

TWEED SAND BYPASSING

ENVIRONMENTAL MONITORING SUMMARY – MARCH 2023

1. SAND PUMPING & DREDGING

- 22,898 m³ was pumped to Snapper Rocks East.
- 0 m³ of sand was dredged

Sand Delivery March 2023

Pumped: 22,898 m³

Dredged: 0 m³

Total: 22,898 m³

The number of days sand was pumped this month =20

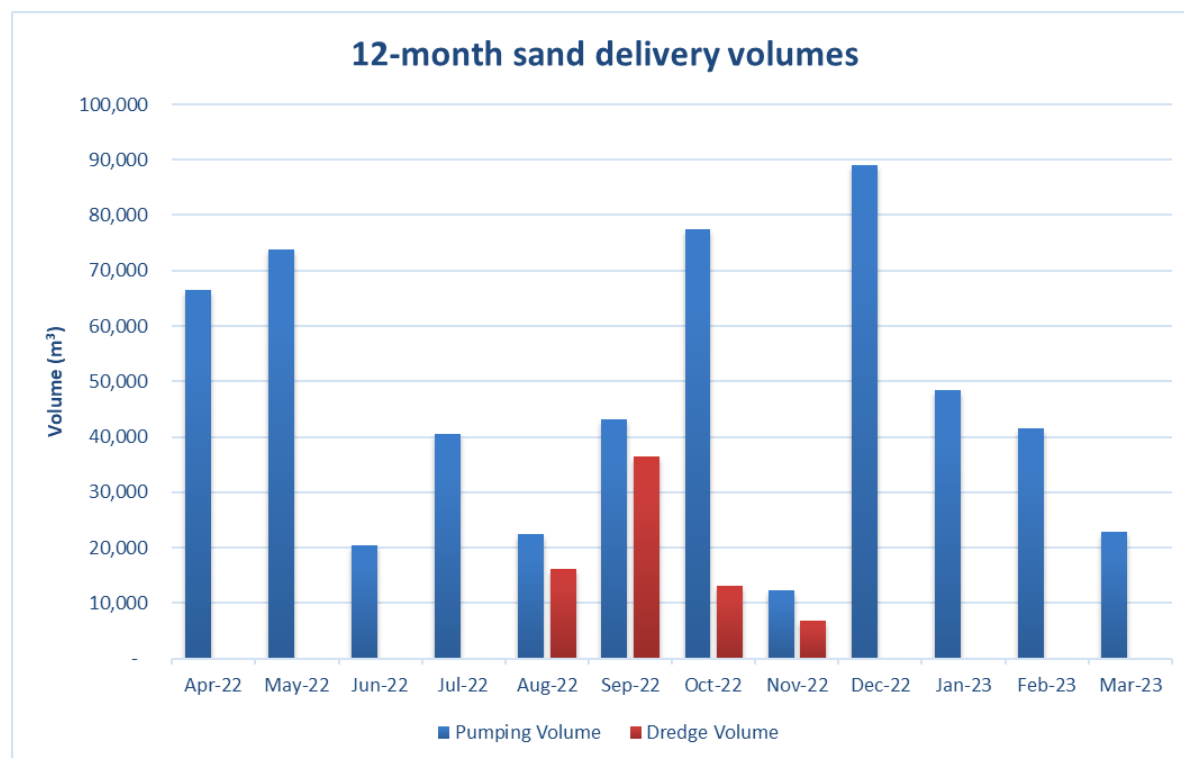
Sand Delivery May 2000 to date

Pumped: 11,217,725 m³

Dredged*: 2,787,767 m³

Total*: 14,005,492 m³

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



TWEED SAND BYPASSING

2. WAVE CONDITIONS

In March there were three distinct wave events: one prolonged wave event, from 4 to 8 March; a minor pulse on 15 March; and a moderately sized event observed from 21 to 24 March. A long ESE fetch was established in the Coral Sea from 19 to 24 March with wave heights peaking at 2.11 m from the ENE and then moderating from the ESE. Conditions for the remainder of March were relatively mild. The wave conditions for March were predominantly from the ENE to ESE.

