

# TWEED SAND BYPASSING

## ENVIRONMENTAL MONITORING SUMMARY – DECEMBER 2023

### 1. SAND PUMPING & DREDGING

- 14,328 m<sup>3</sup> was pumped to Snapper Rocks East.
- 0 m<sup>3</sup> of sand was dredged.

#### Sand Delivery December 2023

Pumped: 14,328 m<sup>3</sup>

Dredged: 0 m<sup>3</sup>

Total: 14,328 m<sup>3</sup>

The number of days sand was pumped this month = 9

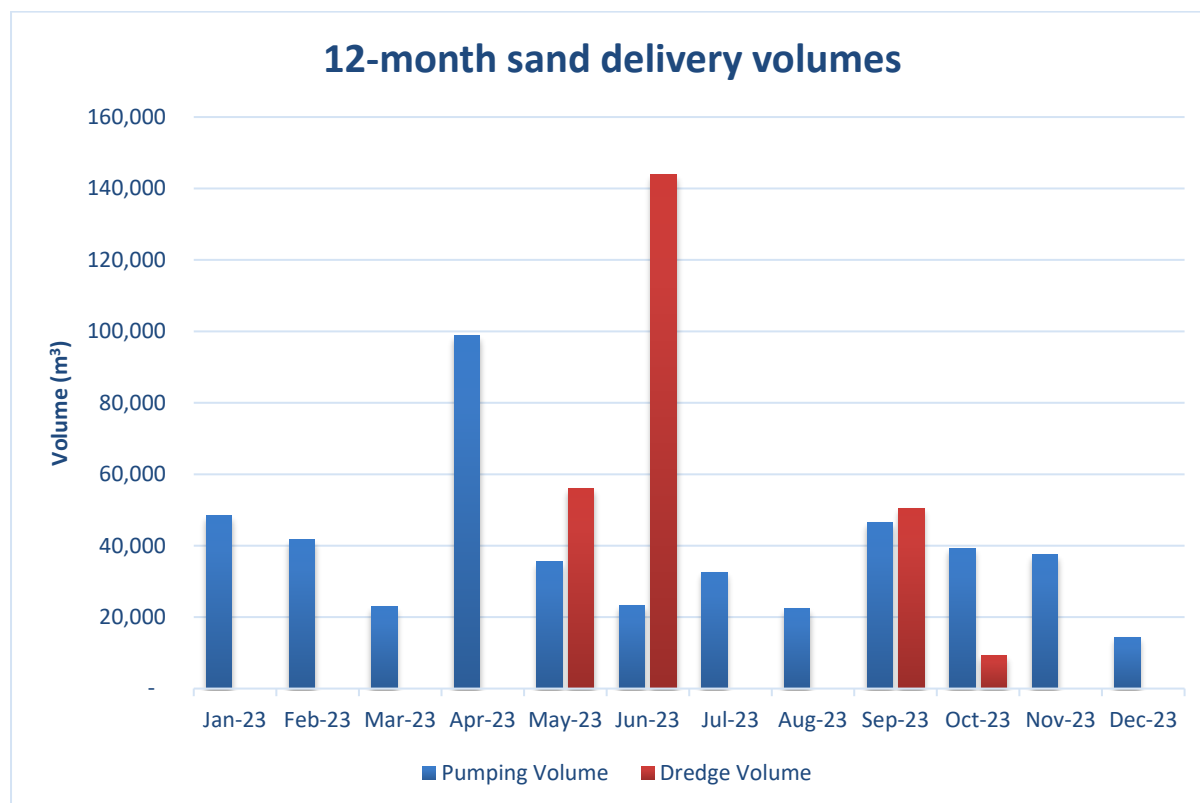
#### Sand Delivery May 2000 to December 2023

