

TWEED SAND BYPASSING

ENVIRONMENTAL MONITORING SUMMARY – JUNE 2023

1. SAND PUMPING & DREDGING

- 23,324 m³ was pumped to Snapper Rocks East.
- 143,828 m³ of sand was dredged with placement offshore of Duranbah (12,124 m³), Snapper Rocks (59,722 m³), Fingal (31,084 m³) and Bilinga (40,898 m³).

Sand Delivery June 2023

Pumped: 23,324 m³

Dredged: 143,828 m³

Total: 167,152 m³

The number of days sand was pumped this month =20

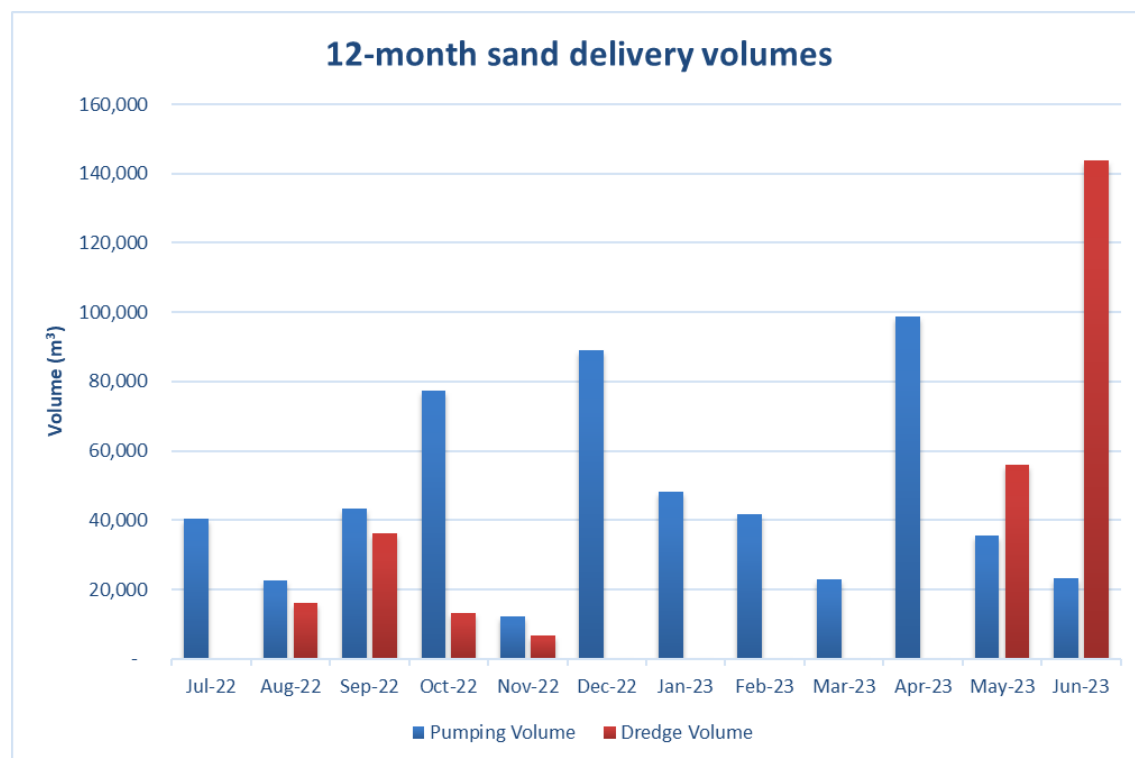
Sand Delivery May 2000 to June 2023

Pumped: 11,375,283 m³

Dredged*: 2,987,531 m³

Total*: 14,362,814 m³

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



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2. WAVE CONDITIONS

Conditions in June were mild with only a couple of swell pulses over 1.5 metres. Wave directions were primarily from the east for the first two weeks and then for the remainder of the month it was mixed between SE and east.

