

TWEED SAND BYPASSING

ENVIRONMENTAL MONITORING SUMMARY – NOVEMBER 2023

1. SAND PUMPING & DREDGING

- 37,414 m³ was pumped to Snapper Rocks East.
- 0 m³ of sand was dredged.

Sand Delivery November 2023

Pumped: 37,414 m³

Dredged: 0 m³

Total: 37,414 m³

The number of days sand was pumped this month = 19

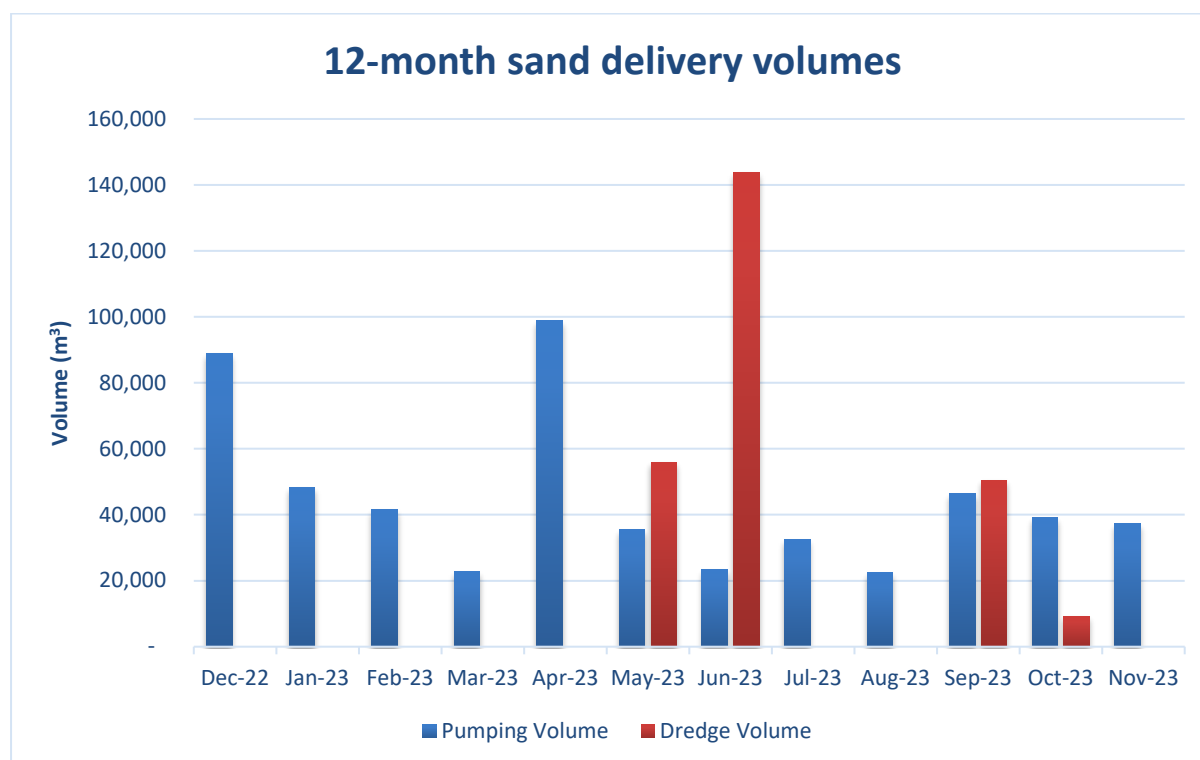
Sand Delivery May 2000 to November 2023

Pumped: 11,553,281 m³

Dredged*: 3,047,294 m³

Total*: 14,600,575 m³

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



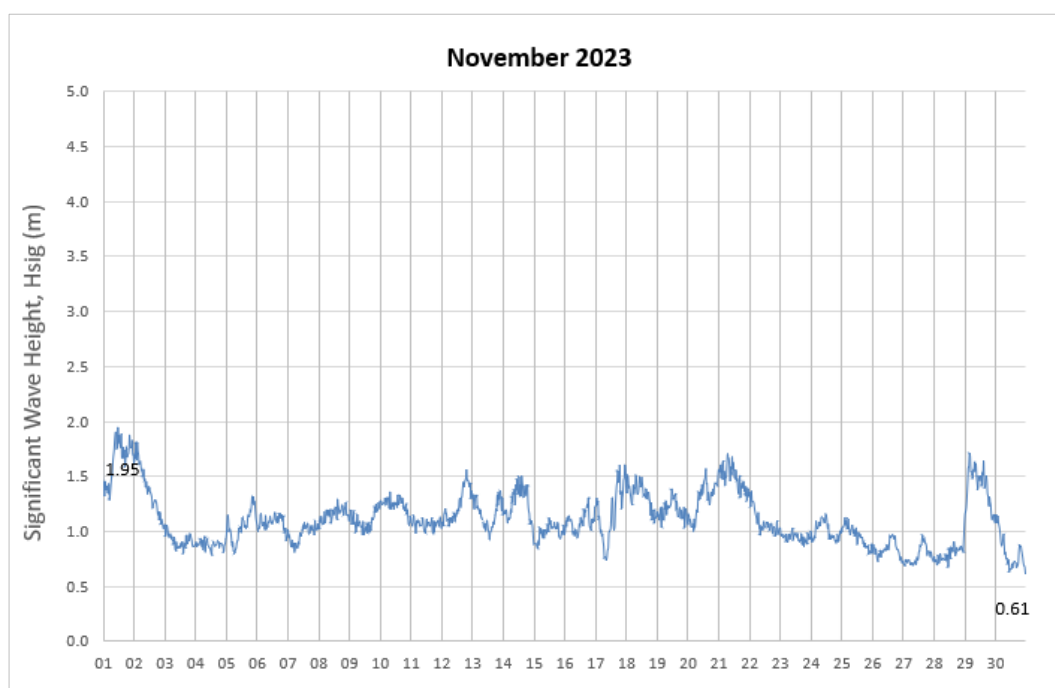
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2. WAVE CONDITIONS

November saw consistent conditions throughout the month with an easterly wave direction averaging less than 1.5 m in height. The maximum wave height for the month was observed at the very start of the month off the back of the October wave conditions generated from the SE by a sub-tropical low. Conditions eased after the first couple of days and remained stable for the remainder of the month.

- Minimum H_{sig} : 0.61 m on 30 November 2023
- Maximum H_{sig} : 1.95 m on 01 November 2023
- Number of days where $H_{sig} < 1$ m at some point: 20
- Number of days where $H_{sig} > 2$ m at some point: 0

