

TIANJIN BRIDGE CONTAINERSHIP STUDY

Introduction

This analysis was carried out in January by Northport Ltd using their bridge simulator onsite at the port facility. The purpose of this study is to understand the potential pilotage limitations for a 294m Container Ship due to visit Northport on 16th January. For this study, the existing Channel was used with the present 2020 berth configuration.

Design Ship

An existing model based on the MP the BeliChick at 11m draft was used. MP the Belichick is a Panamax 5000 TEU Containership which is very similar to the Tianjin Bridge.

The simulated design ship was tested in the Marsden simulation area (Marsden 1C) using the latest tidal data provided by Metocean.

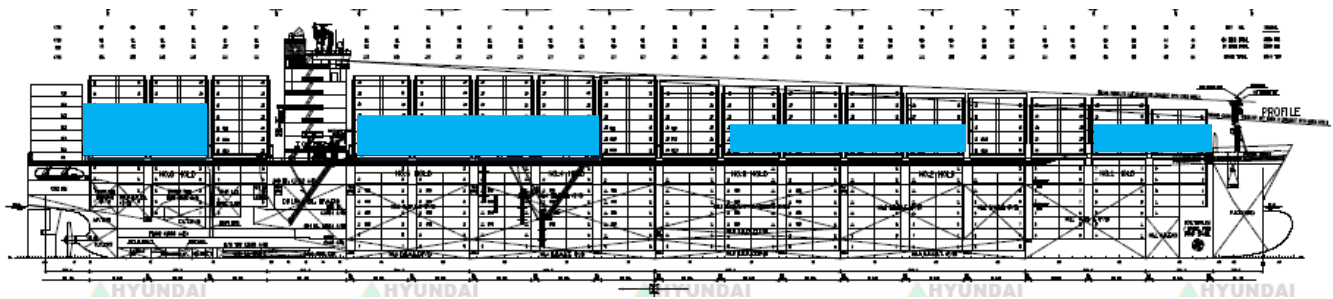
Tugs

Bream Bay/ Takahiwai / Marsden Bay

Simulations

Run Number	Maneuver	Tide HW	Wind	BT Used	Tug Power Max	Comment	Pilot
001	Departure PST	HW	SW15	Y	Full	Swung ok to stbd off berth but to the north due to remnants of the flood. Slow to turn using 3 tugs plus BT. To east when rounding corner so must be careful to not reduce ROT	RO
002	Departure PST	HW +0.5	SW 15/ Gust 20	Y	Full	Swung to stbd tighter off berth with a more realistic slight ebb. Rounding corner to the east due to slackening of ROT	RO
003	Arrival PST	HW -0.2	SW15 G20	Y	Full	No problems with the corner passing close to red buoys. Slowed effectively. No problem.	RO
004	Departure PST	HW + 1.5	SW20	Y	Full	Slow to swing to stbd. Needed three tugs. Cornered ok but felt this was a limit condition. Wind steady 20 knots from the SW with a spring ebb tide HW+1.5hrs.	TG
005	Mooring Lines	HW + 3 To HW +3	SW50	NA	NA	Moored PST Stern at 555m Mark/ Lines 6 +2 . Maximum 2 lines per bollard. Managed ok stabilized 5m off berth. Maximum windage 5300 m3	

