

TWEED SAND BYPASSING

OVERVIEW

In January 2020:

- 17,653m³ was pumped to Snapper Rocks East.
- 0 m³ of sand was dredged.
- Significant wave heights ranged from calm to moderate (0.41 m to 1.57 m), with a maximum significant wave height of 1.57 m on 18th January. Wave directions were predominantly from the E and ENE.
- 2,101 vessel crossings were recorded for the month (This is 102% of the January average (2002 – 2019)).
- The modelled estimated amount of sand moving north towards the Tweed River entrance by natural processes was in the order of 18,814m³ (this is 43% of the January average of 43,905m³).

1. SAND PUMPING & DREDGING

Sand Delivery January 2020

Pumped:	17,653 m ³
Dredged:	0 m ³
Total:	17,653 m ³

The number of days sand was pumped this month = 9

Sand Delivery YTD 2020

Pumped:	17,653 m ³
Dredged:	0 m ³
Total:	17,653 m ³

Stage II Sand Delivery May 2000 to January 2020

Pumped:	9,667,105 m ³
Dredged:	2,471,874 m ³ *
Total:	12,138,979 m ³ *

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

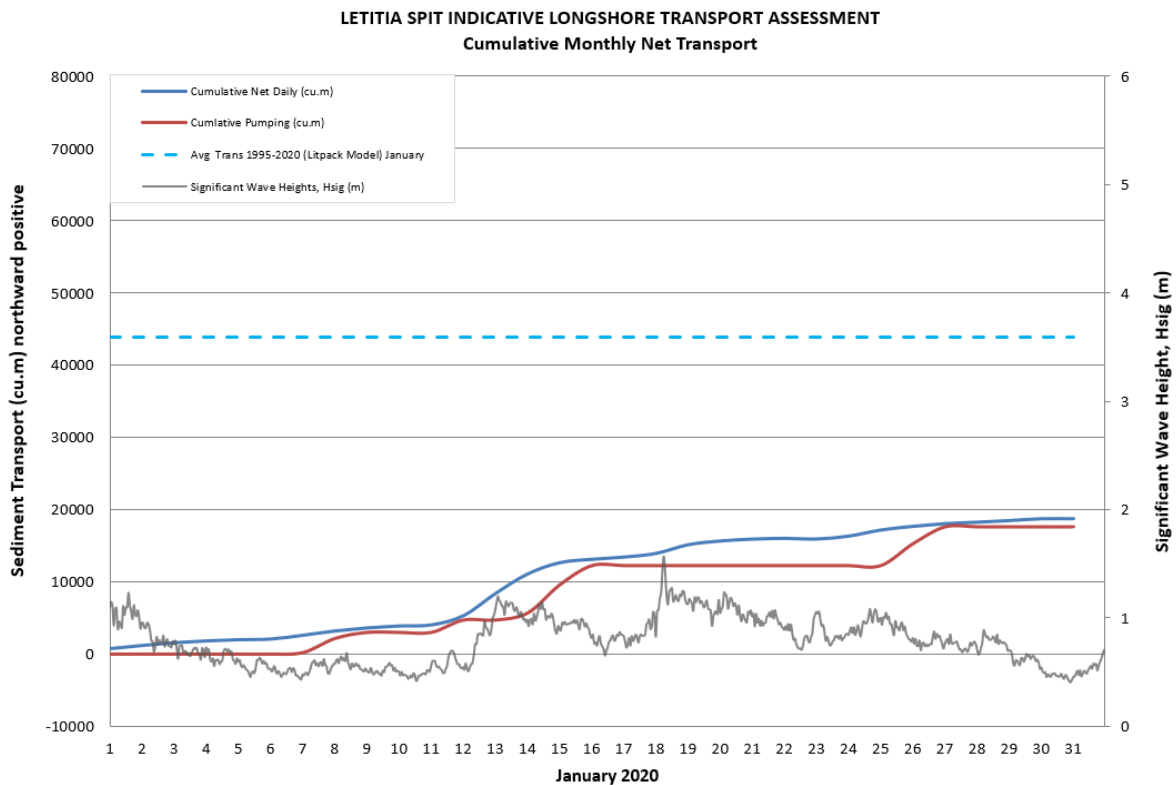
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2. INDICATIVE LONGSHORE TRANSPORT

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

In January 2020 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be 18,814 m³.

