

TWEED SAND BYPASSING

OVERVIEW

In June 2019:

- 53,076 m³ of sand was pumped to Snapper Rocks East.
- 0 m³ of sand was dredged and placed at Snapper Rocks East.
- Significant wave heights ranged from calm to moderate (0.27 m to 2.01 m), with a maximum significant wave height of 2.01 m on 30th June. Wave directions were predominantly from the SE.
- 1,421 vessel crossings were recorded for the month (This is 85% of the June average (2002 – 2019)).
- The modelled estimated amount of sand moving north towards the Tweed River entrance by natural processes was in the order of 67,000 m³ (this is 108% of the June average of 62,031 m³).

1. SAND PUMPING & DREDGING

Sand Delivery June 2019

Pumped:	53,076 m ³
Dredged:	0 m ³
Total:	53,076 m ³

The number of days sand was pumped this month = 24

Sand Delivery January 2019 to December 2019

Pumped:	218,126 m ³
Dredged:	0 m ³
Total:	218,126 m ³

Stage II Sand Delivery May 2000 to June 2019

Pumped:	9,507,526 m ³
Dredged:	2,320,514 m ³ *
Total:	11,828,040 m ³ *

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

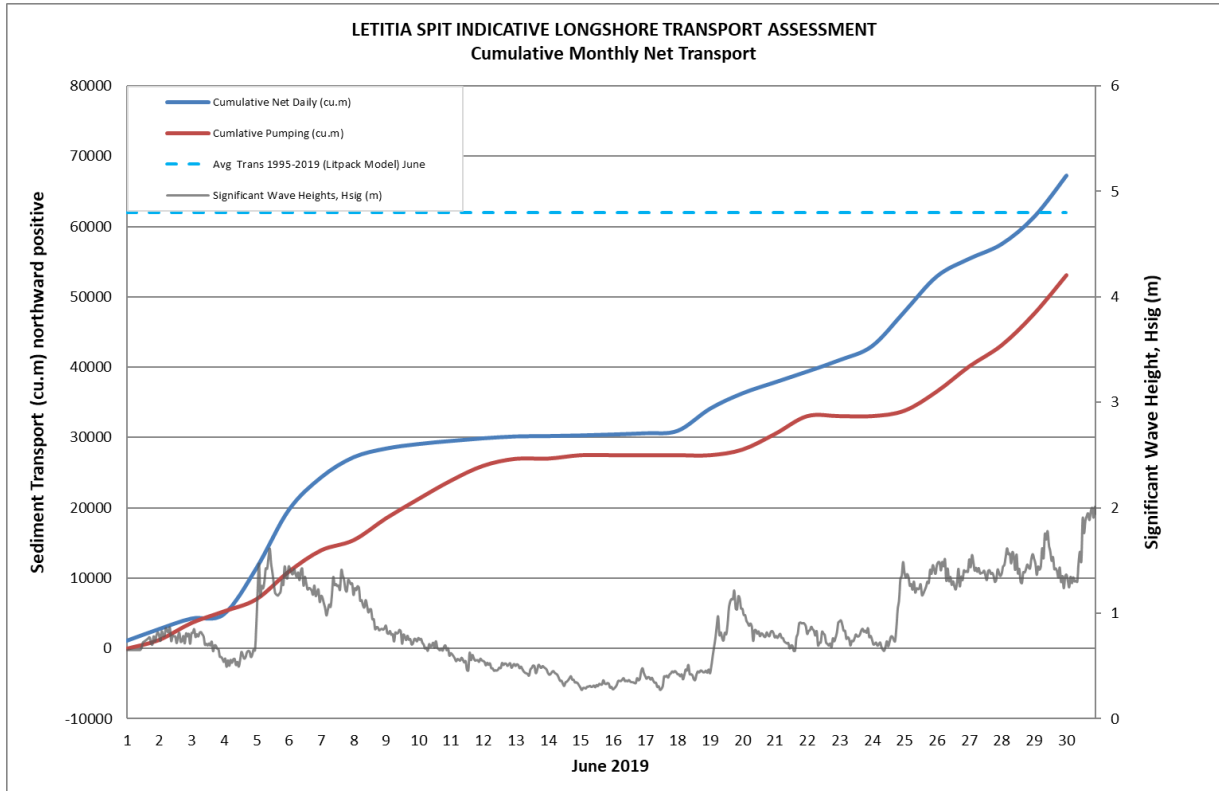
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2. INDICATIVE LONGSHORE TRANSPORT

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

In June 2019 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be 67,293 m³.

