

TWEED SAND BYPASSING

OVERVIEW

In August 2019:

- 24,258 m³ of sand was pumped to Snapper Rocks East.
- 69,231 m³ of sand was dredged and placed at Snapper Rocks East, Duranbah, Tugun/Bilinga and Fingal.
- Significant wave heights ranged from calm to moderate (0.35 m to 1.65 m), with a maximum significant wave height of 1.65 m on 23rd August. Wave directions were predominantly from the SE.
- 1,905 vessel crossings were recorded for the month (This is 99% of the August average (2002 – 2019)).
- The modelled estimated amount of sand moving north towards the Tweed River entrance by natural processes was in the order of 43,000 m³ (this is 96% of the August average of 44,320 m³).

1. SAND PUMPING & DREDGING

Sand Delivery August 2019

Pumped:	24,258 m ³
Dredged:	69,231 m ³
Total:	93,489 m ³

The number of days sand was pumped this month = 17

Sand Delivery January 2019 to December 2019

Pumped:	292,508 m ³
Dredged:	151,360 m ³
Total:	443,868 m ³

Stage II Sand Delivery May 2000 to August 2019

Pumped:	9,581,908 m ³
Dredged:	2,471,874 m ³ *
Total:	12,053,782 m ³ *

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

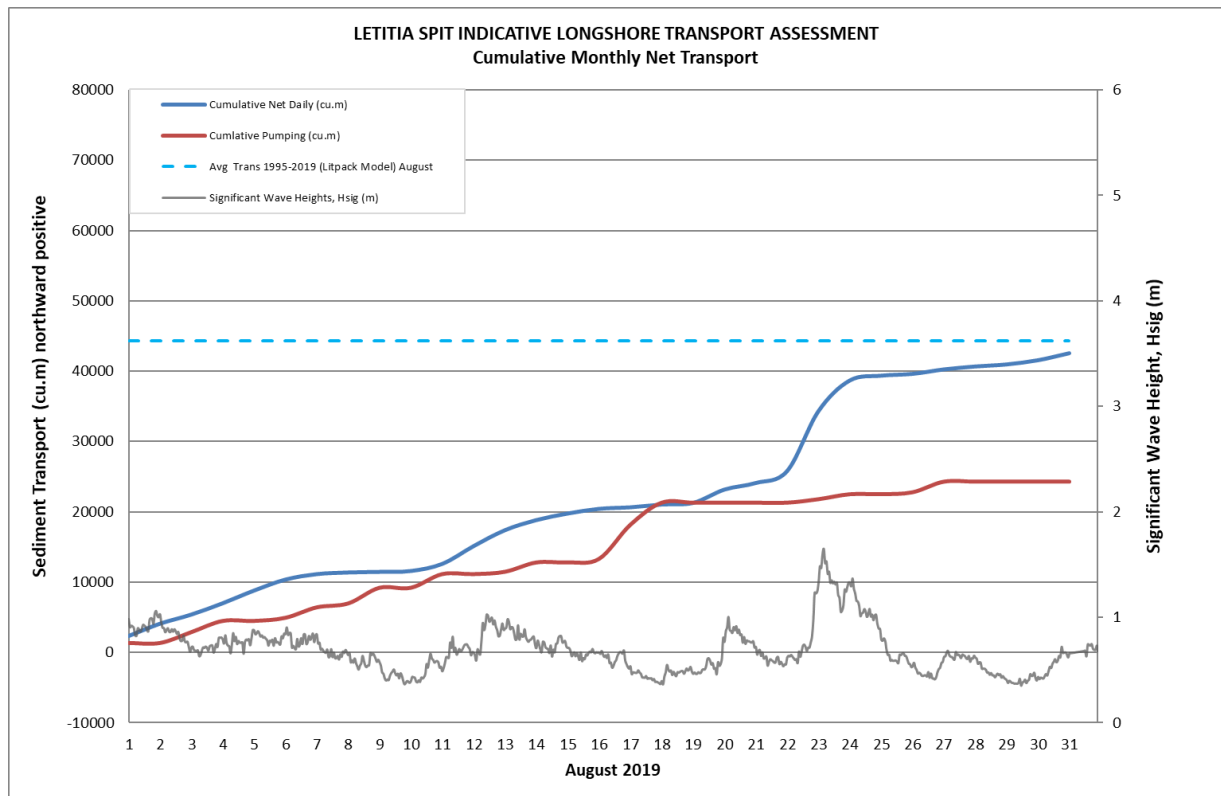
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2. INDICATIVE LONGSHORE TRANSPORT

The graph below is based on simplified sediment transport modelling and is indicative only.

