

# TWEED SAND BYPASSING

## ENVIRONMENTAL MONITORING SUMMARY – DECEMBER 2022

### 1. SAND PUMPING & DREDGING

- 88,971 m<sup>3</sup> was pumped to Snapper Rocks East.
- 0 m<sup>3</sup> of sand was dredged

#### Sand Delivery December 2022

Pumped: 88,971 m<sup>3</sup>

Dredged: 0 m<sup>3</sup>

Total: 88,971 m<sup>3</sup>

The number of days sand was pumped this month = 22

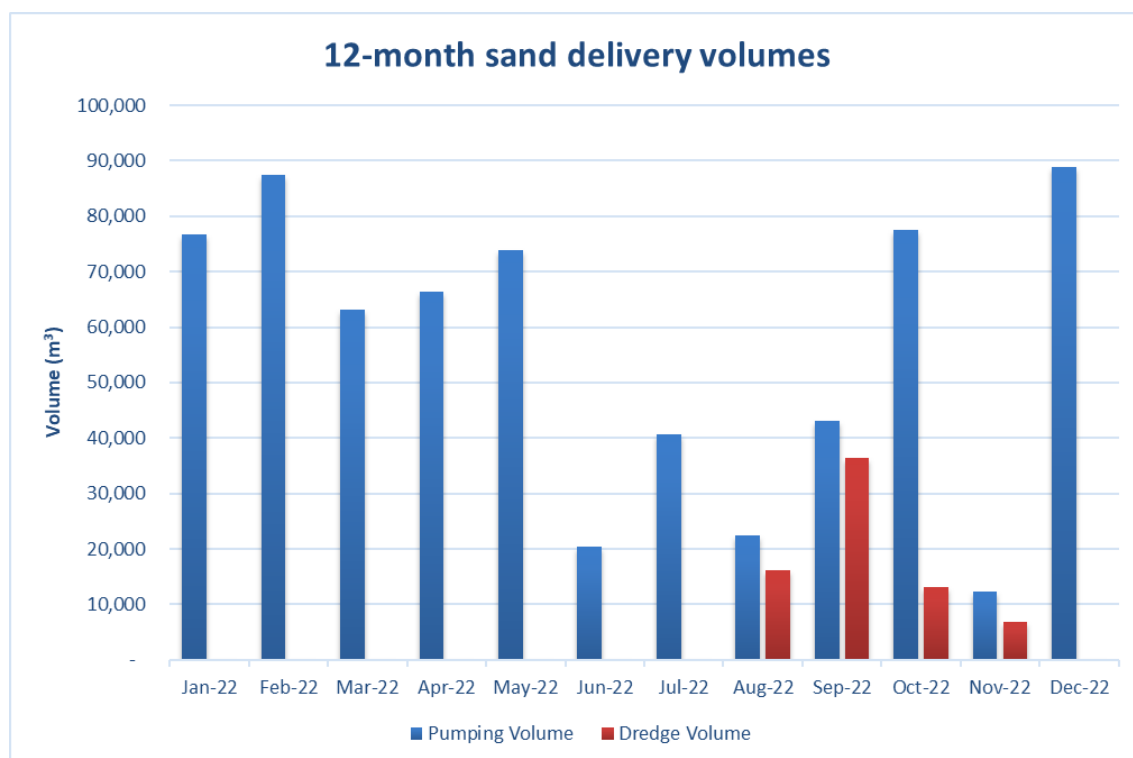
#### Sand Delivery May 2000 to date

Pumped: 11,108,887 m<sup>3</sup>

Dredged\*: 2,787,767 m<sup>3</sup>

Total\*: 13,892,654 m<sup>3</sup>

\* This Includes 22,870 m<sup>3</sup> of sand delivered by dredge to Palm Beach between July 2005 and September 2005



