TRESBP ENVIRONMENTAL MONITORING SUMMARY
JUNE 2013

OVERVIEW

In June, 2013:

- 46,838 m^3 of sand was pumped to Snapper Rocks East.
- There were no media articles relating to the project.
- Sea conditions were generally about average throughout the month. There were two moderate sea events on the 3rd to 4th and 28th to 29th with peak significant wave heights to 2.4m. Wave direction ranged from NNE to SSE but was dominantly from ESE.
- 1,285 vessel crossings were recorded for the month (this is about 28% less than the June average).
- The estimated amount of sand moving north towards the Tweed River Entrance by natural processes was in the order of 85,000 m^3 (this is about 160% of the June average of about 53,000 m^3).

1. SAND PUMPING & DREDGING

Sand Delivery June 2013

Pumped:	46,838 m^3
Dredged:	0 m^3
Total:	46,838 m^3

Sand Delivery January to June 2013 (YTD)

Pumped:	185,515 m^3
Dredged:	0 m^3
Total:	185,515 m^3

Sand Delivery January to June 2012

Pumped:	234,590 m^3
Dredged:	0 m^3
Total:	234,590 m^3

Stage II Sand Delivery May 2000 to June 2013

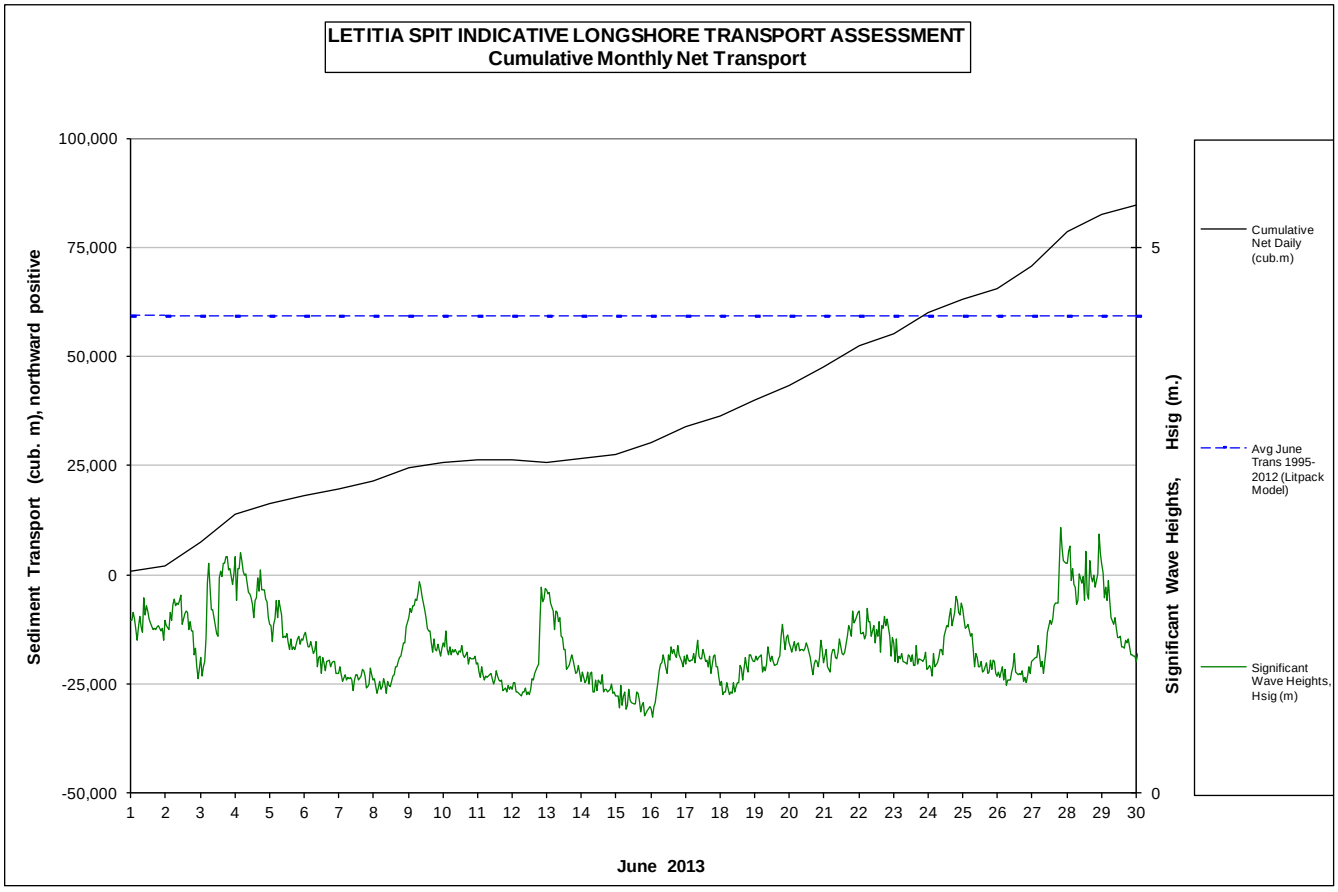
Pumped:	6,950,514 m^3
Dredged:	2,039,104 m^3
Total:	8,989,618 m^3

