TRESBP ENVIRONMENTAL MONITORING SUMMARY
July 2016

OVERVIEW

In July 2016:

- 25,431 m^3 of sand was pumped to Snapper Rocks East.
- 7,164 m^3 of sand was pumped to Duranbah Beach.
- There were no media articles relating to the Project area during July.
- Wave heights ranged mostly from calm to moderate (0.36 to 1.93 m), with a maximum significant wave height of 1.93 m on 16th July. Wave directions varied from NE by N to SE but mostly from the SE by E.
- 2144 vessel crossings were recorded for the month. (This is 8% more than the July average).
- The estimated amount of sand moving north towards the Tweed River Entrance by natural processes was in the order of 42,000 m^3 (this is about 78% of the July average of about 62,000 m^3).

1. SAND PUMPING & DREDGING

Sand Delivery July 2016

Pumped:	32,595 m^3
Dredged:	0 m^3
Total:	32,595 m^3

The number of days sand was pumped this month = 24

Sand Delivery January 2016 to July 2016

Pumped:	295,222 m^3
Dredged:	41,938 m^3
Total:	337,160 m^3

Stage II Sand Delivery April 2000 to July 2016

Pumped:	8,398,287 m^3
Dredged:	2,103,910 m^3 *
Total:	10,502,197 m^3 *

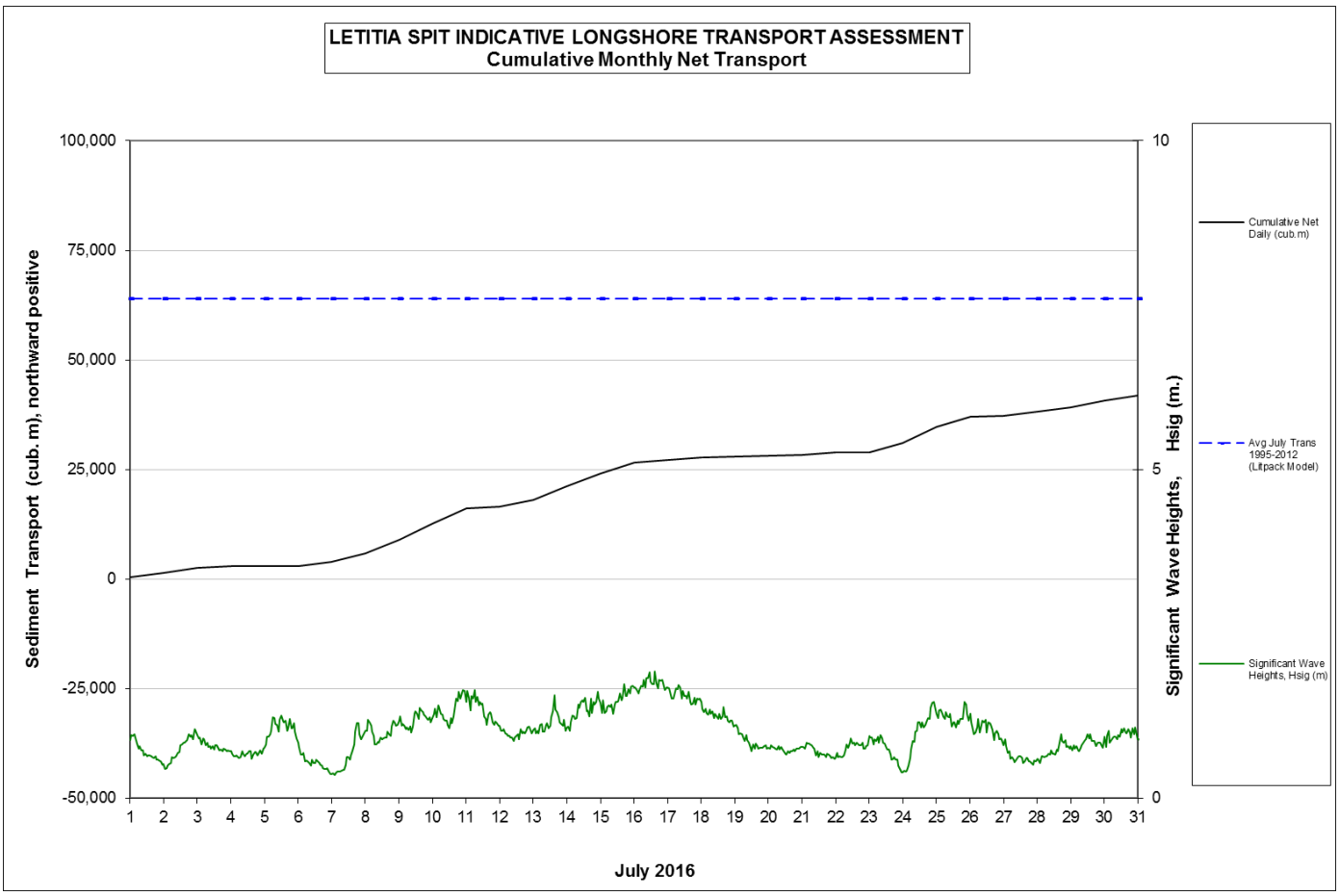
* This Includes 22,870 m^3 of sand delivered by dredge to Palm Beach between July and September 2005

