TWEEDSAND BYPASSING

ENVIRONMENTAL MONITORING SUMMARY – March 2025

1. SAND PUMPING & DREDGING

- 46,901 m^3 was pumped to Snapper Rocks East.
- 0 m^3 of sand was dredged.

Sand Delivery March 2025

Pumped:	46,901 m^3
Dredged:	0 m^3
Total:	46,901 m^3

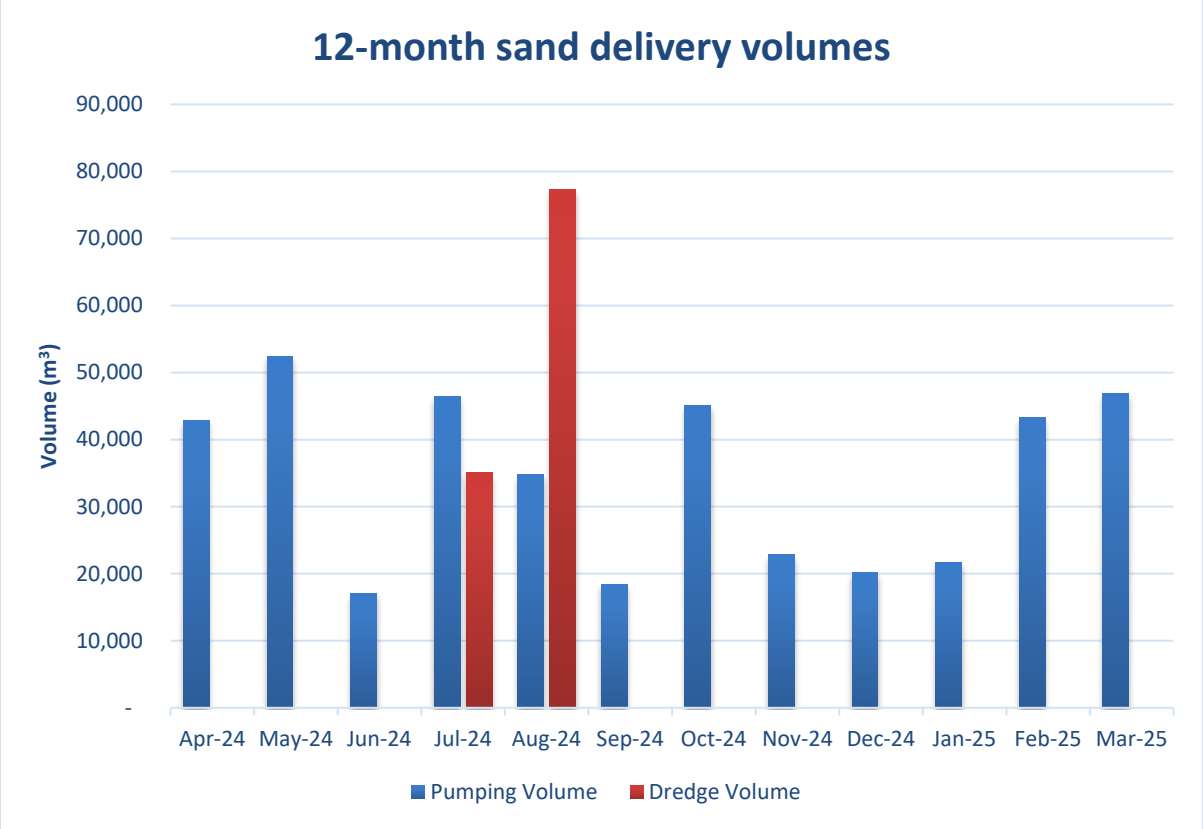
The number of days sand was pumped this month = 18

The number of days sand was dredged this month = 0

Sand Delivery May 2000 to March 2025

Pumped:	12,094,950 m^3
Dredged*:	3,159,617 m^3
Total*:	15,254,567 m^3

* This Includes 22,870 m^3 of sand delivered by dredge to Palm Beach between July 2005 and September 2005