This result is 43% of the average estimated sand transport quantity of approximately 43,905m³ for the month of January.



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3. TWEED RIVER ENTRANCE USAGE

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

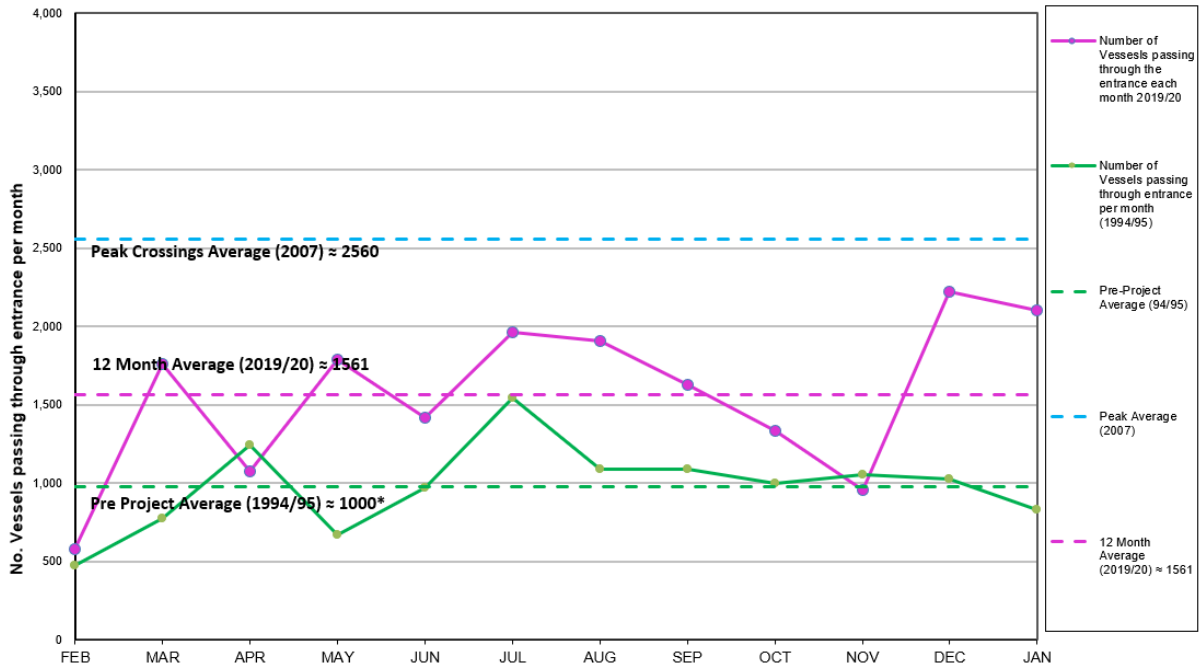
Date January 2020	Navigation Rating					Number of Crossings
	Impassable < - - - - > Good					
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						32
2						57
3						164
4						154
5						31
6						182
7						135
8						151
9						152
10						121
11						45
12						32
13						4
14						18
15						88
16						64
17						43
18						6
19						18
20						1
21						0
22						18
23						6
24						5
25						20
26						41
27						218
28						51
						36
29						123
30						85
					Total:	2,101

