

TWEED SAND BYPASSING

ENVIRONMENTAL MONITORING SUMMARY – SEPTEMBER 2022

1. SAND PUMPING & DREDGING

- 42,505 m³ was pumped to Snapper Rocks East.
- 681 m³ was pumped to Duranbah
- 36,360 m³ of sand was dredged with 30,397 m³ placed at Snapper Rocks East and 5,693 m³ placed at Duranbah

Sand Delivery September 2022

Pumped: 43,186 m³

Dredged: 36,360 m³

Total: 79,546 m³

The number of days sand was pumped this month = 19

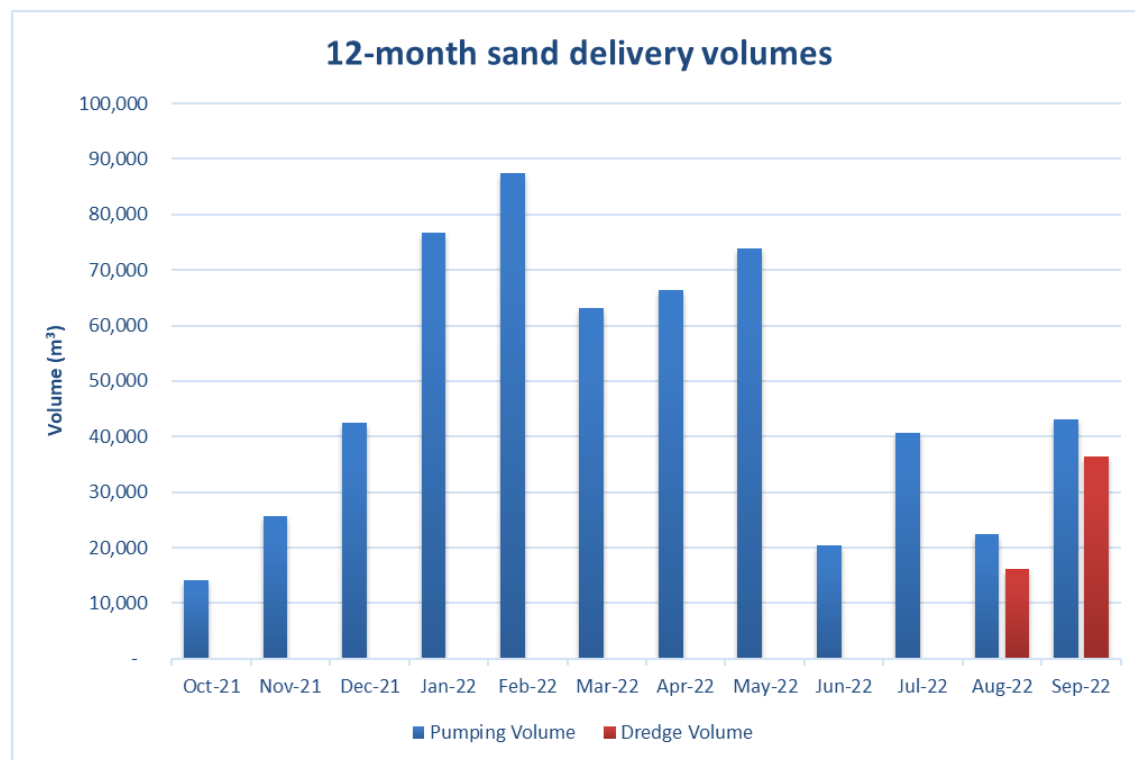
Sand Delivery May 2000 to date

Pumped: 10,926,243 m³

Dredged*: 2,767,902 m³

Total*: 13,694,145 m³

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



