

TWEED SAND BYPASSING

OVERVIEW

In October 2019:

- 15,211 m³ of sand was pumped to Duranbah and 4,301 m³ was pumped to Snapper Rocks East.
- 0 m³ of sand was dredged.
- Significant wave heights ranged from calm to moderate (0.41 m to 1.55 m), with a maximum significant wave height of 1.55 m on 17th October. Wave directions were predominantly from the SE.
- 1,333 vessel crossings were recorded for the month (This is 80% of the October average (2002 – 2019)).
- The modelled estimated amount of sand moving north towards the Tweed River entrance by natural processes was in the order of 18,000 m³ (this is 57% of the October average of 31,267 m³).

1. SAND PUMPING & DREDGING

Sand Delivery October 2019

Pumped:	19,512 m ³
Dredged:	0 m ³
Total:	19,512 m ³

The number of days sand was pumped this month = 17

Sand Delivery January 2019 to December 2019

Pumped:	333,970 m ³
Dredged:	151,360 m ³
Total:	485,330 m ³

Stage II Sand Delivery May 2000 to October 2019

Pumped:	9,623,370 m ³
Dredged:	2,471,874 m ³ *
Total:	12,095,244 m ³ *

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

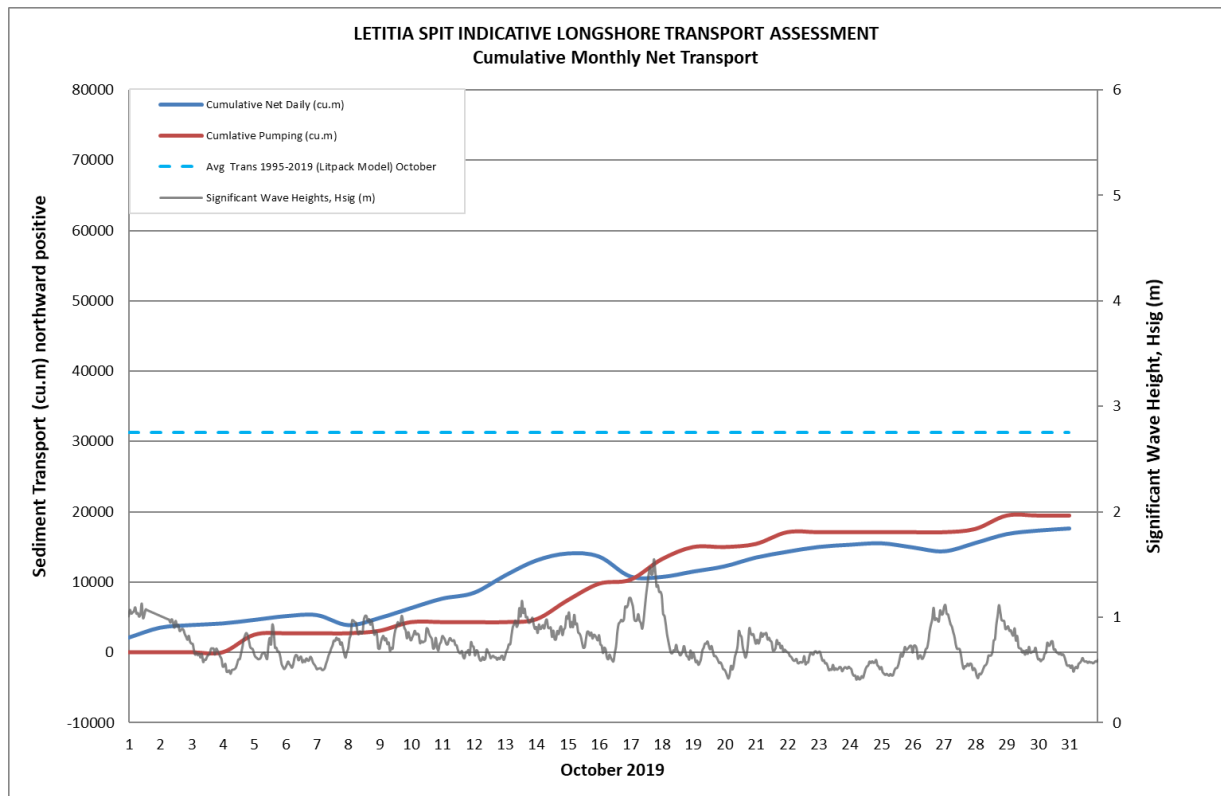
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2. INDICATIVE LONGSHORE TRANSPORT

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

In October 2019 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be 17,683 m³.

