

TWEED SAND BYPASSING

OVERVIEW

In October 2018:

- 38,121 m³ of sand was pumped to Snapper Rocks East.
- 0 m³ of sand was dredged and placed at Snapper Rocks East.
- 0 m³ of sand was pumped to Duranbah Beach.
- 0 m³ of sand was dredged and placed at Duranbah Beach.
- Significant wave heights ranged mostly from calm to moderate (0.56 m to 4.21 m), with a maximum significant wave height of 4.21 m on 15th October. Wave directions were predominantly from the East.
- 1,063 vessel crossings were recorded for the month (This is 62% of the October average (2002 – 2018)).
- The modelled estimated amount of sand moving north towards the Tweed River entrance by natural processes was in the order of 130,000 m³ (this is 480% of the October average of 26,993 m³).

1. SAND PUMPING & DREDGING

Sand Delivery October 2018

Pumped:	38,121 m ³
Dredged:	0 m ³
Total:	38,121 m ³

The number of days sand was pumped this month = 19

Sand Delivery January 2018 to December 2018

Pumped:	310,351 m ³
Dredged:	0 m ³
Total:	310,351 m ³

Stage II Sand Delivery April 2000 to October 2018

Pumped:	9,238,504 m ³
Dredged:	2,320,514 m ³ *
Total:	11,559,018 m ³ *

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

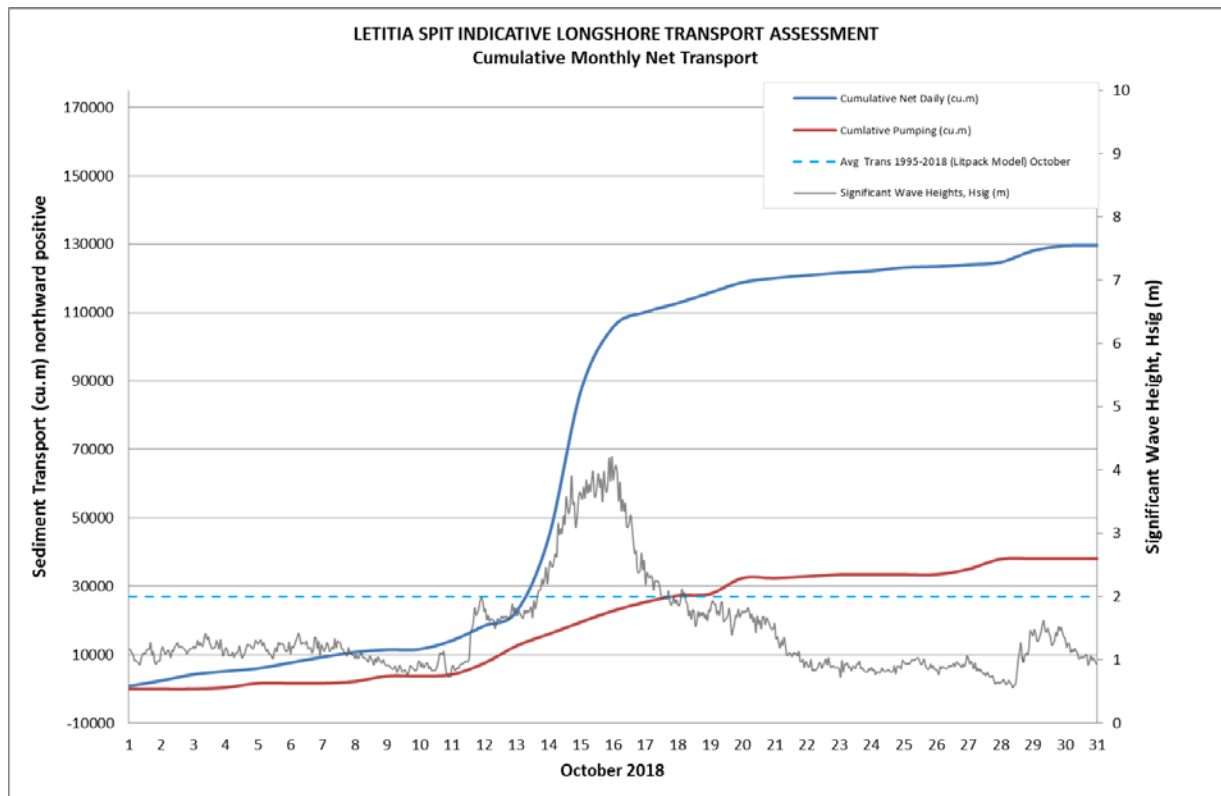
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2. INDICATIVE LONGSHORE TRANSPORT

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

In October 2018 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be 129,569 m³.