Source: Marine Rescue NSW, Point Danger

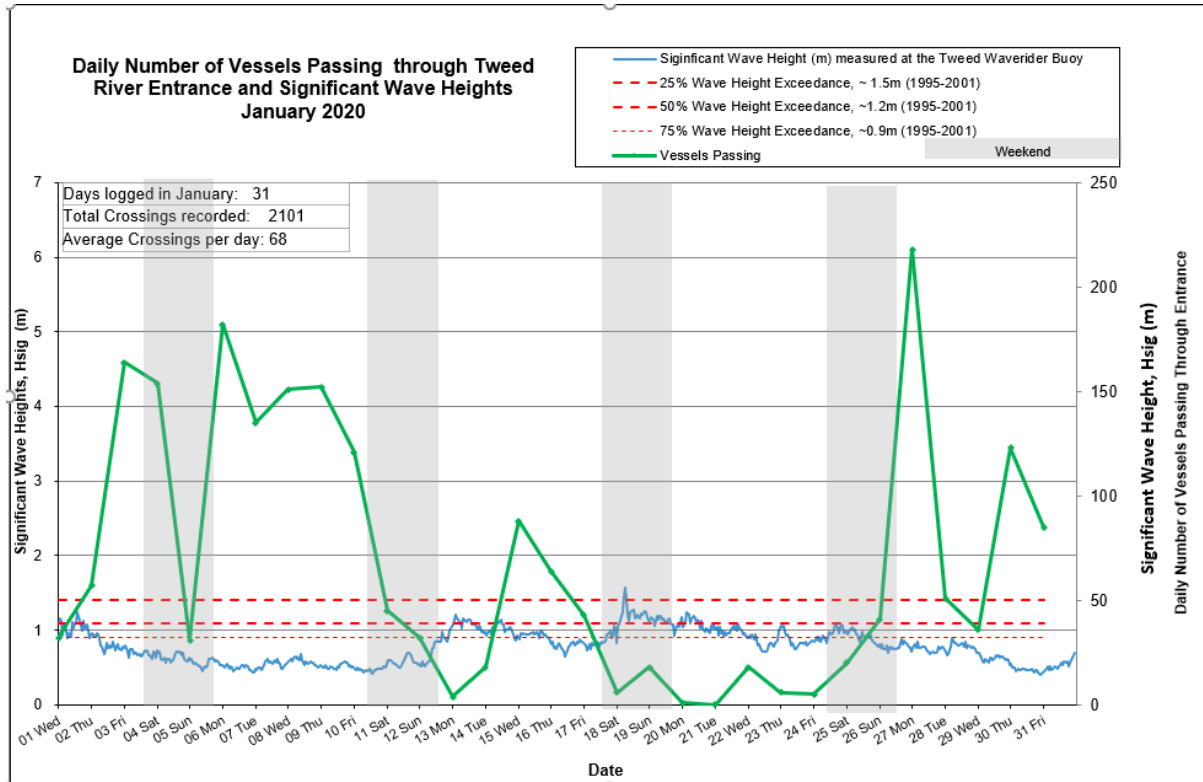
* Total does not include trawlers

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Comparison of the number of vessels passing through the entrance per month 2019/20 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



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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 1.57 m), with a peak significant wave height of 1.57 m on 18th January. Wave directions were predominantly from the E and ENE.

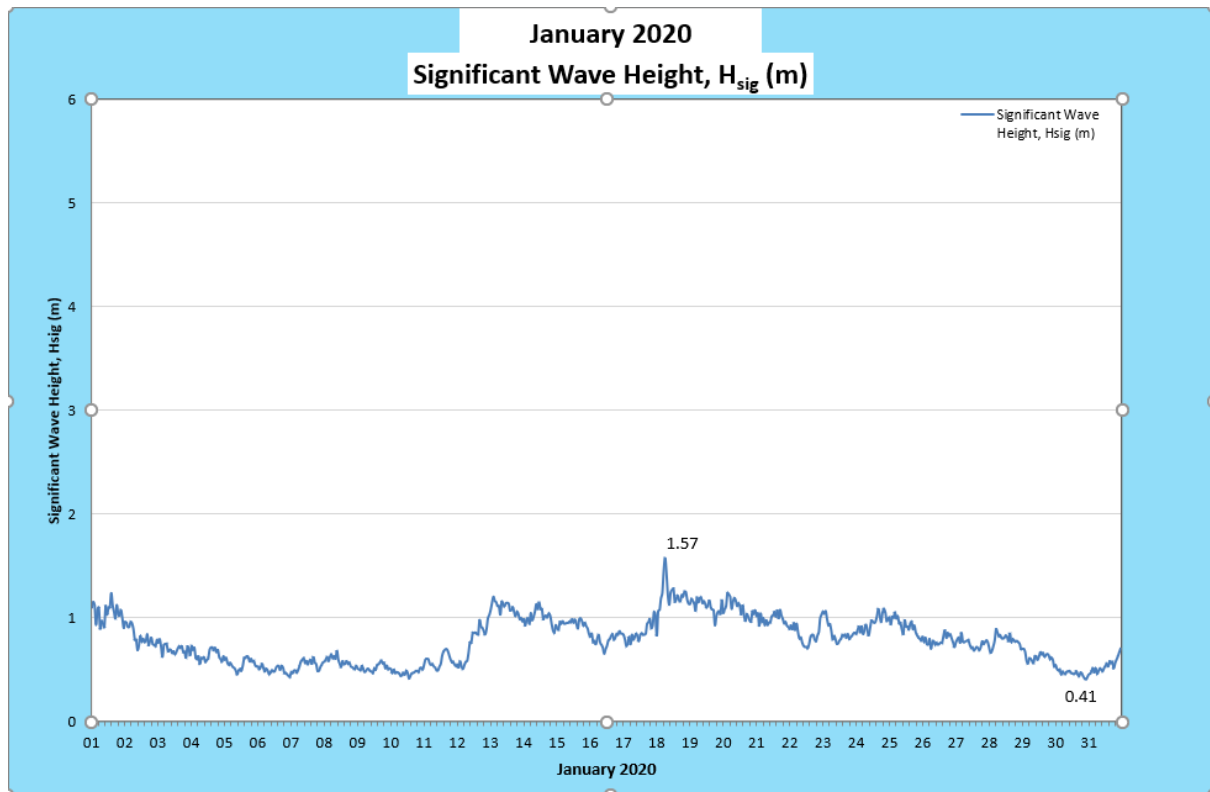
Monthly minimum significant wave height: 0.41 m on 31st January