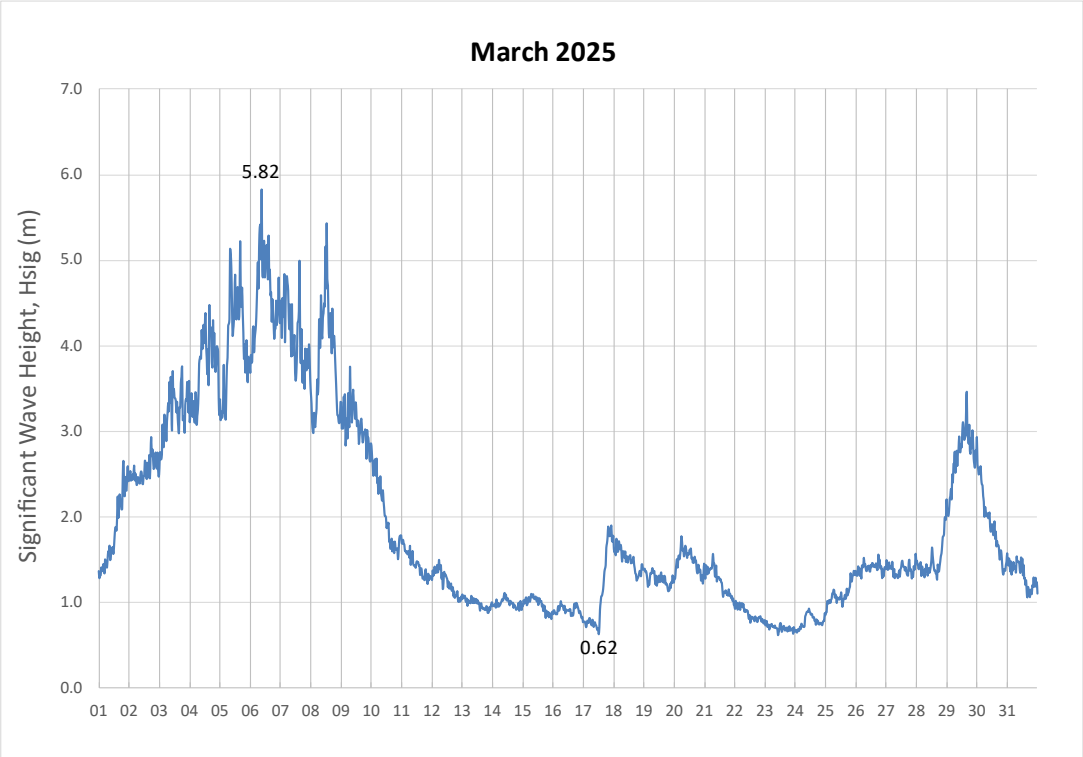


2. WAVE CONDITIONS

March saw high energy conditions with ex Tropical Cyclone Alfred and experienced consistent directional conditions throughout the month with nearshore wave energy trending in an E direction. A maximum H_{sig} was observed on the 6th at 5.82 m.

- Minimum H_{sig}: 0.62 m on 23 March 2025
- Maximum H_{sig}: 5.82 m on 06 March 2025
- Number of days where H_{sig} <1 m at some point: 10
- Number of days where H_{sig} >2 m at some point: 13

Note: H_{sig} is defined as the average of the highest ⅓ of waves recorded over a period of approximately 30 minutes



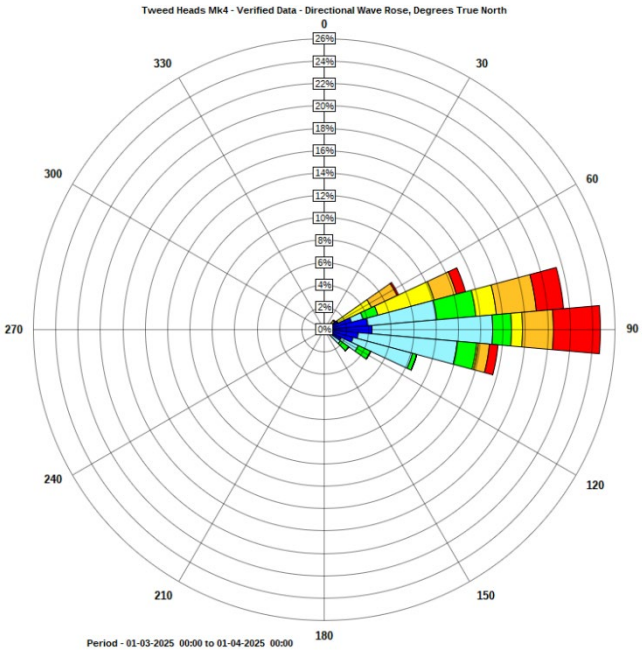
*(**Source:** Tweed Heads Waverider buoy; Queensland Government)*