- Minimum H_{sig} : 0.40 m on 20 June 2023
- Maximum H_{sig} : 1.96 m on 05 June 2023
- Number of days where $H_{sig} < 1$ m at some point: 26
- 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

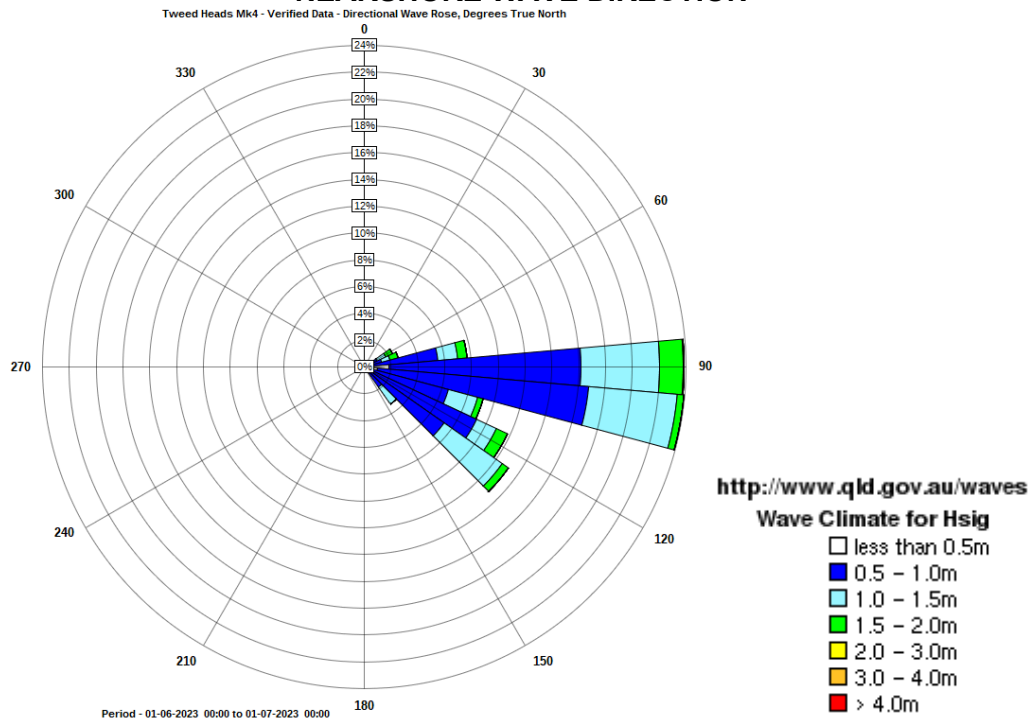


(Source: Tweed Heads Waverider buoy; Queensland Government)

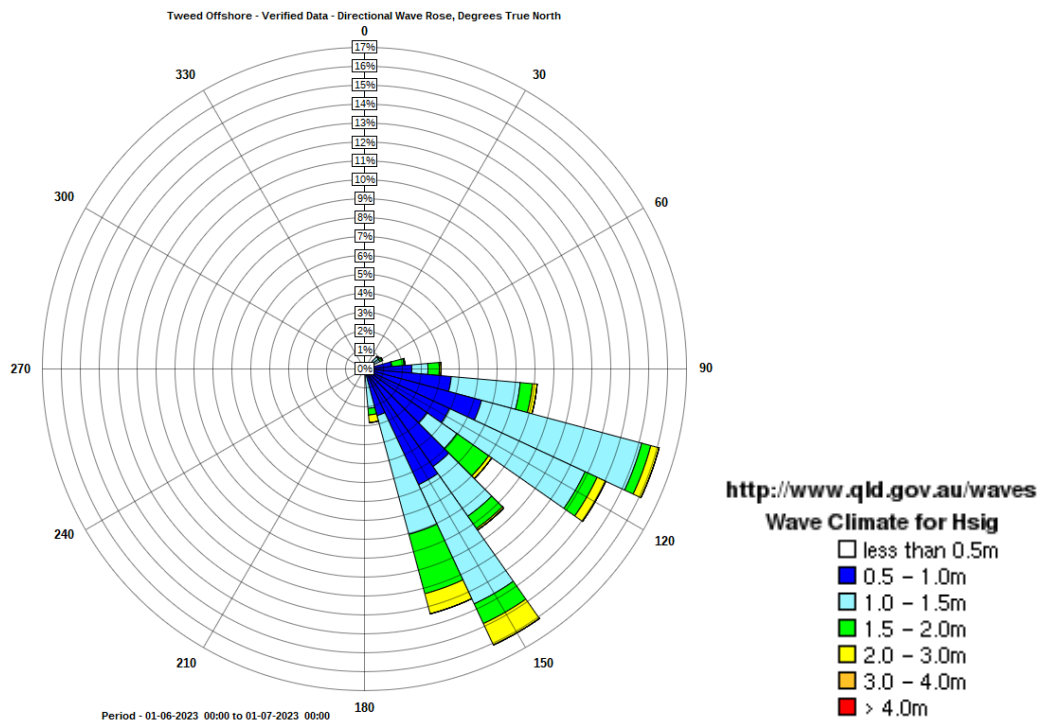
A link to data recorded by the Tweed Heads and Tweed Offshore Waverider buoys is available at: <http://www.qld.gov.au/waves>

