

TWEED SAND BYPASSING

ENVIRONMENTAL MONITORING SUMMARY – OCTOBER 2020

1. SAND PUMPING & DREDGING

- 9,820 m³ was pumped to Snapper Rocks East.
- 12,857 m³ was pumped to Duranbah.
- 0 m³ of sand was dredged.

Sand Delivery October 2020

Pumped: 22,677 m³

Dredged: 0 m³

Total: 22,677 m³

The number of days sand was pumped this month = 13

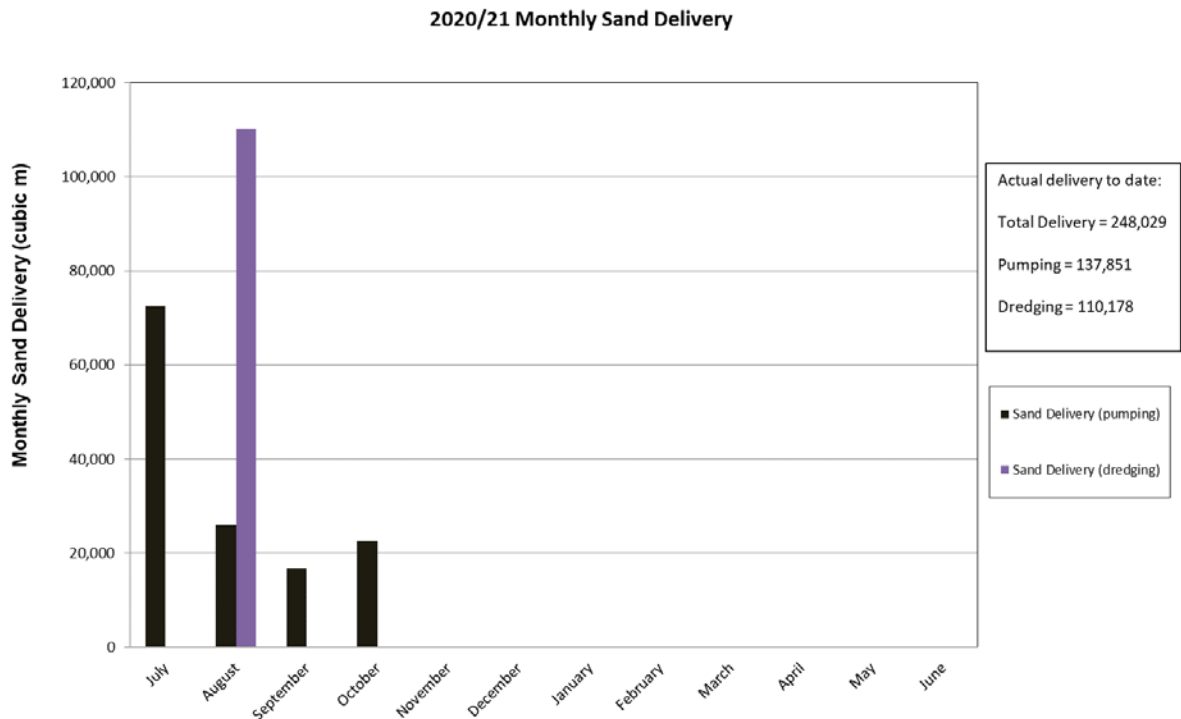
Stage II Sand Delivery May 2000 to date

Pumped: 10,018,112 m³

Dredged: 2,582,052 m³ *

Total: 12,600,164 m³ *

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



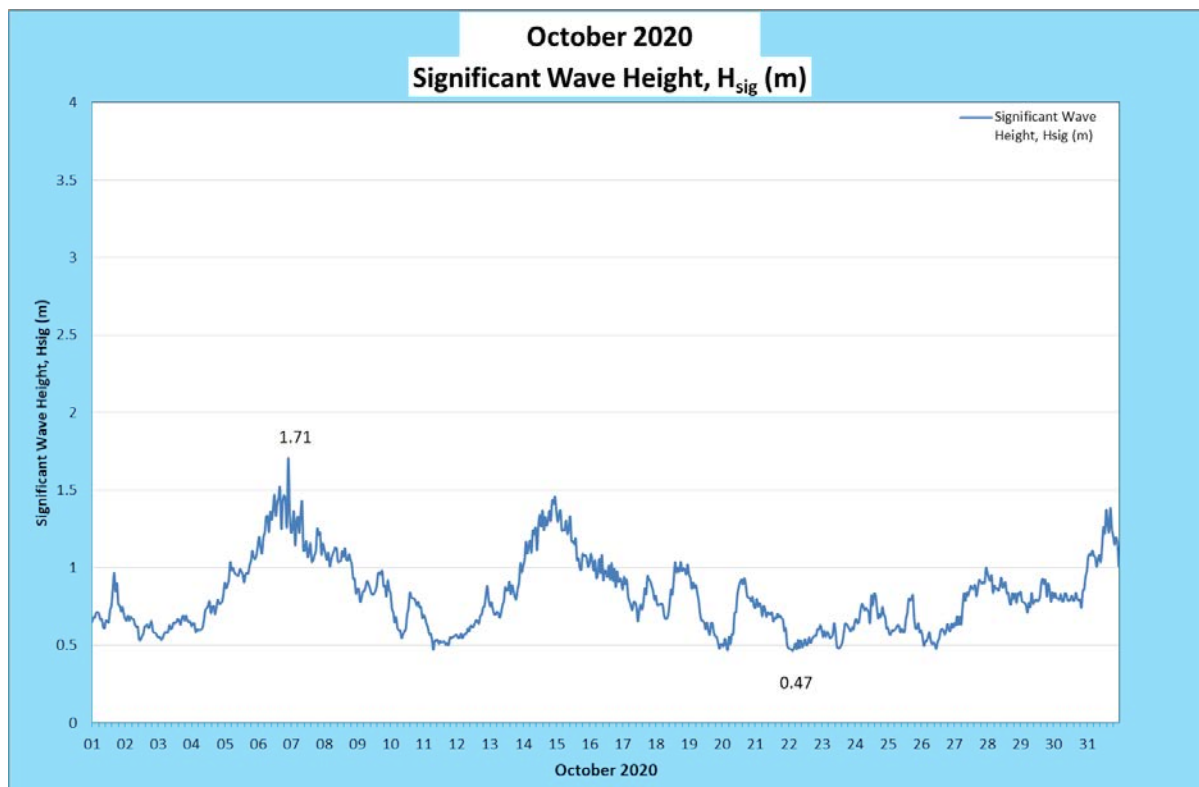
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2. WAVE CONDITIONS

Significant wave heights (H_{sig}) were mostly calm (0.47 m to 1.71 m), with the peak H_{sig} occurring on the 22nd of October 2020. Wave directions were predominantly from the east.

- Minimum H_{sig} : 0.47 m on 22nd October 2020
- Maximum H_{sig} : 1.71 m on 6th October 2020
- Number of days where $H_{sig} < 1$ m at some point: 28
- Number of days where $H_{sig} > 2$ m at some point: 0

Note: H_{sig} is defined as the average of the highest one-third of waves recorded over a period of approximately 30 minutes



