

TRESBP ENVIRONMENTAL MONITORING SUMMARY

MARCH 2016

OVERVIEW

In March 2016:

- 21,276 m³ of sand was pumped to Snapper Rocks East and 3,747 m³ of sand was pumped to Duranbah beach.
- There was one media report relating to the Project area during March.
- Wave heights ranged mostly from calm to a minor storm (0.9 to 2.1 m), with a maximum significant wave height of 2.1 m on 13th March. Moderate sea events were seen on the 13-15th, 17th and 21-22nd. Wave directions varied from NE by E to ESE mostly from E.
- 1657 vessel crossings were recorded for the month. (This is almost same as the March average).
- The estimated amount of sand moving north towards the Tweed River Entrance by natural processes was in the order of 49,000 m³ (this is about 90% the March average of about 56,000 m³).

1. SAND PUMPING & DREDGING

Sand Delivery March 2016

Pumped:	25,023 m ³
Dredged:	0 m ³
Total:	25,023 m ³

The number of days sand was pumped this month = 22

Sand Delivery January 2016 to March 2016

Pumped:	150,510 m ³
Dredged:	0 m ³
Total:	150,510 m ³

Stage II Sand Delivery April 2000 to March 2016

Pumped:	8,253,575 m ³
Dredged:	2,061,972 m ³ *
Total:	10,315,547 m ³ *

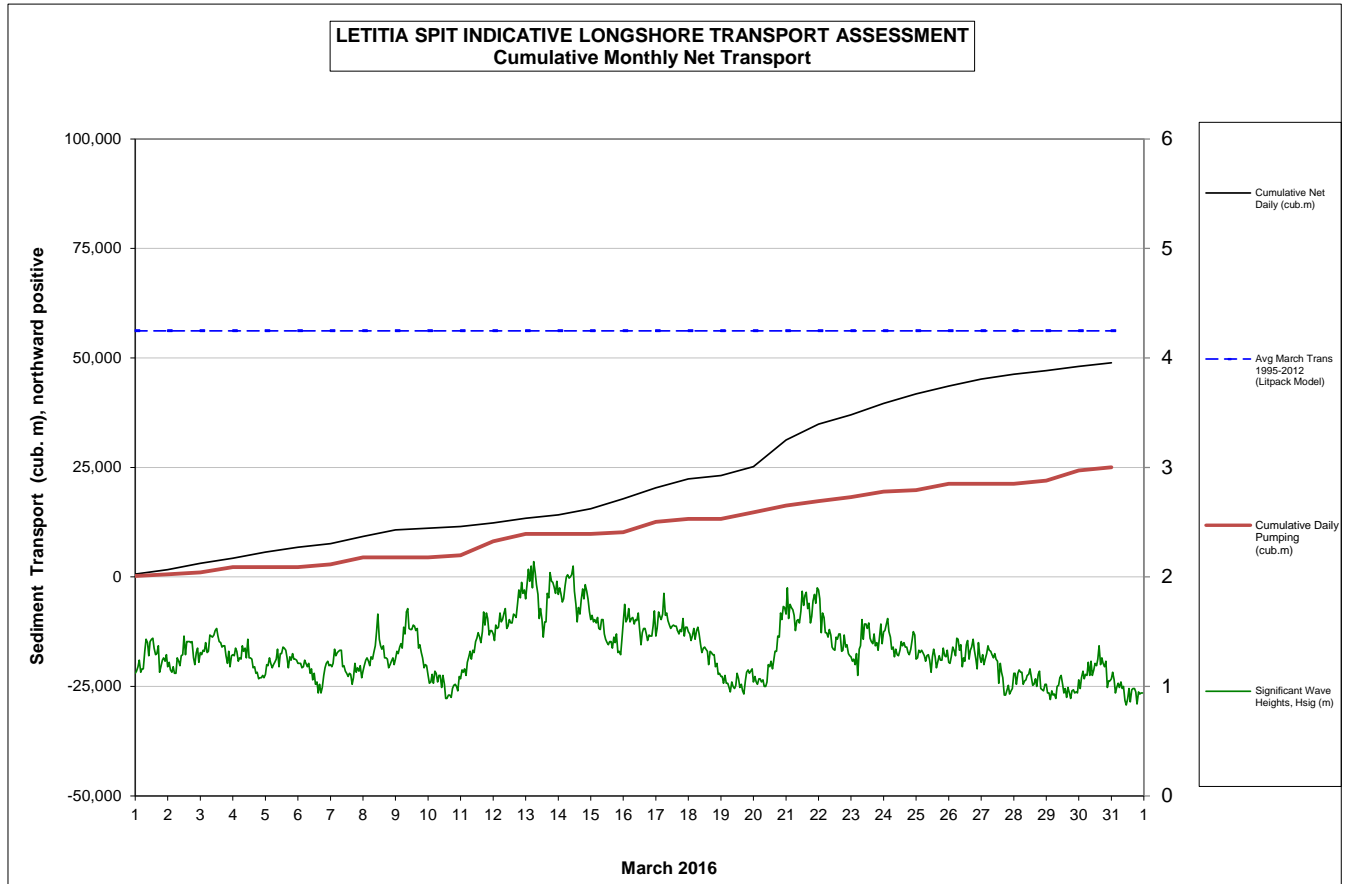
* This Includes 22,870 m³ of sand delivered by dredge to Palm Beach between June and September 2005

