVIRONMENTAL MONITORING SUMMARY – FEBRUARY 2023

1. SAND PUMPING & DREDGING

- 41,601 m³ was pumped to Snapper Rocks East.
- 0 m³ of sand was dredged

Sand Delivery February 2023

Pumped: 41,601 m³

Dredged: 0 m³

Total: 41,601 m³

The number of days sand was pumped this month = 24

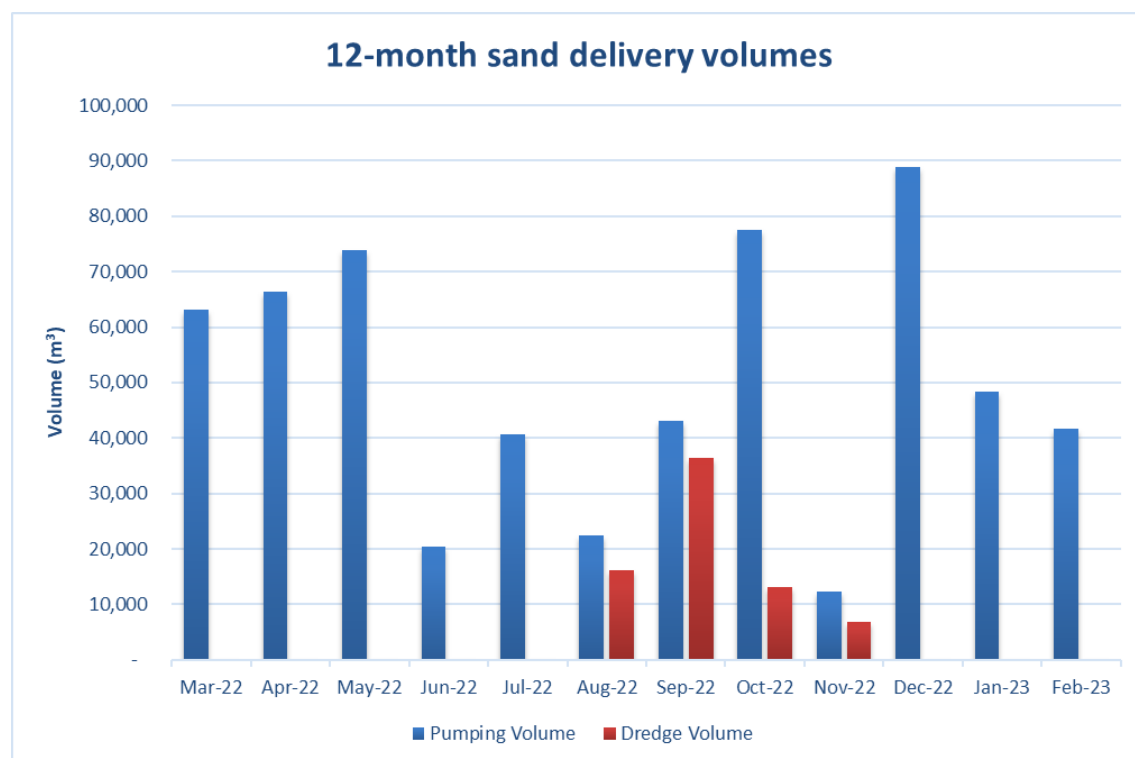
Sand Delivery May 2000 to date

Pumped: 11,194,827 m³

Dredged*: 2,787,767 m³

Total*: 13,982,594 m³

* This Includes 22,870 m³ of sand delivered by dredge to Palm Beach between July 2005 and September 2005



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2. WAVE CONDITIONS

In February moderately sized swell was observed during the week that TC Gabrielle tracked SE offshore of the Qld coast. This produced swell starting from the ENE peaking at 2.7m from the east and then trailing off from the ESE. There was another pulse of swell later in the month, but otherwise conditions were relatively mild. The swell for February was predominantly from the east and ESE.