2. INDICATIVE LONGSHORE TRANSPORT

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

In July 2016 the estimated natural sand transport moving North towards the Tweed River entrance was calculated to be in the order of 42,000 m^3.

This result is about 78% of the average estimated sand transport quantity of approximately 62,000 m^3 for the month of July.



3. MEDIA COVERAGE

There were no media articles relating to the Project area during July.

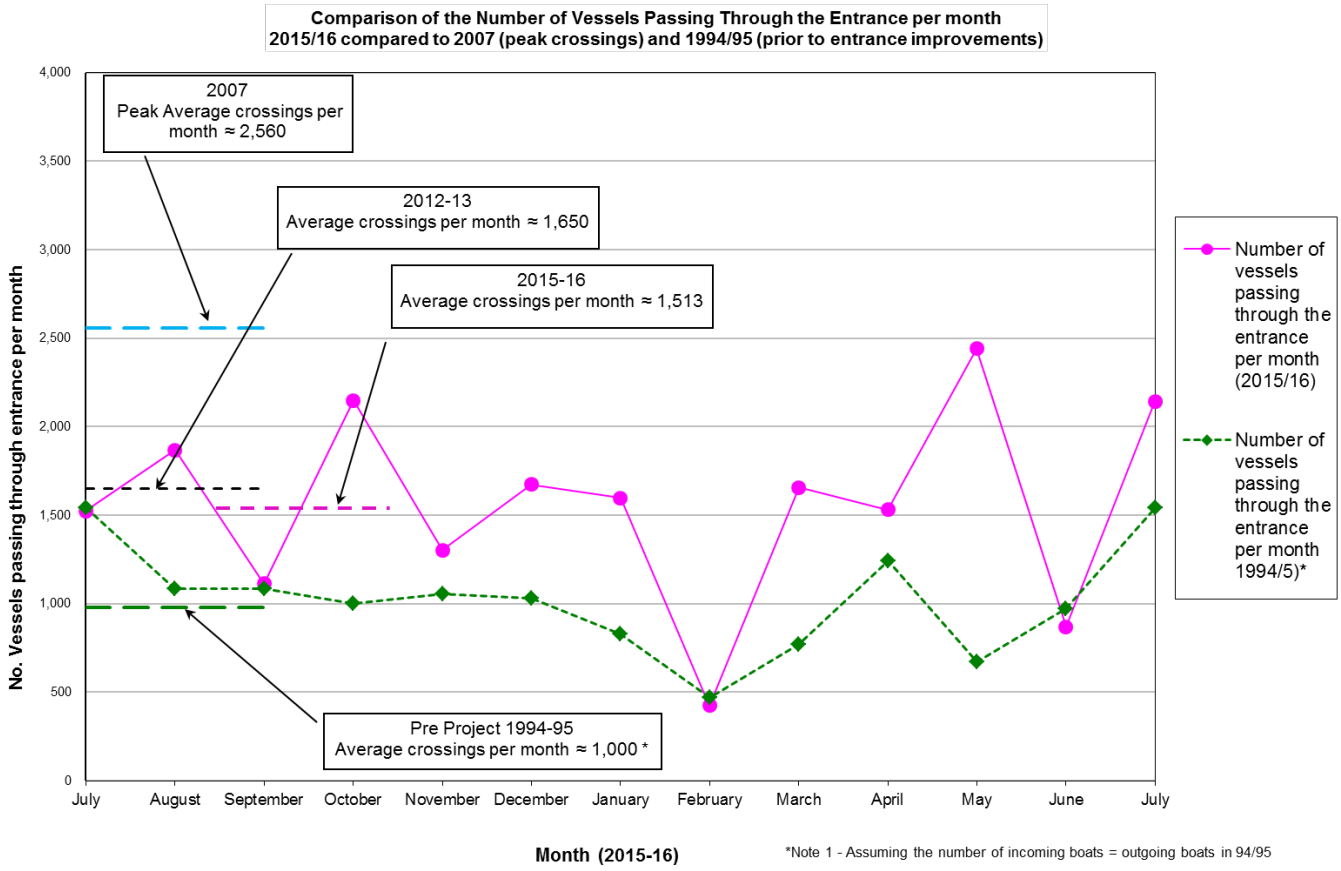
4. TWEED RIVER ENTRANCE CONDITIONS

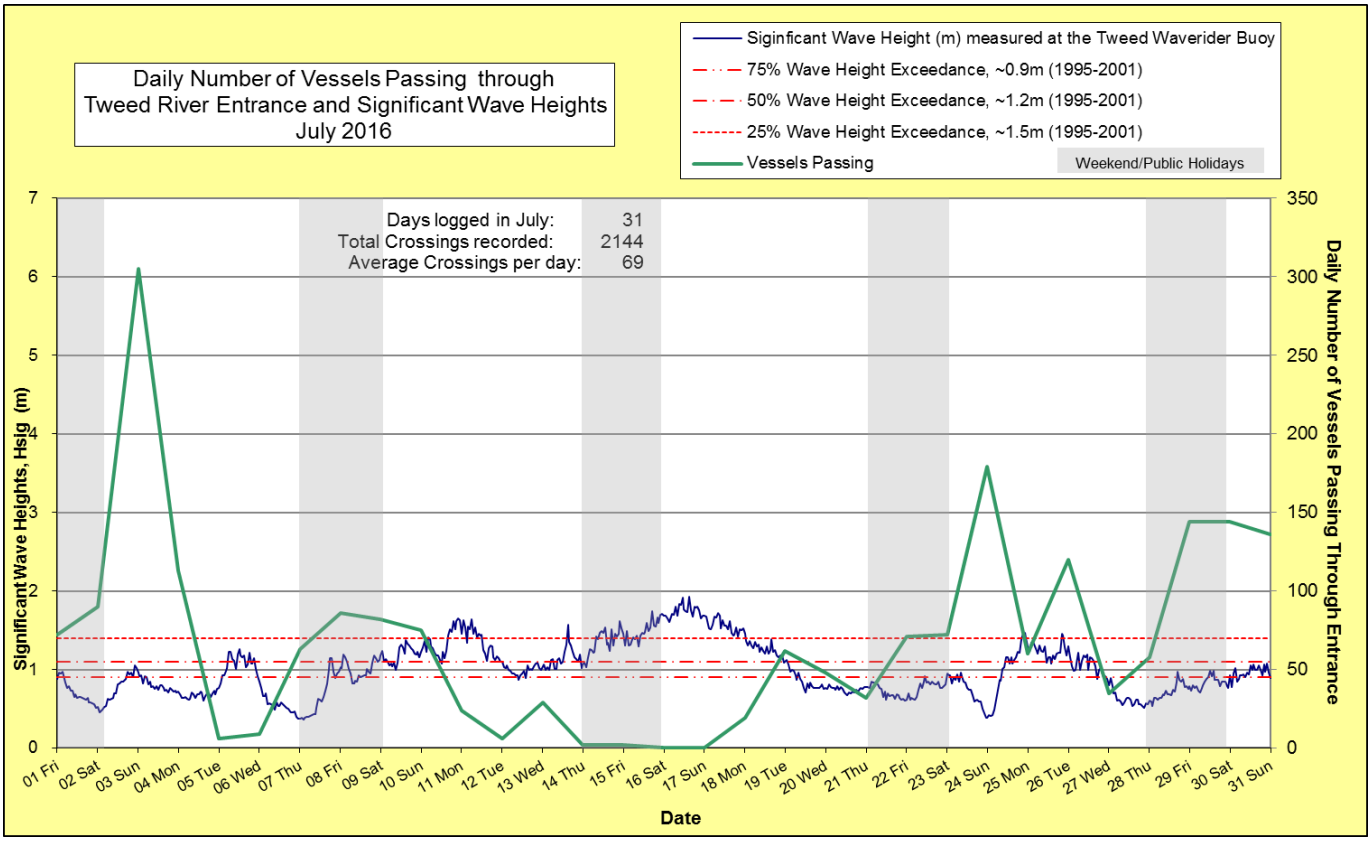
MARINE RESCUE NSW - MONITORING RESULTS

Weekends and public holidays

Date	Navigation Rating Impassable----------Good					Number of Boats
	Impassable (1)	Difficulty Encountered (2)	Some Difficulty Encountered (3)	Relatively Good Crossing (4)	Good Conditions (5)	
1st						72
2nd						90
3rd						305
4th						113
5th						6
6th						9
7th						63
8th						86
9th						82
10th						75
11th						24
12th						6
13th						29
14th						2
15th						2
16th						0
17th						0
18th						19
19th						62
20th						48
21st						32
22nd						71
23rd						72
24th						179
25th						60
26th						120
27th						35
28th						58
29th						144
30th						144
31st						136
					Total	2144