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

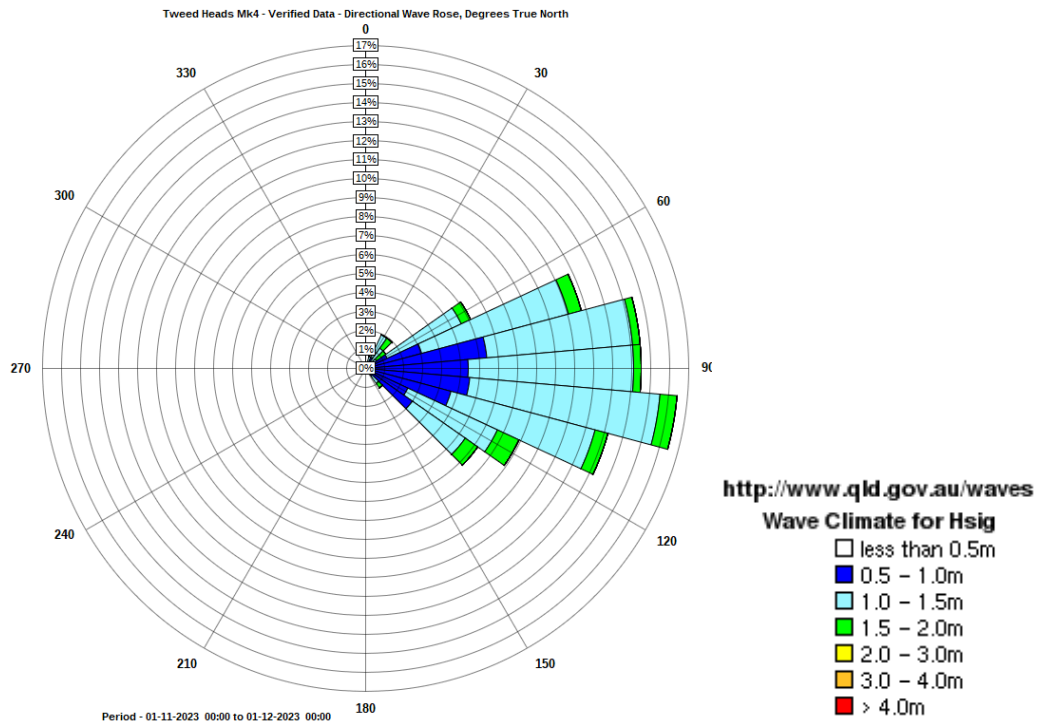


(Source: Tweed Heads Waverider buoy; Queensland Government)

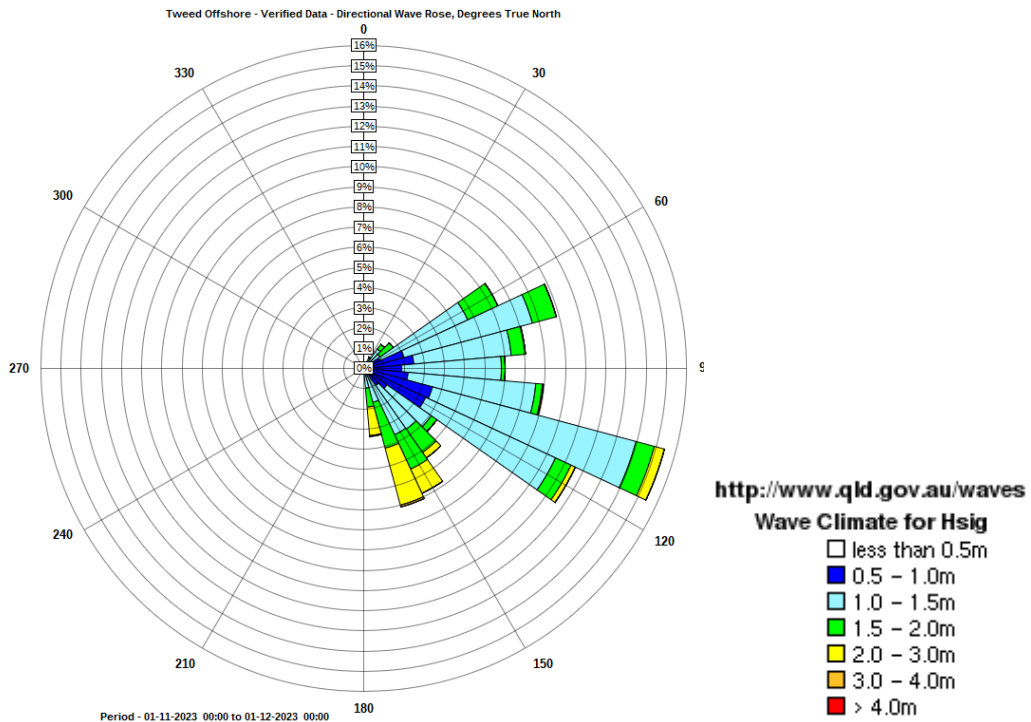
A link to data recorded by the Tweed Heads and Tweed Offshore Waverider buoys is available at:
<http://www.qld.gov.au/waves>