- Minimum H_{sig} : 0.62 m on 17 February 2023
- Maximum H_{sig} : 2.70 m on 12 February 2023
- Number of days where $H_{sig} < 1$ m at some point: 11
- Number of days where $H_{sig} > 2$ m at some point: 5

Note: H_{sig} is defined as the average of the highest one-third of waves recorded over a period of approximately 30 minutes



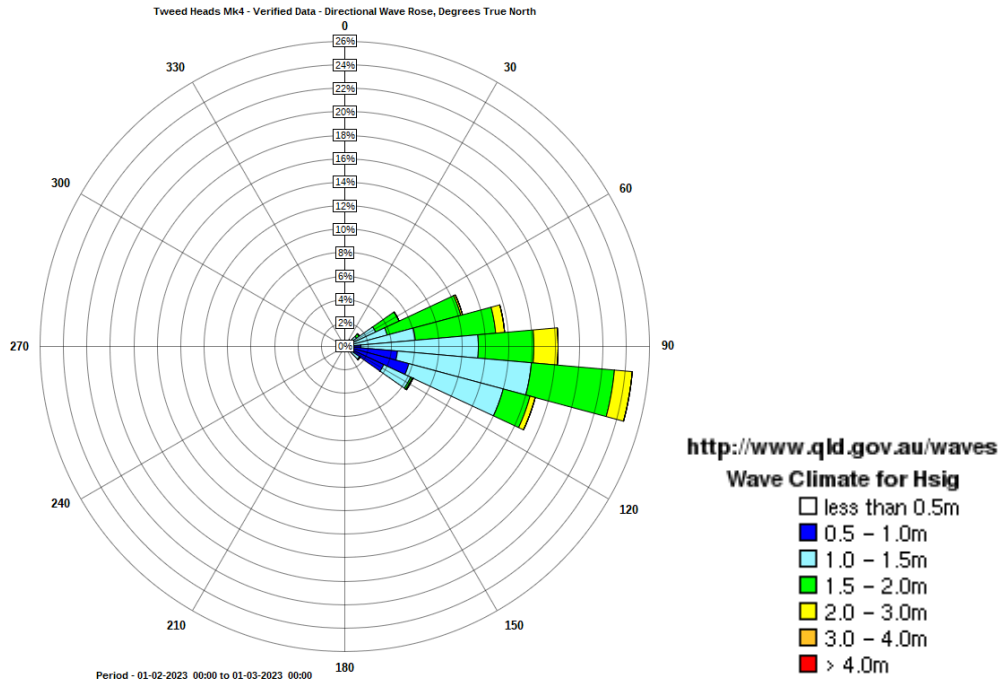
(Source: Tweed Heads Waverider buoy; Queensland Government)

In February 2020 TSB commissioned the deployment of another Waverider buoy in the Tweed region. The Tweed Offshore Waverider buoy was deployed in approximately 60 m water depth to the east and adjacent to Kingscliff and Dreamtime Beaches. The purpose of the Tweed Offshore buoy is to observe and assess changes in wave climate at the Tweed Heads buoy due to the presence of the Danger Reefs and Cook Island.

A link to data recorded by the Tweed Heads and Tweed Offshore Waverider buoys is available at: <http://www.qld.gov.au/waves>