- Minimum H_{sig} : 0.45 m on 18 March 2023
- Maximum H_{sig} : 2.11 m on 22 March 2023
- Number of days where $H_{sig} < 1$ m at some point: 21
- Number of days where $H_{sig} > 2$ m at some point: 1

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



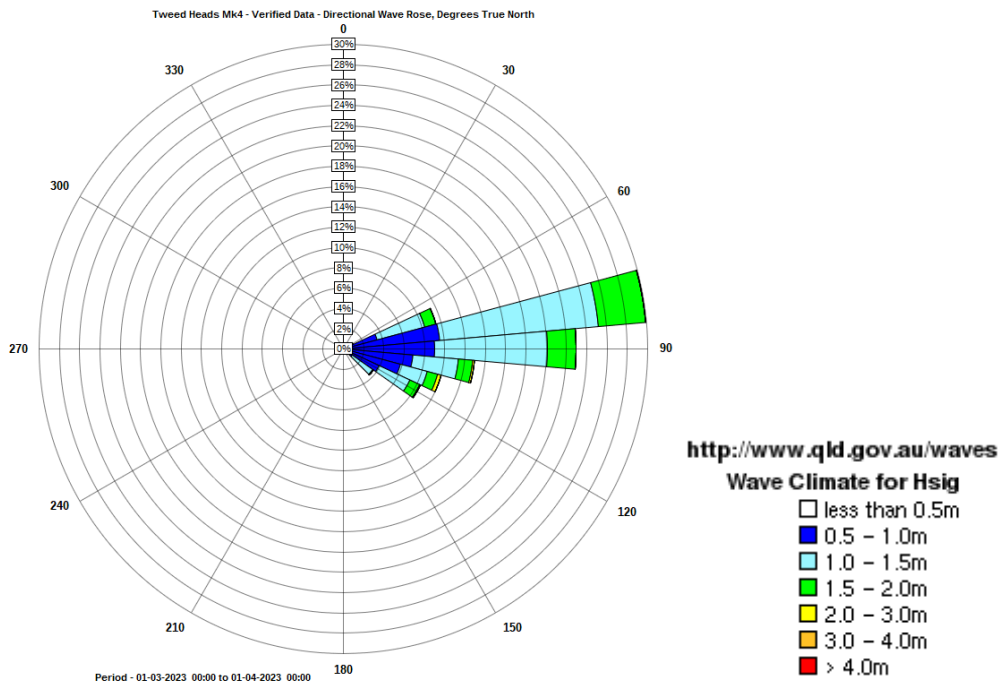
(Source: Tweed Heads Waverider buoy; Queensland Government)

In February 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.

