

Appendix 26

Navigation Safety Report



2022

Navigation Safety Report

NORTHPORT PROPOSED RECLAMATION CONSENT APPLICATION
BRUCE GOODCHILD

Executive Summary

Northport's proposal comprises the eastward expansion of the port footprint. It involves an extra berth (in addition to the already consented, but not yet constructed, Berth 4) with a focus on providing facilities for more containership traffic and car carriers. The ship sizes considered are less than 300m in length.

The proposed expansion of Northport will not adversely affect navigation safety. Northport has through its safety management system a number of risk control mechanisms which address the changes to shipping brought about by the proposal.

The existing main shipping channel has been proven to be safe for shipping up to 300m. Such ships have been safely brought into Northport to date without materially impacting on navigation safety.

Recreational craft activities are considered to not be materially affected by the proposed expansion with regard to navigation safety.

Introduction

This report reviews the effect on navigation safety of Northport's proposed reclamation/expansion. The proposal is documented fully in the AEE. Briefly, the port proposes to expand to the east of the present site and the consented Berth 4 to increase the total berth length to 1,090 m. This review considers the current Northport facility footprint and how the proposed reclamation (and the consented Berth 4) will increase the berth frontage for Northport. The main shipping channel and turning basins are described, and how they will be impacted by the project. Northport has a Safety Management system which manages navigation safety through a series of risk control mechanisms. The report considers the proposed port expansion and how the risk control mechanisms below will be used to maintain navigation safety:

- DUKC (Dynamic Underkeel Clearance)
- Ship Simulator
- Turning Basin Dimensions
- Environmental limitations
- Pilotage and Towage
- Navigation Aids
- Local Port Service

There is also a review of the present shipping movements, predicted shipping movements and effects on recreational traffic.

Current Port Configuration and Ship Size

Northport currently operates three multipurpose berths with a total berth frontage of 570m. Northport also operates a multipurpose jetty which is set back east of the multipurpose berths. The berths and jetty configuration are shown in figure 1.



Figure 1

The port currently has facilities for log export, wood chip export, bulk cargo, breakbulk cargo, and container operations. Berth allocations for cargo are as follows in table 1:

Berth 1	Berth 2	Berth 3	Multipurpose Jetty
Logs	Logs	BreakBulk	Any other cargo
Bulk Cargo	Bulk Cargo	Woodchip	
Any other cargo	Any other cargo	Containers	
		Any other cargo	

Table 1

Maximum ship sizes¹ using the Northport facilities are as follows in table 2:

	Berth 1	Berth 2	Berth 3	Multipurpose Jetty
LOA (length overall)	294 m based on current Channel Configuration but not berth length.			130m
Max Beam	35		38	20
Max Draft	12.7	12.7	14.2	7.8

Table 2

In general, ship sizes have increased since the port was first developed. Now the port is handling regularly up to 200m length overall ("LOA") for log ships and bulk vessels, 215 m for woodchip carriers and up to 294m LOA for containerships. In 2020 Northport had a booking for a 294m Cruise ship to berth at the multipurpose berths which was cancelled due to the Covid19 pandemic.

Proposed Port Footprint

Northport is proposing to increase the port footprint. The Project is described fully in the AEE.² Briefly, Northport is proposing to expand to the east of the present site and the consented but unconstructed Berth 4 to increase the total berth length to 1090 m as shown in figures 2 and 3. Dredging will increase maximum depth alongside the berths to 16.0m. It expected the maximum draft of vessels calling at Northport berths will be up to 14.0m. The overall proposed expansion will allow for two extra multipurpose berths: Berth 4 (already consented, but not yet constructed) and Berth 5 (the "Project" or "proposed reclamation" / "proposed expansion").

¹ Larger ship sizes are allowed subject to simulated risk assessment and DUKC calculation as appropriate.

² See also the information on the following website: <https://www.visionforgrowth.co.nz/>



The Marsden Point and Northport fairway has a minimum depth of 14.7metres, a minimum width of 200 metres in the vicinity of Home Point and is subject to spring tidal streams of up to 3 knots. The channel has a critical turn of 40° in the vicinity of Home Point (see figure 4). For these reasons, the

channel is challenging for pilotage particularly in spring ebb tides and strong winds between Home Point and buoy 16. The channel is marked by navigation buoys from the fairway buoy to the Northport berths. A PEL (Port Entry Light) Leading Light is used to define the centreline of the approach channel from fairway buoy to buoys 3 and 6. In addition there are three sets of leads located in the vicinity of Marsden Cove/ One Tree Point to assist in determining cross distance off the Northport berths when approaching. The shipping channel is not affected by the proposed expansion.