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NEARSHORE WAVE DIRECTION



OFFSHORE WAVE DIRECTION

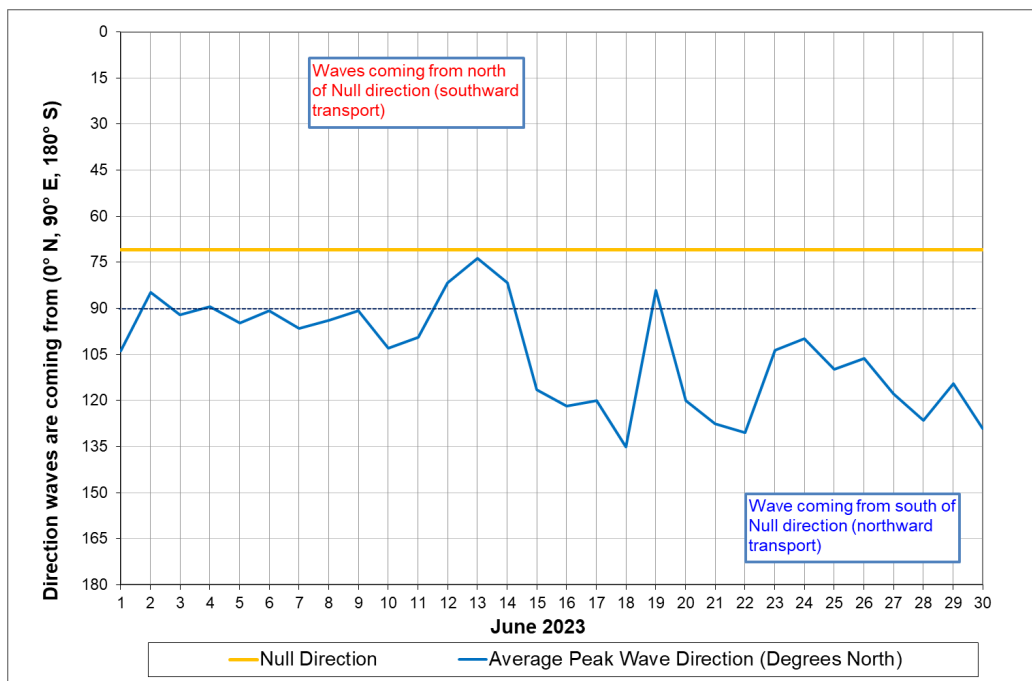
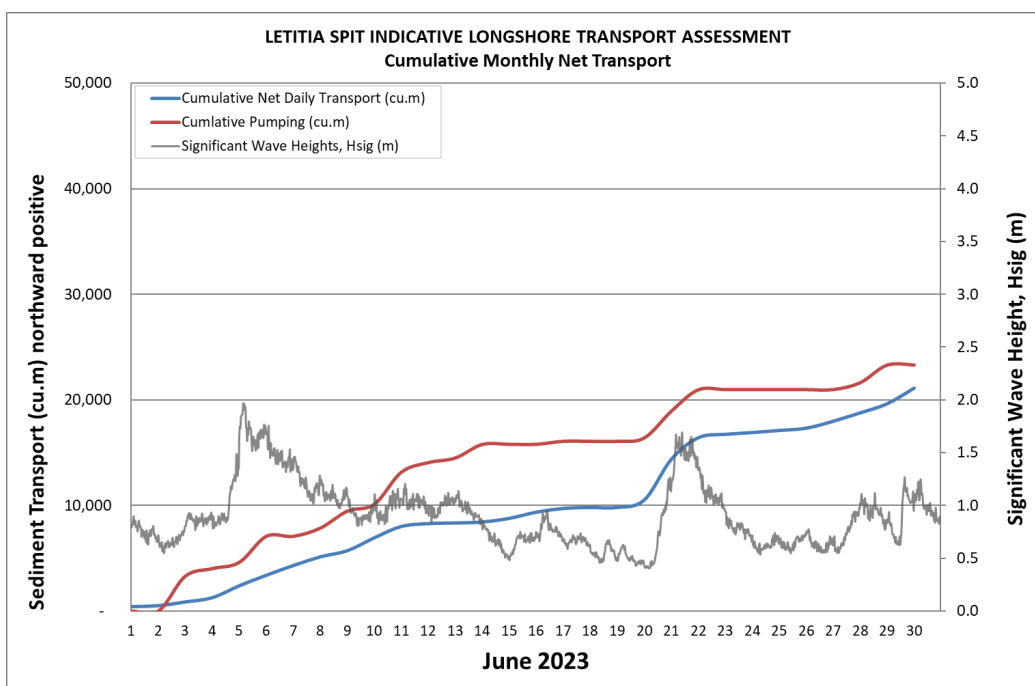