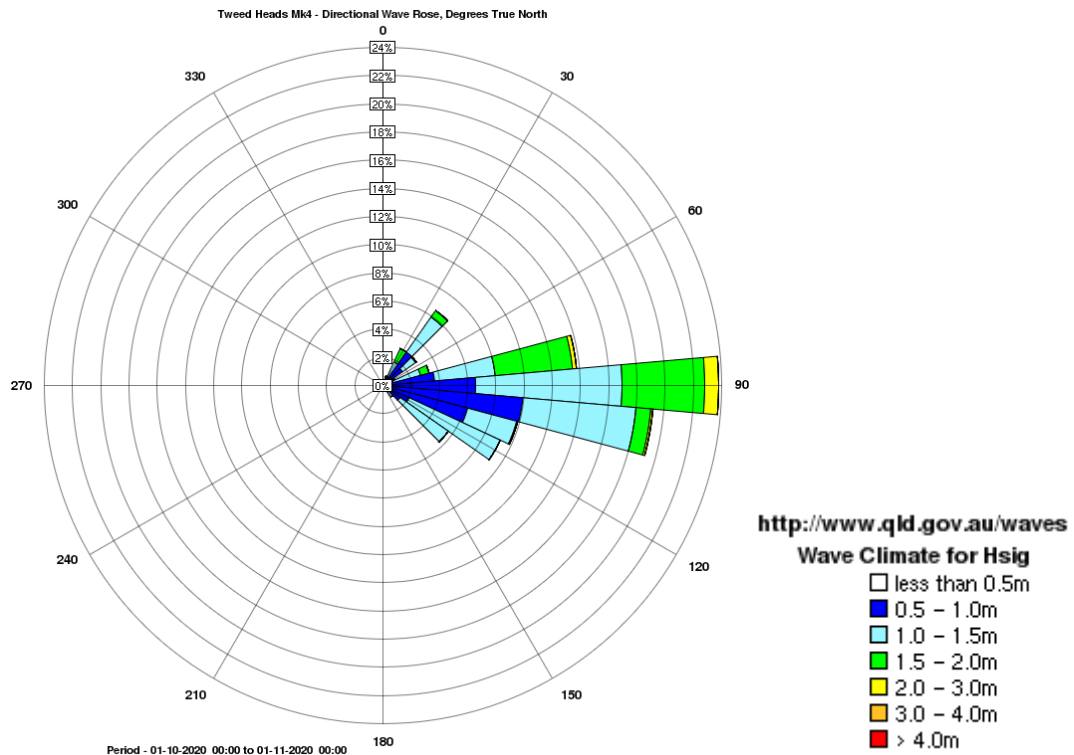
(Source: Tweed Heads Waverider buoy; Queensland Government)

In January 2020 TSB commissioned the deployment of another Waverider buoy in the Tweed region. Tweed Offshore Waverider buoy was deployed in approximately 60 m water depth to the east and adjacent to Kingscliff and Dreamtime Beaches. The purpose of the Tweed Offshore buoy is to observe and assess changes in wave climate at the Tweed Heads buoy due to the presence of the Danger Reefs and Cook Island.

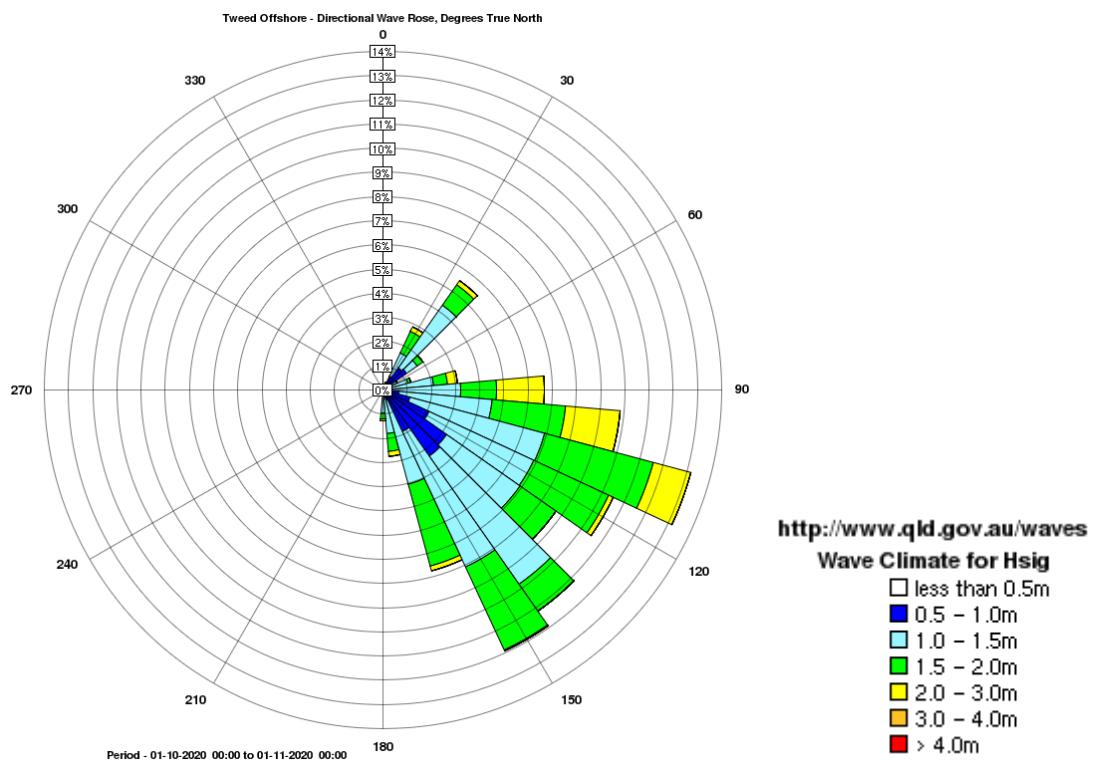
A link to data recorded by the Tweed Heads and Tweed Offshore Waverider buoys is available at:
<http://www.qld.gov.au/waves>