In August 2019 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be 42,550 m³.

This result is 96% of the average estimated sand transport quantity of approximately 44,320 m³ for the month of August.



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3. TWEED RIVER ENTRANCE USAGE

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

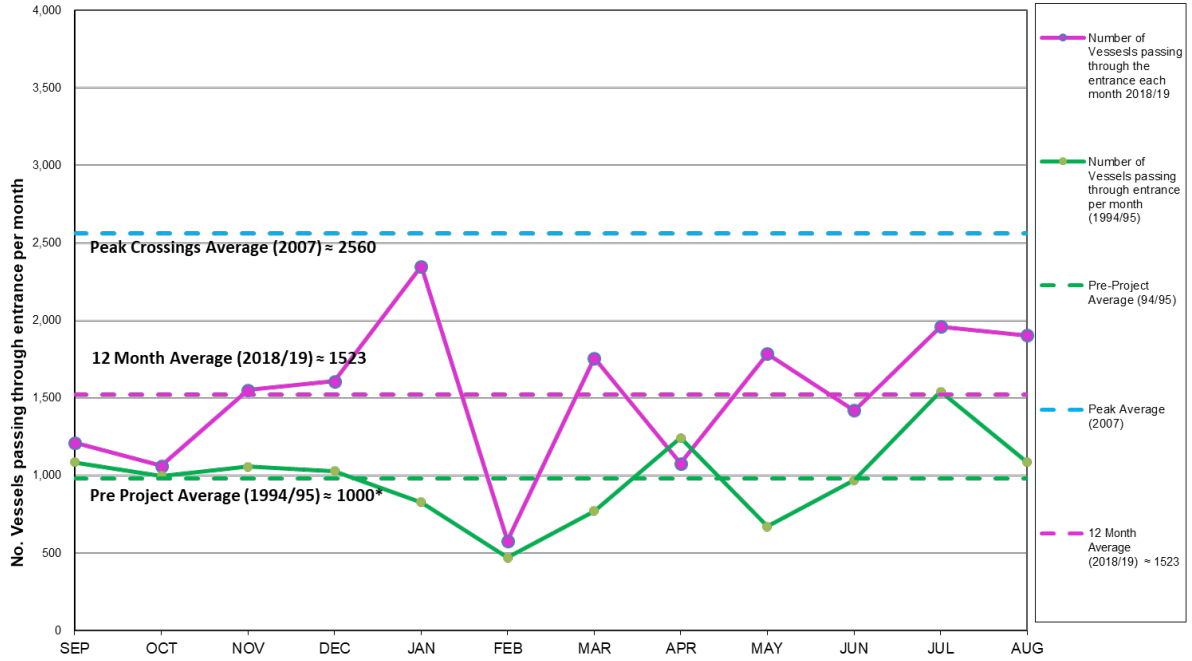
Date August 2019	Navigation Rating					Number of Crossings
	Impassable < - - - - > Good					
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						12
2						17
3						72
4						219
5						95
6						135
7						77
8						15
9						28
10						20
11						41
12						11
13						26
14						109
15						101
16						49
17						67
18						211
19						7
20						16
21						92
22						20
23						0
24						25
25						26
26						79
27						93
28						57
29						76
30						76
31						33
					Total:	1905