OFFICIAL

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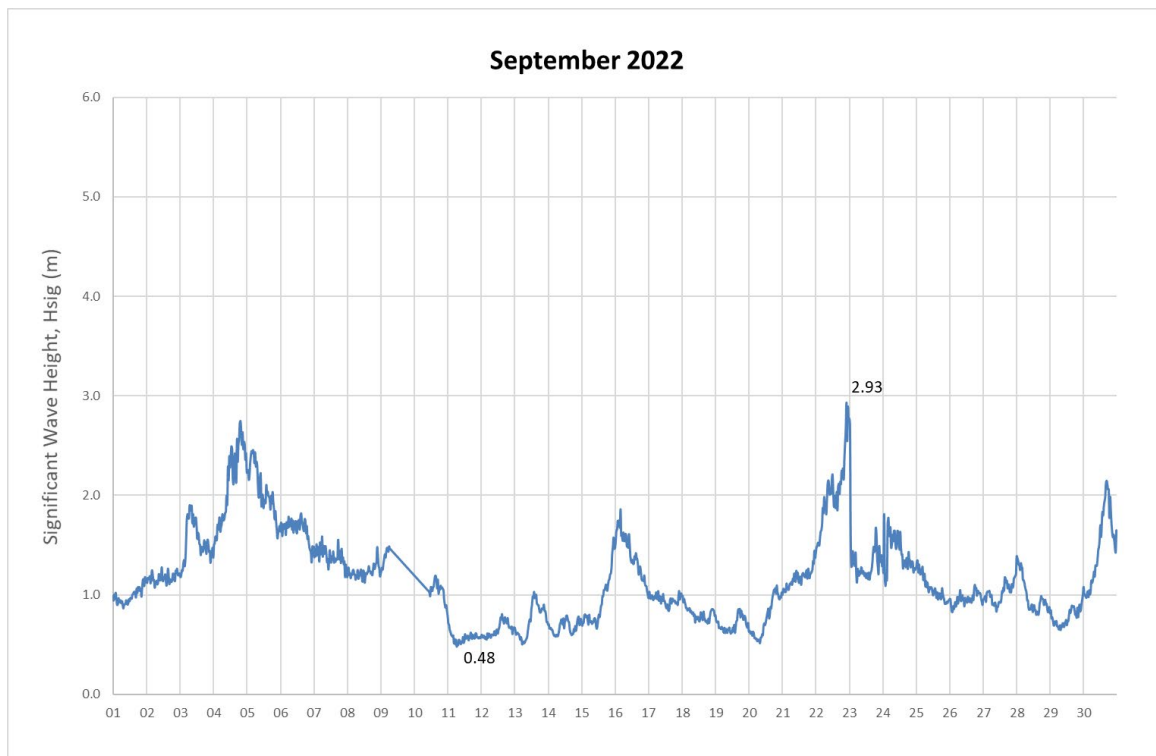
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2. WAVE CONDITIONS

During September the swell direction was predominantly east and ESE, and wave heights were relatively small to moderate. There were two distinct swell events over 2 m however they were only above that threshold for less than a day each.

- Minimum H_{sig} : 0.48 m on 11 September 2022
- Maximum H_{sig} : 2.93 m on 22 September 2022
- Number of days where $H_{sig} < 1$ m at some point: 17
- 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