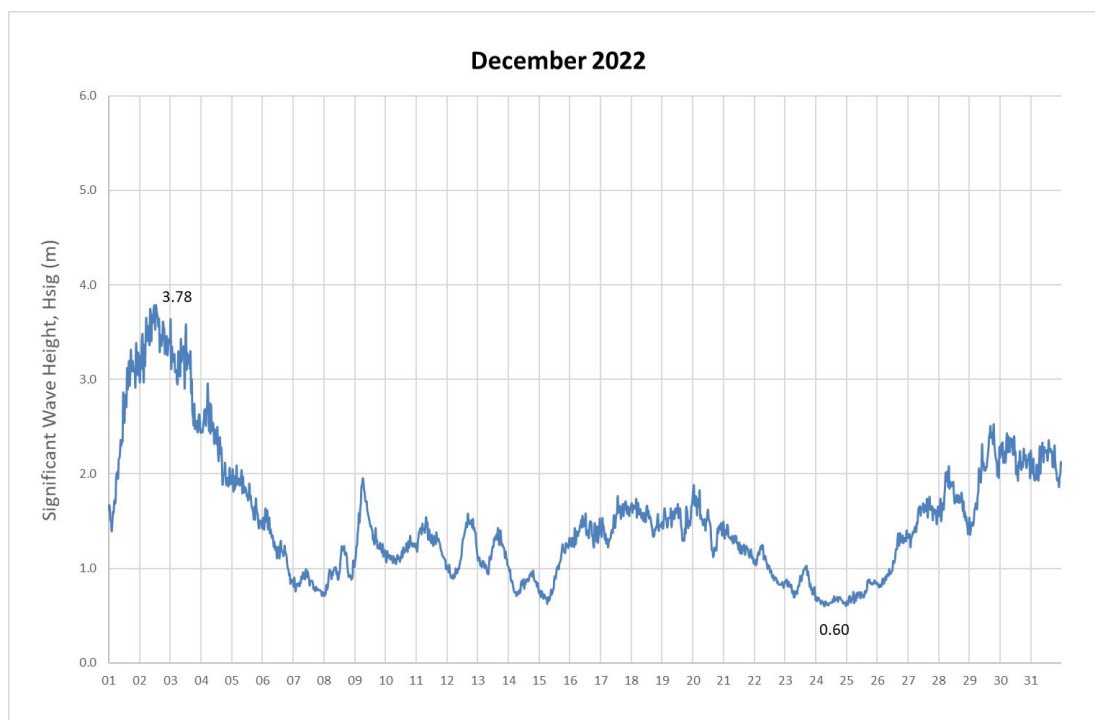
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## 2. WAVE CONDITIONS

For the first few days of December a large easterly swell generated from a low-pressure system impacted the coast. Peak significant wave height was just under 4m on 2<sup>nd</sup> December. For the next couple of weeks wave heights were relatively mild between 1 to 1.5 m from the ESE. Another low-pressure system brought increased wave heights at the end of the month and into January.

- Minimum  $H_{sig}$ : 0.60 m on 24 December 2022
- Maximum  $H_{sig}$ : 3.78 m on 2 December 2022
- Number of days where  $H_{sig} < 1$  m at some point: 19
- Number of days where  $H_{sig} > 2$  m at some point: 9

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



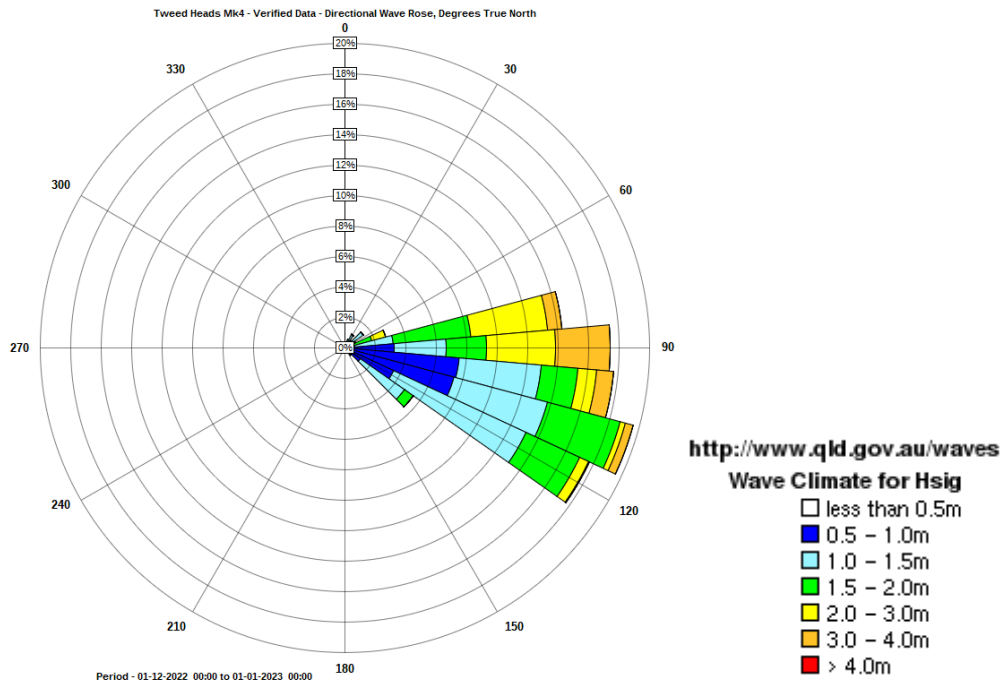
(Source: Tweed Heads Waverider buoy; Queensland Government)