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NEARSHORE WAVE DIRECTION



OFFSHORE WAVE DIRECTION



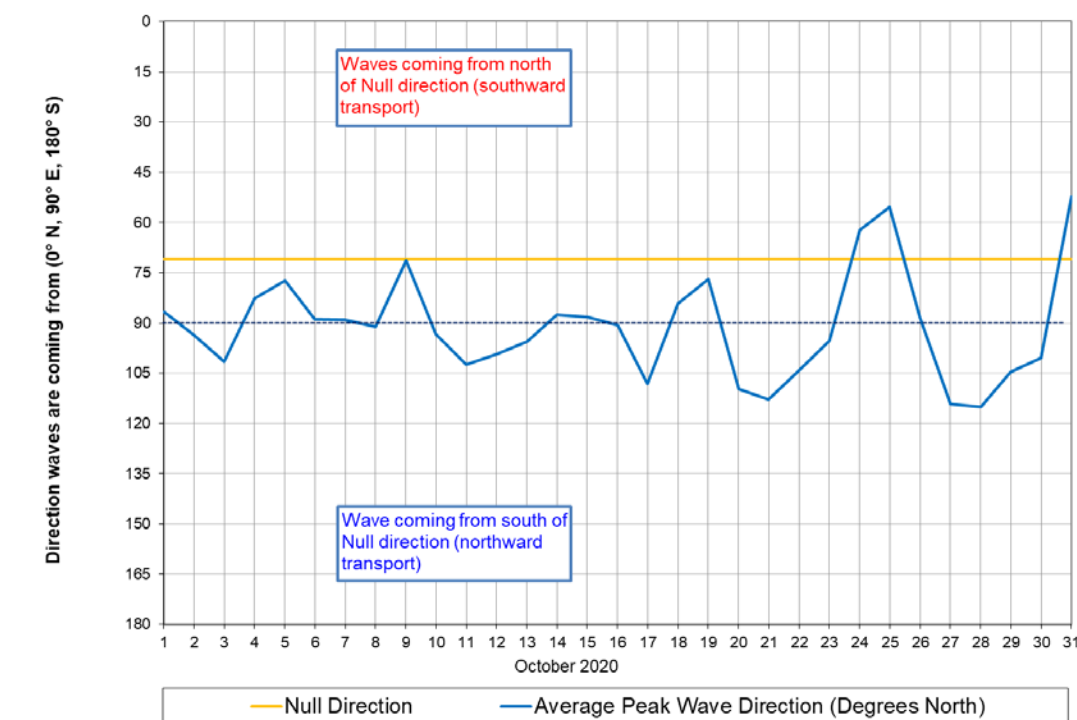
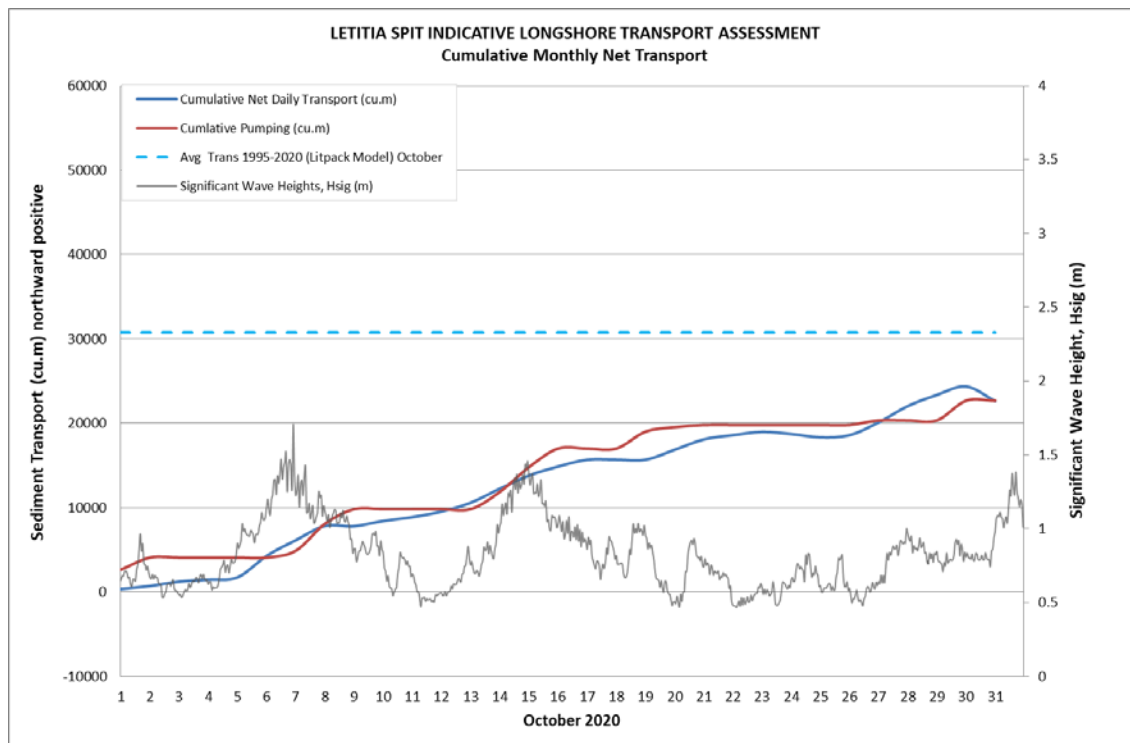
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3. INDICATIVE LONGSHORE TRANSPORT