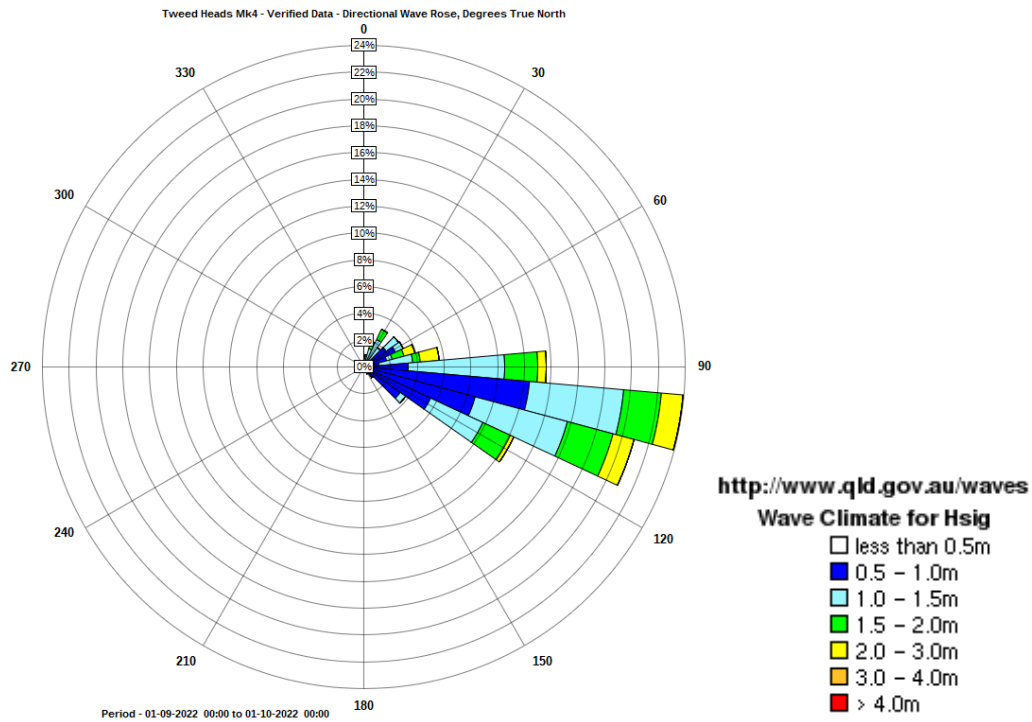
(Source: Tweed Heads Waverider buoy; Queensland Government)

In January 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.

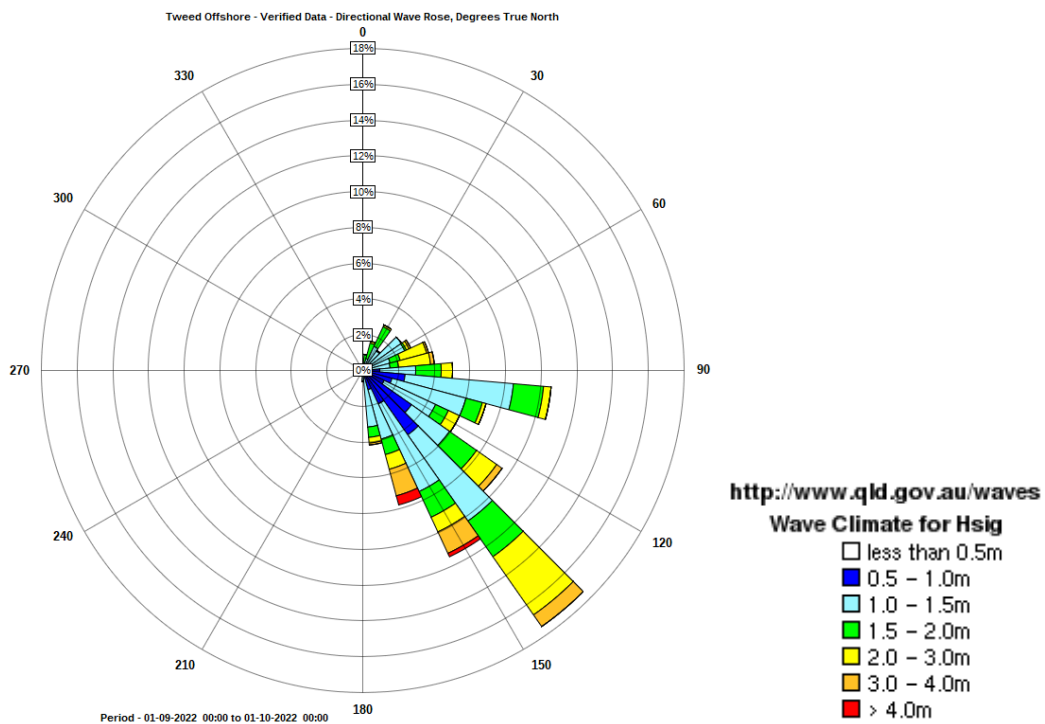
A link to data recorded by the Tweed Heads and Tweed Offshore Waverider buoys is available at: <http://www.qld.gov.au/waves>