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NEARSHORE WAVE DIRECTION

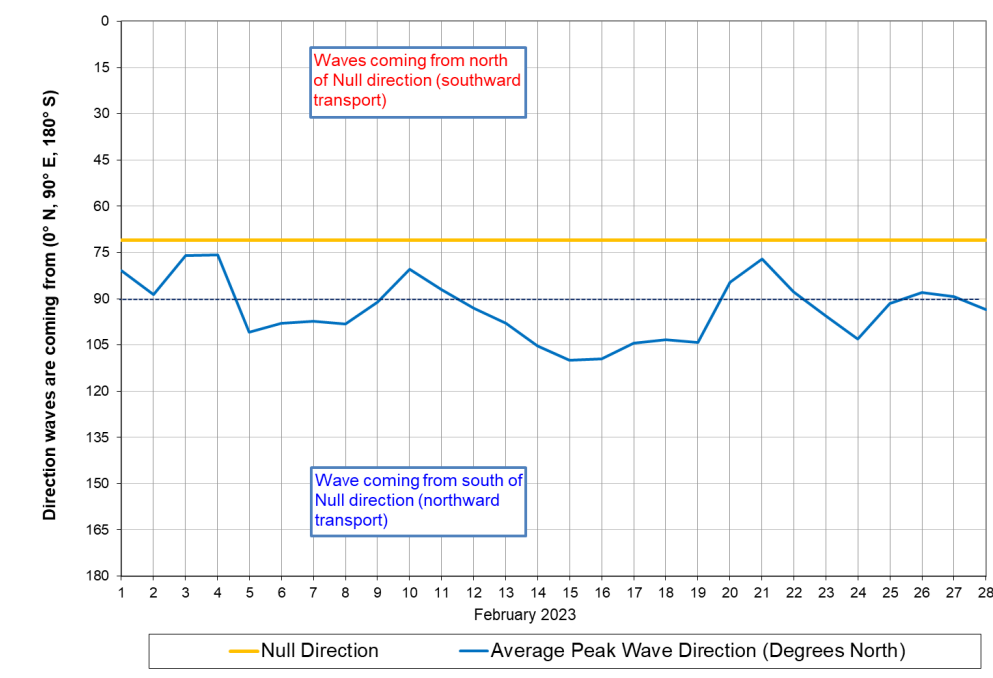
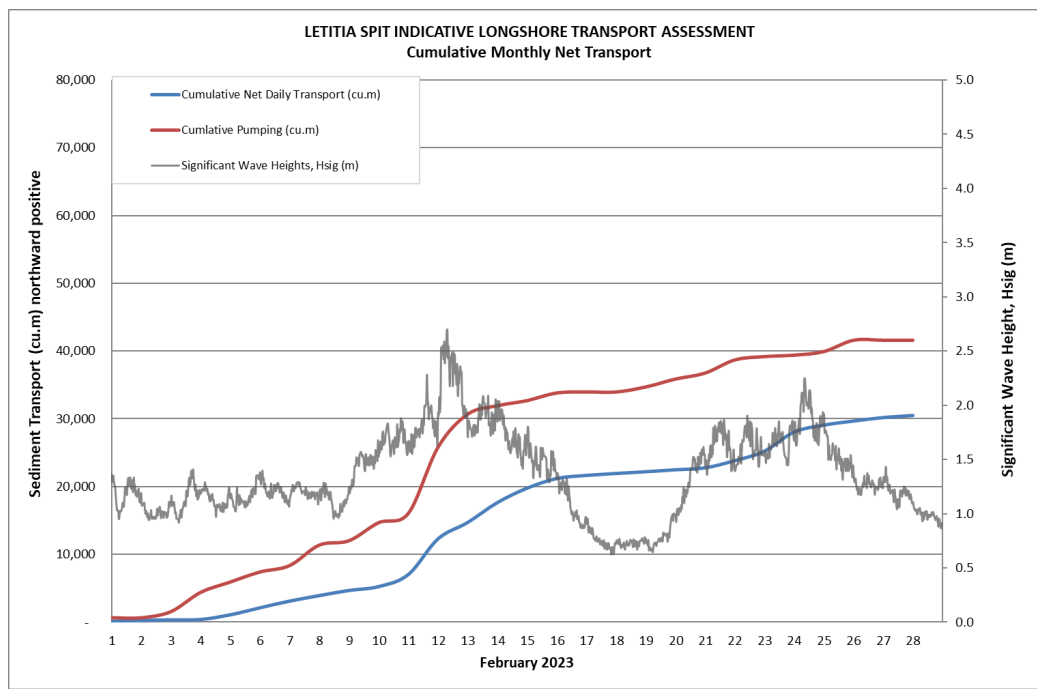


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3. INDICATIVE LONGSHORE TRANSPORT

The first graph below is based on simplified sediment transport modelling and is indicative only. The second graph indicates the wave direction in relation to the shoreline null direction (a wave direction coming from south of this line generally results in northward transport of sand).