This result is 108% of the average estimated sand transport quantity of approximately 62,031 m³ for the month of June.



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3. TWEED RIVER ENTRANCE USAGE

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

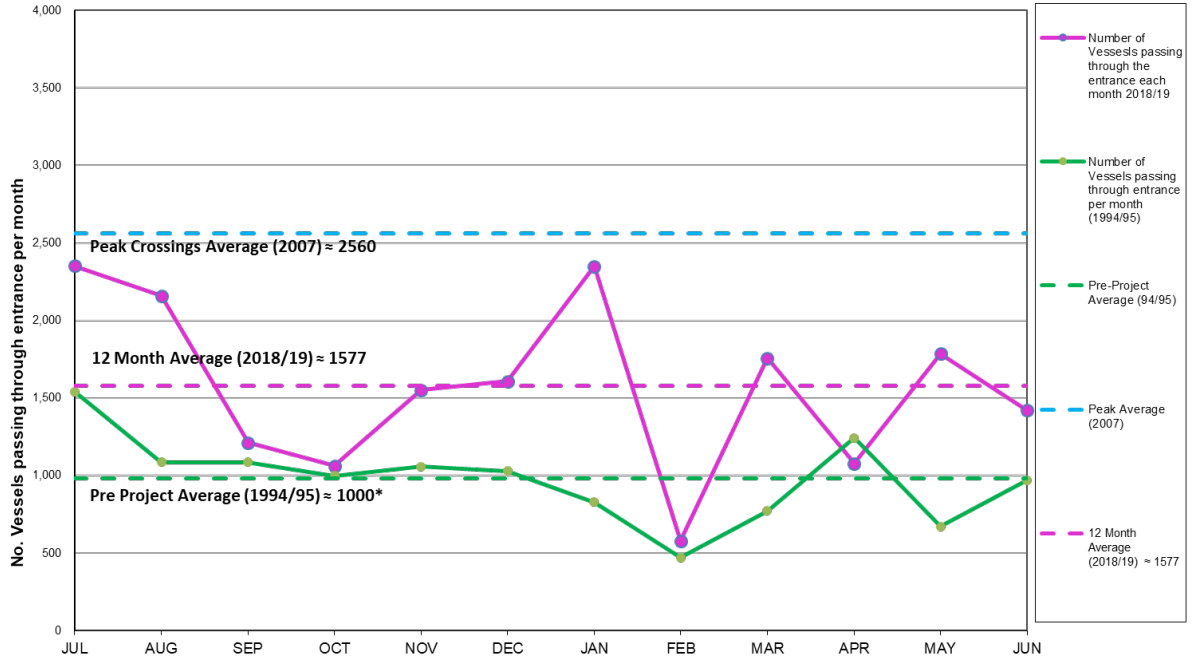
Date June 2019	Navigation Rating					Number of Crossings
	Impassable < - - - - > Good					
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						51
2						31
3						33
4						10
5						0
6						2
7						3
8						8
9						75
10						149
11						102
12						144
13						59
14						98
15						199
16						215
17						50
18						82
19						23
20						7
21						24
22						18
23						19
24						0
25						0
26						1
27						1
28						0
29						2
30						15
					Total:	1421