In January 2020 TSB commissioned the deployment of another Waverider buoy in the Tweed region. The 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.

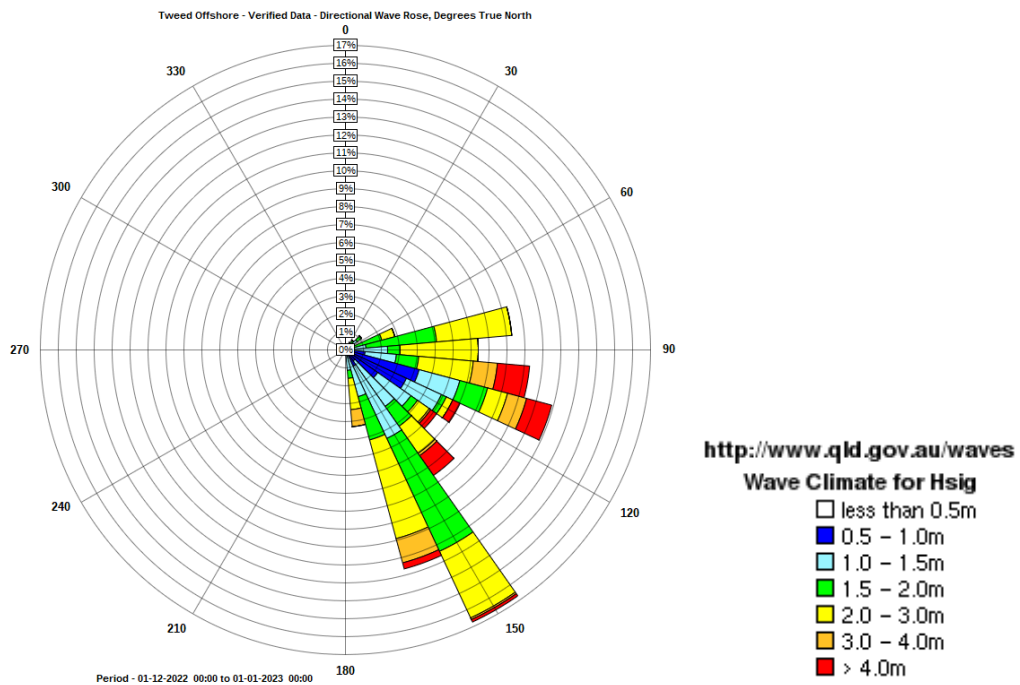
A link to data recorded by the Tweed Heads and Tweed Offshore Waverider buoys is available at: <http://www.qld.gov.au/waves>

