TRESBP ENVIRONMENTAL MONITORING SUMMARY JULY 2013

OVERVIEW

In July, 2013:

- 35,699 m^3 of sand was pumped to Snapper Rocks East and 2,841 m^3 of sand was pumped to Duranbah Beach.
- There were no media articles relating to the project.
- Significant wave heights were about average for most of the month with a minor storm event recorded (from the 1st to 2nd) with peak significant wave heights to 3.5 m and two brief moderate sea events recorded (one on the 25th and one on 30th). Wave direction ranged from ENE to ESE but was dominantly from E.
- 1,579 vessel crossings were recorded for the month (this is about 20% less than the July average).
- The estimated amount of sand moving north towards the Tweed River Entrance by natural processes was in the order of 70,000 m^3 (this is slightly greater than the July average of about 65,000 m^3).

1. SAND PUMPING & DREDGING

Sand Delivery July 2013

Pumped:	38,540 m^3
Dredged:	0 m^3
Total:	38,540 m^3

Sand Delivery January to July 2013 (YTD)

Pumped:	224,055 m^3
Dredged:	0 m^3
Total:	224,055 m^3

Sand Delivery January to July 2012

Pumped:	282,933 m^3
Dredged:	0 m^3
Total:	282,933 m^3

Stage II Sand Delivery May 2000 to June 2013

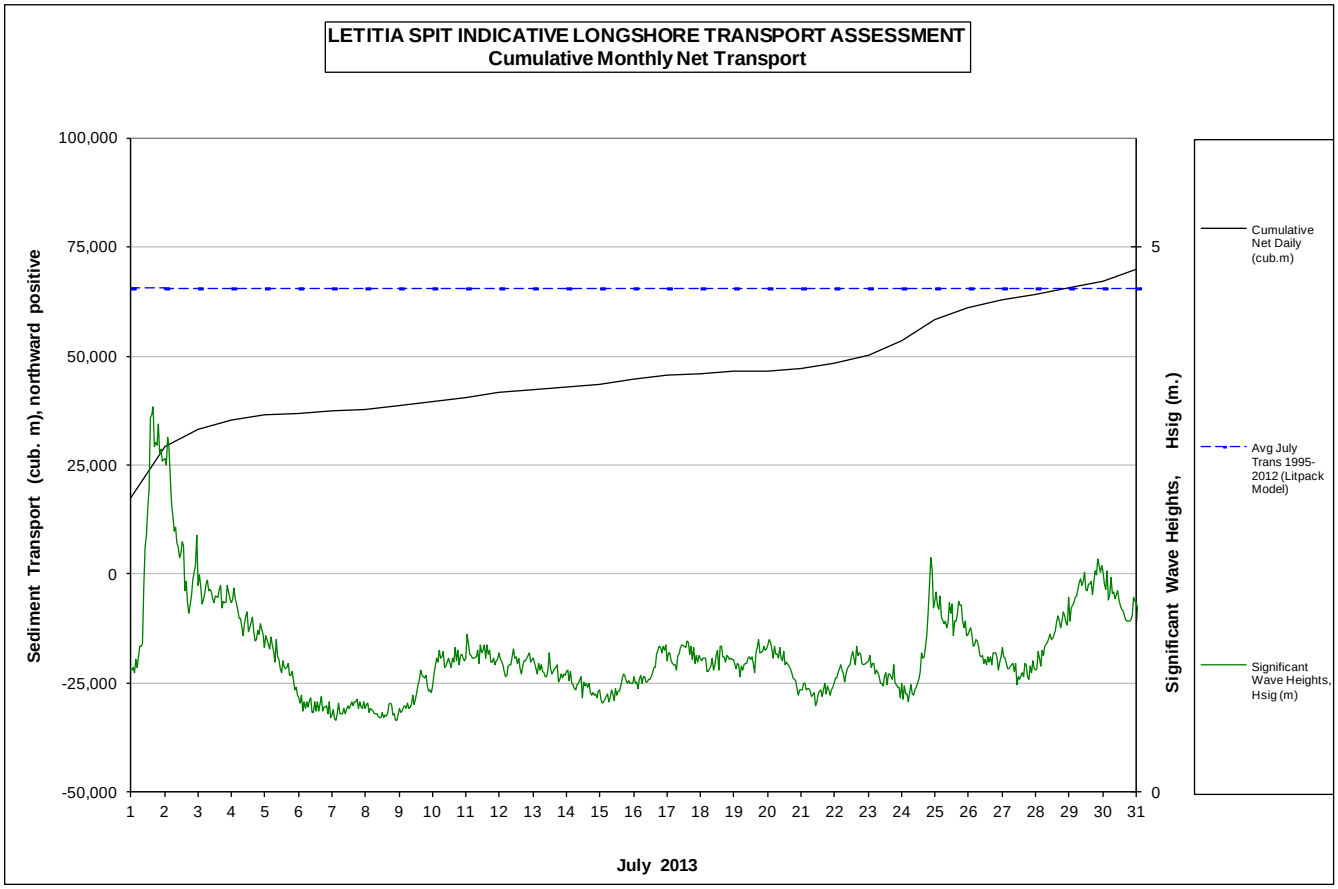
Pumped:	6,989,054 m^3
Dredged:	2,039,104 m^3
Total:	9,028,158 m^3