This result is 480% of the average estimated sand transport quantity of approximately 26,993 m³ for the month of October.



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3. TWEED RIVER ENTRANCE USAGE

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends and public holidays

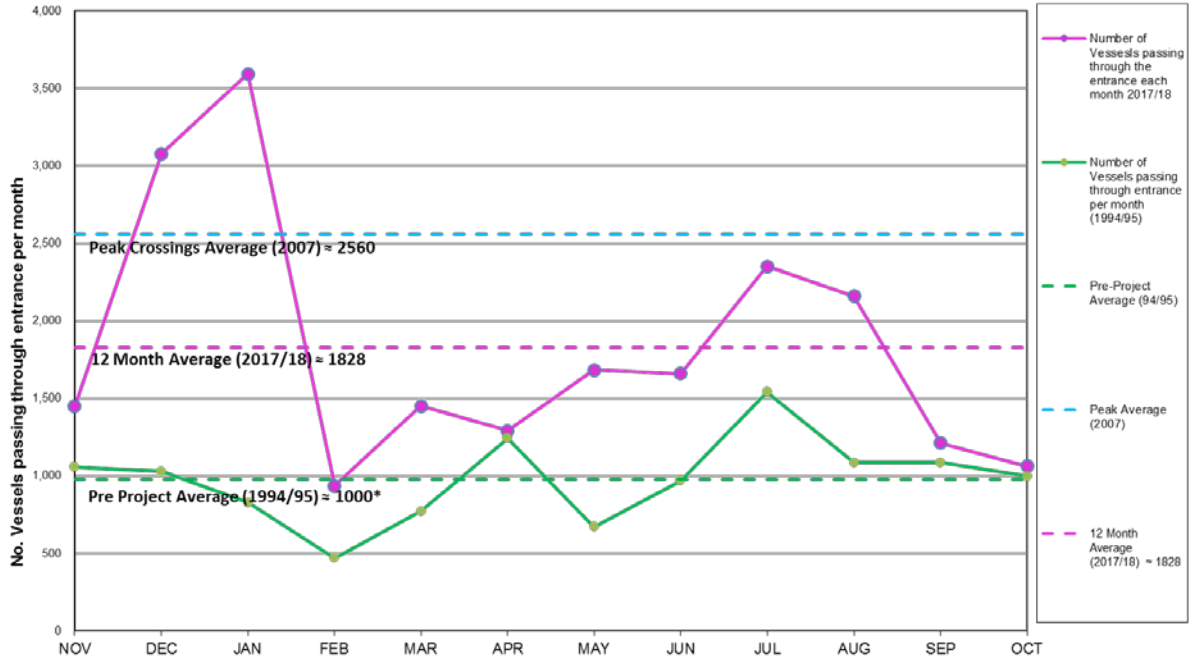
Date October 2018	Navigation Rating					Number of Crossings
	Impassable < - - - - > Good					
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						20
2						13
3						52
4						22
5						20
6						93
7						55
8						50
9						54
10						12
11						0
12						0
13						2
14						0
15						0
16						0
17						0
18						2
19						19
20						55
21						52
22						18
23						83
24						60
25						31
26						38
27						138
28						70
29						6
30						54
31						44
					Total:	1063

