TWEEDSAND BYPASSING

ENVIRONMENTAL MONITORING SUMMARY – DECEMBER 2021

1. SAND PUMPING & DREDGING

- 42,499 m^3 was pumped to Snapper Rocks East.
- 0 m^3 of sand was dredged

Sand Delivery December 2021

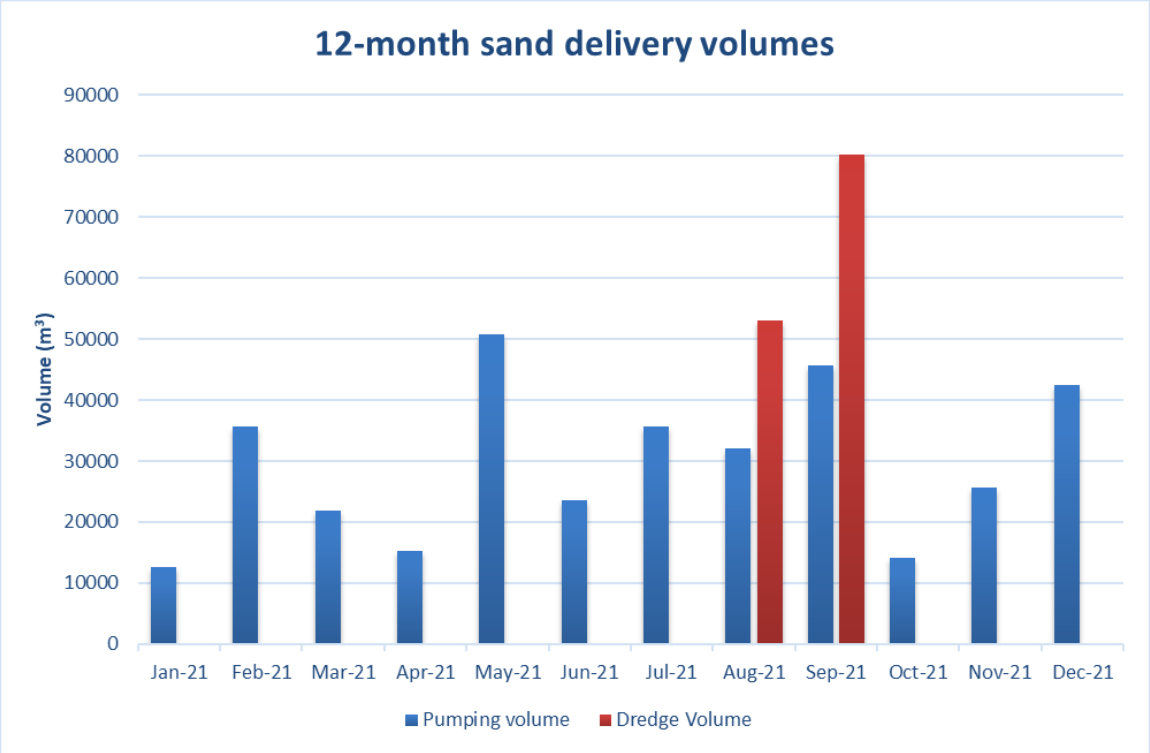
Pumped:	42,499 m^3
Dredged:	0 m^3
Total:	42,499 m^3