Source: *Marine Rescue NSW, Point Danger*





5. WAVE CONDITIONS

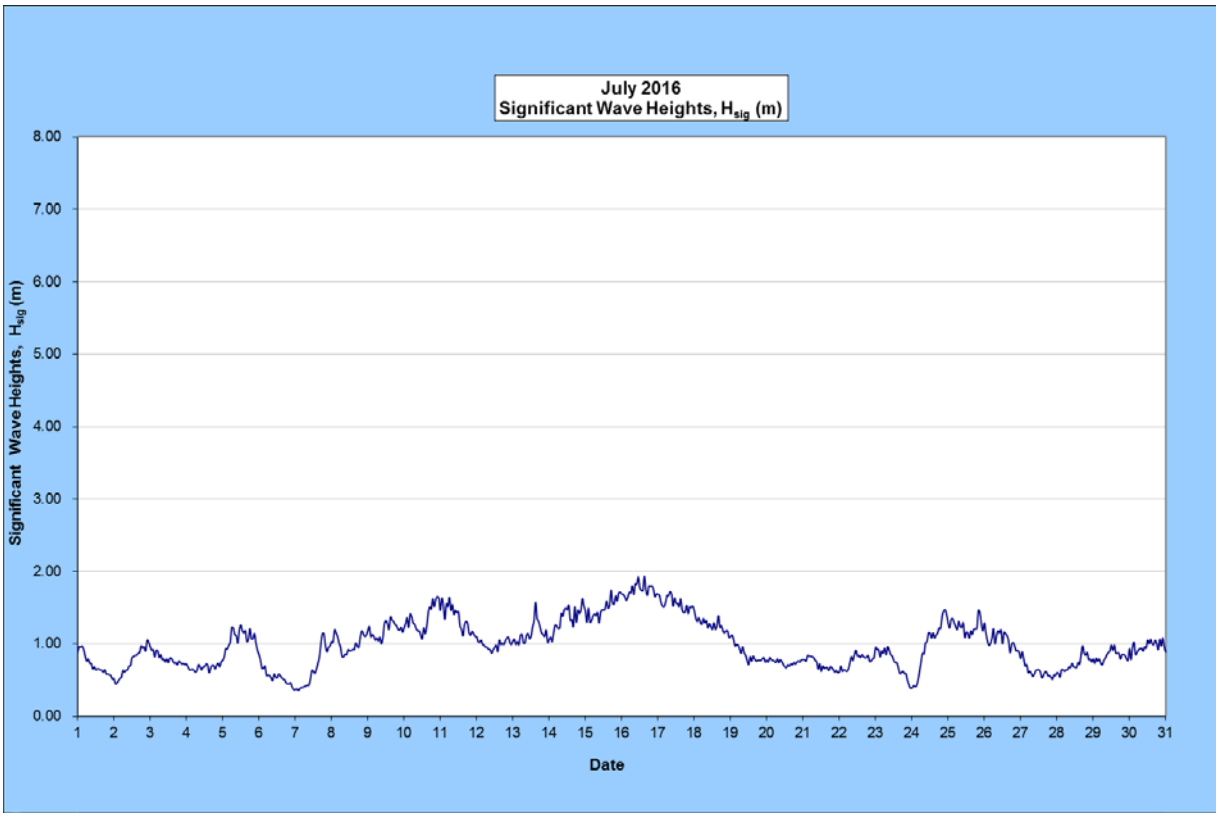
Wave conditions over the month: Wave heights ranged mostly from calm to average (0.36 to 1.93 m), with a maximum significant wave height of 1.93 m on 16th July. Wave directions varied from NE to SE but mostly from the SE by E.

Monthly minimum significant wave height: 0.36 m on 7th July
Monthly maximum significant wave height: 1.93 m on 16th July

