

REPORT ON THE SAFETY OF NAVIGATION SHOULD TRAINING WALLS
BE ESTABLISHED AT THE BARWAY ENTRY TO THE ENTRANCE IN NEW
SOUTH WALES.



Prepared by Captain Charles Weston

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SUMMARY:

This report has been prepared at the request of Dr D. Treloar, a Senior Principal, Coastal Engineering, at Cardno Pty Ltd. Cardno have been requested by the NSW Office of Environment, and Heritage (OEHL) to conduct a feasibility study into the feasibility of constructing training walls to increase water flow into, and out of, the Tuggerah Lakes system. At the present time, water flow is through the bar-way entry to The Entrance. This bar-way entry is to the south of a sand spit which constantly changes position due, primarily, to catchment flooding and sea conditions. These changes consequently have a direct effect on the condition of the entrance and volume of water flow into and out of the lake system. Wyong Shire Council also undertakes dredging of the entrance waterway in the region between The Entrance Bridge and the entrance bar-way.

The building of two training walls in the vicinity of Karagi Point has been proposed as a method whereby a reasonably predictable flow/volume of water can be facilitated into and out of the lakes. Cardno have investigated a range of training wall opening widths (100m, 150m, and 200m) and 150m would be the most suitable from flooding effects and entrance



The proposed possible training walls superimposed in their approximate positions.

scouring perspectives. None of these cases changes tidal exchange to the lake system.

Cardno have now been engaged by OEH to assess the effects (benefits and deleterious outcomes) of training walls and other options, such as beach nourishment, on South and North entrance beaches. While the prime purpose of the proposed training walls was to facilitate water flow, they may have benefits in terms of shoreline hazard reduction. It is considered by OEH that the navigational aspects of the entry should also be addressed, given the nature and use of the surrounding area during the holiday season and its use by recreational boaters.

This report addresses recommendations for the safety of boaters navigating within the area, with and without training walls.

THE PRESENT SITUATION:

The Bar-way Entry

The sand deposition at the entry is constantly changing due to catchment flooding and sea conditions. This is evident from aerial photos and Google Earth images. The changes may also be due to the use of a dredger, operated by the Wyong Shire Council. This suction dredger, in an effort to increase water flow, removes sand from the western side of the sand spit and deposits the spoil in the region of Dunlieth Point, both on the lagoon side (near the caravan park where shoreline erosion occurs) and the seaward side where storm erosion causes a hazard development. Council has also, in the past, pumped sand to the Surf Club beach which is south of the bar-way.



The rock shelf is evident in the foreground with the outgoing water breaking on it and the bar-way itself in the distance. This photo was taken just before low water and on an almost calm day. (Photo taken at 1415 on 9/4/13)

The base of the entry, inshore of the bar-way, is rock and at low tide has an approximate depth of 0.3m and is virtually non-navigable except by vessels such as jet skis and kayaks. The bar-way itself, the area where the outgoing water meets the sea, is also constantly

changing and shallow, and with even a moderate onshore wind and sea/swell, it would be considered dangerous should any attempt be made to navigate the entry.



The same area at high tide. Note that the rock shelf is not evident due to the depth being approximately 1.0 to 1.5m. (Photo taken at 0815 on 10/4/13)

Existing use of the bar-way for navigation

Following discussions with the Senior Boating Safety Officer of NSW Maritime, it would appear that local fishermen have been known to use this entrance and it is also used by persons on jet skis and kayaks. The writer was informed that there was a boating incident some 3 years before, however, this did not involve loss of life.

Safety signage

The writer visited the closest boat ramp to the entry located at Picnic Point and noted that there was no safety signage relating to the dangers of the bar-way. In fact there was no safety

signage at all. There is also a boat ramp close to the entry but this has been withdrawn from use. Whilst there is existing signage none of it relates to safe navigation or the bar-way.

The only evidence of warning is published in the NSW Maritime boating map of the area and states as follows; “Caution: Navigation of the Lake Entrance is dangerous and not recommended”.

Alternative boat ramps that are available for boaters to access the sea

To the north is the Cabbage Tree Harbour boat ramp at Norah Head. This ramp is approximately 12 km distant and is reasonably sheltered. To the south is the Terrigal Haven boat ramp, which is sheltered and used by both recreational and commercial boaters. In both instances, these ramps would be a much better alternative for access to the sea and can be used at any state of the tide.



The Cabbage Tree Harbour boat ramp at Norah Head

RECOMMENDATIONS:

Should the Training Walls be Constructed

Available depth

The depth of water between the walls at low water will determine, by its draft, the size of vessel which may safely navigate the entry. Consequently, if the existing rock shelf remains, then the navigational availability of the entrance will essentially remain the same and be severely restricted and could only be used by vessels with small drafts at pre-determined periods either side of high water.