The number of days sand was pumped this month = 24

Stage II Sand Delivery May 2000 to date

Pumped:	10,432,177 m^3
Dredged*:	2,715,369 m^3
Total*:	13,147,544 m^3

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

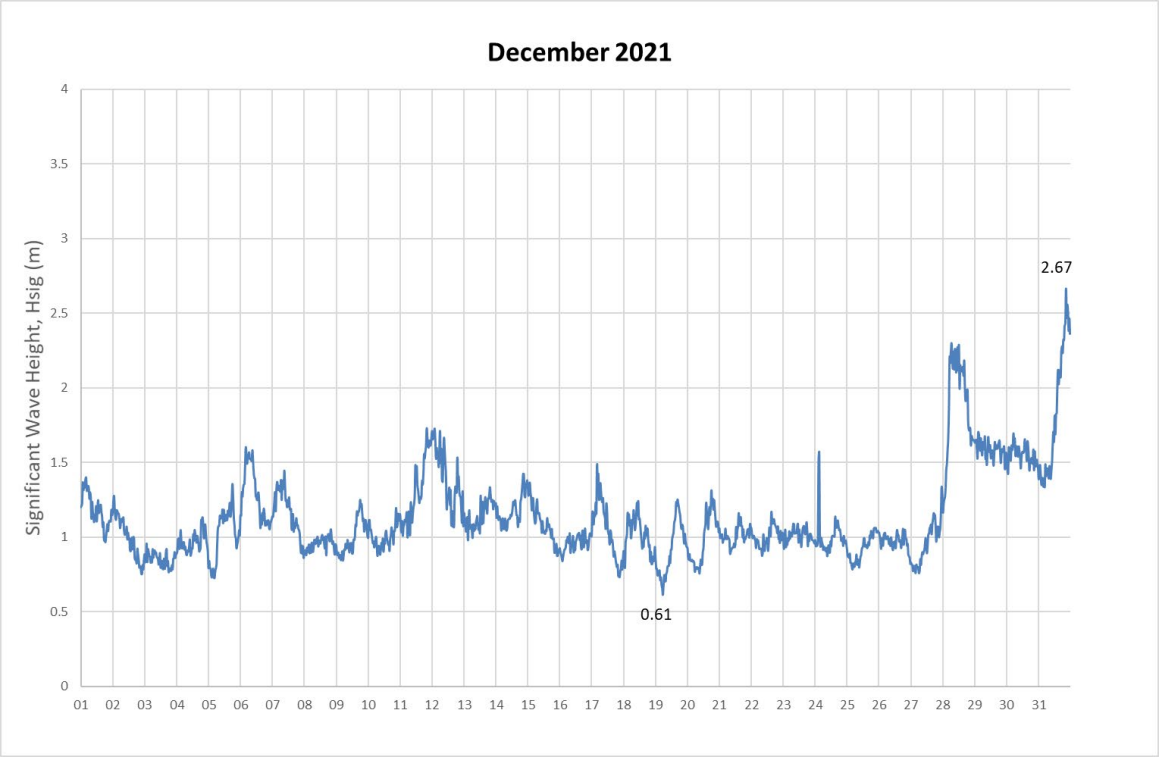


2. WAVE CONDITIONS

Significant wave heights (H_{sig}) were low for December until larger swell generated from a high-pressure trough in the south arrived in the last week of the month. Wave directions were predominantly from the east with larger swell from the SE.

- Minimum H_{sig}: 0.61 m on 19 December 2021
- Maximum H_{sig}: 2.67 m on 31 December 2021
- Number of days where H_{sig} <1 m at some point: 23
- Number of days where H_{sig} >2 m at some point: 2