Number of days on which waves were below 1.0 m at some point in the day: 18 days

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

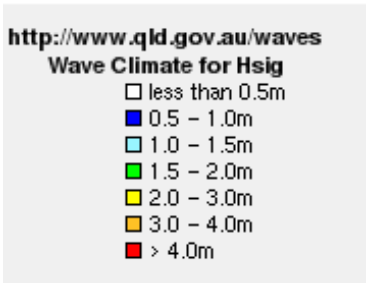
Note: Significant wave heights or H_{sig} is the average of the highest one third of recorded waves.

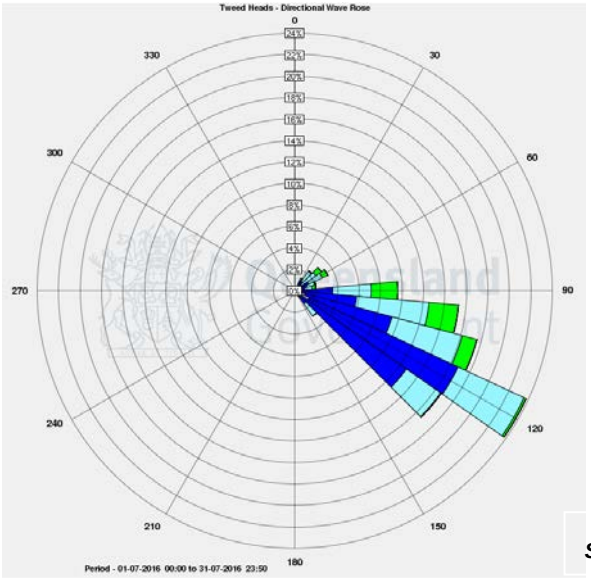


*(**Source:** Tweed Wave Buoy; Queensland Government)*

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

WAVE DIRECTION





Source: *Queensland Government*