2. INDICATIVE LONGSHORE TRANSPORT

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

In June 2013 the estimated natural sand transport (moving North towards the Tweed River entrance): was calculated to be in the order of 85,000 m^3.

This result is about 160% of the average estimated sand transport quantity of approximately 53,000 m^3 for the month of June.



3. MEDIA COVERAGE

There were no media articles directly relating to the project during June.

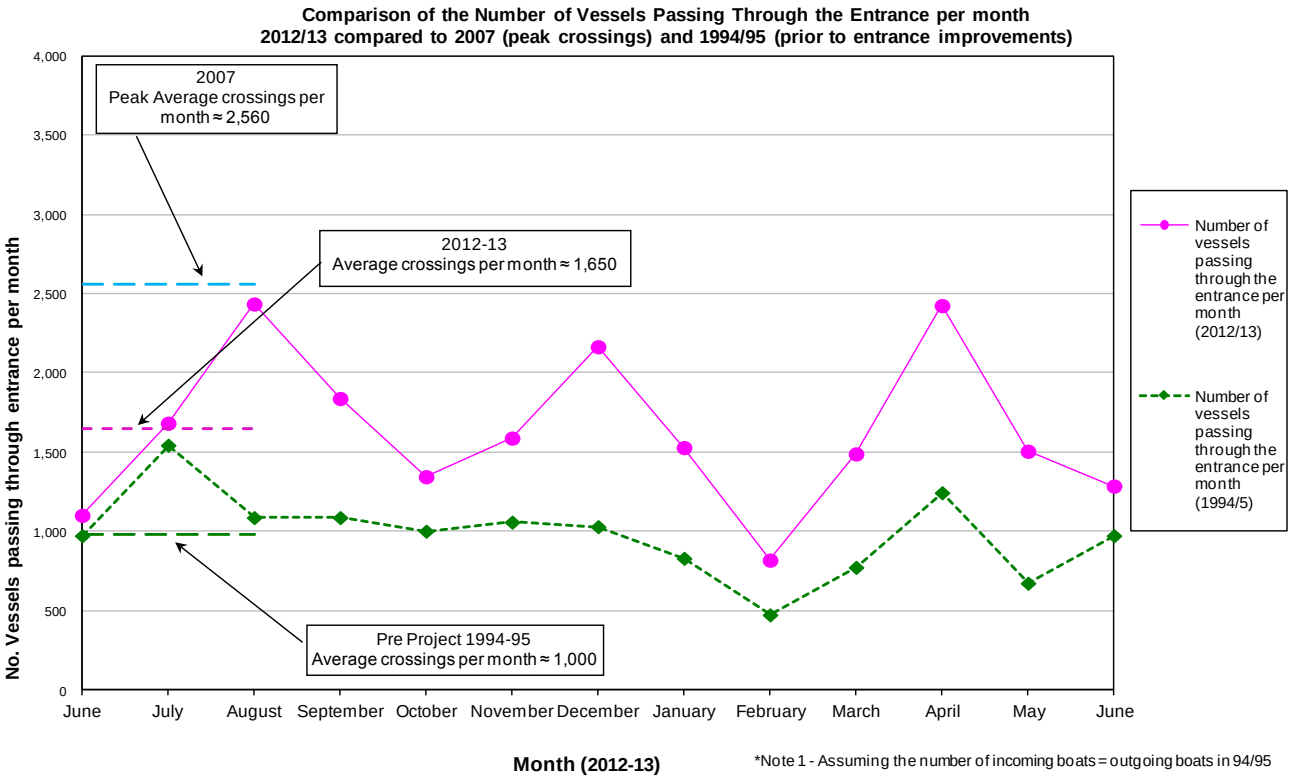
4. TWEED RIVER ENTRANCE CONDITIONS

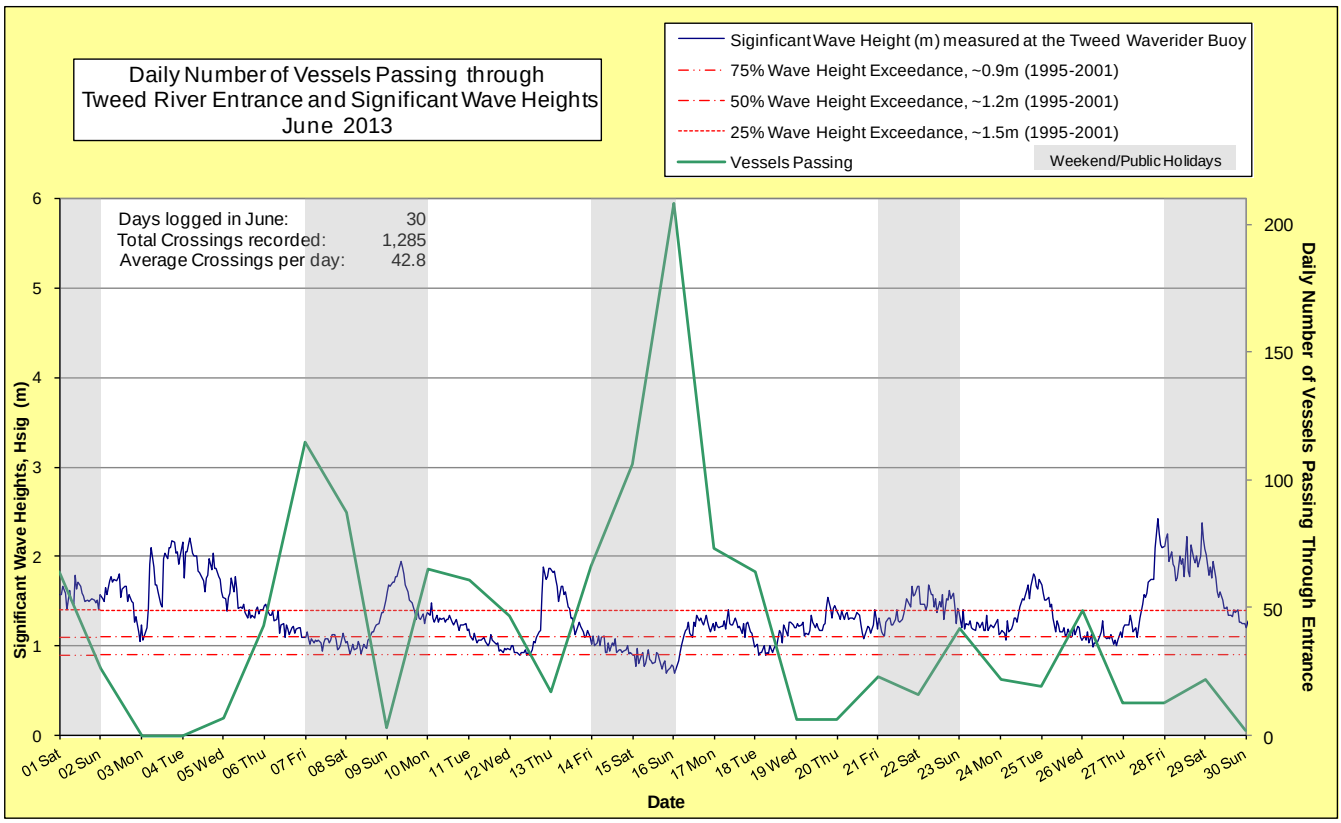
MARINE RESCUE NSW - MONITORING RESULTS

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						64
2nd						26
3rd						0
4th						0
5th						7
6th						43
7th						115
8th						87
9th						3
10th						65
11th						61
12th						47
13th						17
14th						66
15th						106
16th						208
17th						73
18th						64
19th						6
20th						6
21st						23
22nd						16
23rd						42
24th						22
25th						19
26th						49
27th						13
28th						13
29th						22
30th						2
					Total	**1,285**

Source: *Marine Rescue NSW, Point Danger*


Comparison of the Number of Vessels Passing Through the Entrance per month
2012/13 compared to 2007 (peak crossings) and 1994/95 (prior to entrance improvements)
2007
Peak Average crossings per month ≈ 2,560
2012-13
Average crossings per month ≈ 1,650
Pre Project 1994-95
Average crossings per month ≈ 1,000
No. Vessels passing through entrance per month
Month (2012-13)
Number of vessels passing through the entrance per month (2012/13)
Number of vessels passing through the entrance per month (1994/5)
*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 June 2013
Siginficant Wave Height (m) measured at the Tweed Waverider Buoy
75% Wave Height Exceedance, ~0.9m (1995-2001)
50% Wave Height Exceedance, ~1.2m (1995-2001)
25% Wave Height Exceedance, ~1.5m (1995-2001)
Vessels Passing
Weekend/Public Holidays
Days logged in June: 30
Total Crossings recorded: 1,285
Average Crossings per day: 42.8
Significant Wave Heights, Hsig (m)
Daily Number of Vessels Passing Through Entrance
Date