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

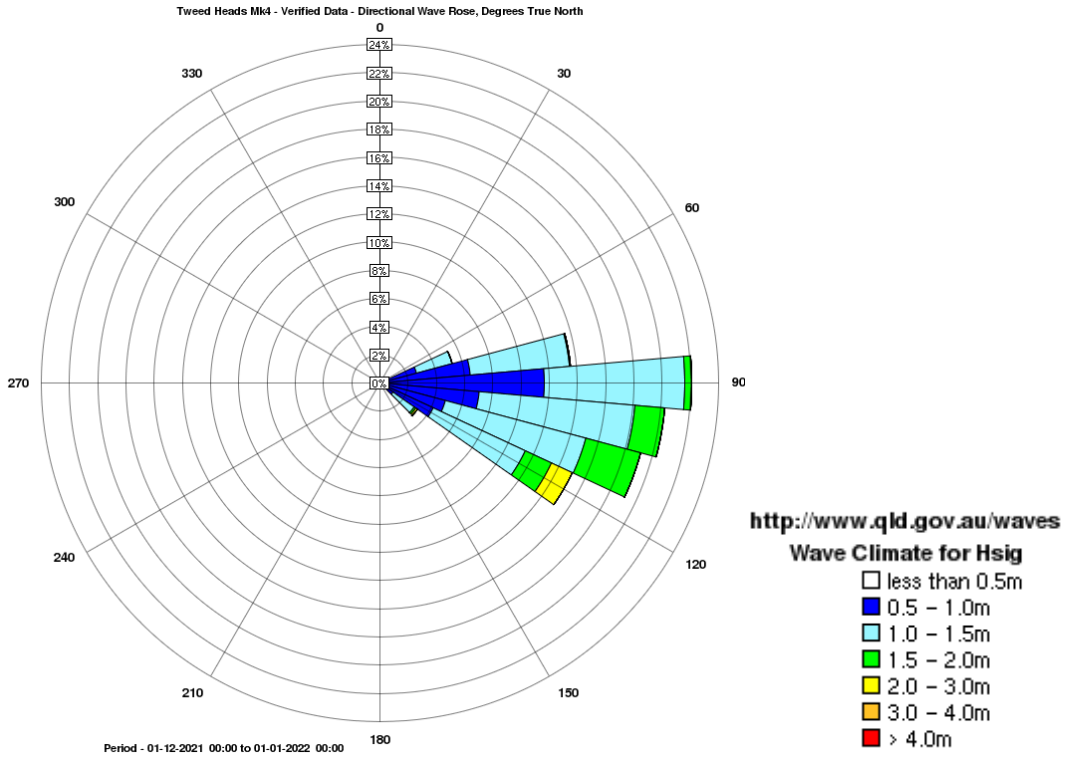


(***Source:*** *Tweed Heads Waverider buoy; Queensland Government)*

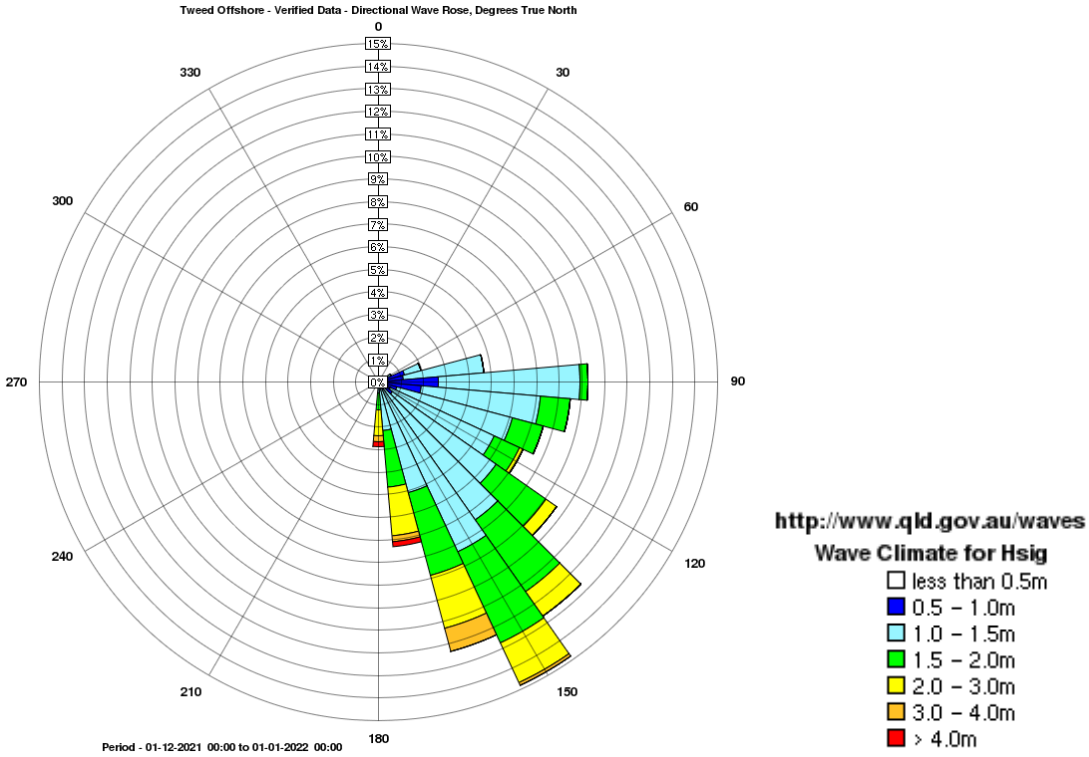
In January 2020 TSB commissioned the deployment of another Waverider buoy in the Tweed region. The Tweed Offshore Waverider buoy was deployed in approximately 60 m water depth to the east and adjacent to Kingscliff and Dreamtime Beaches. The purpose of the Tweed Offshore buoy is to observe and assess 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