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NEARSHORE WAVE DIRECTION



OFFSHORE WAVE DIRECTION

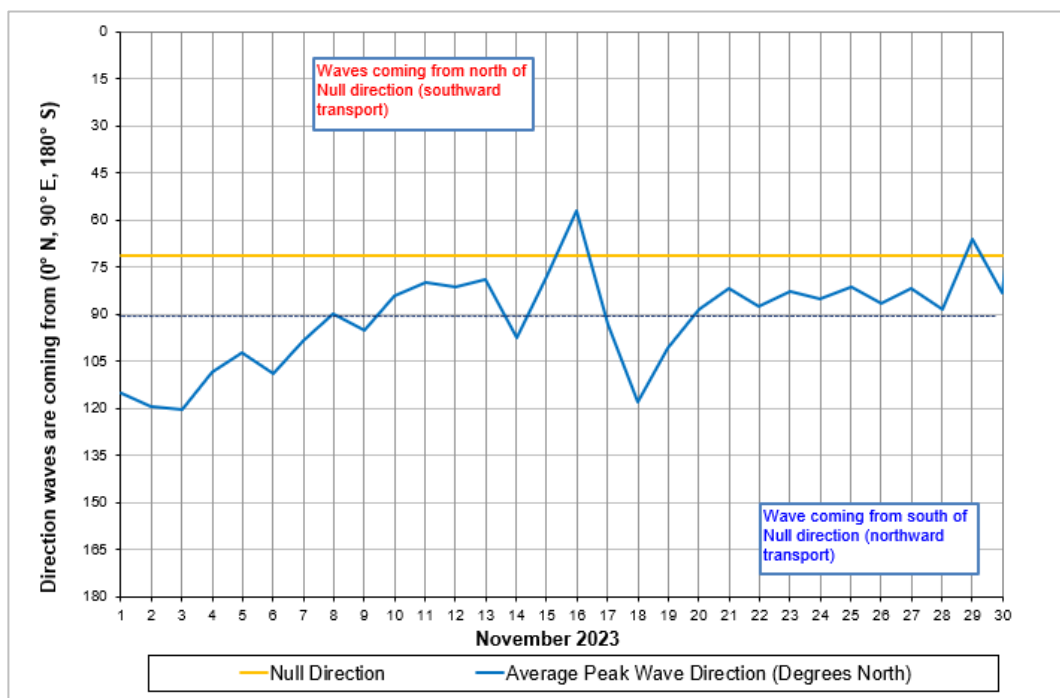
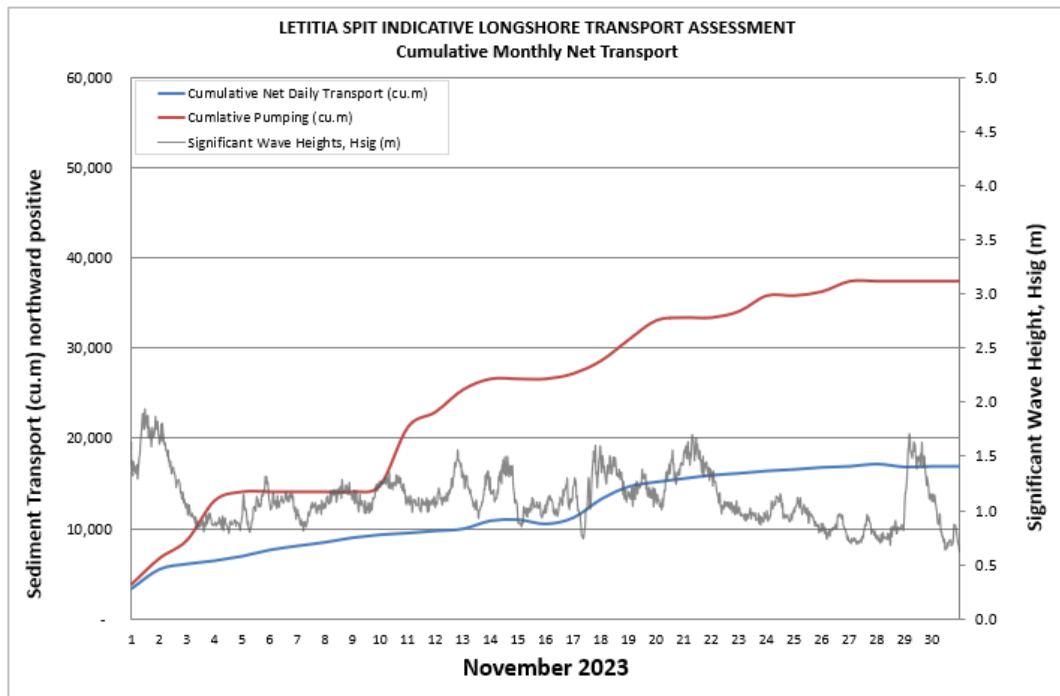