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## NEARSHORE WAVE DIRECTION



## OFFSHORE WAVE DIRECTION

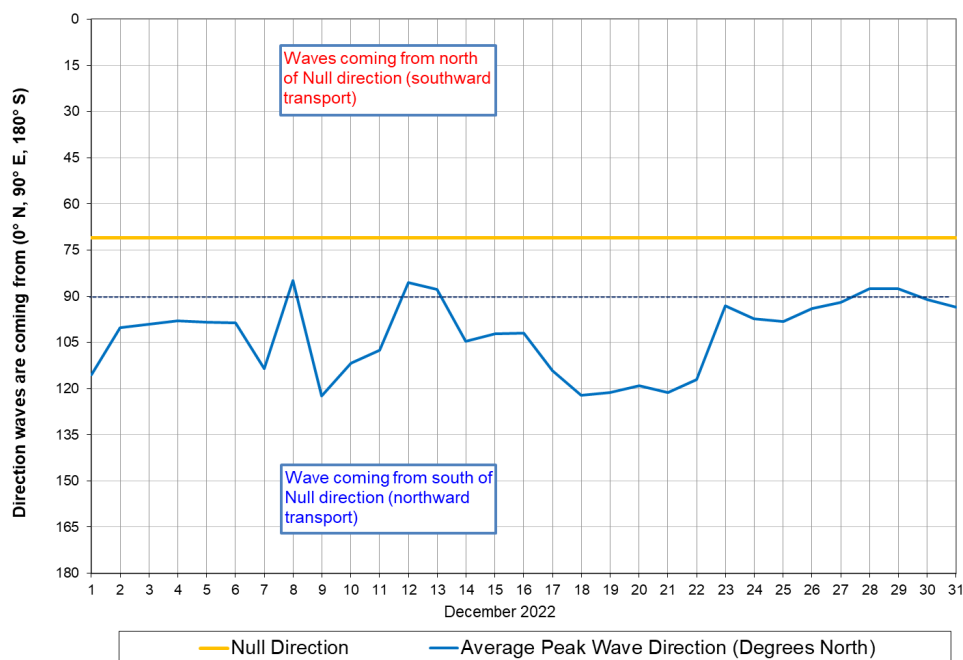
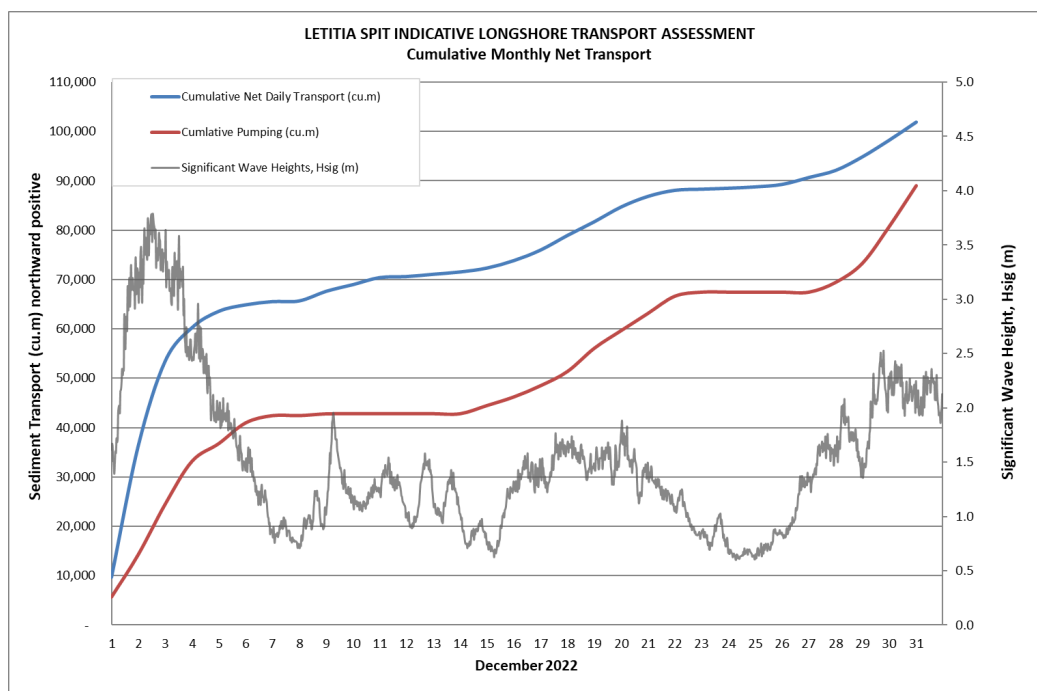


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## 3. INDICATIVE LONGSHORE TRANSPORT

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 (a wave direction coming from south of this line generally results in northward transport of sand).