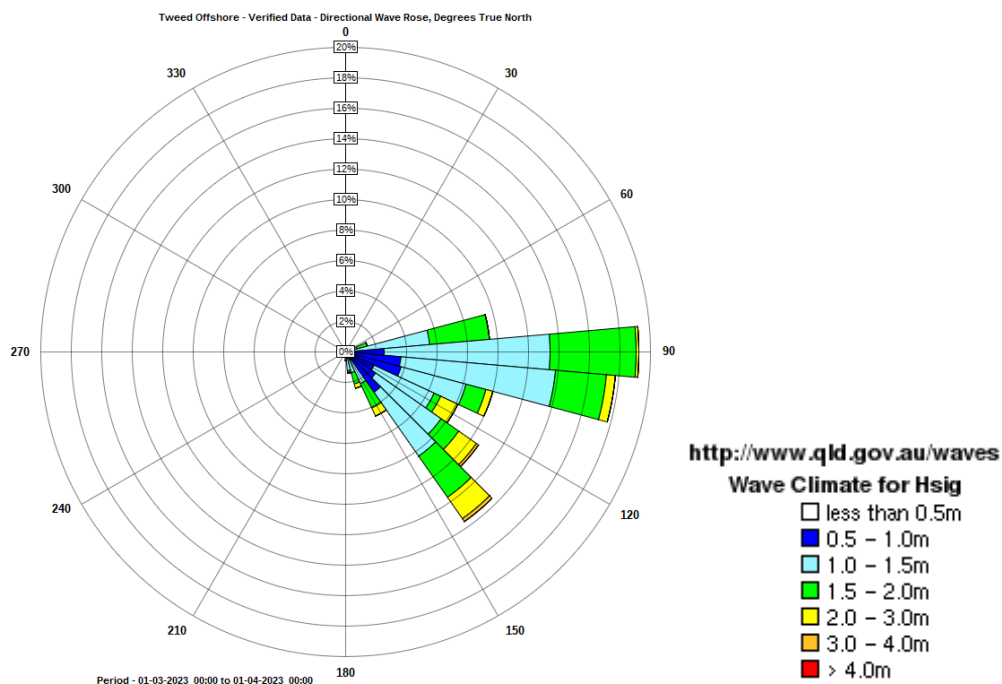
A link to data recorded by the Tweed Heads and Tweed Offshore Waverider buoys is available at: <http://www.qld.gov.au/waves>

