

## How do Environmentally Friendly Moorings perform in extreme conditions?

### A Case Study of Seagrass Friendly Moorings in Moreton Bay, Queensland during Tropical Cyclone Oswald, January 2013

#### Background

70 Seagrass Friendly Moorings were installed in Moreton Bay, South East Queensland between November 2012 and January 2013 (see Figure 1). The moorings were located amongst approximately 40 conventional block and chain moorings at two main mooring fields: Point Halloran and Victoria Point South.

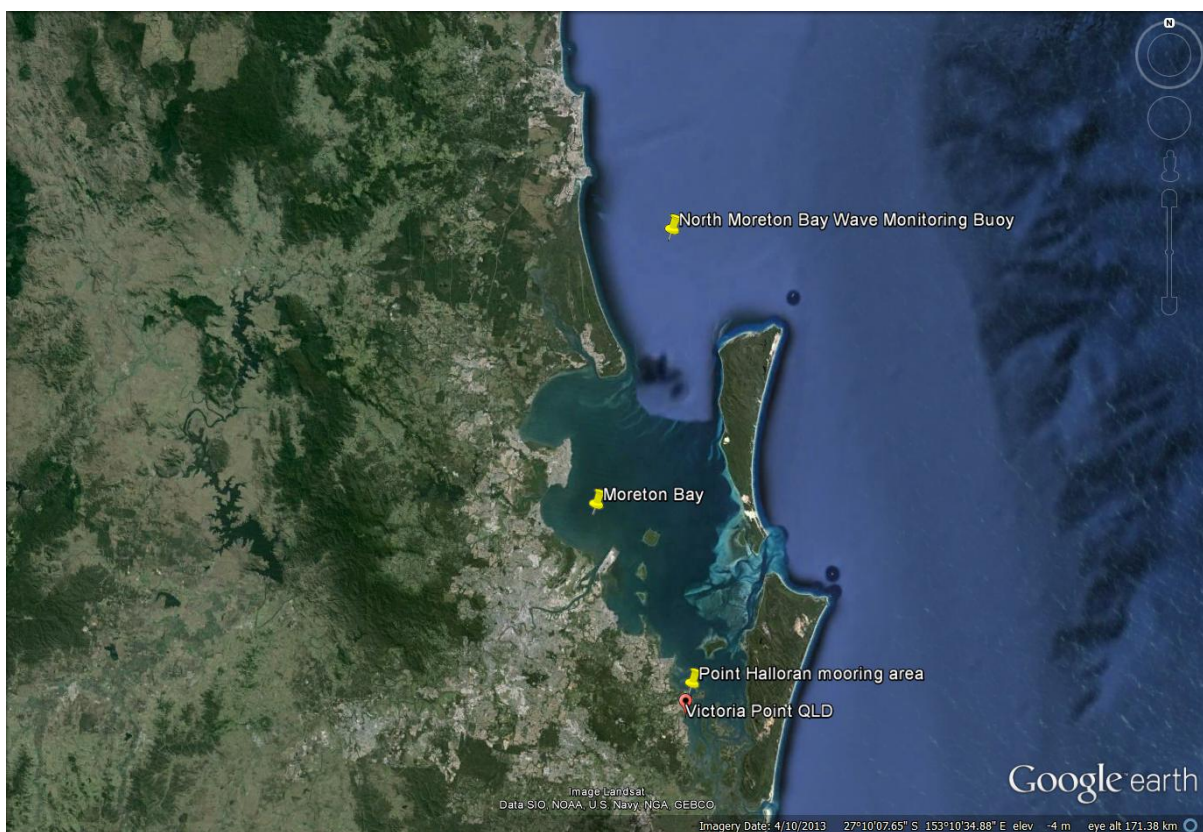


Figure 1. Map of Moreton Bay, Southeast Queensland

In January 2013, the Southeast Queensland coastline was hit by Tropical Cyclone (TC) Oswald (Category One) causing widespread impacts including severe storms, flooding and high winds over several days. Wind gusts of 128 km/h were measured at Cape Moreton Lighthouse on the 27<sup>th</sup> and 28<sup>th</sup> of January 2013 (Bureau of Meteorology). Some of the largest waves on record were measured during this event at the North Moreton Bay Wave Monitoring Buoy ( $H_{max}$  of 10.3m).