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3. INDICATIVE LONGSHORE TRANSPORT

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 June 2023 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 21,000 m³. This result is 36 per cent of the average estimated sand transport quantity of approx. 58,000 m³ for June.



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4. BEACH AND SURF AMENITY OBSERVATIONS

Compared to typical June conditions this month was very mild with no significant swell events. Sand continued to build on the upper beach at most locations, the images below demonstrate how a mild easterly swell approaching the east/west orientation of Rainbow Bay and Coolangatta can result in a steady transport of sand across these beaches with minimal losses into deeper water.



Greenmount 1st June



Greenmount 30th June

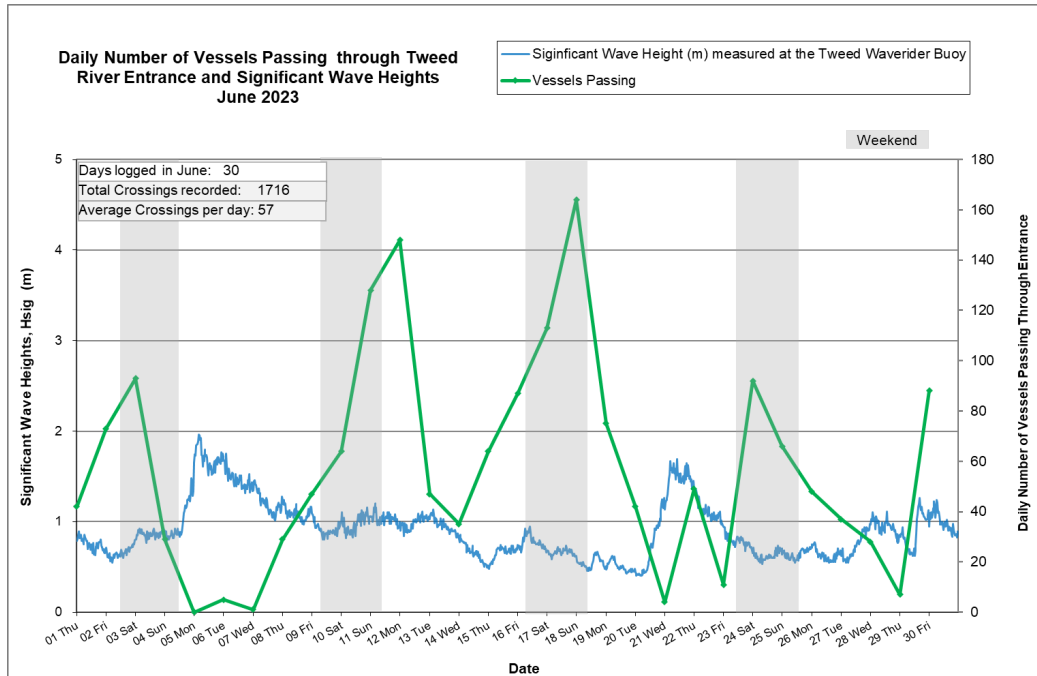
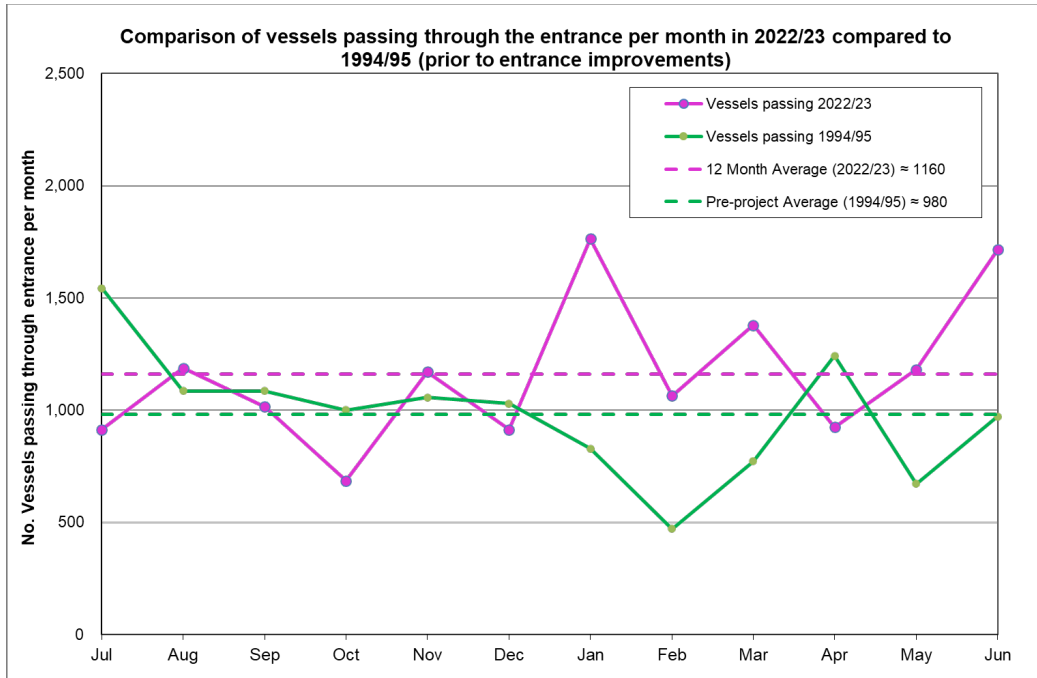
Surf conditions were mild during June with only two swell pulses occurring around the 5th and 6th, and 21st and 22nd. Quality sand banks remained from Snapper Rocks through to Kirra, however, the good surf quality experienced in the previous months was reduced due to the smaller wave conditions. Duranbah still offered good quality beach breaks during June.