Channel Optimization by Channel Infrastructure (formerly) Refining NZ

Channel Infrastructure reviewed the existing channel from fairway buoy to the Channel Infrastructure jetties with the intention of deepening the channel to accept Suezmax tankers to a draft of 16.6m³. Consent for the channel optimization was obtained in 2018. Channel optimization would bring benefits for Northport in that the Channel would be widened in the vicinity of Home Point and buoys 11 and 14 which would improve navigation safety in this critical area. It is possible the channel could be optimized for future Northport shipping with minimal dredging; however it is not critical for ships under LOA 300m.

Turning Basin Size

There are two recognized turning basins at Marden Point. The first turning basin is off Channel Infrastructure Jetty 1 which has a diameter of 550m. This turning basin is sufficient for departures of ballasted Suezmax tankers of 275 m LOA and drafts less than 12m.

The second turning basin is east of Northport Berth MP3 which has a diameter of 500m. It has been recognized practice for ships that they can be swung off MP Berths 2 and 3. Ships are not to be swung off MP Berth 1. The maximum ship length successfully swung in the Northport turning basin is 294m LOA with drafts less than 12 m. The proposed port expansion to the east will reduce the effective size of this existing basin by 50m. This is concluded to not materially effect on navigation safety for ships up to 300m LOA. Turning Basin Simulation Studies relevant to the proposed extension of the Northport Facility are shown in table 3 below:

Ship Type	LOA	Beam	Draft	BASIN	Year	Status
TANKER	80	15	6	NORTHPORT	2020	Complete
CONTAINERSHIP	294	32	11	NORTHPORT	2020/21	Complete
CONTAINERSHIP	294	32	14	NORTHPORT	2022	Complete

Table 3

PIANC (the World Association for Waterborne Transport Infrastructure) criteria for size of turning basins is 2 x LOA which is recommended at the concept design stage for a port⁴. Experience and use of simulation prudently allow a reduction in the size of turning basins to 1.5 X LOA with tug assistance at the detailed design stage for a port.⁵ Northport is using its in house simulator and experienced consultants to determine maximum ship size for the future turning basins based on limiting environmental conditions and towage capability. Real time simulation has already been undertaken to test the existing and future turning basins' suitability.

³ Refining NZ Desktop Simulation Study Be-Software2015/ Refining NZ Full Bridge Simulation Study Be-Software 2016. Channel Infrastructure (formerly Refining NZ) has recently transitioned to an import storage terminal, ceasing refinery operations.

⁴ PIANC Report No. 121-2014 pg. 97

⁵Port Engineering Planning, Construction, Maintenance, and Security G. Tsinker pg. 714 and <https://forcetechnology.com/en/articles/turning-basin>