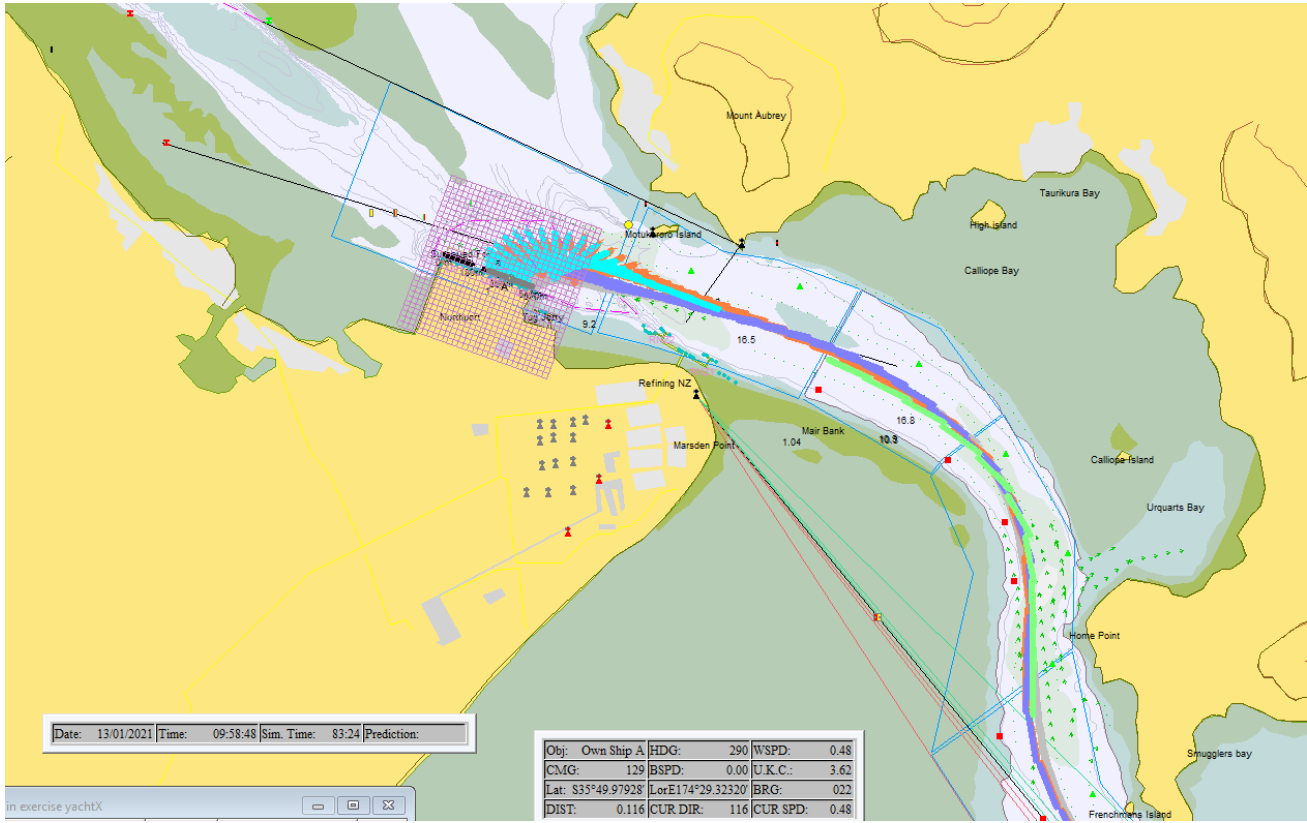
006	Arrival SST	HW-1hr	SW15 G20	Y	Full	Arrived and swung to port to berth SST. Controlled ok using three tugs and BT	GW
007	Departure PST	HW-1hr	NE 15 G 20	Y	Full	Swung to port off berth controlled using three tugs and BT. Cornered relatively fast but ok	GW
008	Arrival PST	HW -0.6	S 15 G 20	Yes	3/4	Only used two tugs for arrival. All controlled ok	LW
009	Departure PST	HW -1 hr	NW15G 20	YES	Full	Swung to port off berth. Three tugs but BB was lost due POD failures. Managed ok with Taka sent forrard. Controlled safely	GW
010	Arrival	HW-0.6	SW15 G20	Yes	NA	Simulation around corner for arrival. No problem	KB
011	Arrival Berth SST	HW -0.3	SW15 G20	Yes	Full	Simulation started from RNZ. Swing to port and berth SST. Swung ok no problem	KB
012	Arrival	HW-0.6	SW15 G20	Yes	NA	Simulation around corner for arrival. No problem starting at a slower approach speed.	KB
013	Departure PST	HW + 5.5hrs	W 15 G20	Yes	Full	LW departure. Swing to stbd. 3tugs required Swung ok and departed around the corner no real problem	KB



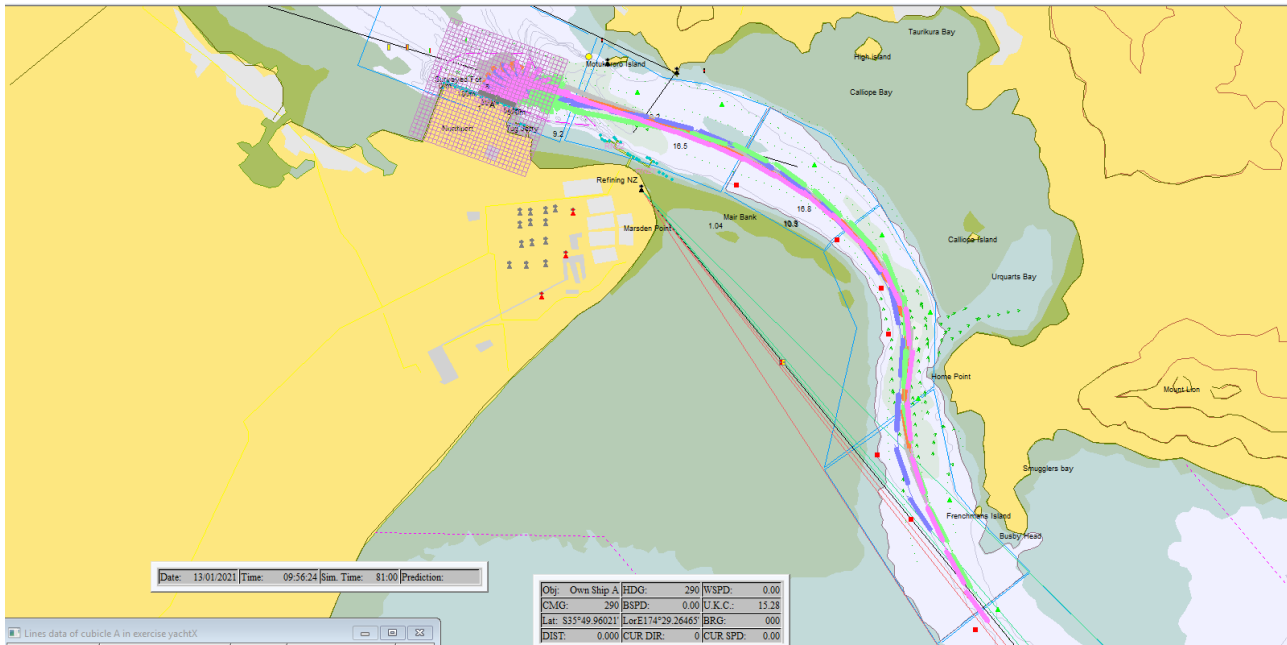
Deck Cargo Configuration

Confirmed with latest Bay Plan. No significant differences.

Simulation Run Plots Arrivals



Simulation Run Plots Departures



References

1. ABS Vessel_Maneuverability_Guide_e-Feb17.pdf
2. IMPA 2014 Conference Paper The-maneuverability-of-very-large-and-ultra-large-container-carrierpanama-2014
3. Rapport Safe Handling ULCS version 2_0
4. Maneuvering-committee Wuxi 2017