Source: Marine Rescue NSW, Point Danger

* Total does not include trawlers

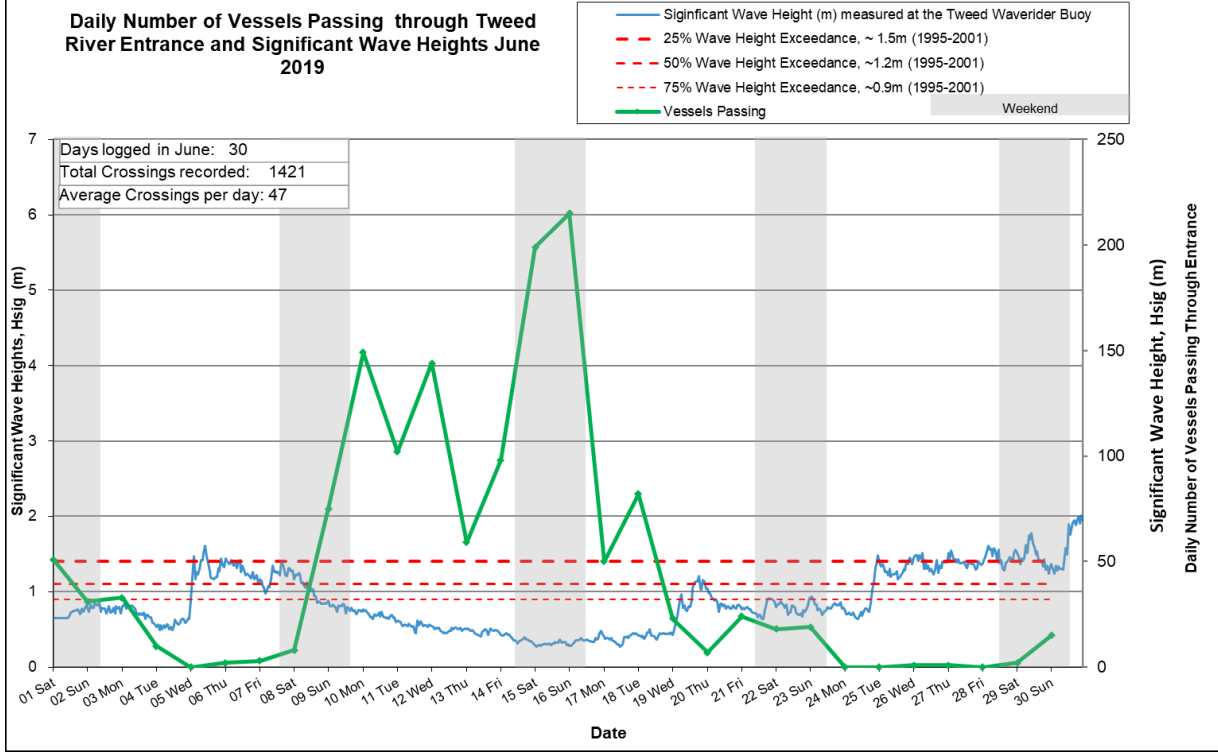
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Comparison of the number of vessels passing through the entrance per month 2018/19 compared to 2007 (peak crossings) and 1994/95 (prior to entrance improvements)



*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 June 2019



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4. WAVE CONDITIONS

Wave conditions over the month: Significant wave heights ranged mostly from calm to moderate (0.27 m to 2.01 m), with a peak significant wave height of 2.01 m on 30th June. Wave directions were predominantly from the SE.

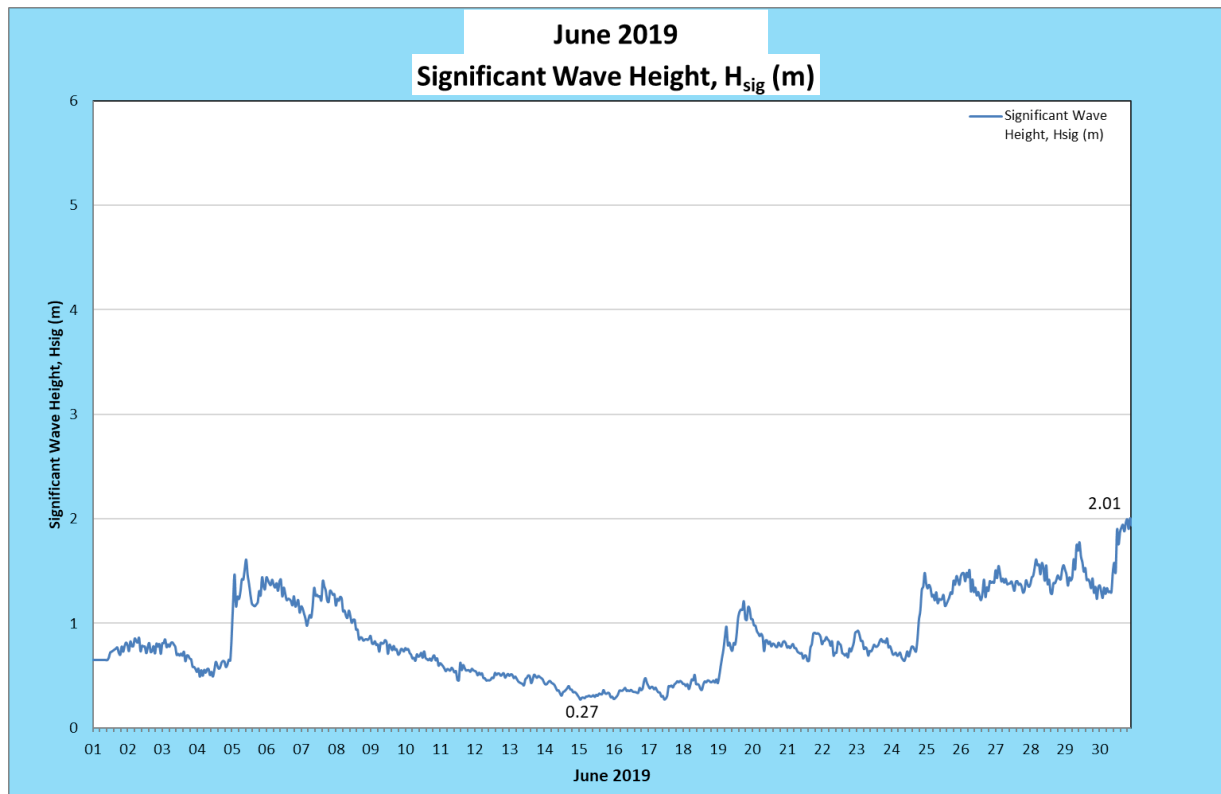
Monthly minimum significant wave height: 0.27 m on 15th June