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

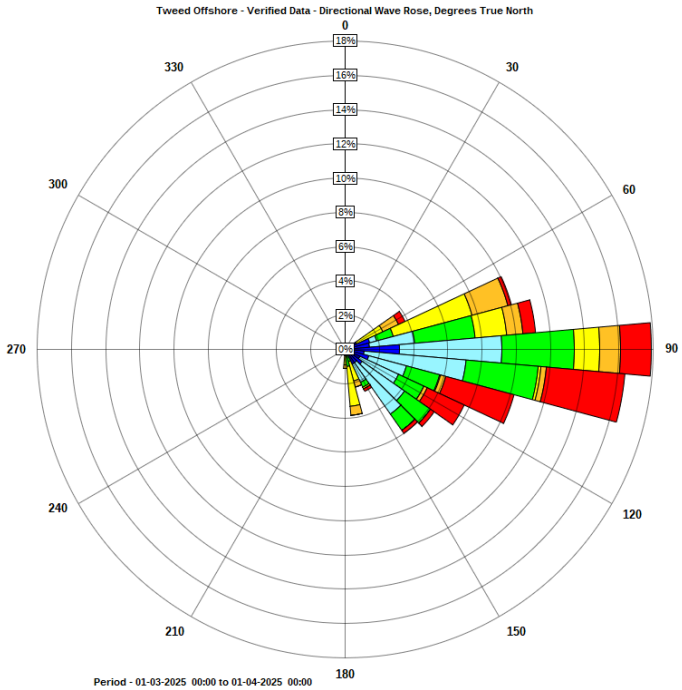
https://www.qld.gov.au/environment/coasts-waterways/beach/monitoring/waves-sites/tweed-offshore

https://www.qld.gov.au/environment/coasts-waterways/beach/monitoring/waves-sites/tweed-heads