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3. INDICATIVE LONGSHORE TRANSPORT

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 November 2023 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 17,000 . This result is 59 per cent of the average estimated sand transport quantity of approx. 28,000 m³ for November.



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4. BEACH AND SURF AMENITY OBSERVATIONS

November saw consistent conditions throughout the month with SE to ENE swell directions and low wave heights. The sediment transport rate was relatively low compared to the November average.

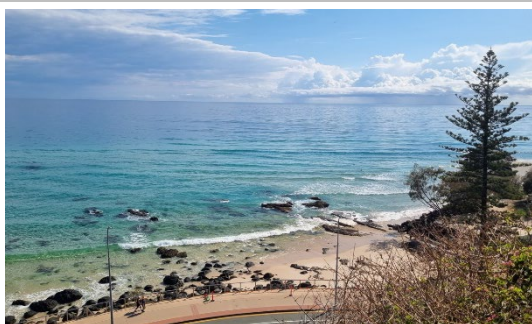
The conditions continue to move sand from out from Rainbow Bay beach around Greenmount and through to Coolangatta Beach which is relatively wide. This sand has now started to migrate around Kirra Point (see images below).



Greenmount 22 October 2023



Rainbow Bay 22 November 2023



Kirra Point 11 October 2023



Kirra Point 22 November 2023

With no instances of swell reaching over 2 m Hsig during the month of November, Duranbah provided the most consistent waves for this period. The points still produced some quality waves, however, this was limited to the few days of larger swell at the start and middle of the month.



Duranbah 9 November 2023



Duranbah 9 November 2023

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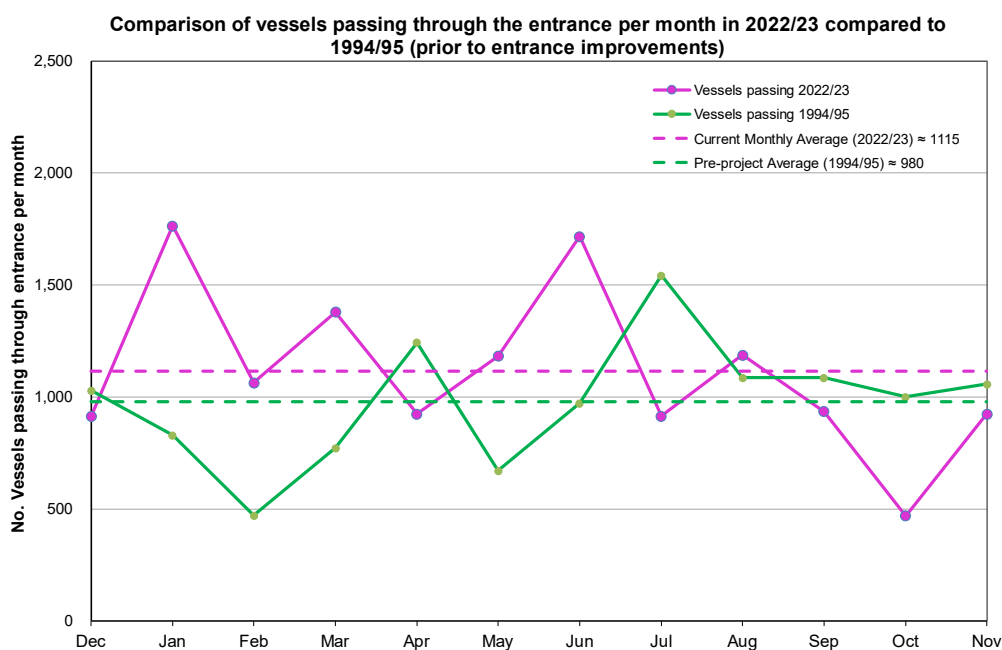
Snapper Rocks 1 November 2023