This result is 57% of the average estimated sand transport quantity of approximately 31,267 m³ for the month of October.



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3. TWEED RIVER ENTRANCE USAGE

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

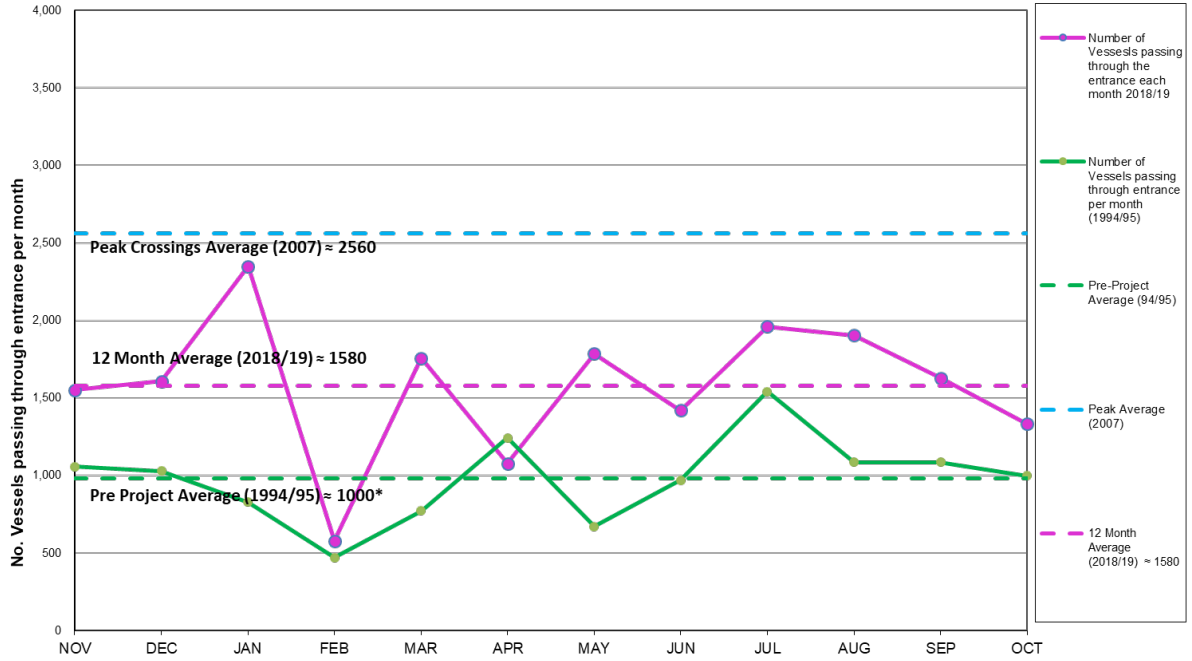
Date October 2019	Navigation Rating					Number of Crossings
	Impassable < - - - - > Good					
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						6
2						20
3						96
4						64
5						26
6						192
7						19
8						0
9						1
10						4
11						76
12						60
13						15
14						65
15						12
16						8
17						0
18						20
19						186
20						24
21						0
22						18
23						131
24						67
25						18
26						8
27						69
28						19
29						15
30						60
31						34
					Total:	1,333