Pumped: 11,565,771 m<sup>3</sup>

Dredged\*: 3,047,294 m<sup>3</sup>

Total\*: 14,613,065 m<sup>3</sup>

\* This Includes 22,870 m<sup>3</sup> of sand delivered by dredge to Palm Beach between July 2005 and September 2005



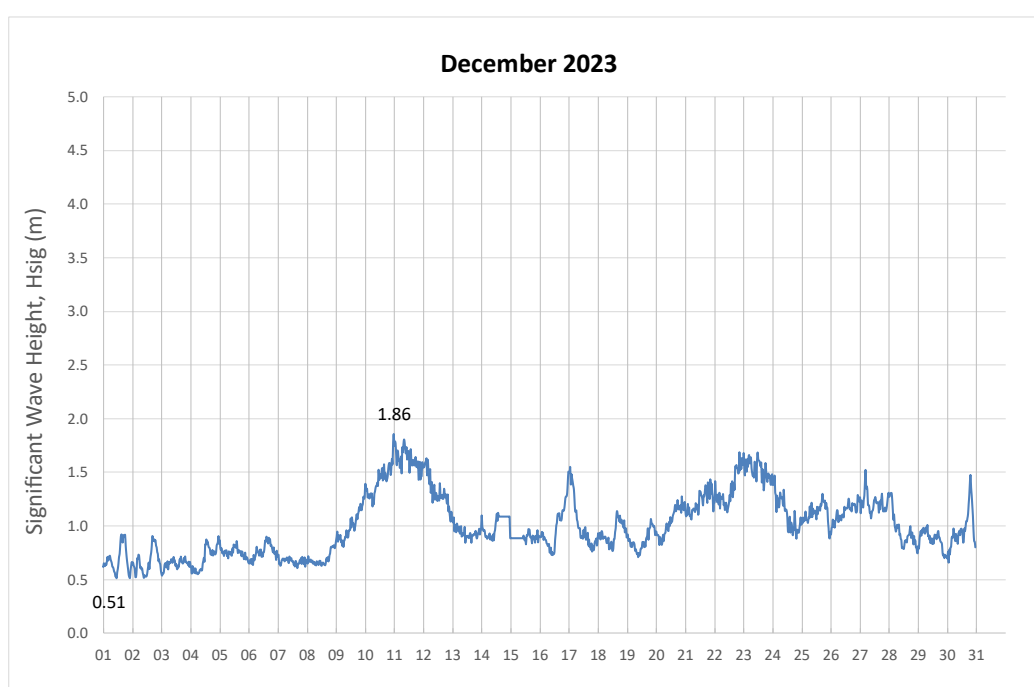
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## 2. WAVE CONDITIONS

December saw relatively consistent conditions with a strong east-south-easterly wave direction averaging less than 1.5 m in height. The maximum wave height for the month was observed during the second week, generated by Tropical Cyclone Jasper in the Coral Sea. A second consistent peak in wave heights was observed just before Christmas.

- Minimum  $H_{sig}$ : 0.51 m on 1 December 2023
- Maximum  $H_{sig}$ : 1.86 m on 10 December 2023
- Number of days where  $H_{sig} < 1$  m at some point: 24
- Number of days where  $H_{sig} > 2$  m at some point: 0