2. INDICATIVE LONGSHORE TRANSPORT

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

In July 2013 the estimated natural sand transport (moving North towards the Tweed River entrance): was calculated to be in the order of 70,000 m^3.

This result is slightly greater than the average estimated sand transport quantity of approximately 65,000 m^3 for the month of July.



3. MEDIA COVERAGE

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

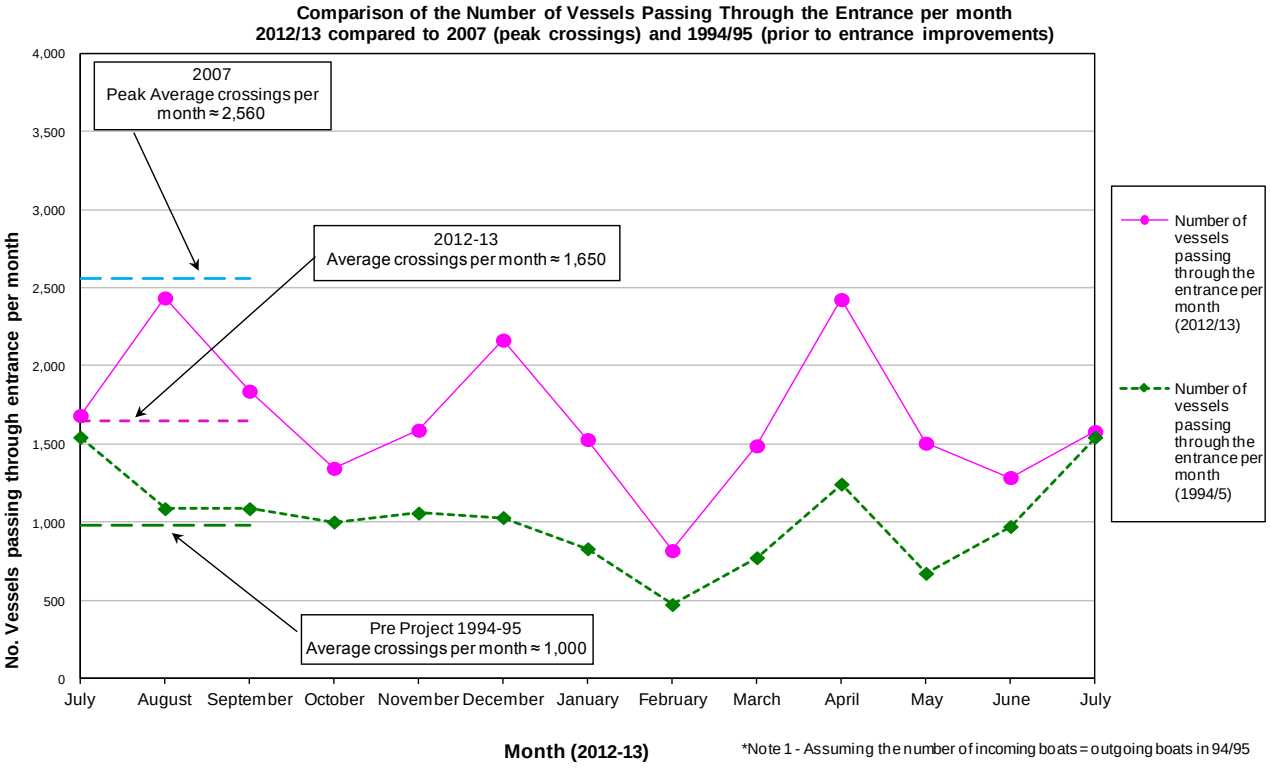
4. TWEED RIVER ENTRANCE CONDITIONS

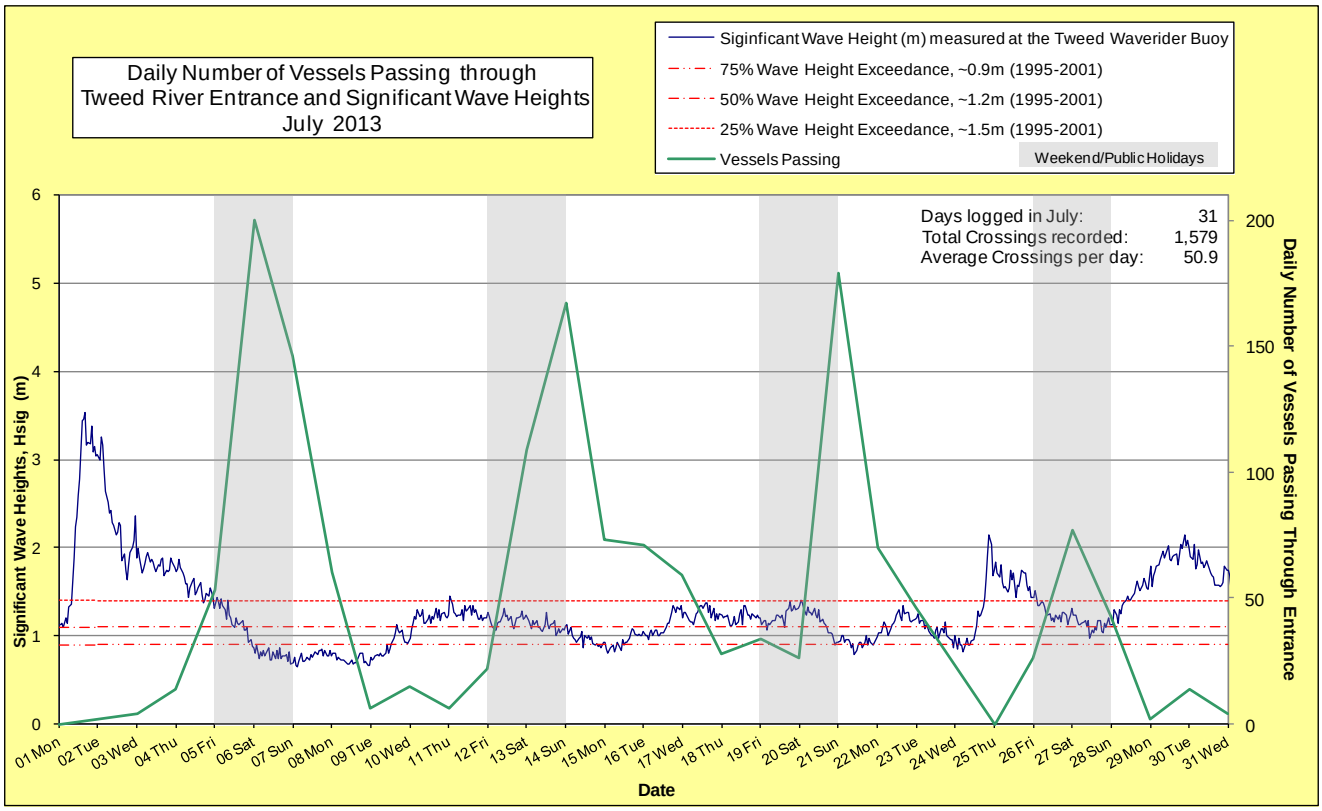
MARINE RESCUE NSW - MONITORING RESULTS

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						0
2nd						2
3rd						4
4th						14
5th						53
6th						200
7th						146
8th						60
9th						6
10th						15
11th						6
12th						22
13th						109
14th						167
15th						73
16th						71
17th						59
18th						28
19th						34
20th						26
21st						179
22nd						70
23rd						46
24th						23
25th						0
26th						26
27th						77
28th						43
29th						2
30th						14
31st						4
					Total	**1,579**

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 July 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 July: 31
Total Crossings recorded: 1,579
Average Crossings per day: 50.9
Significant Wave Heights, Hsig (m)
Daily Number of Vessels Passing Through Entrance
Date