Source: Marine Rescue NSW, Point Danger

* Total does not include trawlers

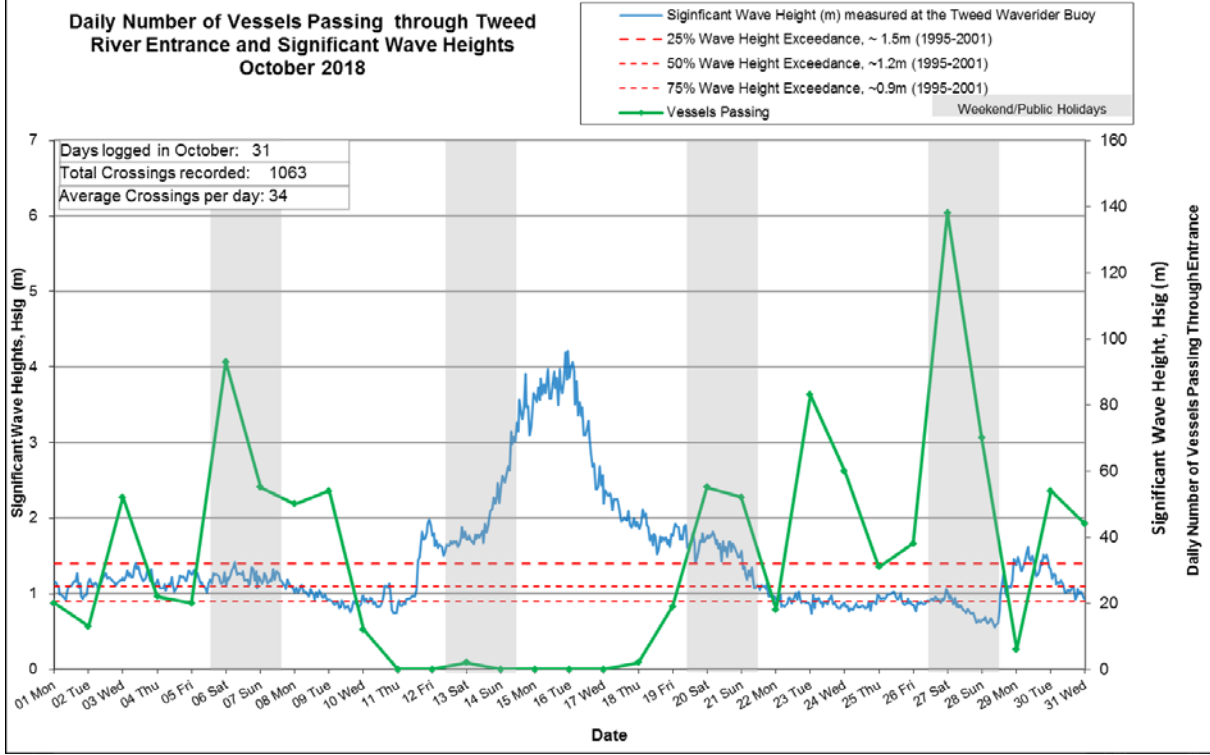
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Comparison of the number of vessels passing through the entrance per month 2017/18 compared to 2007 (peak crossings) and 1994/95 (prior to entrance improvements)



*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 October 2018



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4. WAVE CONDITIONS

Wave conditions over the month: Significant wave heights ranged mostly from calm to moderate (0.56 m to 4.21 m), with a peak significant wave height of 4.21 m on 15th October. Wave directions were predominantly from the East.

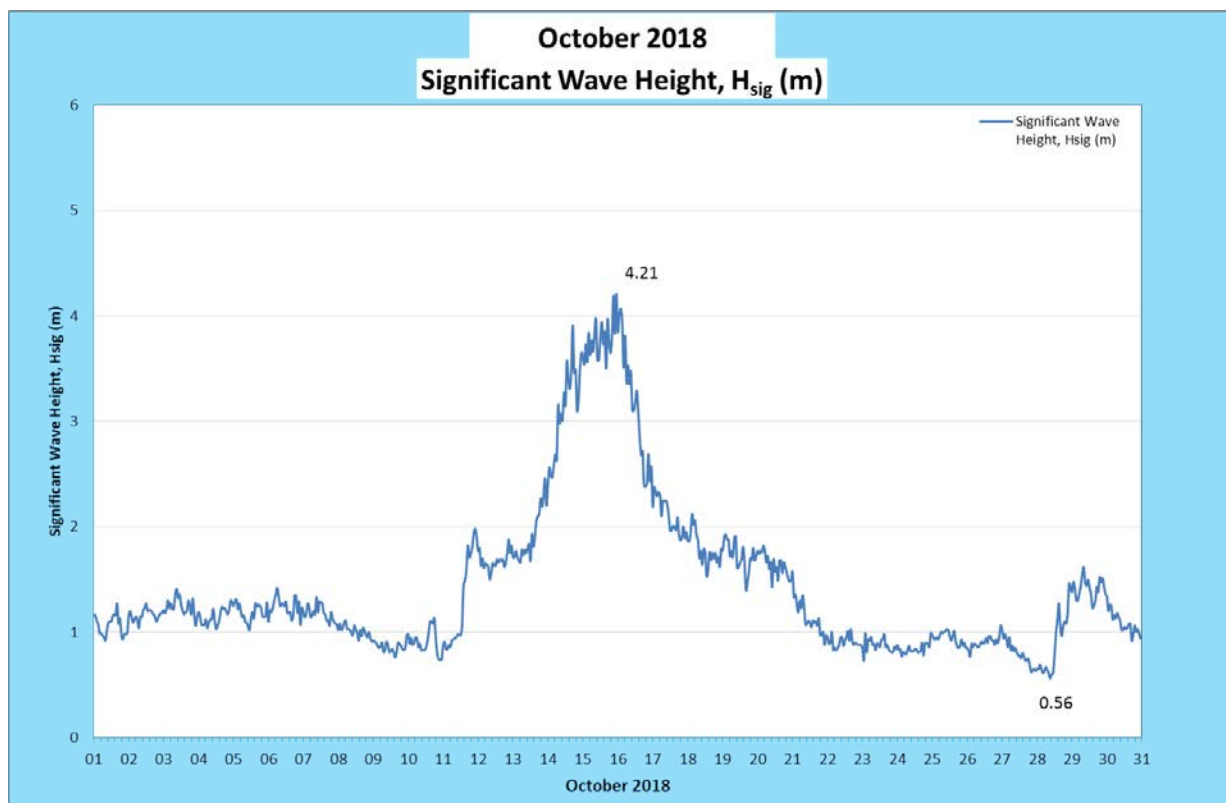
Monthly minimum significant wave height: 0.56 m on 28th October