TWEED SAND BYPASSING

NEARSHORE WAVE DIRECTION



OFFSHORE WAVE DIRECTION

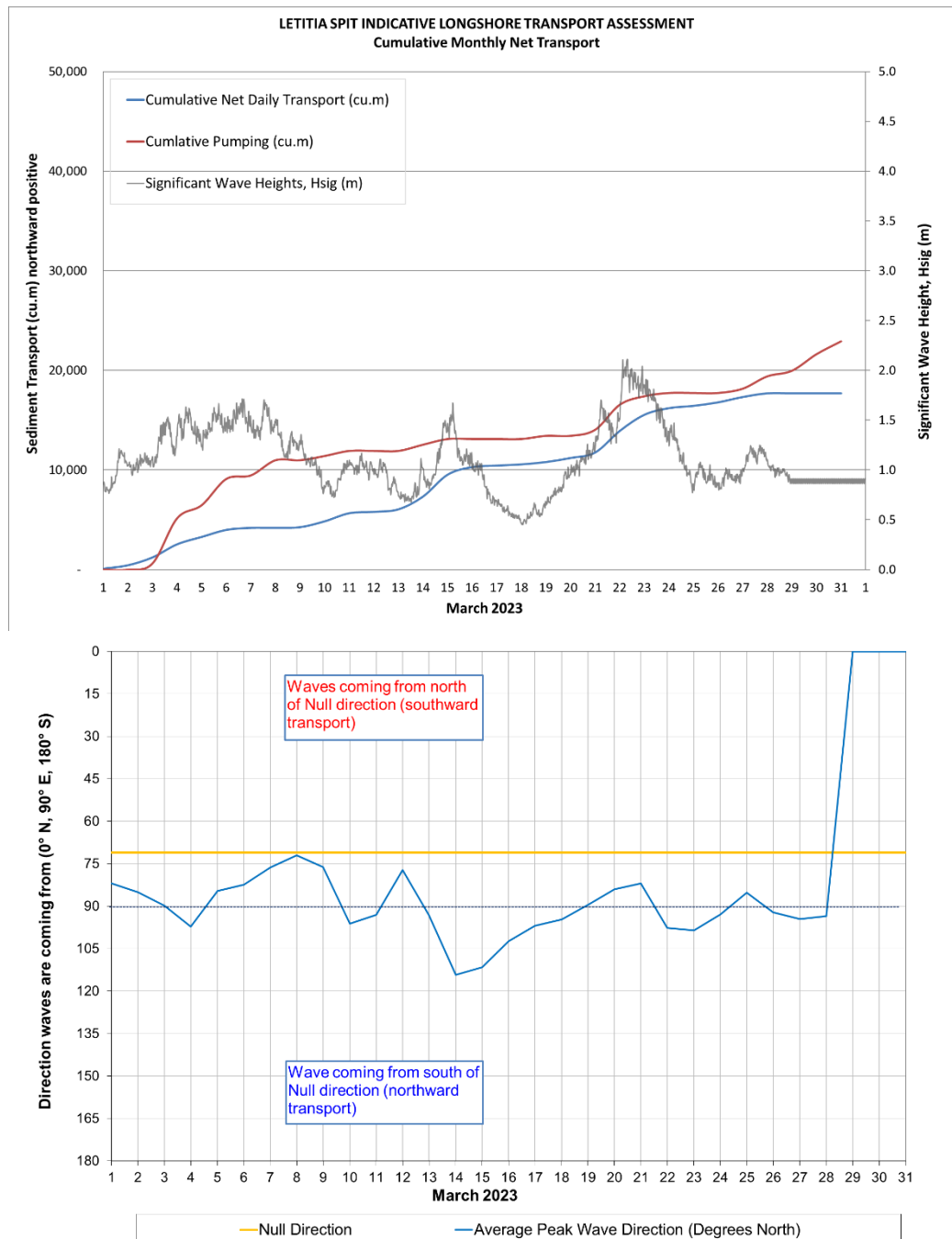


TWEED SAND BYPASSING

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 2023 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 18,000 m³. This result is 32 per cent of the average estimated sand transport quantity of approx. 56,000 m³ for March.



TWEED SAND BYPASSING

4. BEACH AND SURF AMENITY OBSERVATIONS

No significant change was observed along the beaches as mild swell conditions did not cause significant or widespread erosion. For example (and as indicated by the images below) at the start of March a gutter and nearshore bar was evident at Rainbow Bay and by the end of the month the bar gradually migrated shoreward merging with the upper beach in the centre of Rainbow Bay and infilling the gutter at the eastern end.



Surf conditions were fair during March with reasonable quality sand banks at Snapper Rocks, Rainbow Bay and Greenmount. Duranbah also offered good quality beach breaks on days with small to moderate swell and favourable winds.