NEARSHORE WAVE DIRECTION



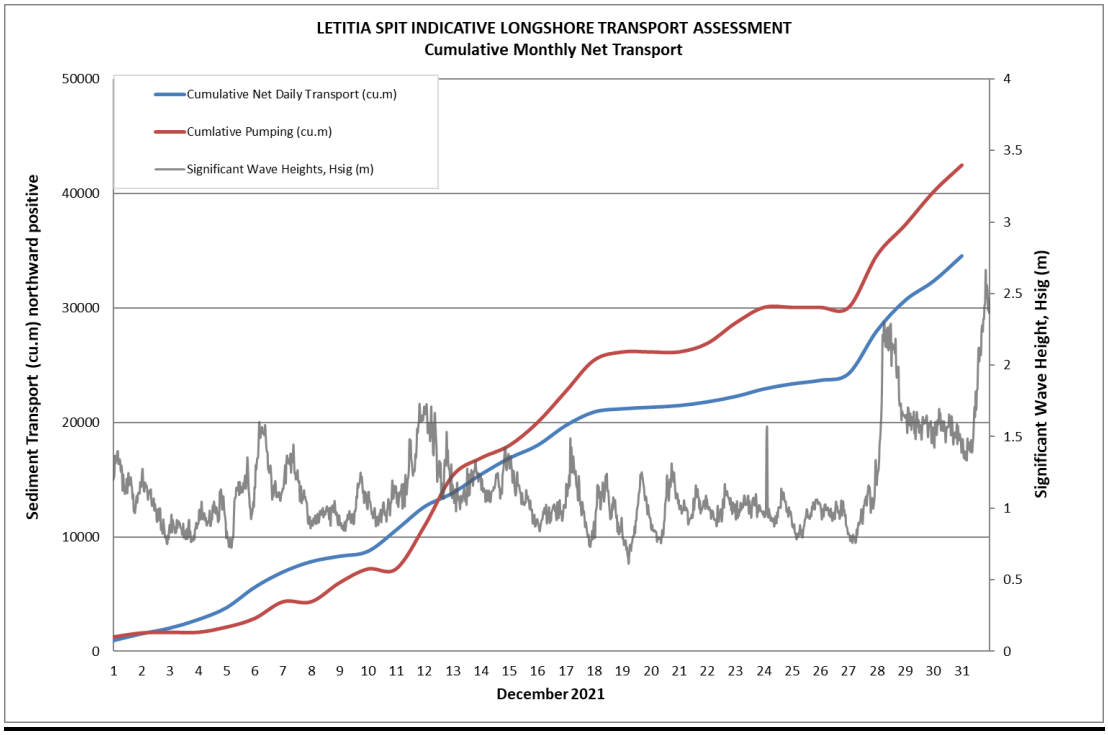
OFFSHORE WAVE DIRECTION

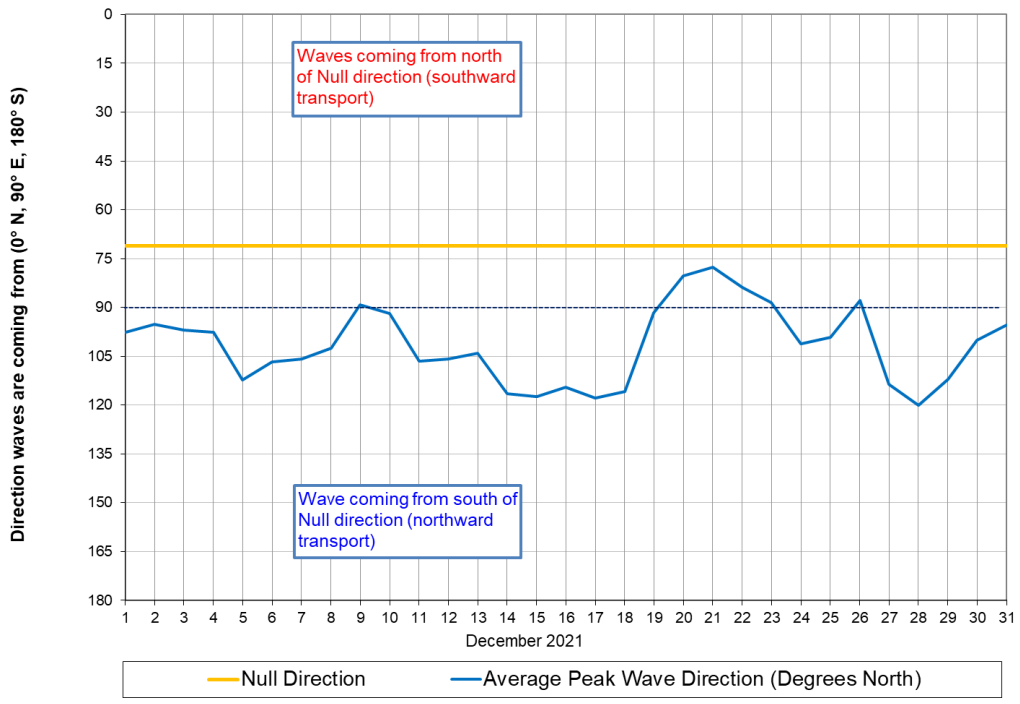


3. INDICATIVE LONGSHORE TRANSPORT

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).