Source: Marine Rescue NSW, Point Danger

* Total does not include trawlers

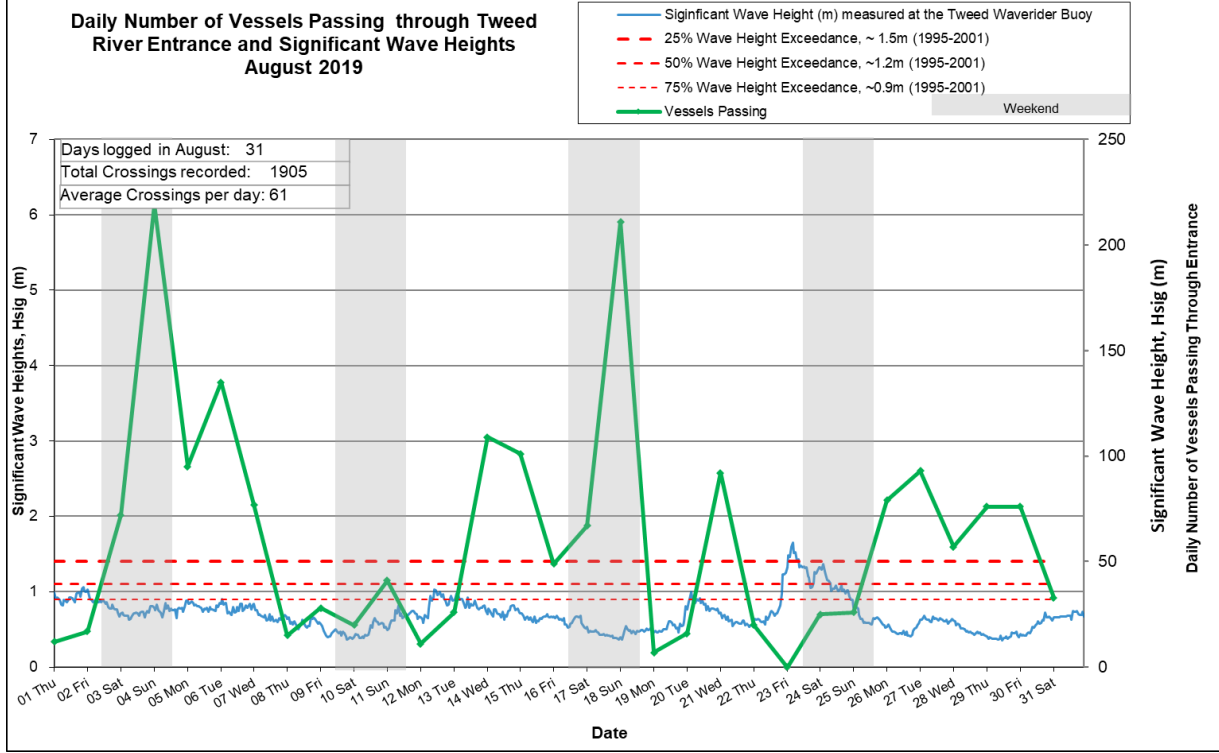
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Comparison of the number of vessels passing through the entrance per month 2018/19 compared to 2007 (peak crossings) and 1994/95 (prior to entrance improvements)



*Note 1 - Assuming the number of incoming boats = outgoing boats in 94/95

Daily Number of Vessels Passing through Tweed River Entrance and Significant Wave Heights August 2019



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4. WAVE CONDITIONS

Wave conditions over the month: Significant wave heights ranged mostly from calm to moderate (0.35 m to 1.65 m), with a peak significant wave height of 1.65 m on 23rd August. Wave directions were predominantly from the SE.

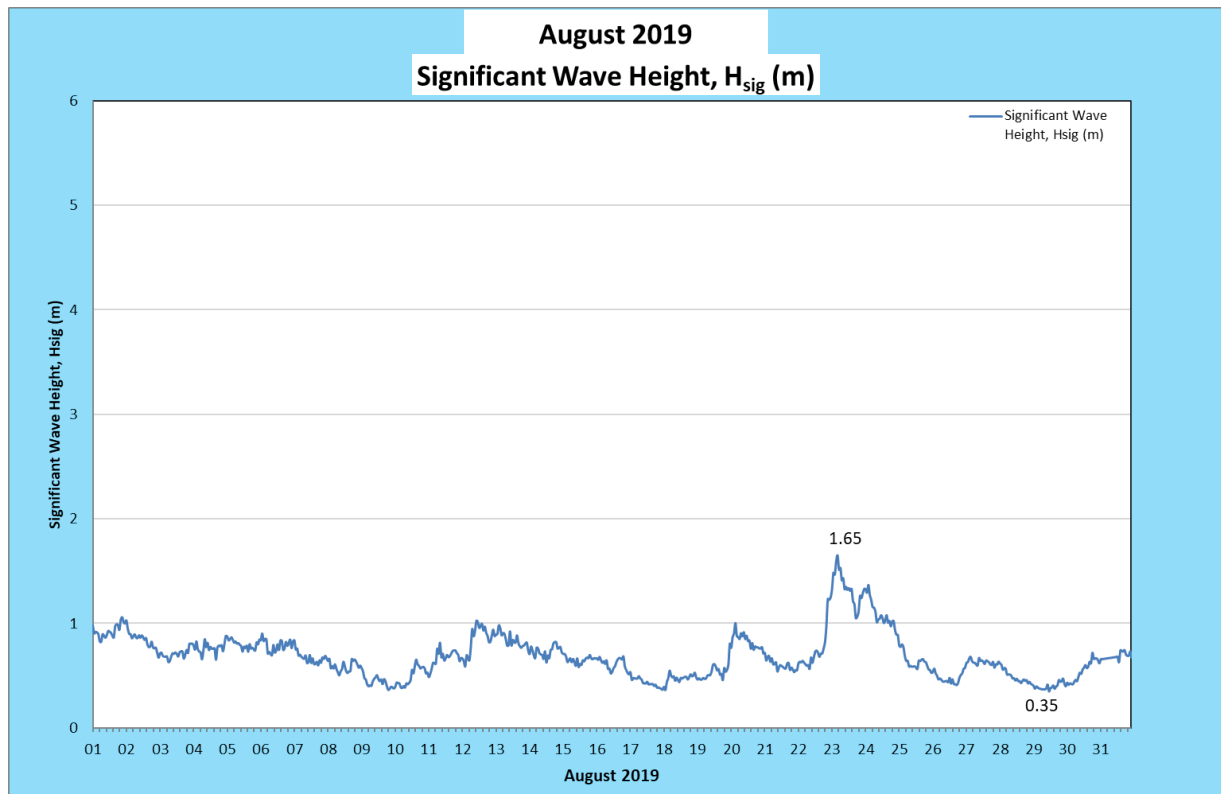
Monthly minimum significant wave height: 0.35 m on 29th August