Monthly maximum significant wave height: 4.21 m on 15th October

Number of days on which waves were below 1.0 m at some point in the day: 15 days

Number of days on which waves were above 2.0 m at some point in the day: 6 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

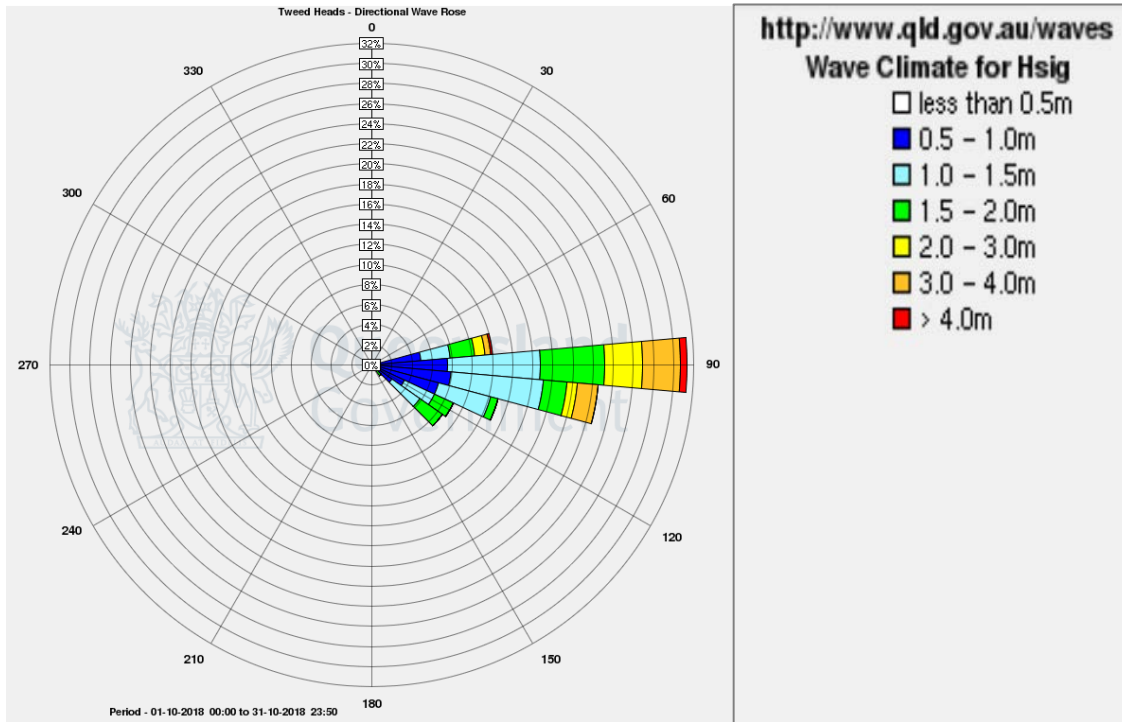


(Source: Tweed Heads Waverider Buoy; Queensland Government)

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)