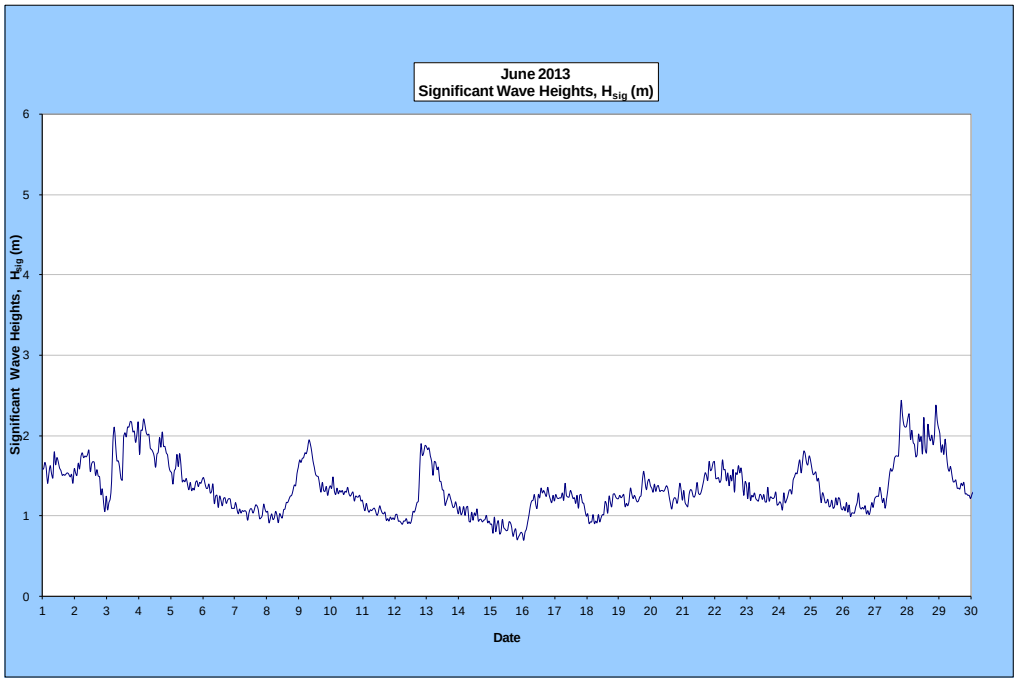
5. WAVE CONDITIONS

Wave Conditions over the month: Significant wave heights were about average for most of the month with two moderate sea events recorded (from the 3rd to 4th and 28th to 29th) with peak significant wave heights to 2.4 m. Wave direction ranged from NNE to SSE but was dominantly from ESE.

Major sea events: 3rd to 4th and 28th to 29th of June.
Monthly minimum significant wave height: 0.7 m on 16th June.
Monthly peak significant wave height: 2.4 m on 27th June.