Monthly maximum significant wave height: 1.65 m on 23rd August

Number of days on which waves were below 1.0 m at some point in the day: 30 days

Number of days on which waves were above 2.0 m at some point in the day: 0 days

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

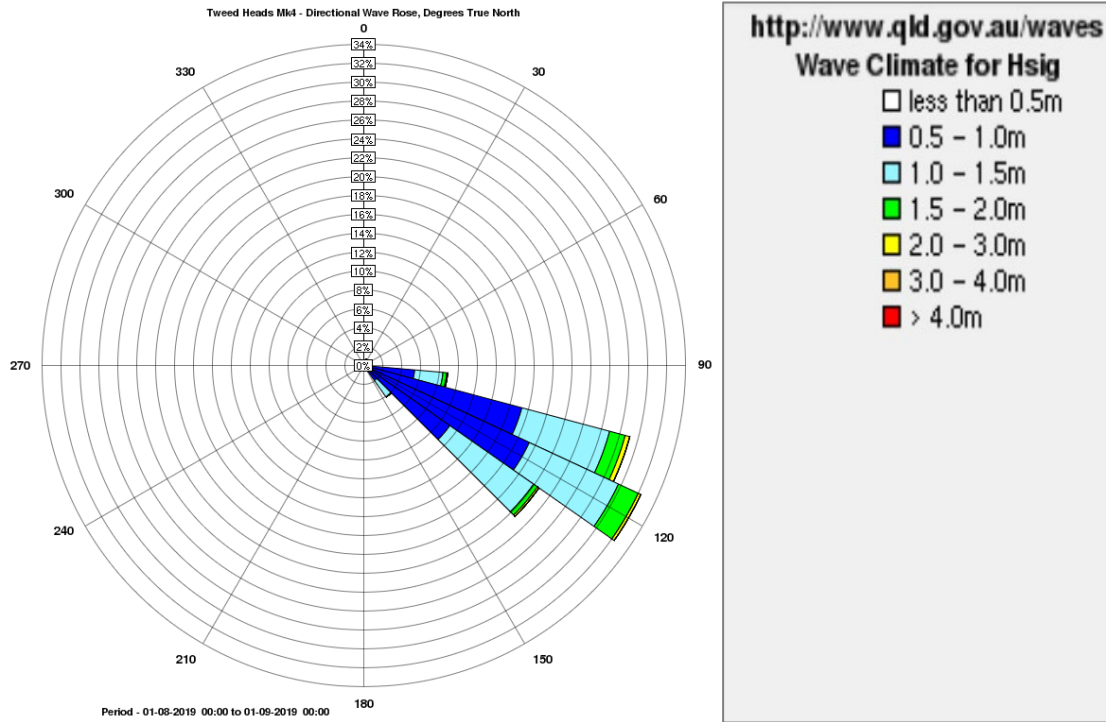


(Source: Tweed Heads Waverider Buoy; Queensland Government)

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

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WAVE DIRECTION



(Source: Tweed Heads Waverider Buoy; Queensland Government)