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NEARSHORE WAVE DIRECTION



OFFSHORE WAVE DIRECTION

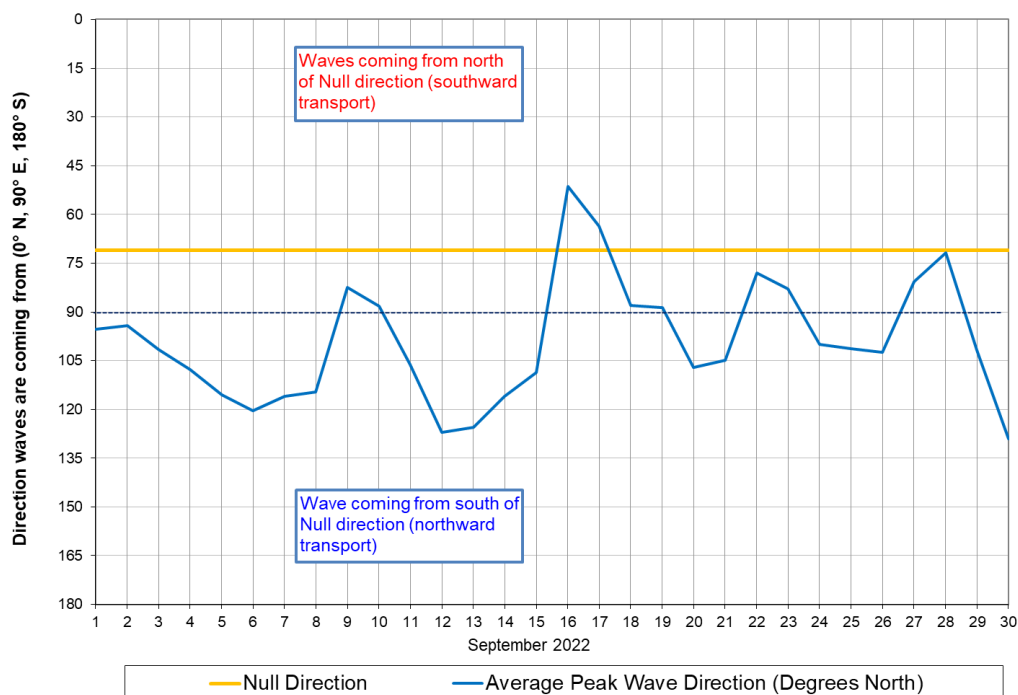
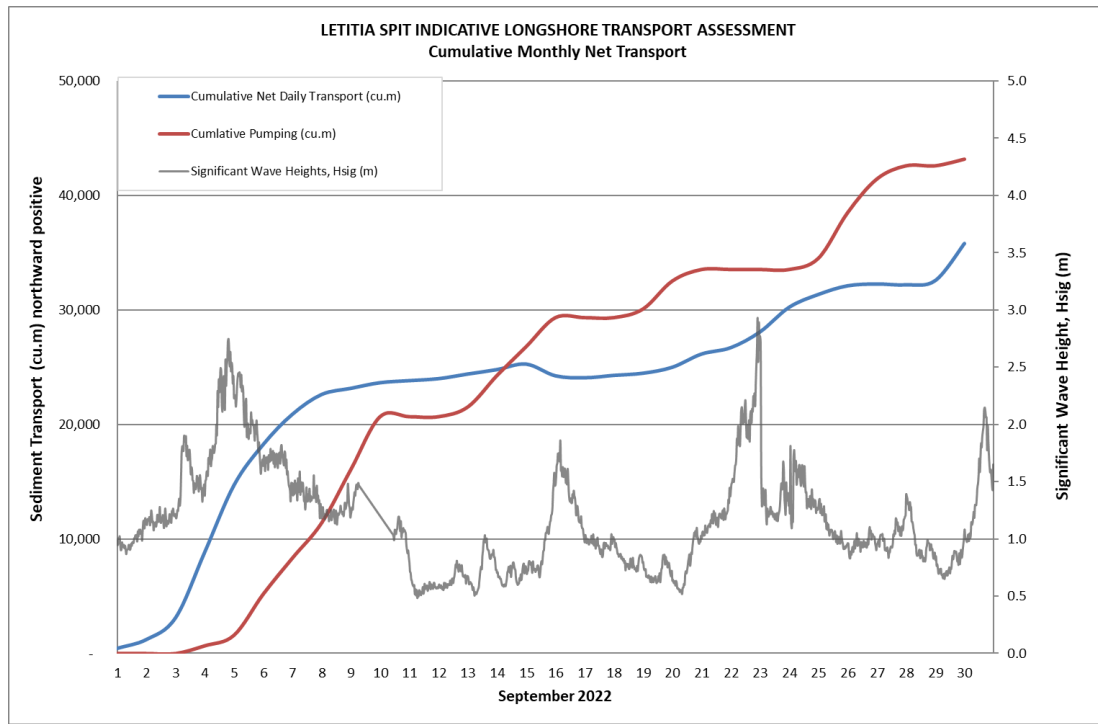


