

TWEED SAND BYPASSING

ENVIRONMENTAL MONITORING SUMMARY – FEBRUARY 2021

1. SAND PUMPING & DREDGING

- 35,663 m³ was pumped to Snapper Rocks East.
- 0 m³ of sand was dredged.

Sand Delivery February 2021

Pumped: 35,663 m³

Dredged: 0 m³

Total: 35,663 m³

The number of days sand was pumped this month = 18

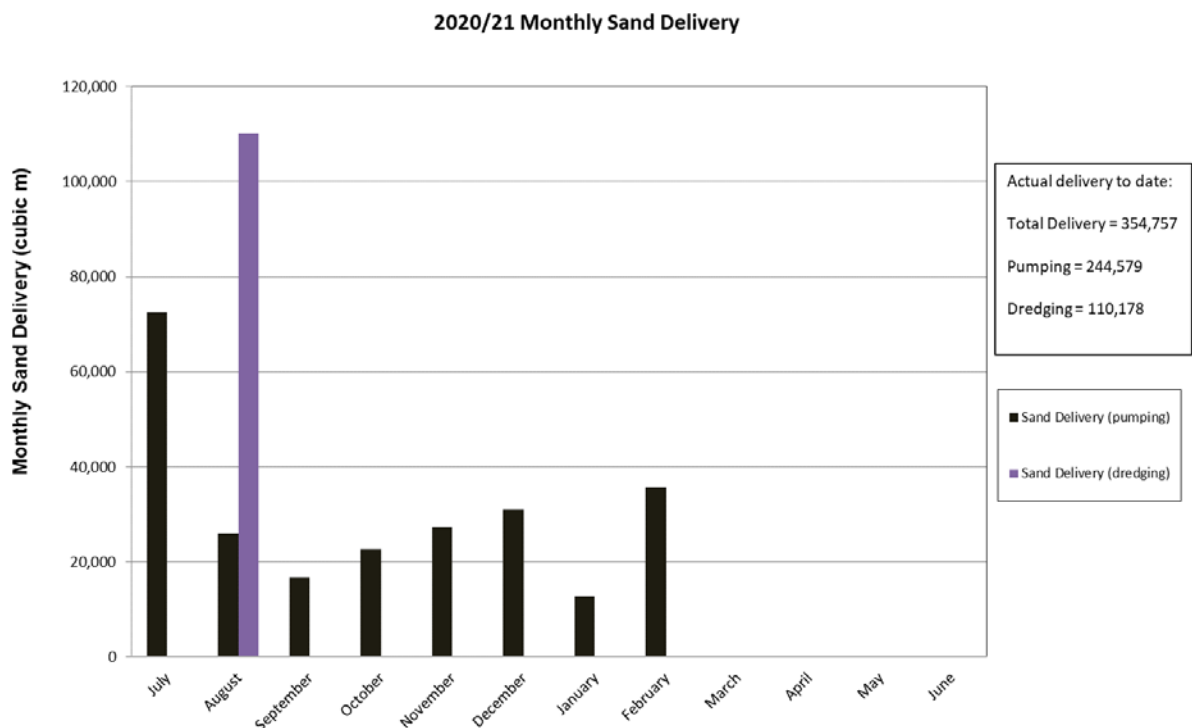
Stage II Sand Delivery May 2000 to date

Pumped: 10,124,840 m³

Dredged*: 2,582,052 m³

Total*: 12,706,892 m³