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

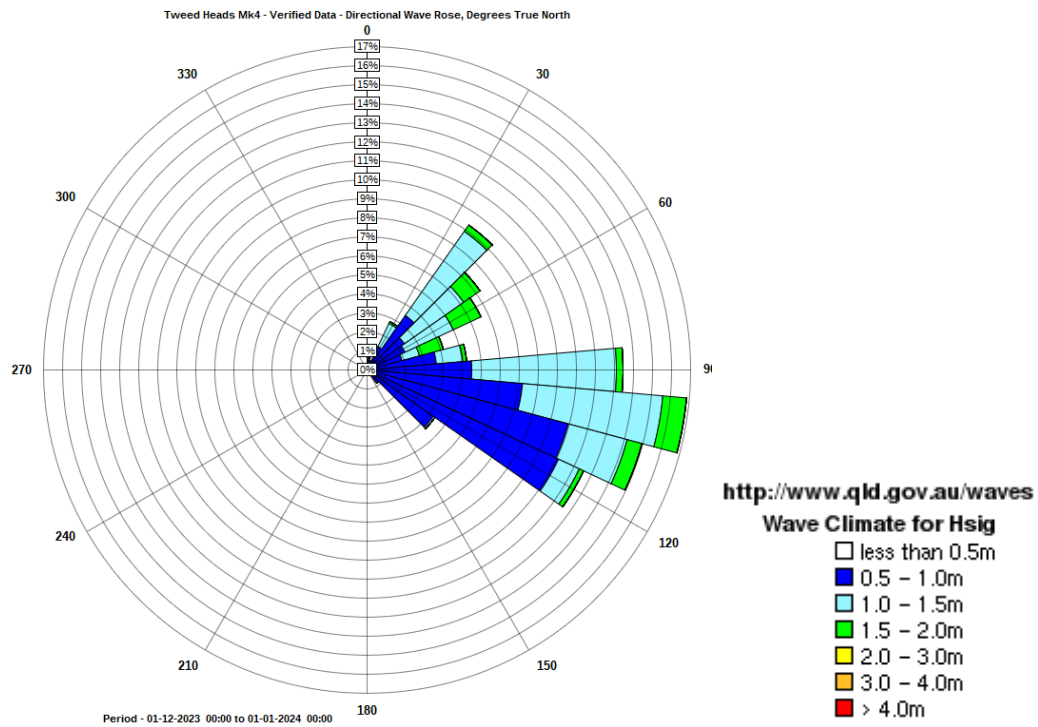


(Source: Tweed Heads Waverider buoy; Queensland Government)

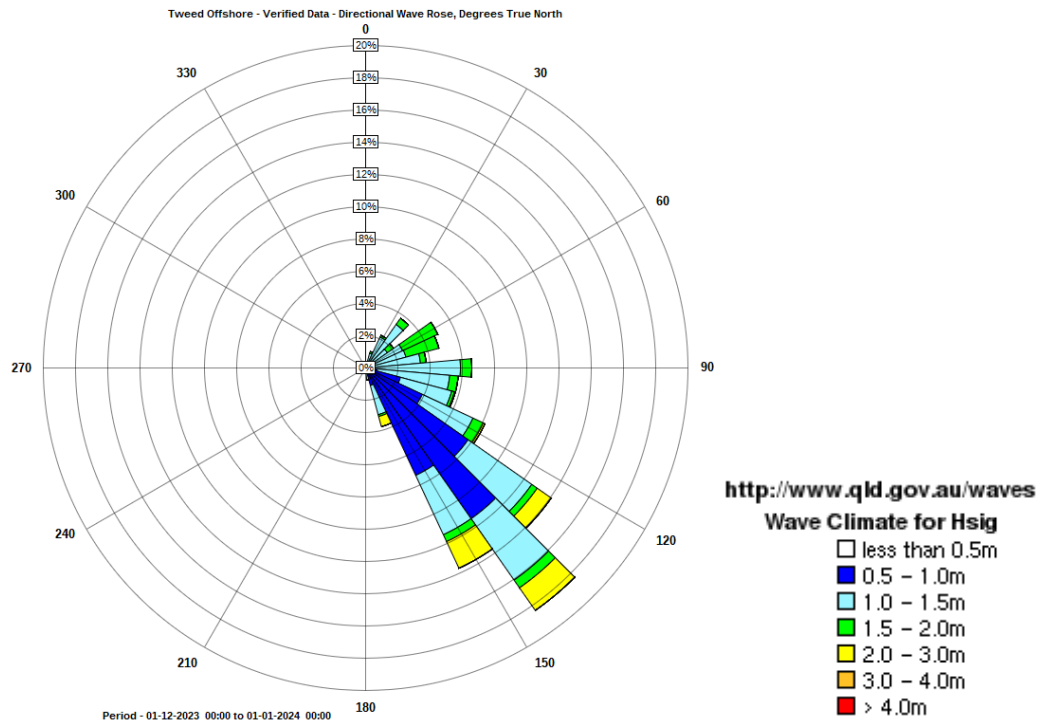
A link to data recorded by the Tweed Heads and Tweed Offshore Waverider buoys is available at:  
<http://www.qld.gov.au/waves>