2. INDICATIVE LONGSHORE TRANSPORT

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

In March 2016 the estimated natural sand transport moving North towards the Tweed River entrance was calculated to be in the order of 49,000 m³.

This result is about 90% of the March average.



3. MEDIA COVERAGE

Tweed/Southern Sun published a media article on the 31st reporting that Port Frederick dredger could be operating over the next few weeks to remove the sand bar at the Tweed River entrance.

4. TWEED RIVER ENTRANCE CONDITIONS

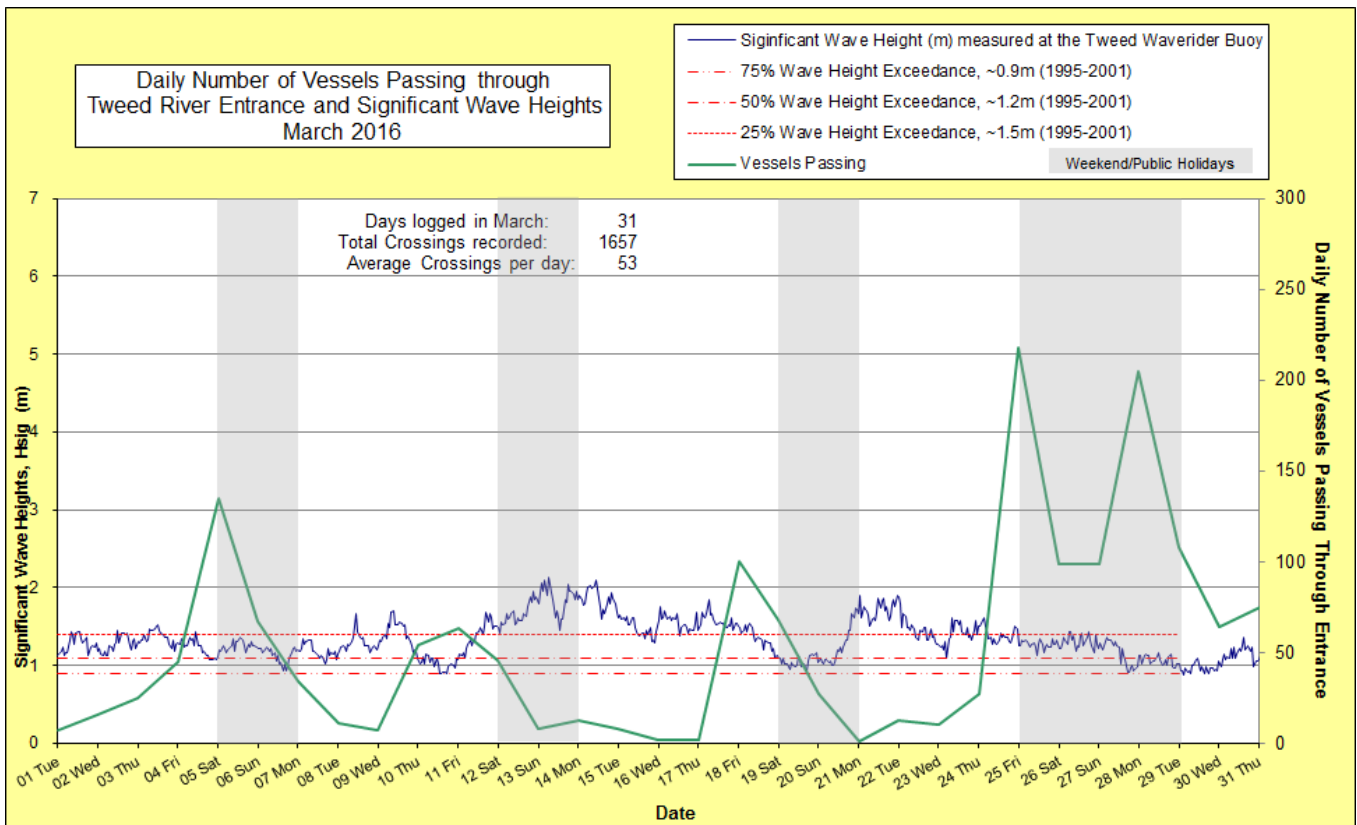
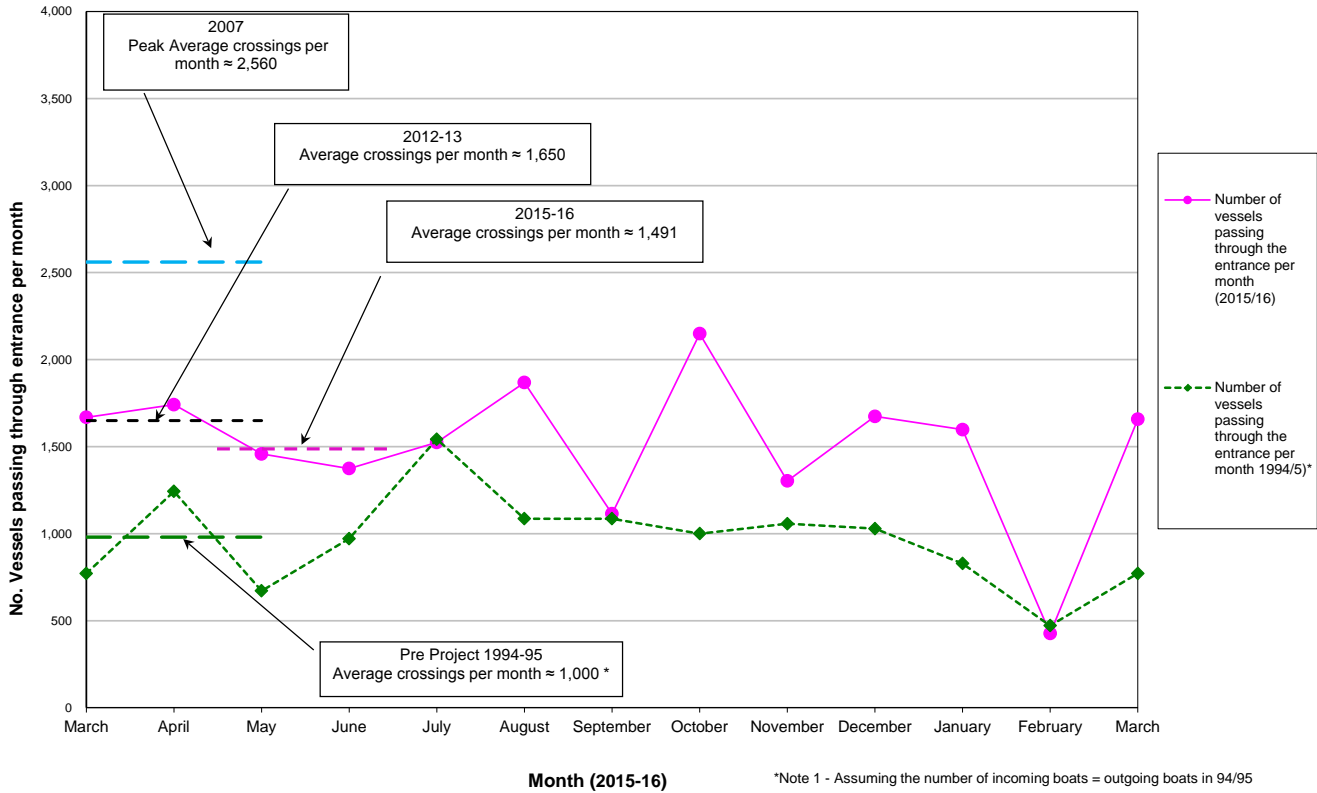
MARINE RESCUE NSW - MONITORING RESULTS

 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)	
1 st						7
2 nd						16
3 rd						25
4 th						45
						135
						67
7 th						34
8 th						11
9 th						7
10 th						54
11 th						63
						46
						8
14 th						13
15 th						8
16 th						2
17 th						2
18 th						100
						68
						27
21 st						1
22 nd						13
23 rd						10
24 th						27
						218
						99
						99
						205
29 th						108
30 th						64
31 st						75
Total						1657

Source: Marine Rescue NSW, Point Danger

Comparison of the Number of Vessels Passing Through the Entrance per month 2014/15 compared to 2007 (peak crossings) and 1994/95 (prior to entrance improvements)



5. WAVE CONDITIONS

Wave conditions over the month: Wave heights ranged mostly from calm to a minor storm (0.9 to 2.1 m), with a maximum significant wave height of 2.1 m on 13th March. Moderate sea events were seen on the 13-15th, 17th and 21-22nd. Wave directions varied from NE by E to ESE mostly from the E.