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



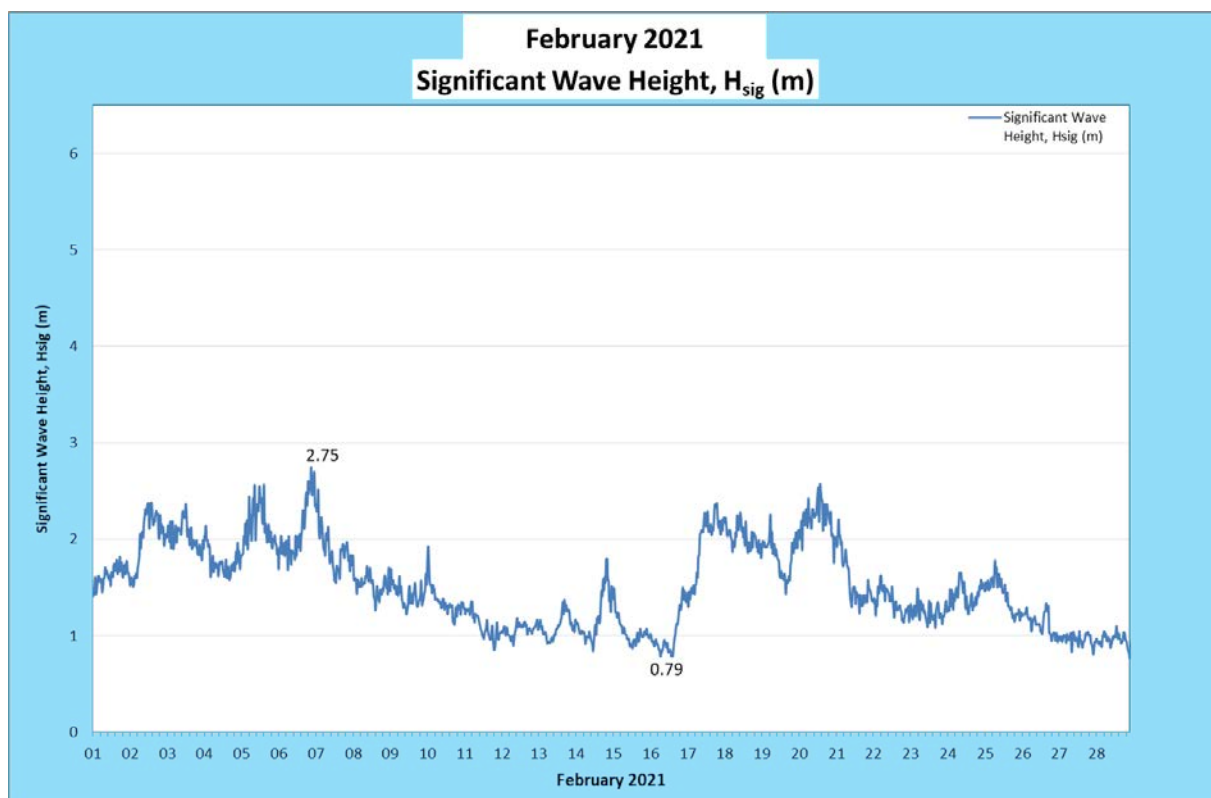
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2. WAVE CONDITIONS

Significant wave heights (H_{sig}) were low to moderate and wave directions were generally from the south-east over the month.

- Minimum H_{sig} : 0.79 m on 16 February 2021
- Maximum H_{sig} : 2.75m on 06 February 2021
- Number of days where $H_{sig} < 1$ m at some point: 9
- Number of days where $H_{sig} > 2$ m at some point: 11