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## NEARSHORE WAVE DIRECTION



## OFFSHORE WAVE DIRECTION

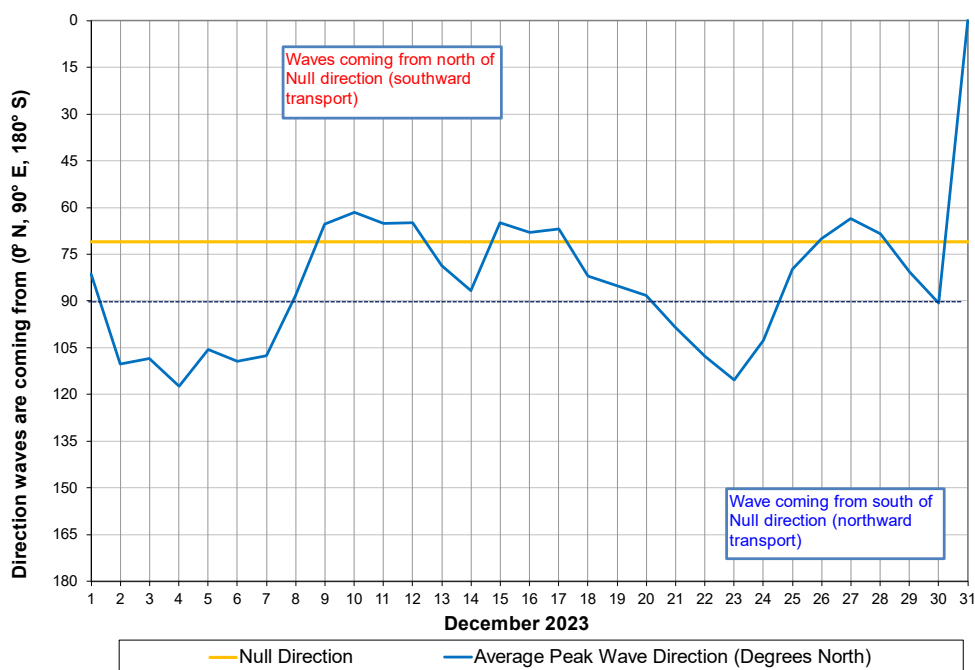
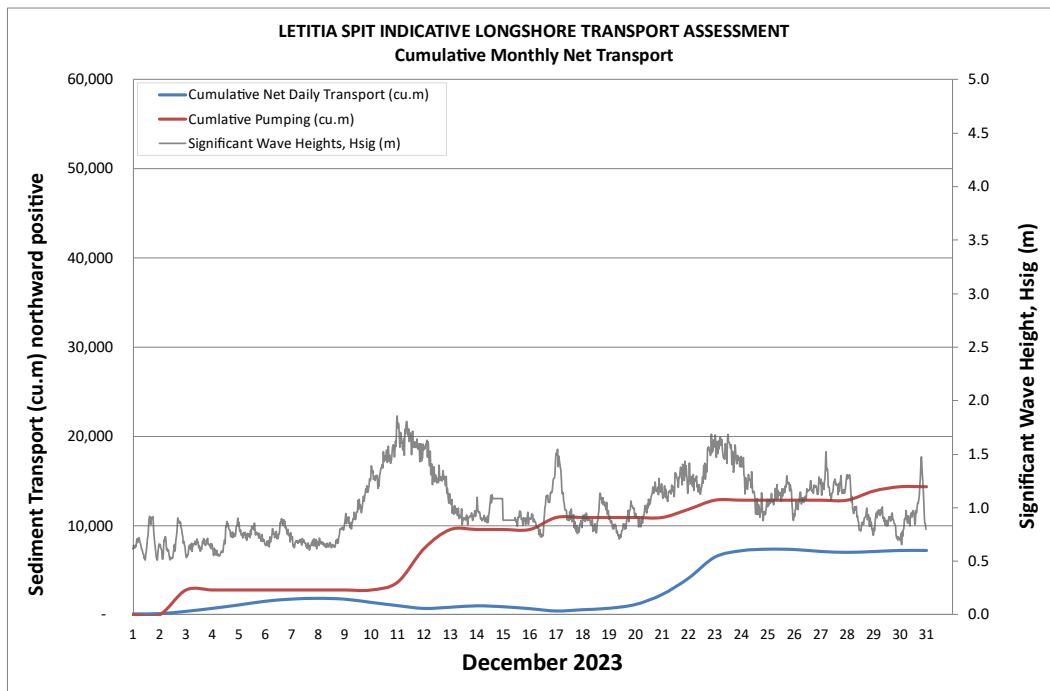