The first graph below is based on simplified sediment transport modelling and is indicative only. The second graph indicates the wave direction in relation to the shoreline null direction.

In October 2020 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 23,000 m³. This result is 74% of the average estimated sand transport quantity of approximately 31,000 m³ for the month of October.

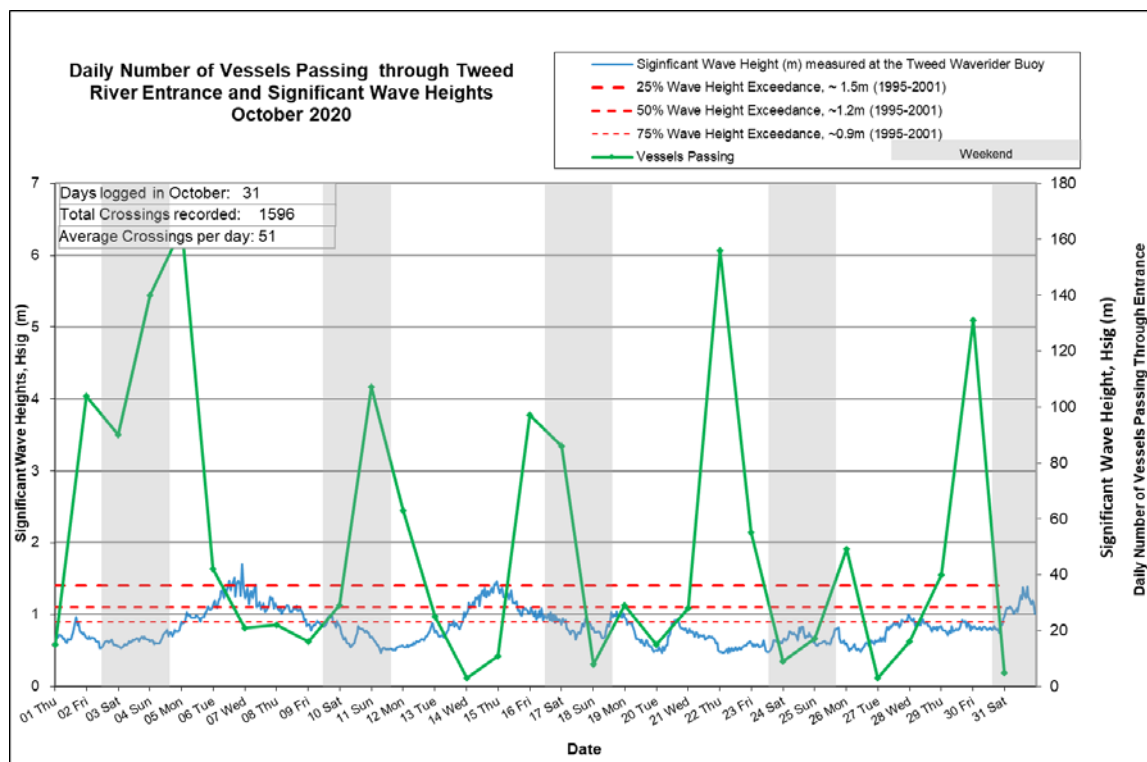
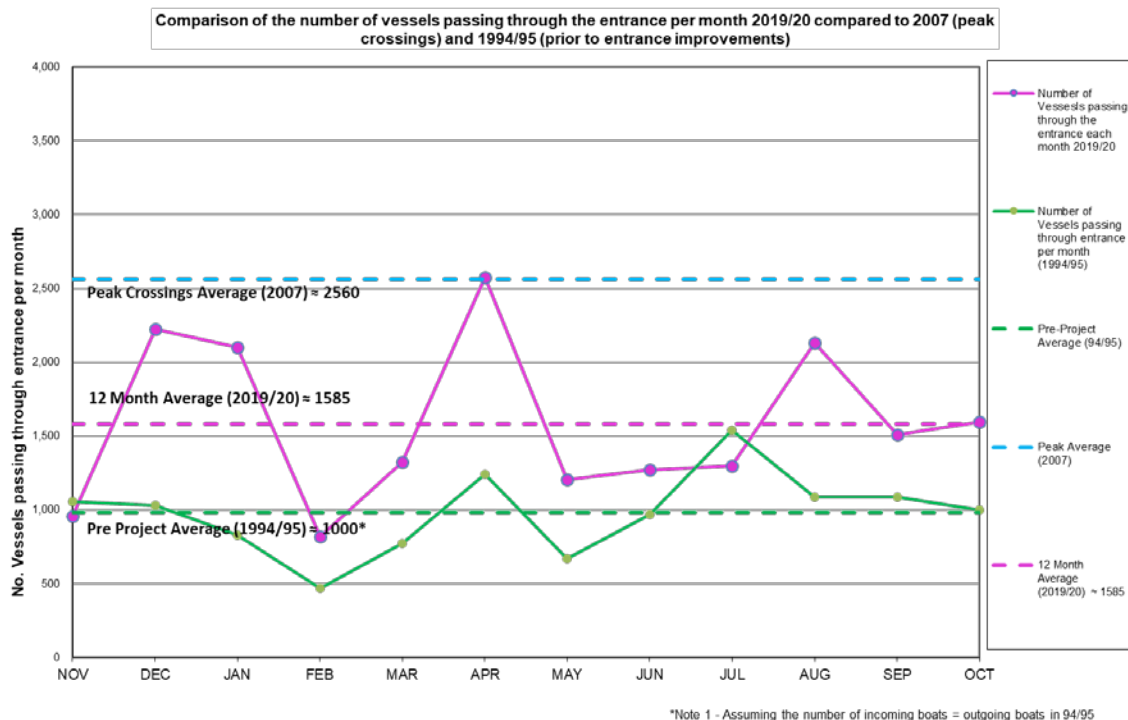


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4. TWEED RIVER ENTRANCE USAGE

A total of 1,596 Tweed River entrance vessel crossings were recorded for the month (100% of the October average (2002 – 2020)).



October 2020

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Date October 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						15
2						104
3						90
4						140
5						164
6						42
7						21
8						22
9						16
10						29
11						107
12						63
13						25
14						3
15						11
16						97
17						86
18						8
19						29
20						15
21						28
22						156
23						55
24						9
25						17
26						49
27						3
28						16
29						40
30						131
31						5
					Total:	1,596

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

Source: Marine Rescue NSW, Point Danger

* Total does not include trawlers