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



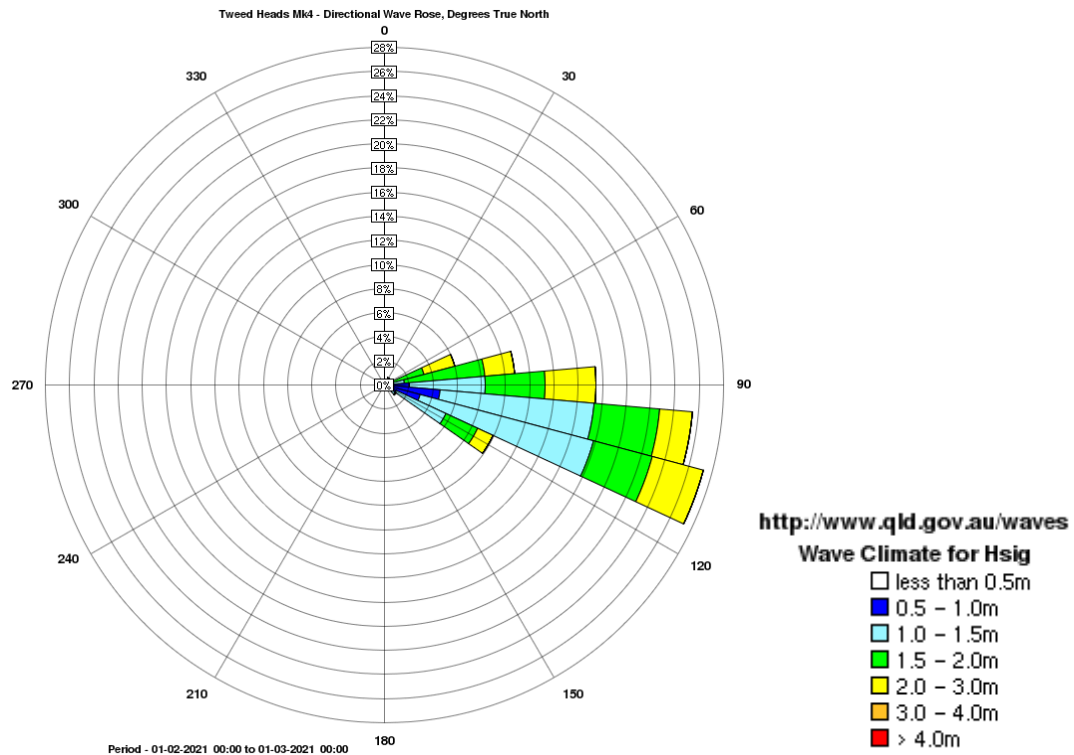
(Source: Tweed Heads Waverider buoy; Queensland Government)

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.

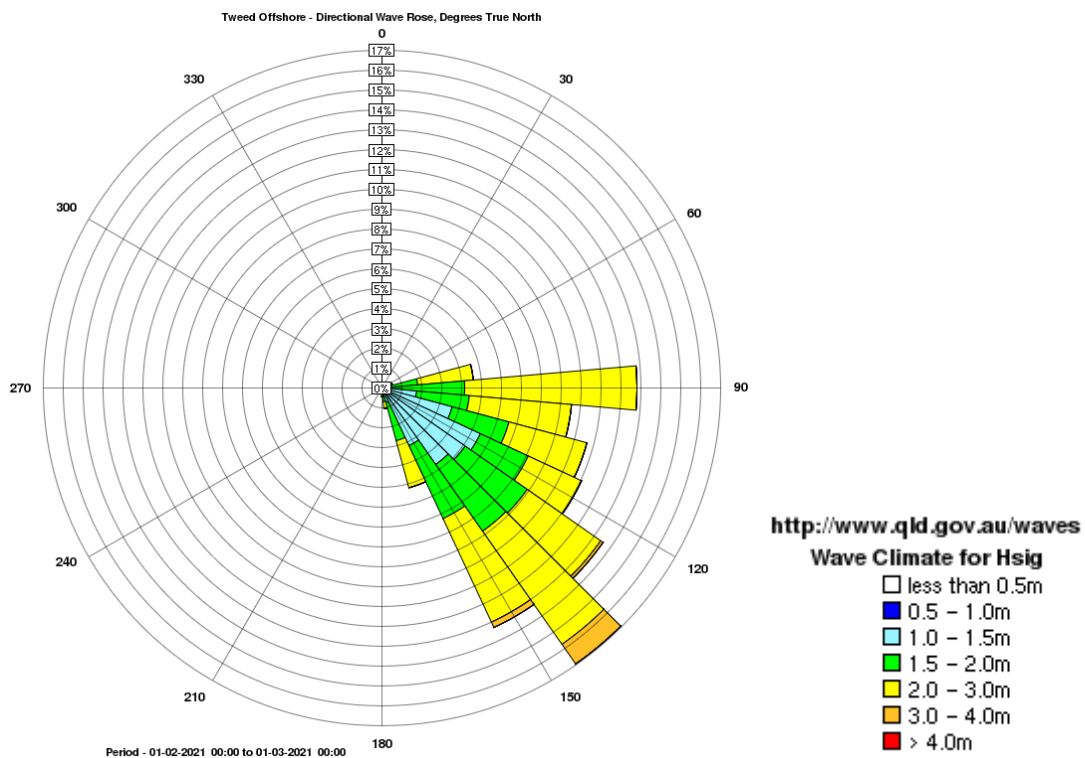
A link to data recorded by the Tweed Heads and Tweed Offshore Waverider buoys is available at:
<http://www.qld.gov.au/waves>