TWEED SAND BYPASSING

Snapper Rocks / Rainbow Bay – March 2023



surfonmars



Rainbow Bay – March 2023

surfonmars

Froggies – March 2023

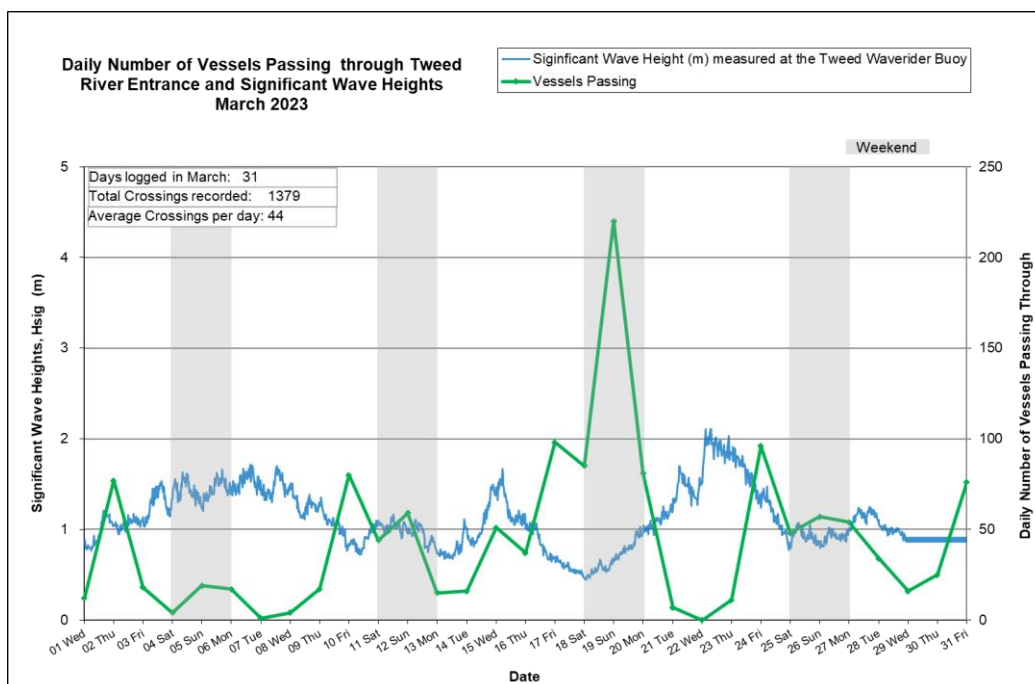
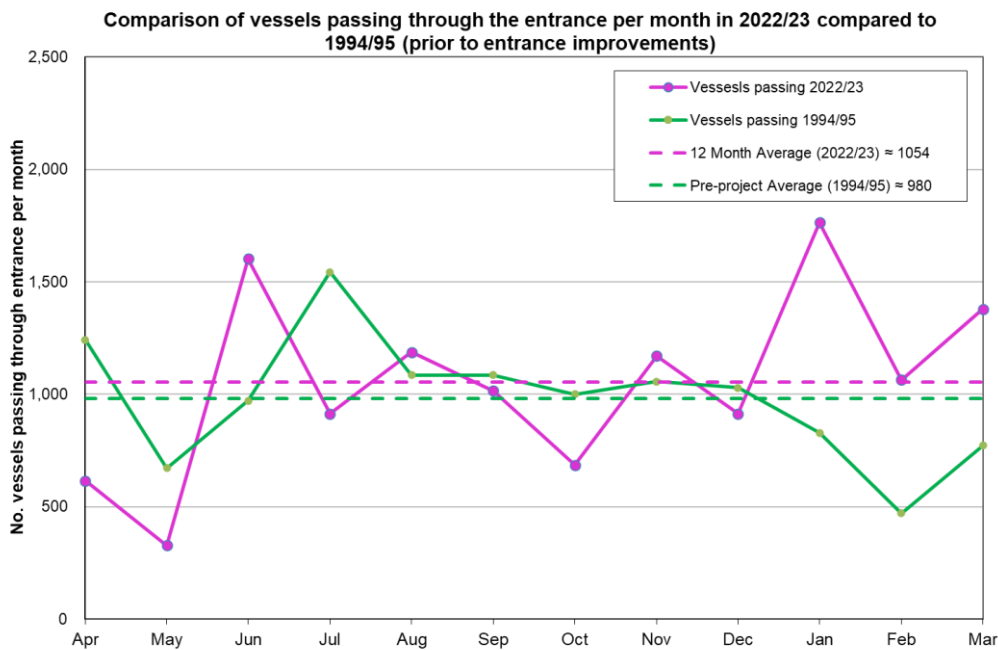


surfonmars

TWEED SAND BYPASSING

5. TWEED RIVER ENTRANCE USAGE

A total of 1379 Tweed River entrance vessel crossings were recorded for the month (91 per cent of the March average (2002–2023)).



TWEED SAND BYPASSING

Date March 2023	Navigation Rating					Number of Crossings
	Impassable < - - - - > Good					
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						12
2						77
3						18
4						4
5						19
6						17
7						1
8						4
9						17
10						80
11						44
12						59
13						15
14						16
15						51
16						37
17						98
18						85
19						220
20						81
21						7
22						0
23						11
24						96
25						48
26						57
27						54
28						34
29						16
30						25
31						76
					Total:	1,379

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

Source: Marine Rescue NSW, Point Danger