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## 3. INDICATIVE LONGSHORE TRANSPORT

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 December 2023 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 7,200 m<sup>3</sup>. This result is 22 per cent of the average estimated sand transport quantity of approx. 33,300 m<sup>3</sup> for December.



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## **4. BEACH AND SURF AMENITY OBSERVATIONS**

December saw consistent conditions throughout the month with a strong SE offshore swell direction and low wave heights. The sediment transport rate was quite low compared to the December average.

The conditions continue to move sand out from Rainbow Bay beach around Greenmount. A longshore bar has formed in the nearshore with subsequent longshore trough providing calm swimming conditions that was observed to be popular with beach users.



**Rainbow Bay 4 December 2023** *\*south aspect*



**Rainbow Bay 4 December 2023** *\*north aspect*



**Greenmount 4 December 2023**



**Duranbah 4 December 2023**

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With no instances of swell reaching over 2 m Hsig during the month of December, Duranbah provided the most consistent waves for this period. Low quality surf conditions were observed in the middle of the month with light winds and small wave heights. Just before Christmas, a small swell pulse produced a couple of days of reasonable surf conditions, before a northerly change kept wave heights down over Christmas and Boxing Day.



**Duranbah 24 December 2023**



**Duranbah 24 December 2023**



**Rainbow 10 December 2023**

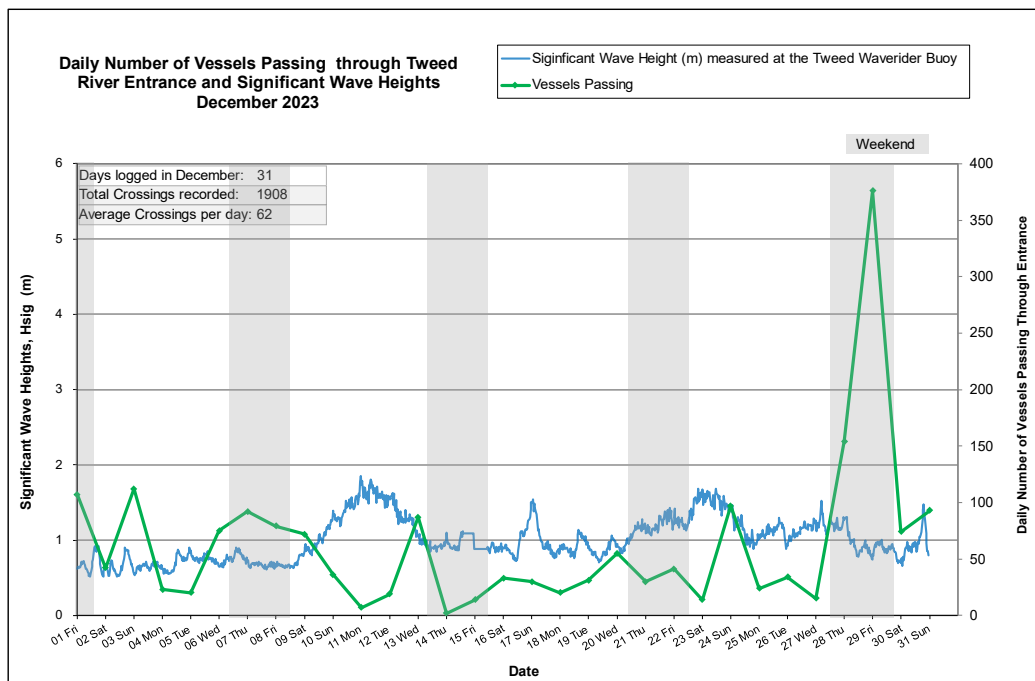
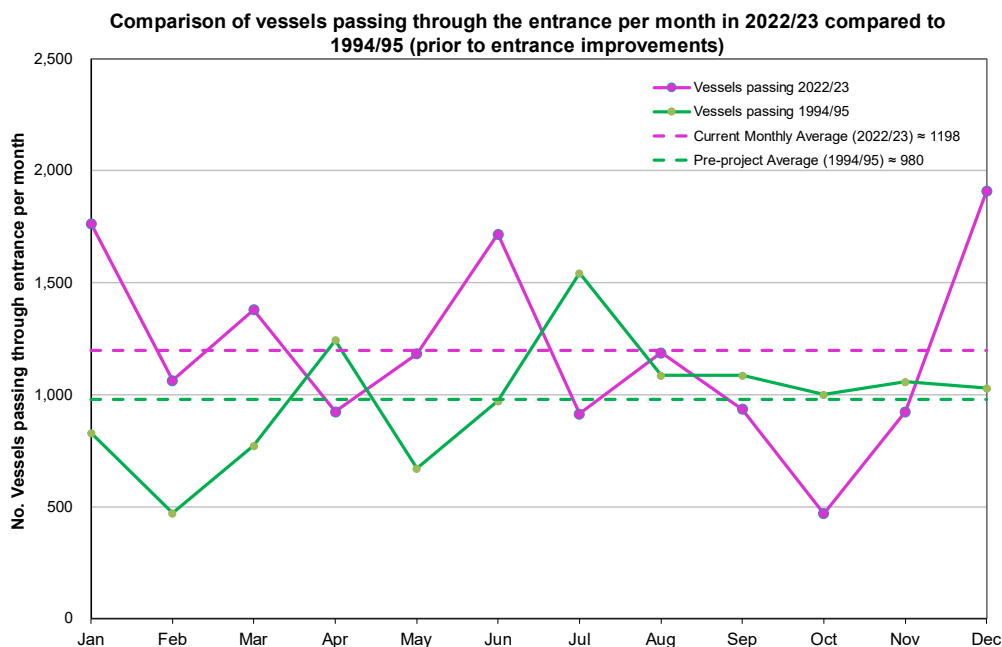


**Rainbow 10 December 2023**

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## 5. TWEED RIVER ENTRANCE USAGE

A total of 1,908 Tweed River entrance vessel crossings were recorded for the month (98 per cent of the December average (2002–2023)).





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Date December 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						107
2						42
3						112
4						23
5						20
6						75
7						92
8						79
9						72
10						36
11						7
12						19
13						87
14						2
15						14
16						33
17						30
18						20
19						31
20						55
21						30
22						41
23						14
24						97
25						24
26						34
27						15
28						154
29						376
30						74
31						93
					Total:	1,908

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

*Source: Marine Rescue NSW, Point Danger*