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NEARSHORE WAVE DIRECTION



OFFSHORE WAVE DIRECTION

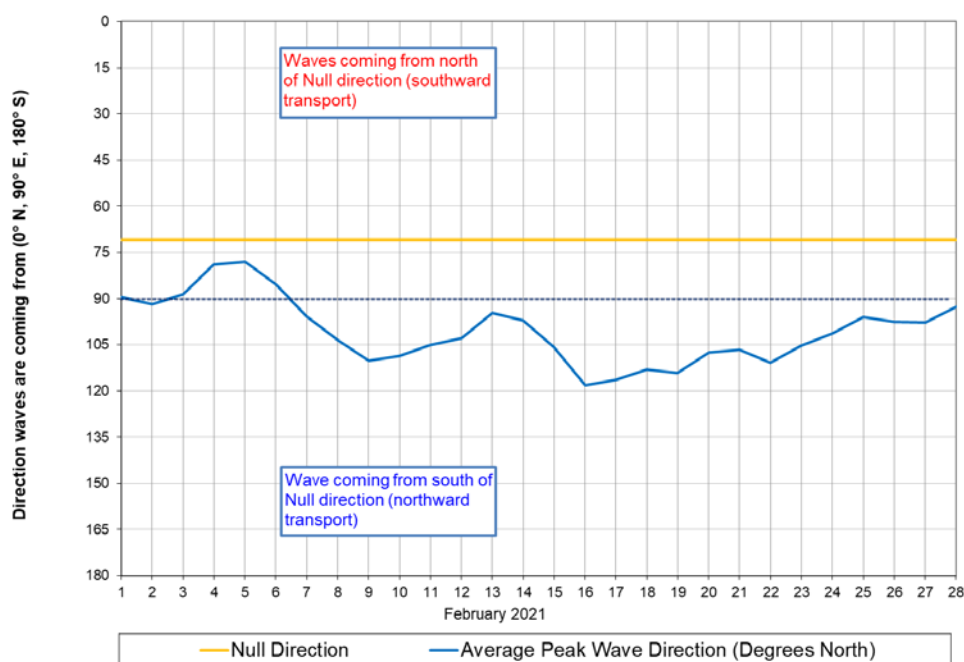
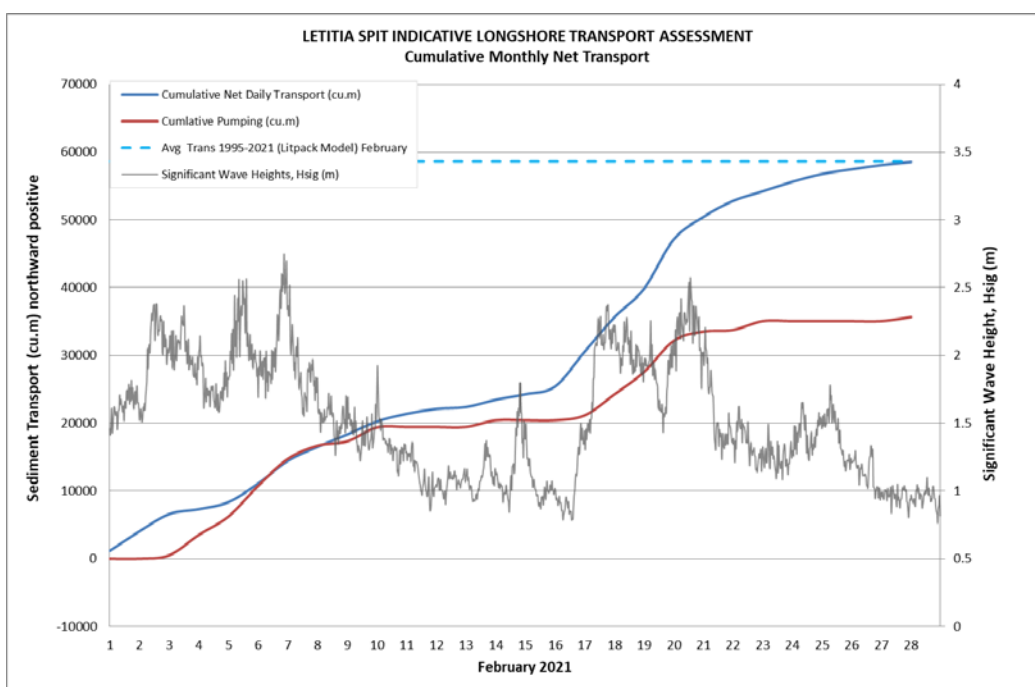