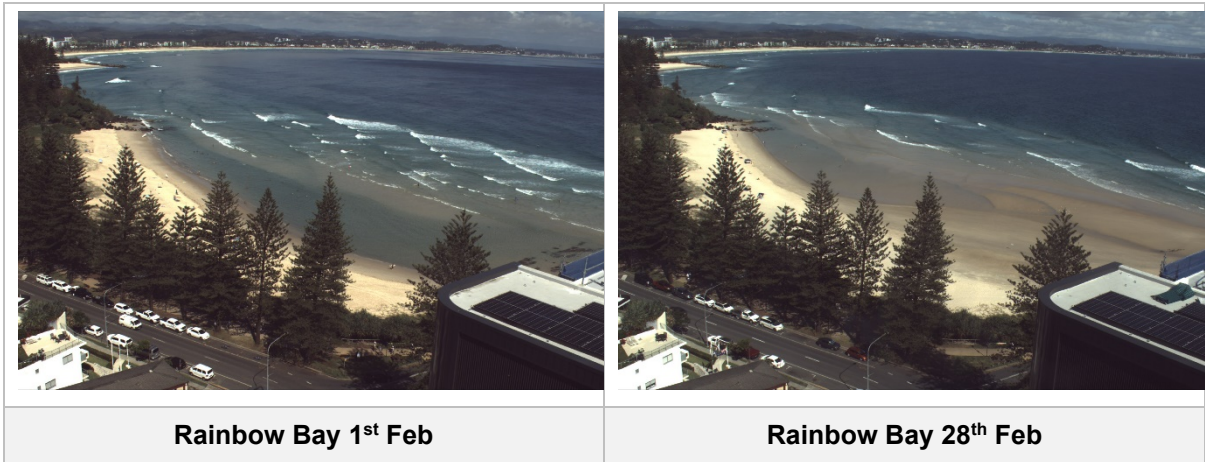
In February 2023 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 31,000 m³. This result is 52 per cent of the average estimated sand transport quantity of approx. 59,000 m³ for February.



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4. BEACH AND SURF AMENITY OBSERVATIONS

No significant change was observed along the beaches as TC Gabrielle didn't result in swell significant enough to cause widespread erosion. For example (and as indicated by the images below) at the start of February a gutter and nearshore bar was evident at Rainbow Bay and by the end of the month this actually filled in to some extent and the bar gradually migrated shoreward.



Swell produced from TC Gabrielle resulted in quality waves at Snapper Rocks, Rainbow Bay and Greenmount.