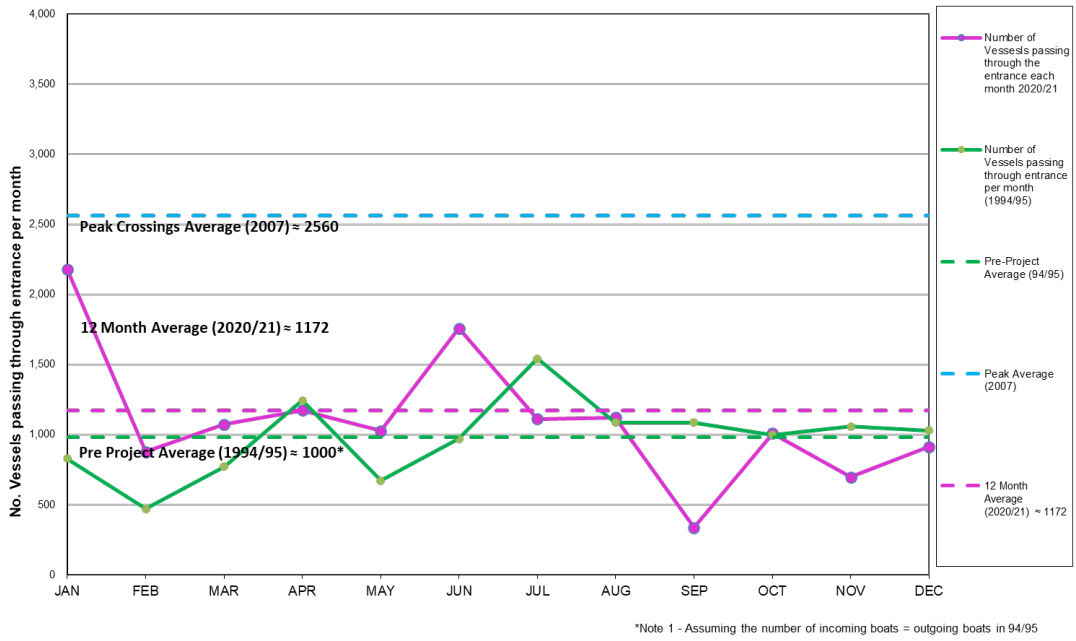
In December 2021 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 35,000 m^3. This result is 109 per cent of the average estimated sand transport quantity of approx. 32,000 m^3 for the month of December.