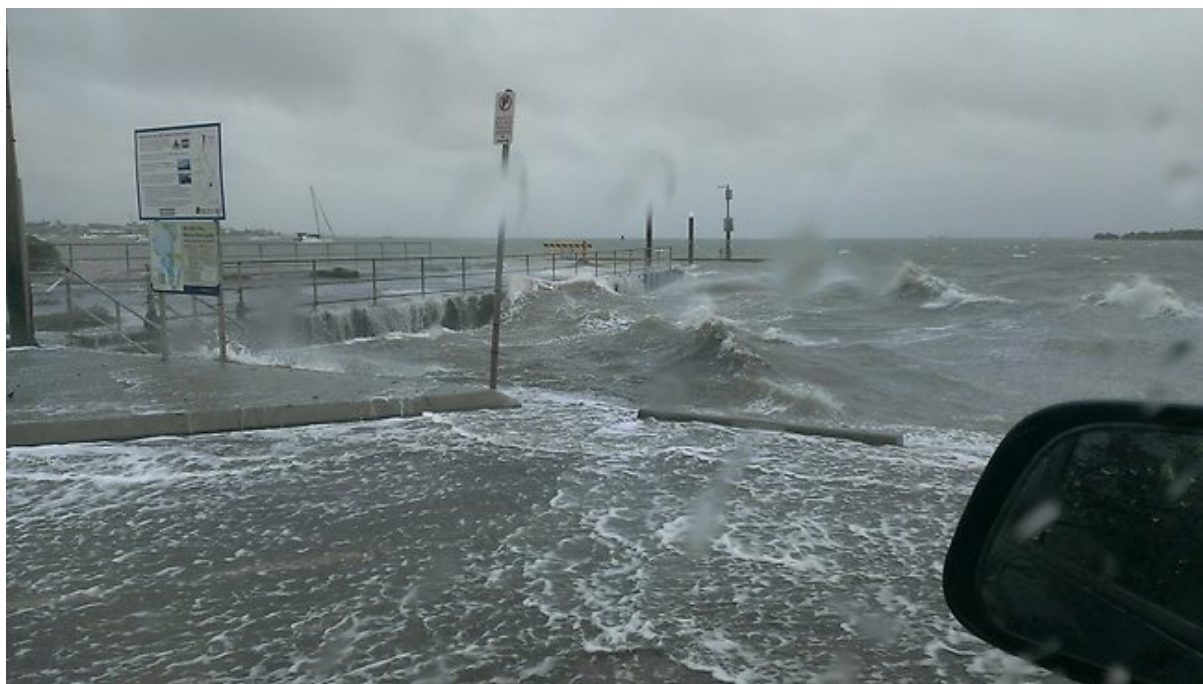


Photo: Boat ramp at Victoria Point (Courier Mail website, January 27, 2013)

### **Site description**

Point Halloran is located on the southwestern side of Moreton Bay and is exposed to winds from a north easterly direction.

### **Performance of moorings during Tropical Cyclone Oswald**

The mooring field located at Point Halloran was severely impacted due to the exposure to the northeasterly direction of the wind which was accompanied by storm waves as a result of the large fetch between Point Halloran and North Stradbroke Island.

Approximately 20-25 vessels were washed ashore after breaking free of their moorings or dragging their moorings up to 200m from their original location.

Of the vessels that had come adrift most had been attached to block and chain moorings and only four had been attached to Seagrass Friendly Moorings. After close inspection by Seagrass Friendly Mooring operator Des Maslen who was working in the area at the time Tropical Cyclone Oswald hit the Southeast Queensland coastline it is believed the four vessels attached to Seagrass Friendly Moorings were released after being fouled by other vessels that had already broken free.

“In the morning I drove to Pt Halloran and witnessed carnage in the mooring field. There were multiple vessels washed up on the shore and breaking apart and I saw other vessels breaking their moorings as I watched. One vessel I watched dragged it’s mooring about 200m before being washed ashore. I walked along the shoreline where the boats had washed up to see if any of our moorings had failed and found four vessels with the remnants of our pick up line attached to the bow. I checked the ropes and found all of them had been frayed where they had been cut through with evidence of antifouling and rust from chains on all of them. It was clear that the ropes had not

snapped. The fact that other vessels attached to our Seagrass Friendly Moorings were larger than those washed up supports my view that these 4 vessels were fouled. I later inspected the remaining tackle on all of the moorings and found no defects. I was stoked with the performance of our moorings. To see that weather event and know that everything was OK was fantastic.

The wind was the strongest I've ever witnessed and the waves were crashing in and tossing the boats around everywhere. The boats were going up on the crest of the wave and then dropping quite violently down into the trough and then the next wave would go over the bow. One vessel in particular the Sir Ronald James (a large flybridge wooden-hulled cruiser 50-55 foot long) lost its entire flybridge. I estimate the waves were up to 1.5 metres high."

"After growing up on Lake Macquarie and witnessing southerly busters that come through there this weather event was every bit as bad if not worse than the worst weather I've seen on the lake."

In Summary:

- Winds gusts of 128km/h were measured at Cape Moreton lighthouse during Tropical Cyclone Oswald
- Record-sized waves were measured at North Moreton Wave Monitoring Buoy of 10.3m
- 20-25 vessels broke free or dragged their moorings, mostly those on conventional block and chain moorings
- The only vessels moored on Seagrass Friendly Moorings to break free were found to have been fouled by other vessels





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Dear Des,

SEQ Catchments highly values the support and involvement of On Water Marine in the delivery of Environmentally Friendly Moorings in South East Queensland. The service provided by On Water Marine has been a crucial component of the program's success and been a key contributor to the SEQ Catchments being recognised through the Australian Business Awards for the delivery of the Seagrass Recovery Program. On Water Marine has had an attitude of innovation and customer service that has supported SEQ Catchments in the development of the program since its early stages, where SEQ Catchments was working with Government, Industry, and Community to highlight the problem, and proposing the Seagrass Friendly Mooring as the most viable solution following trials of a range of various mooring products.

Throughout program implementation the Seagrass Friendly Mooring has proven reliable and received overwhelmingly positive feedback from recipients of the mooring system.

In January 2013 ex Tropical Cyclone Oswald passed over Moreton Bay providing a real challenge for mooring infrastructure in Moreton Bay with sustained gusts over several days in excess of 100km/hr (up to 130km/hr) along with a storm surge of 0.65m pushing tides and Moreton Bay swell heights to record breaking levels. Seagrass Friendly Mooring installations had been undertaken in the months prior with approximately 70 installed in the Victoria Point area making up the majority of this mooring field. The Seagrass Friendly Mooring proved highly resilient with the only failures (4) being due to the failure of traditional block and tackle infrastructure in the surrounding area and colliding with the Seagrass Friendly Moorings. By comparison almost half (20) of the remaining block and tackle moorings experienced failures within this same mooring area.

We look forward to working with On Water Marine in the delivery of the Seagrass Recovery Program and hope to see many more Seagrass Friendly Moorings installed throughout South East Queensland and beyond.

Yours Sincerely,



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