

Aus Ship P&I

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ABN: 83 096 362 668

Swells at Geraldton, Australia

1) What are the causes or likely causes of these swells?

Storms that cross in the southern Indian Ocean cause the swells that lead to surges. Four days after there is a storm it usually affects the coast of Australia and four days after that it hits the coast of New Zealand.

2) How large are these swells typically?

The surges generally vary from between 5 to 20 cm in the port. 35cm is the maximum surge that has been measured.

3) Are the swells a seasonal affair or all-year round?

The surges are seasonal and they are typically prominent during the period May to mid August.

4) Are all types of vessels affected or only certain vessels with certain drafts?

When the port issues a notice of closure it will indicate how it will affect the port in terms of how much the water level is likely to rise. Each individual berth will be closed depending on how much the water level is likely to rise. Therefore, it is not directly the type of vessel per se that will be affected.

For instance one berth will be closed if there is a difference of 5cm height. For berth 7 a 15 cm threshold applies before it is closed. There are 7 berths total in the Port of Geraldton. To illustrate how much the surge affects the individual berths it can be noted that Berth 2 accounted for 46% of the entire time the berths were closed for the year 2013. Berth 3 accounted for 11% and another berth for 15%.

With respect to Berth 7, occupancy at the berth is currently being tried at 15cm. There is no conventional mooring system in place on that particular berth and it is not possible to run spring lines to control the movement of the ships. A MoorMaster system was in place but it was removed due to its inadequacy in dealing with movements of ships at the berth. However, the MoorMaster system is being updated and is expected to be deployed in October 2014.

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5) What sort of system is in place for the port of Geraldton to deal with this issue? Extra tugs, warning system?

The Port of Geraldton has a contract with *Met Oceans Solutions* which is a New Zealand based weather forecasting company. They provide the Port with four forecasts a day with predictions for a period of seven days ahead. These forecasts show the offshore swell movements. This is then fed into a forecast model by the Port of Geraldton that also takes into account wind, swell and tide records and determines the movement of the water inside the reef outside of Geraldton so as to give an indication of a possible surge in the Port over a four day period.

6) How much pre-warning is given to vessels?

The Port's forecasting team will usually issue a warning three or four days ahead advising of the any unfavourable weather conditions that might cause a surge in the Port. The Port Authority then puts out a notice to shipowners/charterers agents in the Port that the Port will be closed during the relevant period.

7) Are the warnings based on a predictive weather system or more of observations on-site?

See point 5 above.

8) Have there been any known incidents at Geraldton as a result of these swells? Vessel damage, collisions?

The most common damage that occurs as a result of storm surges is breakage of mooring lines.

In one particular incident 27 mooring lines broke. The reason for this was that a warning was issued and the relevant vessel's draft was too large to sail.

The number of mooring lines that break each year as a result of surges in the Port has declined over the years. The reason for this is that the forecasting system within the Port has seen improvements over time.

Statistics advised by the Port appear to demonstrate that this is the case. In 2005-2006 the Port of Geraldton had 250 mooring lines in total that parted as a result of surges in the Port. In this regard, it should also be noted that during that period the Port only had half the traffic that it now has.

In 2013 a total of 71 mooring lines broke on ships due to surges. 15 were caused on one ship alone. Naturally the quality of the mooring lines on each individual ship will be an important factor.

9) What would your recommendation be in order for our Members to deal with the issue sensibly?

In addition to ensuring that mooring lines are in good condition, perhaps freight rates need to reflect the fact ships may have to un-berth and re-berth due to surges during May to August.

10) Any other information/points which you think might be relevant or interesting.

Discussions are taking place in relation to how the Port could reduce the time the Port has to be closed each year. Matters that are being considered include the possible extension of the breakwater at the entrance of the Port, which is thought will ease the impact of surges on the Port. Other matters being considered are automatic tightening systems for mooring lines and improved fender systems that are more suited and designed to keep a vessel in place compared to older systems that only operate to lessen impact upon berthing.

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