In addition, the seaward entry to the training walls would still be a bar-way and sea and weather conditions may further restrict its use.

Should the depth of the entry between the walls be increased by dredging, this would facilitate its use by larger vessels at all states of the tide.

Management of vessel movements

Given the foregoing, considerable planning would be required to oversee and manage navigation into and out of, the entry. This could be done with the assistance of the existing Volunteer Marine Rescue - Tuggerah Base, if they were willing, and were provided with appropriate closed circuit television views of the entrance and also water depth, wind speed/direction and wave height read outs. The assistance of the base could then be sought from a vessel wishing to transit the entry by use of VHF or UHF radio and also mobile phone.

Appropriate signage would play an important part in the safety management of navigation through the entry. This signage would be placed at either end of the walls and inform boaters of the need to contact the Marine Rescue Base prior to transiting the entrance whether from the sea or the lagoon end. Signage would also carry the usual warnings, regulatory requirements and advice when crossing bar-ways.

Safety information signage should also be erected at the nearby boat ramps to inform boaters, planning to go to sea via the entrance, of the safety requirements and the need to contact Marine Rescue.

Navigation marks

The training walls would require the fitting of appropriate red and green navigation marks and lights at both ends of each wall. In addition, offshore buoyage, possibly a north cardinal mark, should also be installed due to the close proximity of dangerous rocks to the southeast.

Leading marks for use of vessels approaching the training walls from seawards should also be considered. A sectorised night/day laser light positioned on the western shore of the lagoon would be simple to set up and less obtrusive than the traditional day and night types of leading marks.

Due to the possibility of sand build-up in the lagoon and to seawards, moveable lateral buoyage marks would assist boaters navigating the area once they are outside the training walls. However, the strong possibility of the sand build-up moving will have to be taken into consideration.

Should the Present Situation Continue

Comments on the existing bar-way entry

In the opinion of the writer, the use of this entry and bar-way by any vessel is considered dangerous and should not be attempted. However, in reality, it is used by some local boaters and in this regard every effort should be made by the Wyong Shire Council and the NSW Maritime to draw the attention of these boaters to the dangers that are involved.

This safety information should be in the form of signage, information pamphlets, boating maps and safety notices posted on the web. At the present time the only information available is the NSW Maritime boating map for the area and verbal information from the Marine Rescue Base.

Signage

While there is a plethora of signage at the various boat ramps visited by the writer, very little addresses safety information and reminders to boaters. There are no signs at The Entrance boat ramp facilities warning of the dangers of the entrance bar-way.

Signage should be placed at the three nearby boat ramps drawing the attention of boaters to the fact that the entrance bar-way is considered dangerous and its use is not recommended. In addition a large sign should be located on the south-western shore of the entrance waterway, upstream of the rock sill, pointing towards the water in order to inform persons in vessels close to the entrance about the dangerous situation should the use of the entrance be contemplated.

Information pamphlets and safety notices posted on the web

Suitable information pamphlets could be drawn up on the dangers of the entry bar-way and made available through such outlets as fishing tackle shops and the tourist information centre and also the Marine Rescue organisation. Similarly, web notices could be posted on the NSW Maritime and Marine Rescue websites.

CONCLUSIONS:

1. The existing entrance and bar-way is dangerous in low tide and on-shore wind and sea conditions, consequently it should not be used by boaters, especially those who are not familiar with the area.
2. Should the building of the training walls eventuate then this may provide a facility where safe access to and from the sea by boaters will be possible. However, it must be remembered that the prime purpose of the walls is to provide an increased water flow to and from the Tuggerah Lake system and its use for navigation will only be of a secondary consideration. Consequently, if the depth of water between the walls is not increased from the present depth in the area, due to the rock bottom, then it will have limited use for navigation by boaters - similar to the existing case.
3. More and more members of the public are buying and using small boats and as such, public authorities such as the Wyong Shire Council and NSW Maritime must take on the responsibility of drawing the attention of these boaters to any potential dangers that may be in the geographical areas under their authority. In this case, the bar-way entry to The Entrance.
4. This report is relatively brief and covers the present situation. If, in the future, the navigational situation changes at The Entrance, then it is recommended that a more comprehensive study, together with recommendations, be undertaken.
5. The safe navigation of any vessel of any size is the responsibility of the person in charge of that vessel. However, that person can be assisted in his or her decision making when good and suitable safety information is made available.

This report is compiled without prejudice.

Capt. Charles Weston

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