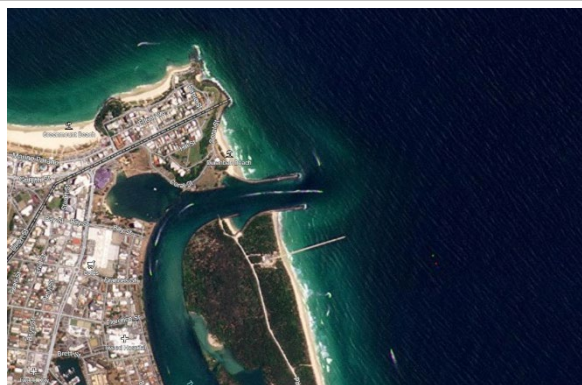
In December 2022 the estimated natural sand transport moving north towards the Tweed River entrance was calculated to be in the order of 102,000 m<sup>3</sup>. This result is 298 per cent of the average estimated sand transport quantity of approx. 34,000 m<sup>3</sup> for December.



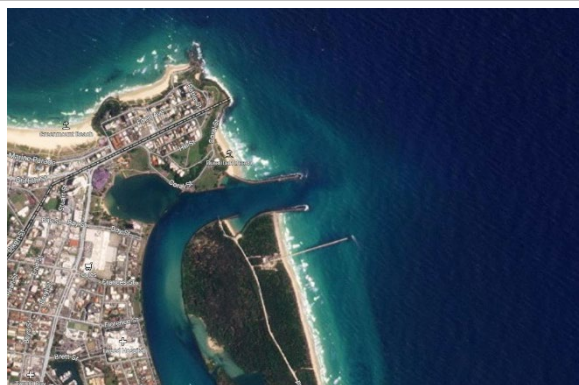
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## 4. BEACH AND SURF AMENITY OBSERVATIONS

Storm bar reformation was evident along some stretches of the coast not protected from the easterly swell event. The banks off Snapper Rocks were affected, although they slowly recovered through the mild conditions experienced up to the end of December. Scarping at Duranbah also dissipated throughout the month.



Aerial image 27<sup>th</sup> Nov (pre-event)



Aerial image 7<sup>th</sup> Dec (post-event)

Although producing excellent waves for its duration (particularly at Kirra), the large swell of early December 2022 adversely affected the Snapper Rocks bank. The bank rebuilt during the month of December with quality being regained prior to Christmas. With the consistently large swell of December, the southern point breaks were popular for surfing.



*Snapper Rocks – late December*

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*Greenmount – late December 2022*