NEARSHORE WAVE DIRECTION



OFFSHORE WAVE DIRECTION



http://www.qld.gov.au/waves

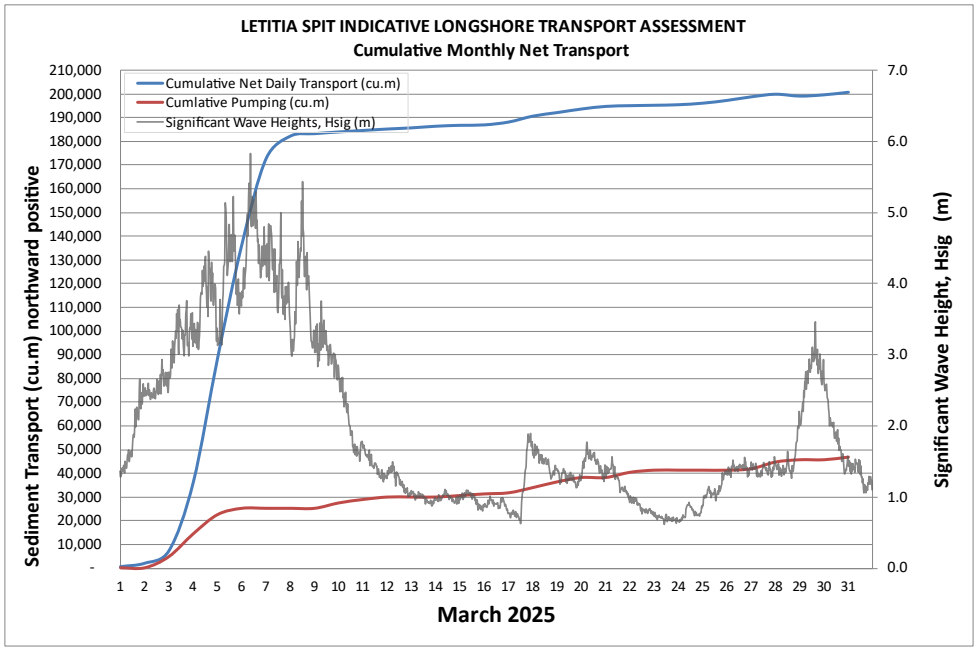
Wave Climate for Hsig

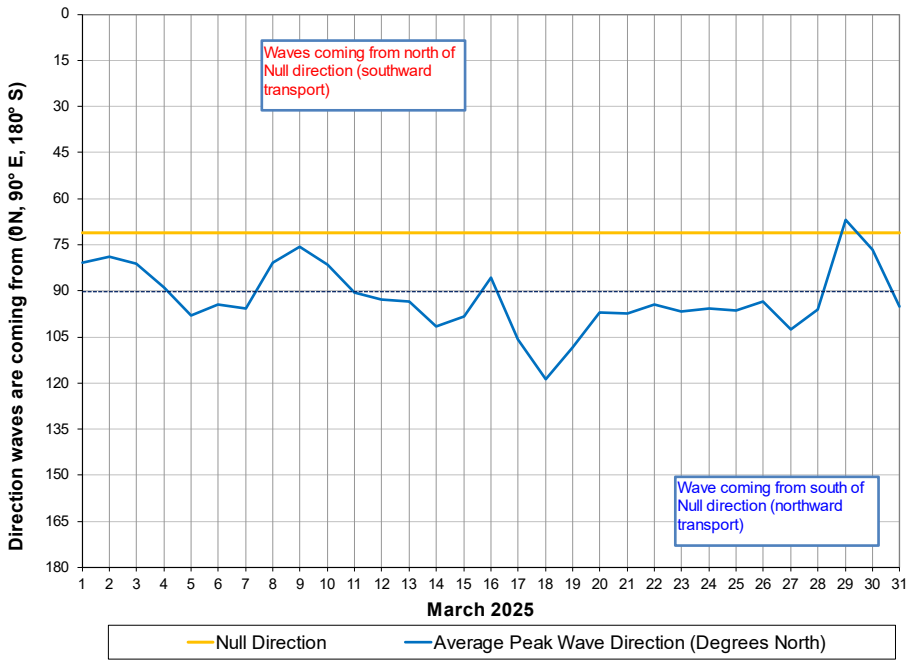
- less than 0.5m
- 0.5 - 1.0m
- 1.0 - 1.5m
- 1.5 - 2.0m
- 2.0 - 3.0m
- 3.0 - 4.0m
- > 4.0m

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 March 2025, the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 200,000 m^3. This result is 328 per cent of the average estimated sand transport quantity of approximately 61,000 m^3 for March.





4. BEACH AND SURF AMENITY OBSERVATIONS

Ex-Tropical Cyclone Alfred made landfall on 9 March 2025. Although significant upper beach erosion was observed at locations such as Duranbah, Rainbow Bay, Coolangatta and Kirra faired quite well. The conditions moved sand back into Rainbow Bay, increasing beach width and reducing the erosion impacts observed over the last few months.

	
Coolangatta 11 March 2025	**Rainbow Bay 11 March 2025**
	
Kirra 11 March 2025	**Duranbah 11 March 2025**

Significant wave heights generated ex-Tropical Cyclone Alfred provided for large surf conditions at Snapper, Coolangatta and Kirra. Kirra was reported to have produced the world-class barrel that is known for. The conditions brought a significant amount of people to the beach and water to either observe or experience the large energetic conditions.