Monthly maximum significant wave height: 2.01 m on 30th June

Number of days on which waves were below 1.0 m at some point in the day: 23 days

Number of days on which waves were above 2.0 m at some point in the day: 1 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

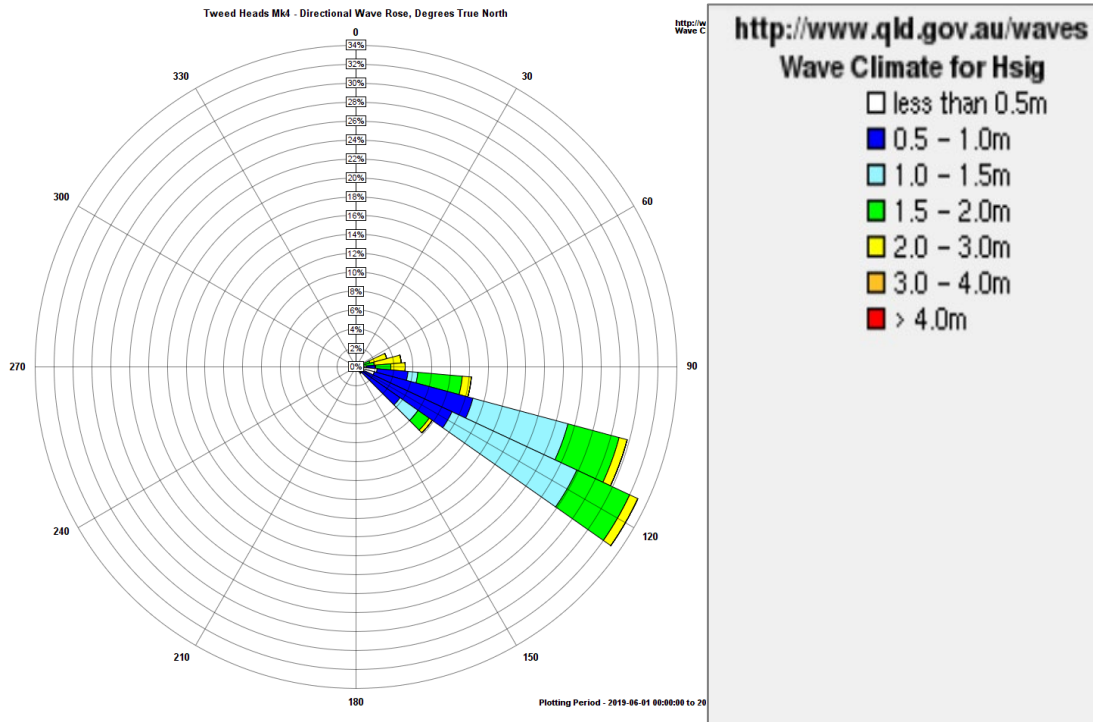


(Source: Tweed Heads Waverider Buoy; Queensland Government)

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)