*Kirra –early December 2022*

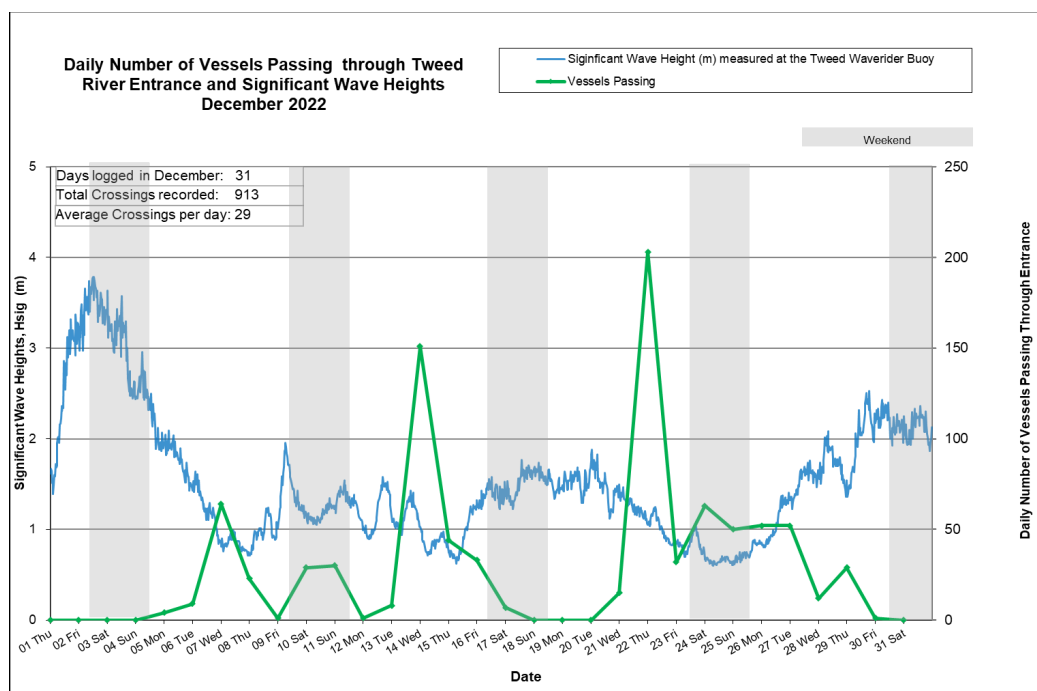
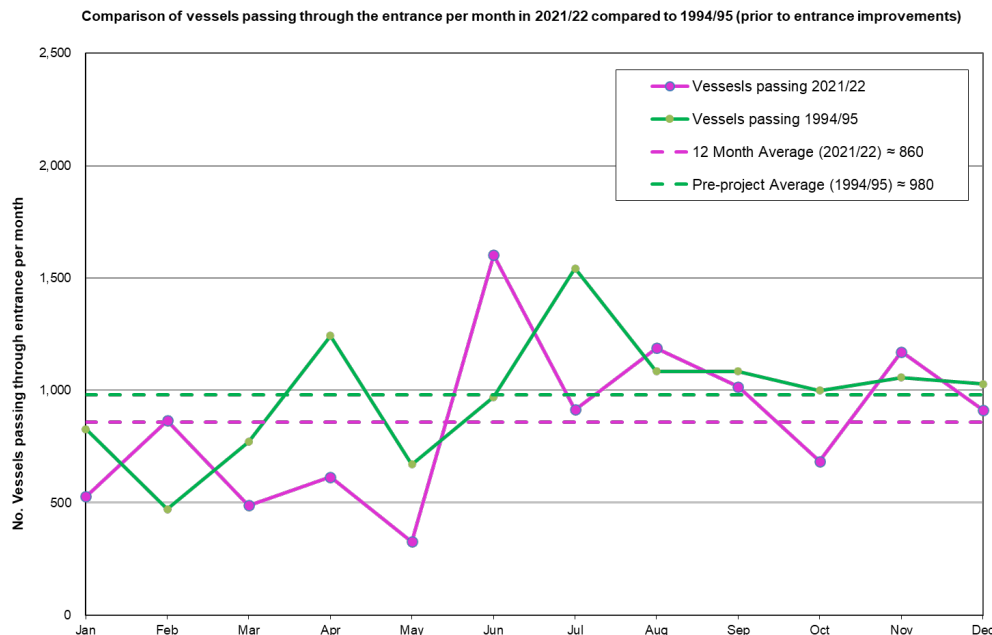




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## 5. TWEED RIVER ENTRANCE USAGE

A total of 913 Tweed River entrance vessel crossings were recorded for the month (47 per cent of the December average (2002–2022)).



# TWEED SAND BYPASSING

Date December 2022	Navigation Rating					Number of Crossings
	Impassable < - - - - > Good					
	Impassable	Difficulty Encountered	Some Difficulty Encountered	Relatively Good Crossing	Good Conditions	
	1	2	3	4	5	
1						0
2						0
3						0
4						0
5						4
6						9
7						64
8						23
9						1
10						29
11						30
12						1
13						8
14						151
15						44
16						33
17						7
18						0
19						0
20						0
21						15
22						203
23						32
24						63
25						50
26						52
27						52
28						12
29						29
30						1
31						0
					Total:	913

Marine Rescue NSW - Monitoring Results (Not including trawlers)

 Weekends

*Source: Marine Rescue NSW, Point Danger*