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3. INDICATIVE LONGSHORE TRANSPORT

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 September 2022 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 36,000 m³. This result is 123 per cent of the average estimated sand transport quantity of approx. 29,000 m³ for September.



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4. BEACH AND SURF AMENITY OBSERVATIONS

The first swell event of the month formed from a low off the coast resulting in the ESE direction, and the second event was a much shorter duration NE wind swell. Sand continued to move through the system and was especially evident north of features such as Greenmount headland and Kirra groyne with wider beach widths at low tide compared to the month before.



Kirra beach low tide



Coolangatta beach low tide

Duranbah produced good quality waves during September with consistent banks.

The bank behind Snapper Rocks rebuilt following the deterioration from July. Quality waves coincided with the larger swells of early and late September.



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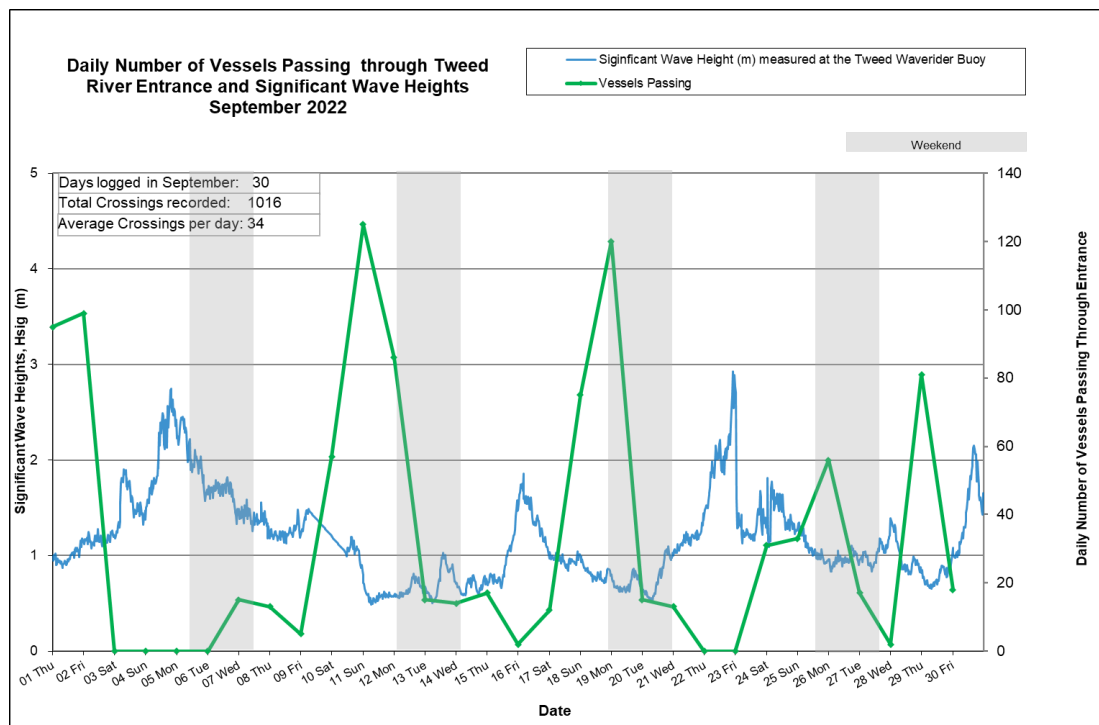
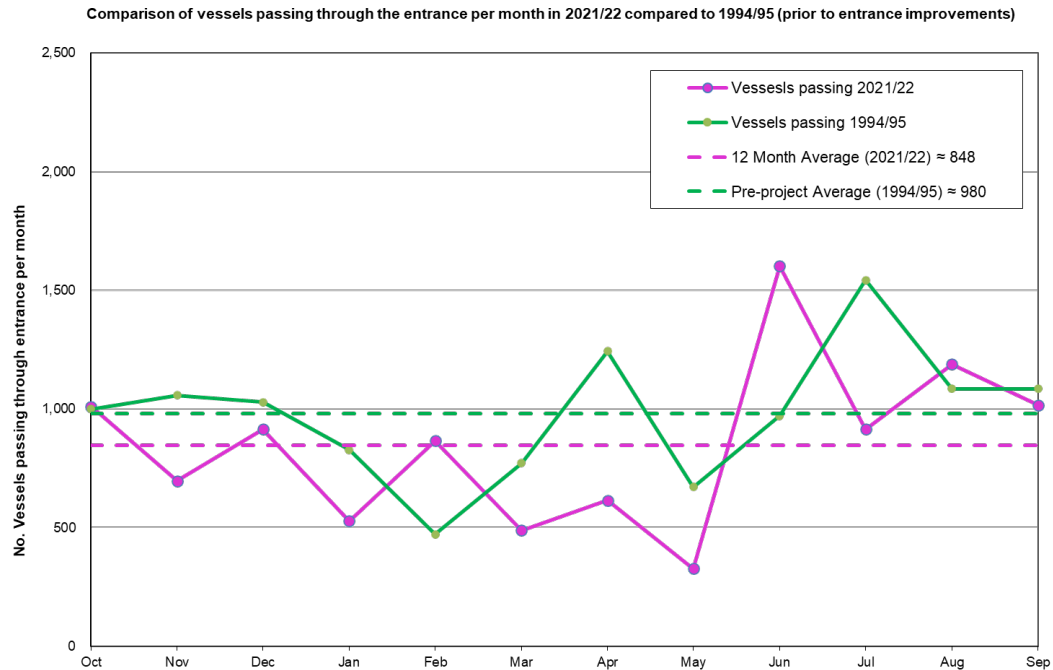
Snapper Rocks – 5 September 2022



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5. TWEED RIVER ENTRANCE USAGE

A total of 1,016 Tweed River entrance vessel crossings were recorded for the month (65 per cent of the September average (2002–2022)).



TWEED SAND BYPASSING

Date September 2022	Navigation Rating					Number of Crossings
	Impassable < - - - - - > Good					
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						95
2						99
3						0
4						0
5						0
6						0
7						15
8						13
9						5
10						57
11						125
12						86
13						15
14						14
15						17
16						2
17						12
18						75
19						120
20						15
21						13
22						0
23						0
24						31
25						33
26						56
27						17
28						2
29						81
30						18
					Total:	1,016

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

Source: Marine Rescue NSW, Point Danger