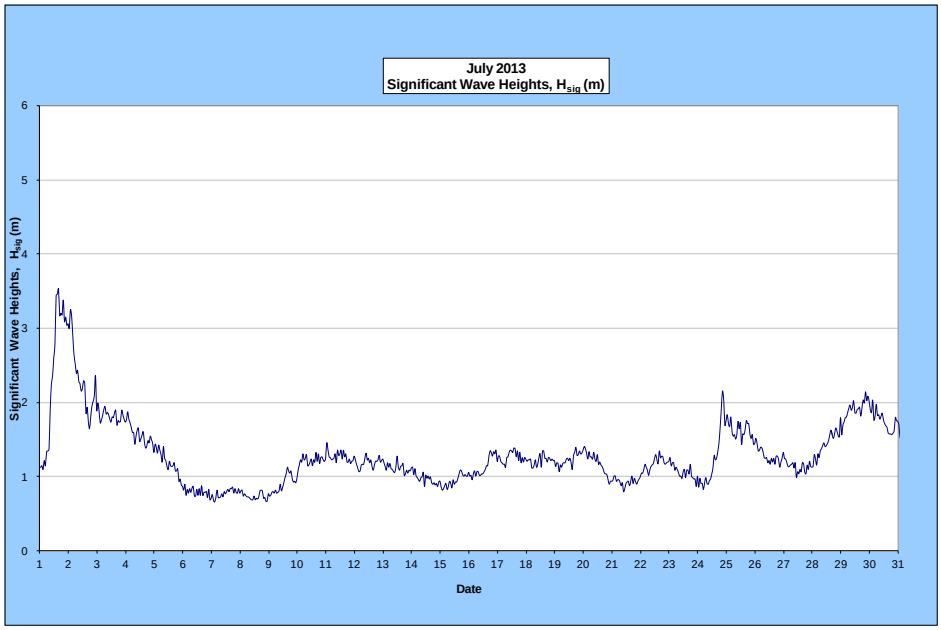
5. WAVE CONDITIONS

Wave Conditions over the month: Significant wave heights were about average for most of the month with a minor storm event recorded (from the 1st to 2nd) with peak significant wave heights to 3.5 m and two brief moderate sea events recorded (one on the 25th and one on 30th). Wave direction ranged from ENE to ESE but was dominantly from E.

Major sea events: 1st to 2nd, 25th and 30th of July.
Monthly minimum significant wave height: 0.7 m on 8th July.
Monthly peak significant wave height: 3.5 m on 2nd July.
Number of days on which waves were below 1.0 m: 10 days
Number of days on which waves were above 2.0 m: 5 days

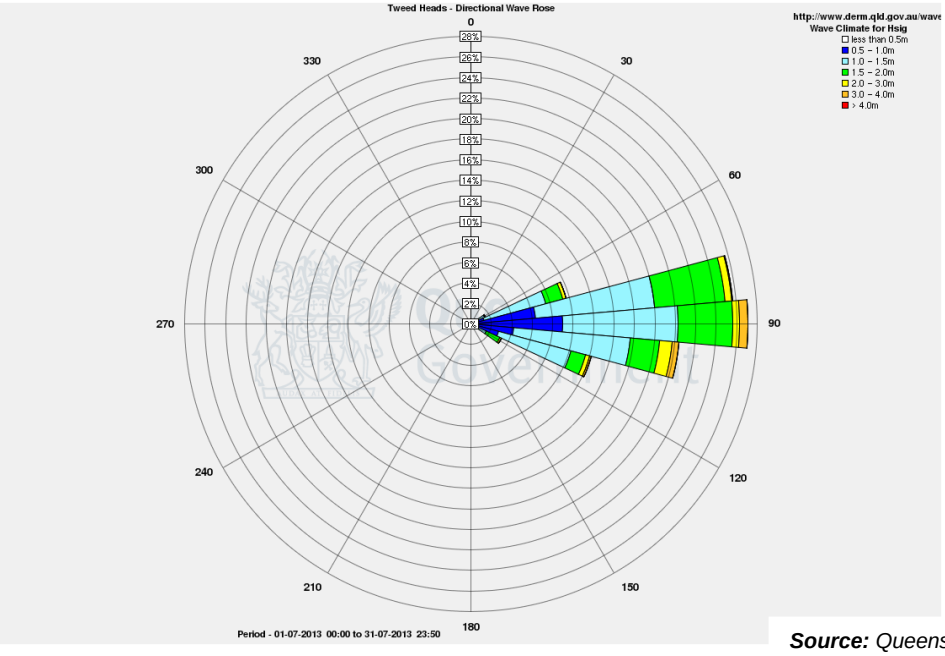
Note: Significant wave heights or H_{sig} is the average of the highest one third of recorded waves.

(***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: *Queensland Government*

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