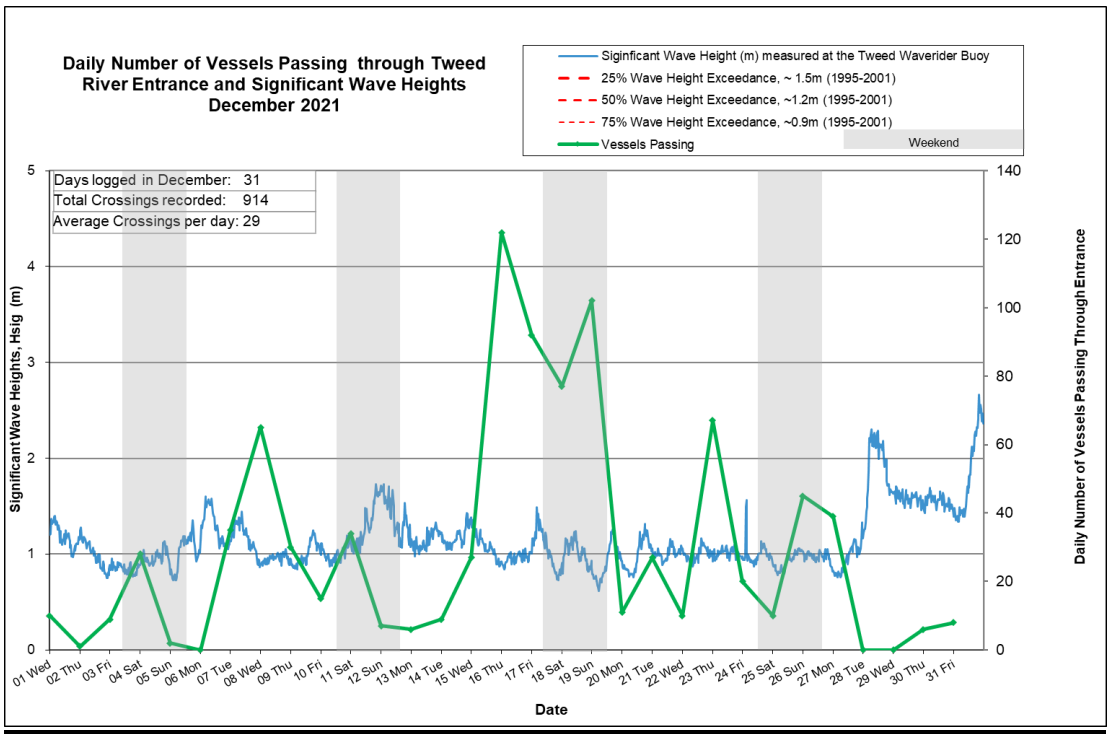




4. TWEED RIVER ENTRANCE USAGE

A total of 914 Tweed River entrance vessel crossings were recorded for the month (46 per cent of the December average (2002–2021)).





Date December 2021	Navigation Rating Impassable < - - - - - > Good					Number of Crossings
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						10
2						1
3						9
4						28
5						2
6						0
7						35
8						65
9						30
10						15
11						34
12						7
13						6
14						9
15						27
16						122
17						92
18						77
19						102
20						11
21						27
22						10
23						67
24						20
25						10
26						45
27						39
28						0
29						0
30						6
31						8
					Total:	914

Marine Rescue NSW - Monitoring Results (Not including trawlers)

Weekends

Source: *Marine Rescue NSW, Point Danger*