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5. TWEED RIVER ENTRANCE USAGE

A total of 1,716 Tweed River entrance vessel crossings were recorded for the month (104 per cent of the June average (2002–2023)).



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| Date June 2023 | Navigation Rating | | | | | Number of Crossings |
|-------------------|-------------------------------|---------------------------|-----------------------------------|--------------------------------|--------------------|------------------------|
| | Impassable < - - - - - > Good | | | | | |
| | Impassable | Difficulty Encountered | Some Difficulty Encountered | Relatively Good Crossing | Good Conditions | |
| | | | | | | |
| 1 | | | | | | 42 |
| 2 | | | | | | 73 |
| 3 | | | | | | 93 |
| 4 | | | | | | 29 |
| 5 | | | | | | 0 |
| 6 | | | | | | 5 |
| 7 | | | | | | 1 |
| 8 | | | | | | 29 |
| 9 | | | | | | 47 |
| 10 | | | | | | 64 |
| 11 | | | | | | 128 |
| 12 | | | | | | 148 |
| 13 | | | | | | 47 |
| 14 | | | | | | 35 |
| 15 | | | | | | 64 |
| 16 | | | | | | 87 |
| 17 | | | | | | 113 |
| 18 | | | | | | 164 |
| 19 | | | | | | 75 |
| 20 | | | | | | 42 |
| 21 | | | | | | 4 |
| 22 | | | | | | 49 |
| 23 | | | | | | 11 |
| 24 | | | | | | 92 |
| 25 | | | | | | 66 |
| 26 | | | | | | 48 |
| 27 | | | | | | 37 |
| 28 | | | | | | 28 |
| 29 | | | | | | 7 |
| 30 | | | | | | 88 |
| | | | | | Total: | 1,716 |

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

Source: Marine Rescue NSW, Point Danger