Monthly maximum significant wave height: 1.57m on 18th January

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

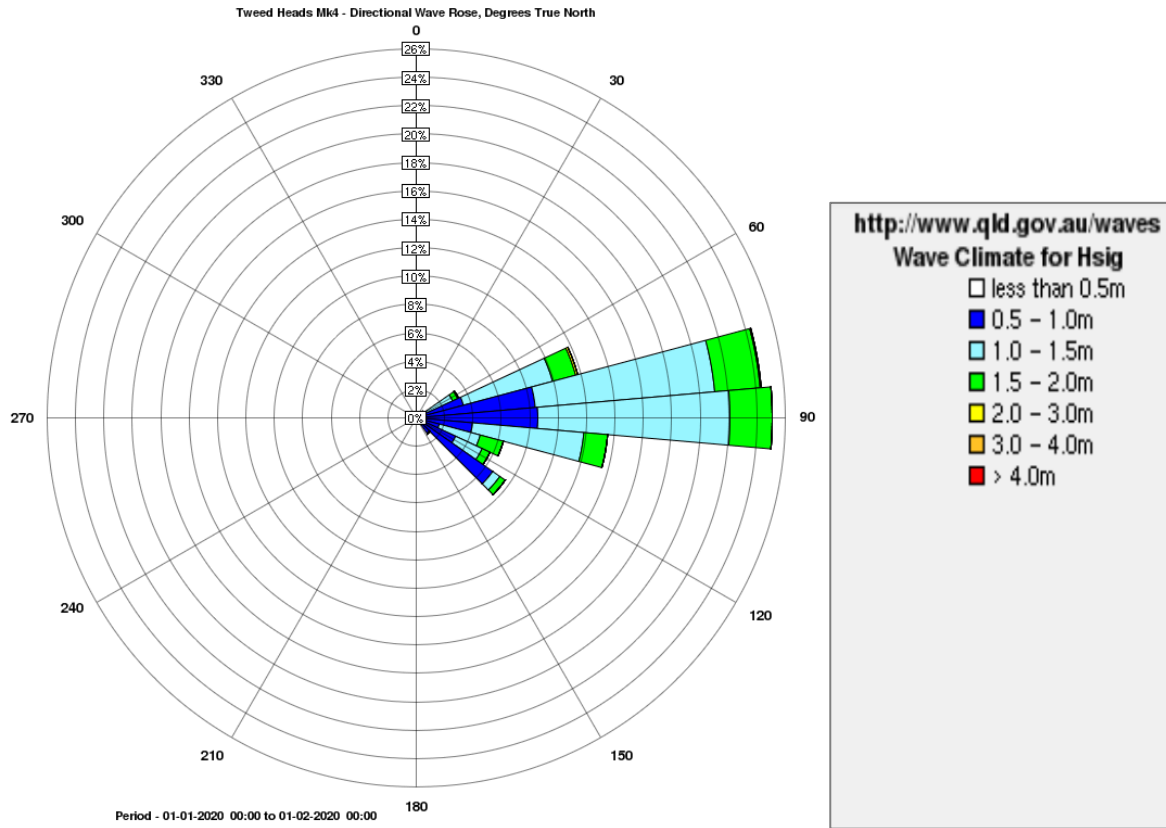


(Source: Tweed Heads Waverider Buoy; Queensland Government)

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)