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3. INDICATIVE LONGSHORE TRANSPORT

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 February 2021 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 59,000 cubic metres. This result is 100 per cent of the average estimated sand transport quantity of approximately 59,000 m³ for the month of February.

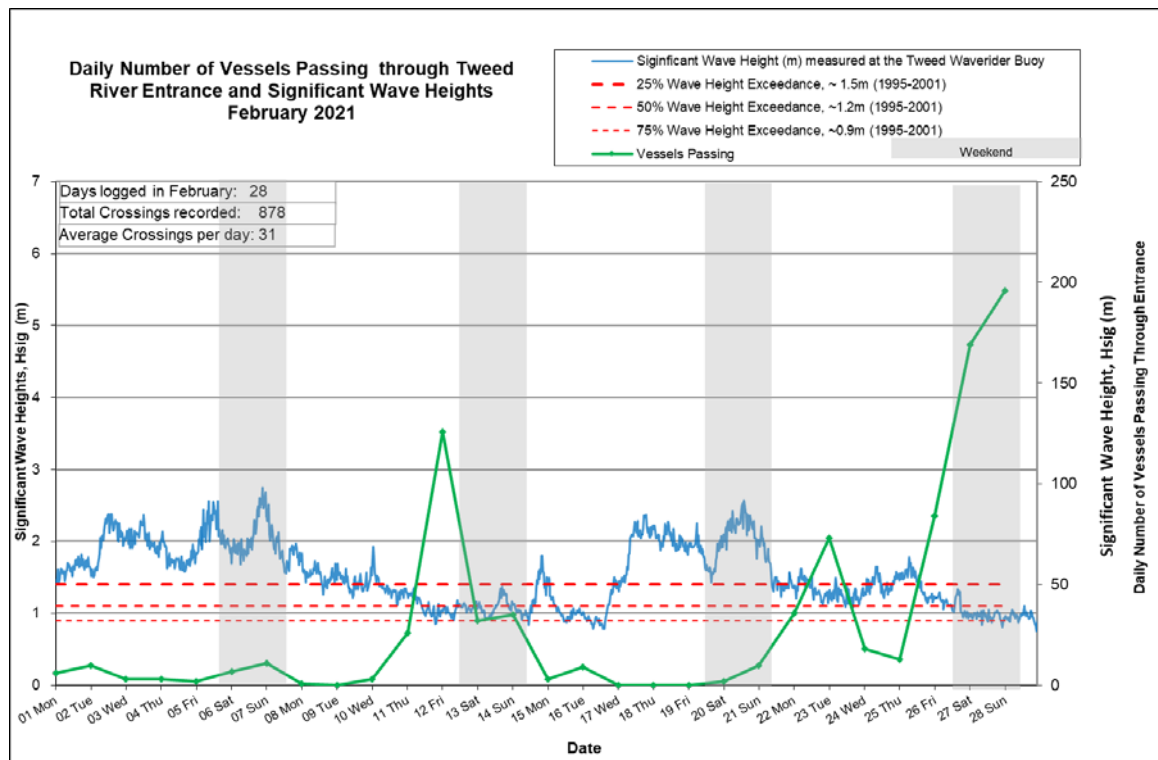
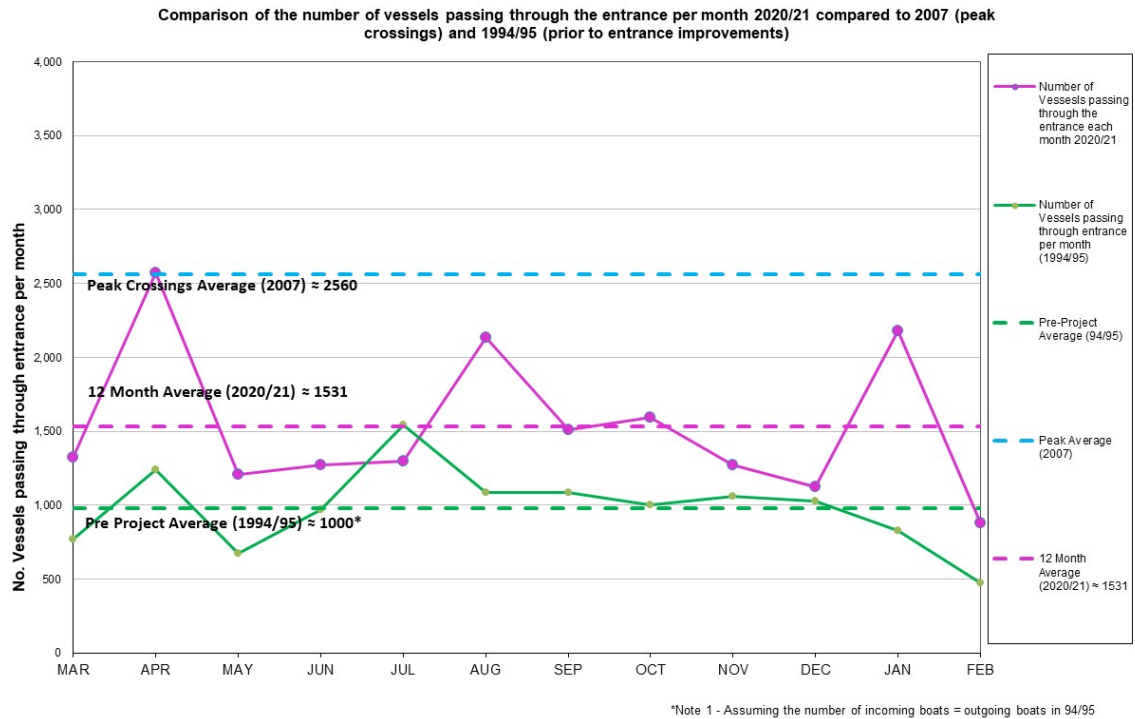


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4. TWEED RIVER ENTRANCE USAGE

A total of 878 Tweed River entrance vessel crossings were recorded for the month (67 per cent of the February average (2002–2021)).



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Date February 2021	Navigation Rating					Number of Crossings
	Impassable < - - - - - > Good					
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						6
2						10
3						3
4						3
5						2
6						7
7						11
8						1
9						0
10						3
11						26
12						126
13						32
14						35
15						3
16						9
17						0
18						0
19						0
20						2
21						10
22						36
23						73
24						18
25						13
26						84
27						169
28						196
					Total:	878

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

Source: Marine Rescue NSW, Point Danger