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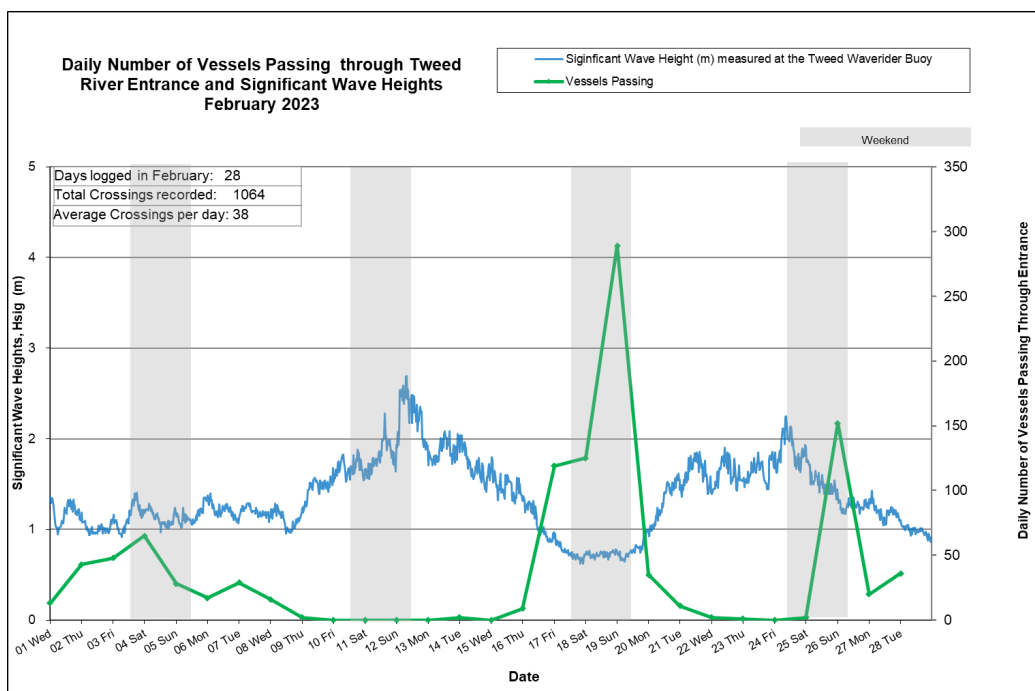
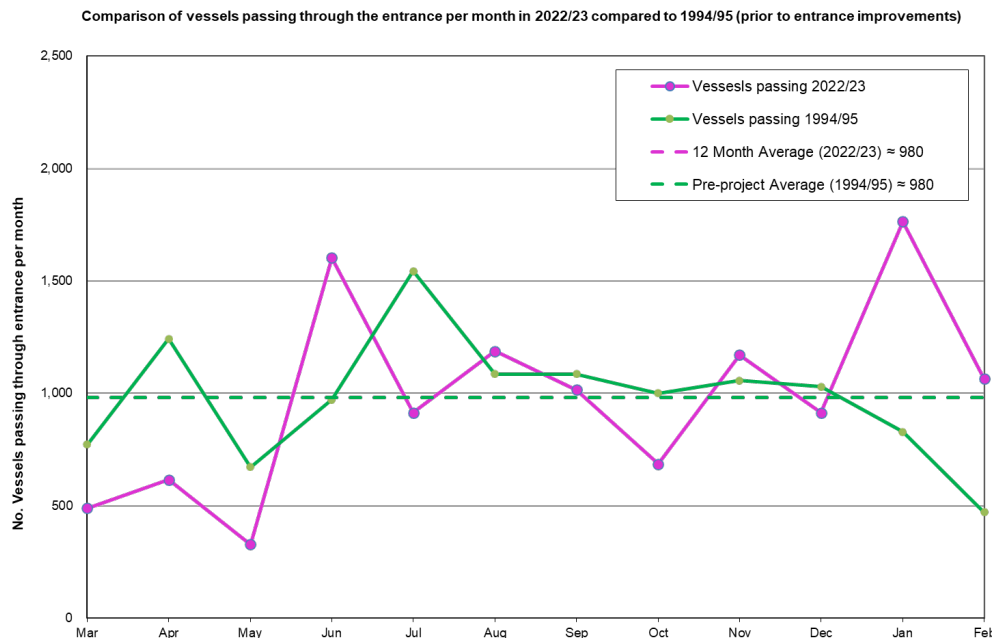
Rainbow Bay – 11 February 2023



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5. TWEED RIVER ENTRANCE USAGE

A total of 1064 Tweed River entrance vessel crossings were recorded for the month (83 per cent of the February average (2002–2023)).



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Date February 2023	Navigation Rating					Number of Crossings
	Impassable < - - - - > Good					
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						13
2						43
3						48
4						65
5						28
6						17
7						29
8						16
9						2
10						0
11						0
12						0
13						0
14						2
15						0
16						9
17						119
18						125
19						289
20						35
21						11
22						2
23						1
24						0
25						2
26						152
27						20
28						36
					Total:	1,064

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

Source: Marine Rescue NSW, Point Danger