<table>
<tr><td> 
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<tr><td>Snapper Rocks 2 March 2025</td><td>Coolangatta 3 March 2025</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Kirra 4 March 2025</td><td>Coolangatta 3 March 2025</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Kirra 4 March 2025</td><td>Kirra 4 March 2025</td></tr>
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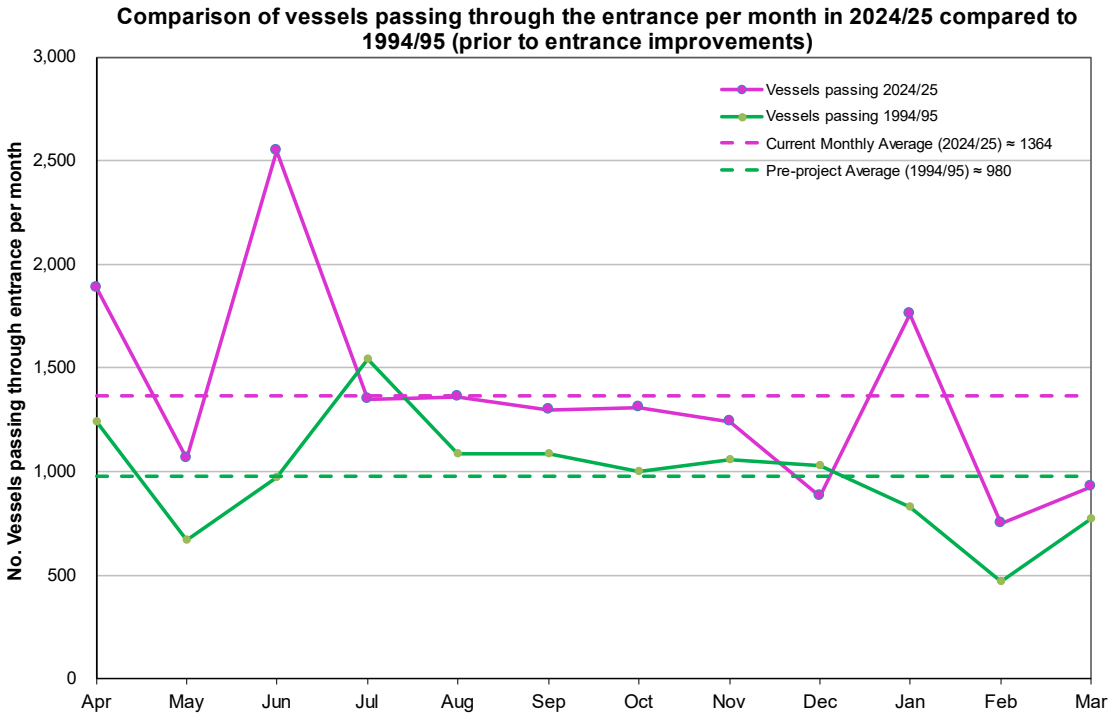
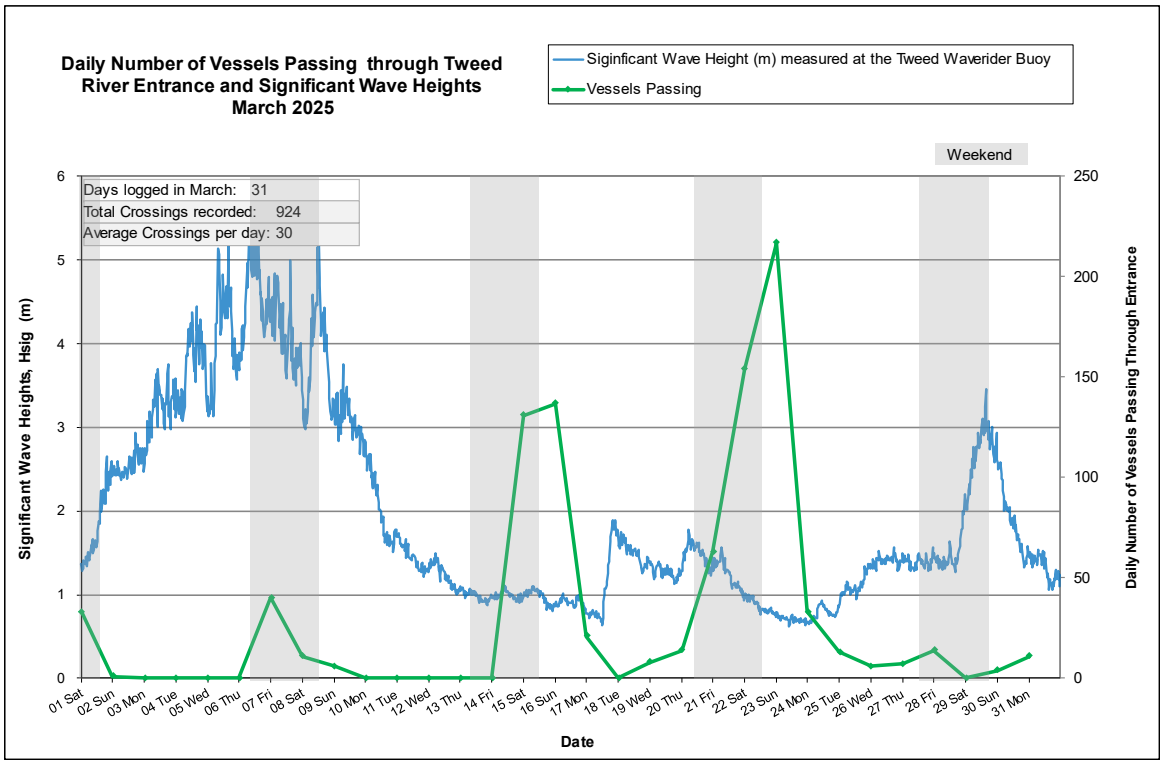
5. TWEED RIVER ENTRANCE USAGE

A total of 924 Tweed River entrance vessel crossings were recorded for the month (63 per cent of the monthly average (2002–2025)).





Date March 2025	Navigation Rating Impassable < - - - - - > Good					Number of Crossings
	Impassable	Difficulty Encountered	Some Difficulty Encountere	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						33
2						1
3						0
4						0
5						0
6						0
7						40
8						11
9						6
10						0
11						0
12						0
13						0
14						0
15						131
16						137
17						21
18						0
19						8
20						14
21						63
22						154
23						217
24						33
25						13
26						6
27						7
28						14
29						0
30						4
31						11
					Total:	924

Marine Rescue NSW - Monitoring Results (Not including trawlers)

Weekends

Source: *Marine Rescue NSW, Point Danger*