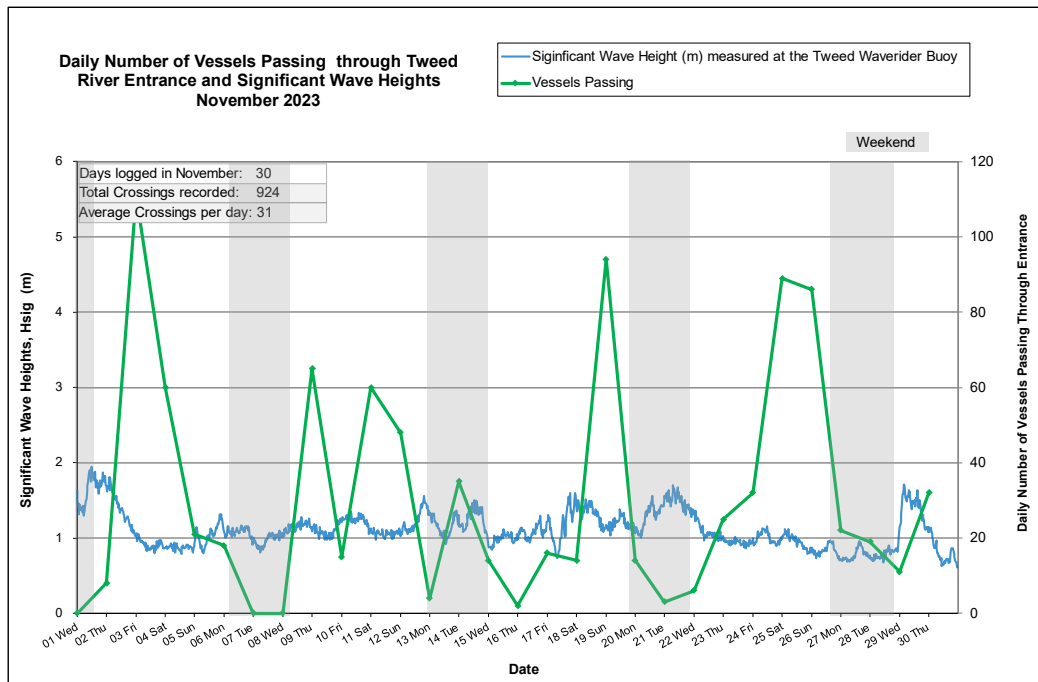
Snapper Rocks 19 November 2023

5. TWEED RIVER ENTRANCE USAGE

A total of 924 Tweed River entrance vessel crossings were recorded for the month (62 per cent of the November average (2002–2023)).



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Date November 2023	Navigation Rating					Number of Crossings
	Impassable < - - - - - > Good					
	Impassable	Difficulty Encountere d	Some Difficulty Encountere d	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						0
2						8
3						111
4						60
5						21
6						18
7						0
8						0
9						65
10						15
11						60
12						48
13						4
14						35
15						14
16						2
17						16
18						14
19						94
20						14
21						3
22						6
23						25
24						32
25						89
26						86
27						22
28						19
29						11
30						32
					Total:	924

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

Source: Marine Rescue NSW, Point Danger