Source: Marine Rescue NSW, Point Danger

* Total does not include trawlers

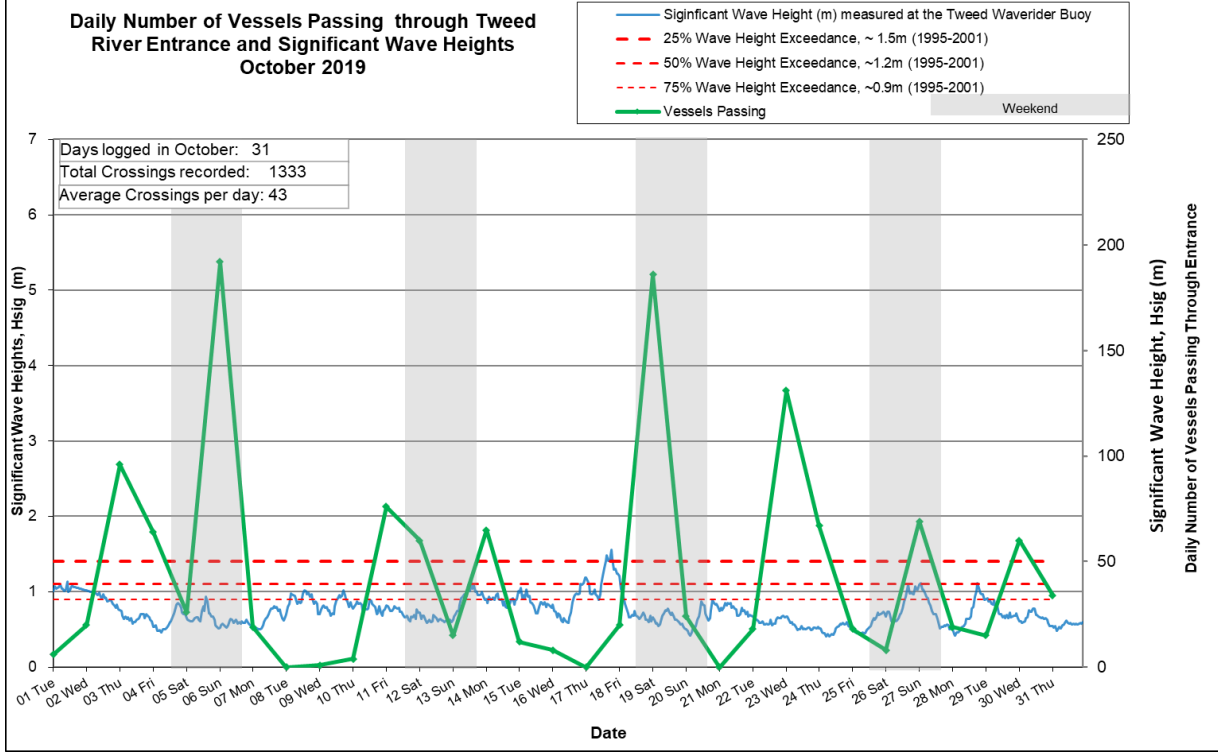
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Comparison of the number of vessels passing through the entrance per month 2018/19 compared to 2007 (peak crossings) and 1994/95 (prior to entrance improvements)



*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 October 2019



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4. WAVE CONDITIONS

Wave conditions over the month: Significant wave heights ranged mostly from calm to moderate (0.41 m to 1.55 m), with a peak significant wave height of 1.55 m on 17th October. Wave directions were predominantly from the SE.

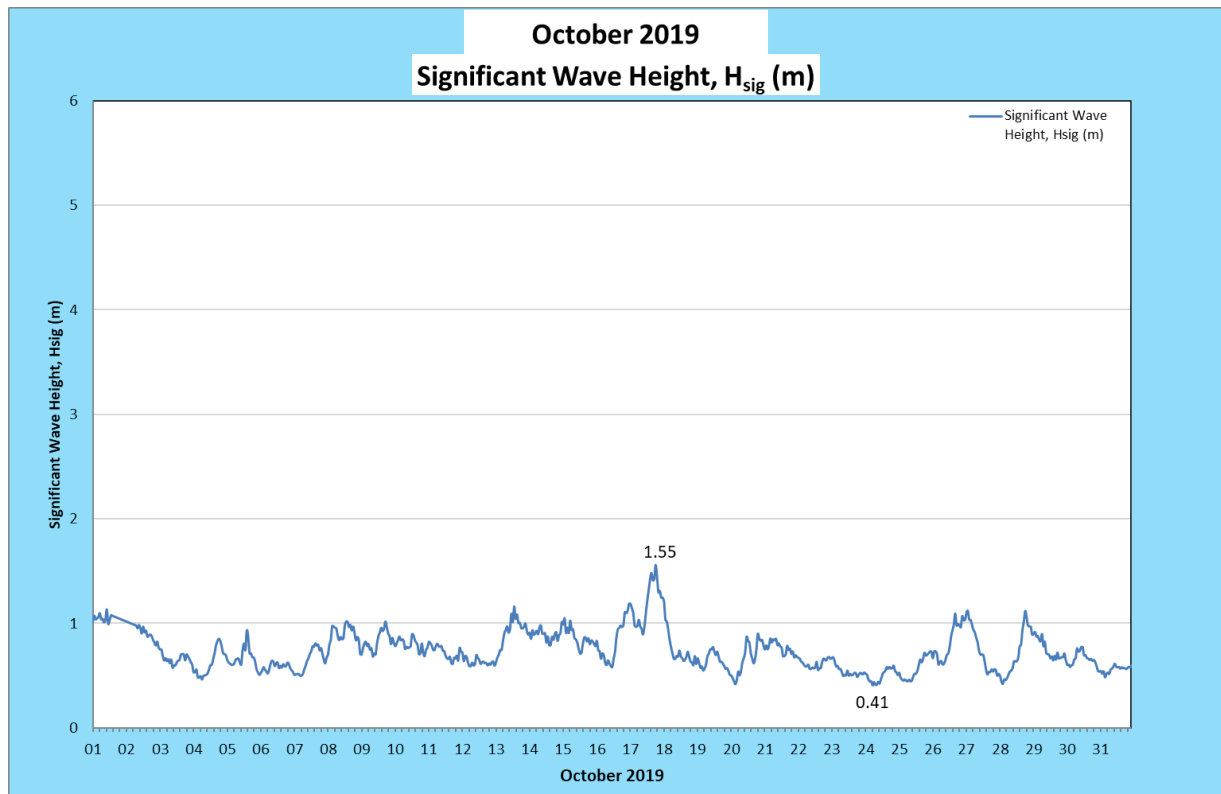
Monthly minimum significant wave height: 0.41 m on 24th October