Monthly minimum significant wave height: 0.8 m on 31th March

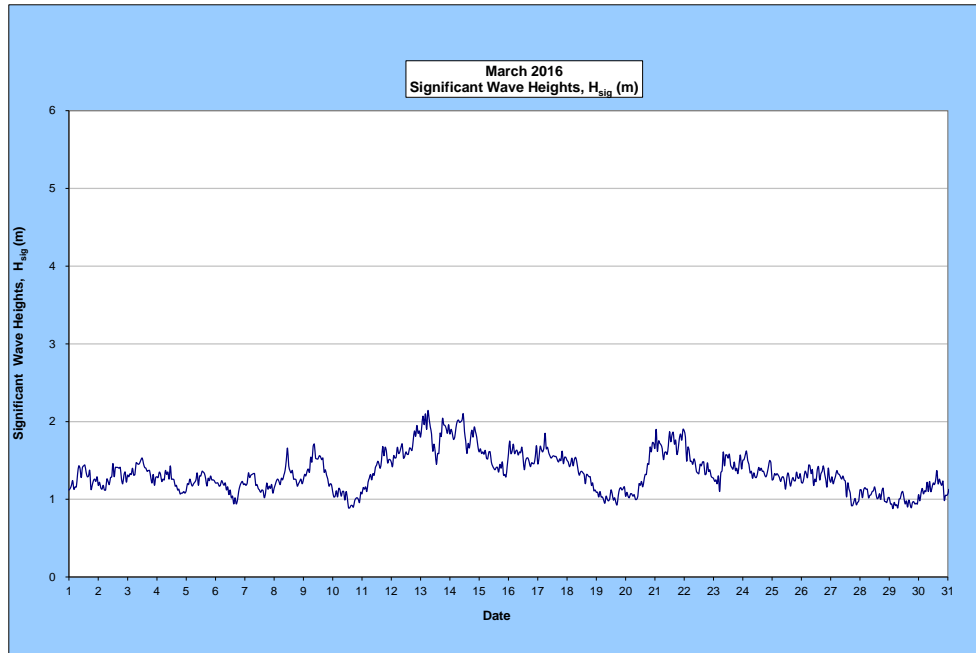
Monthly maximum significant wave height: 2.1 m on 13th March

Number of days on which waves were below 1.0 m at some point in the day: 8 days

Number of days on which waves were above 2.0 m at some point in the day: 2 days

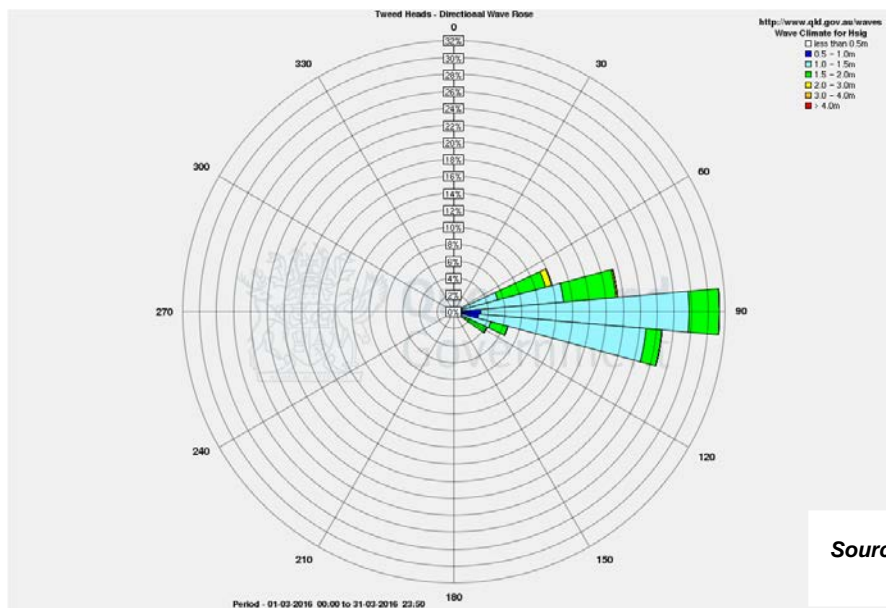
Note: Significant wave heights or H_{sig} is the average of the highest one third of recorded waves.

(Source: Tweed & Brisbane 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