Number of days on which waves were below 1.0 m: 8 days
Number of days on which waves were above 2.0 m: 4 days

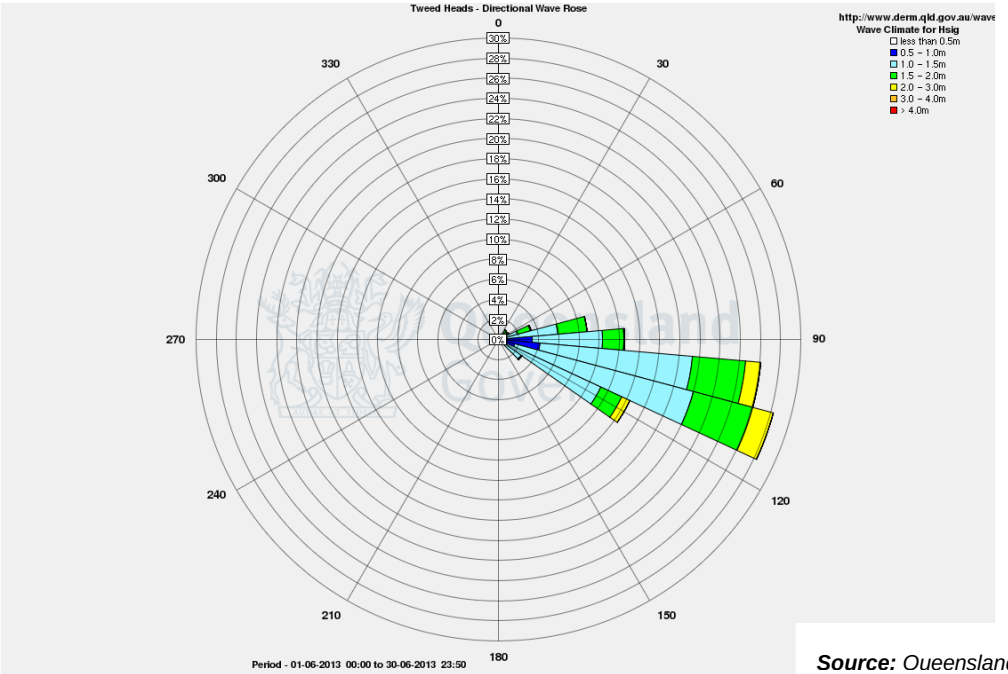
Note: Significant wave heights or H_{sig} is the average of the highest one third of recorded waves.

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



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

WAVE DIRECTION



Source: *Oueensland Government*

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