Monthly maximum significant wave height: 1.55 m on 17th October

Number of days on which waves were below 1.0 m at some point in the day: 31 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

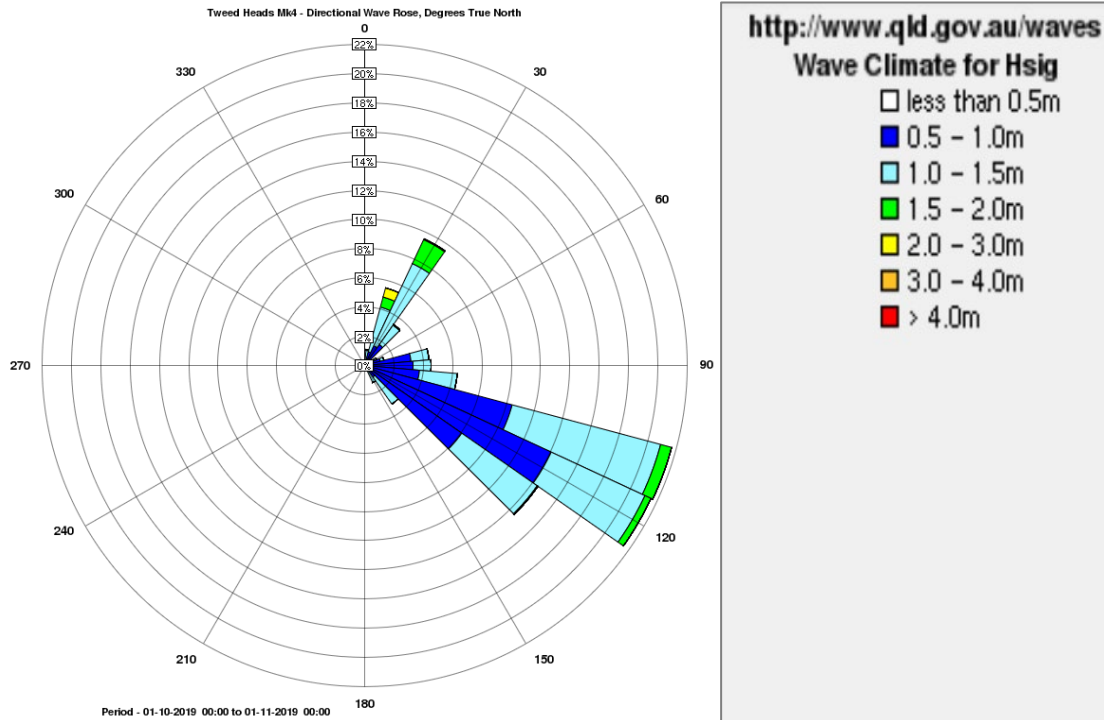


(Source: Tweed Heads Waverider Buoy; Queensland Government)

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 HeadsF Waverider Buoy; Queensland Government)