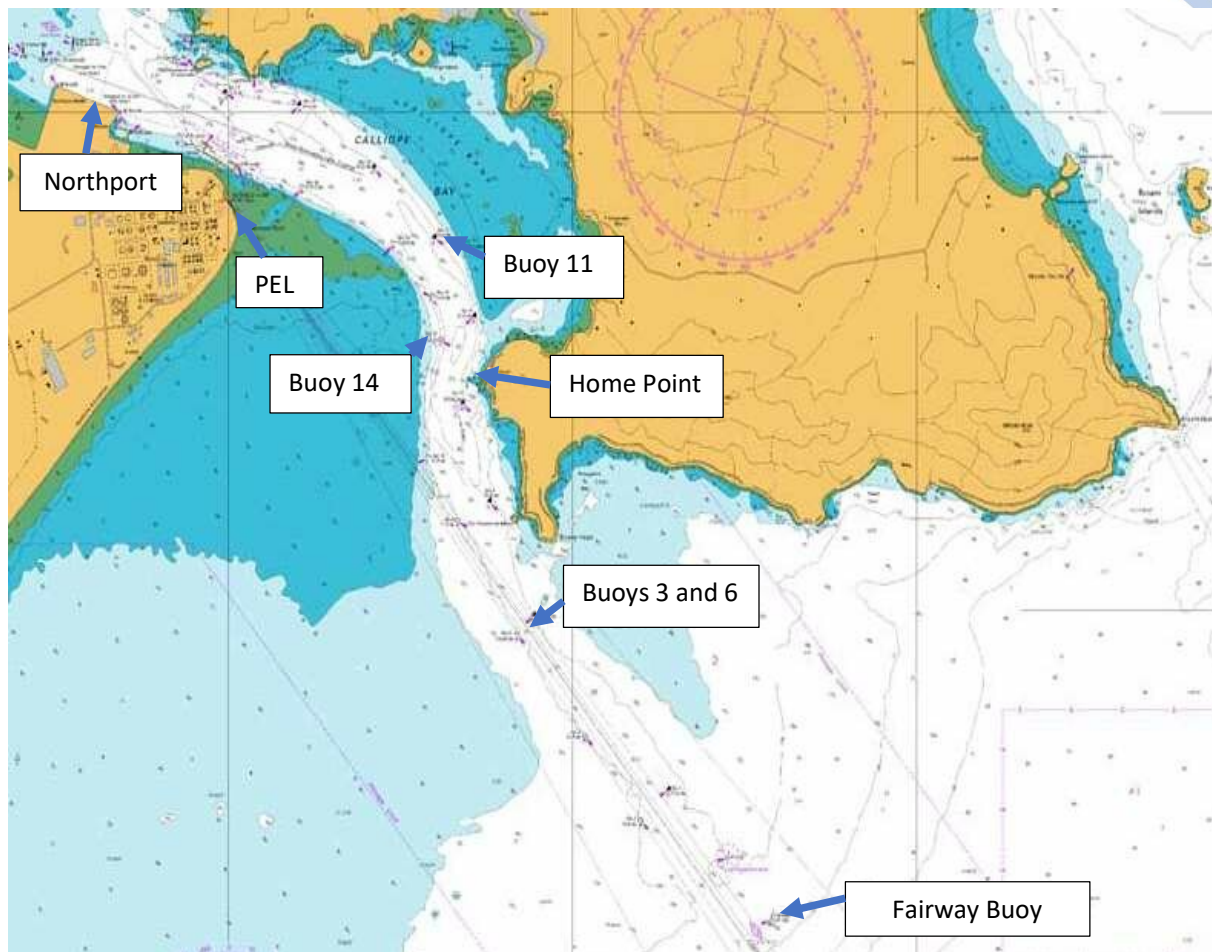


Figure 4

Northport Safety Management System

Northport has a port operator safety management system (SMS) which is annually audited internally and externally. The Northport SMS covers navigation safety issues within the port operational area. Wider Whangarei Harbour navigation safety matters are dealt with in the Whangarei Harbour SMS which is operated by the Northland Regional Council. Six weekly Harbour Safety Meetings and the daily presence of a deputy Harbourmaster (Commercial) at Northport ensures both SMSs are co-ordinated and meet the requirements of the NZ Port and Harbour Marine Safety Code.

Risk Assessment

Risk assessments at Northport are presented in a dedicated software package Hazman II. Hazman provides a cloud based software tool for documenting navigation safety risks and risk control measures to mitigate the risk. It is linked to an incident database to give an overall risk assessment for the harbour. Risks are graded by the software to facilitate adjusting control measures to keep risks as low as reasonably possible (ALARP).

A total of 58 Hazards are identified with 45 risk controls in place.

Risk Control: Dynamic Underkeel Clearance System (DUKC) System

Historically there have been two tanker groundings (16/3/2003 and 27/7/2003 in 2021) in the channel between the fairway and the Northport berths. The groundings were attributed in part to insufficient knowledge of the effect of the long period wave on the available underkeel clearance. As a consequence, Northport installed a DUKC system in 2004 from the company OMC International⁶. The DUKC system has two associated wave rider buoys in the vicinity of the fairway buoy and also transmitting tide gauges to better assess under keel clearance. NorthTugz Limited (NorthTugz), the towage provider, operates the DUKC for Northport and Channel Infrastructure. Recently upgraded in 2021, the current DUKC system is Series 5. DUKC Series 5 offers greater environmental data display to the marine pilot whilst conducting the pilotage. In particular, awareness of available underkeel clearance and tidal current velocities is available on the Pilot PPU (Portable Pilotage Unit).

Risk Control: Ship Simulator

While a portable simulator has been available since 2015, Northport installed an in-house marine simulator in November 2018 (figure 5). The simulator software is DNV GL compliant for full mission bridge simulation Class A and is supplied by Be-Software SRL of Italy. The simulator is primarily for Northport but is also used by the following organisations:

- Channel Infrastructure
- Northland Regional Council
- NorthTugz Limited
- Eastport Gisborne
- Golden Bay Cement
- Greater Wellington Regional Council
- Port of Darwin

Marine simulation is a recognized tool by the United Nations, International Maritime Organization⁷ for training of seafarers.

Simulation Purpose

The purpose of the Northport simulator is to:

- Train marine pilots, tug masters and shore vessel management operators
- Undertake port design and development and provide risk assessments for navigational safety
- Review mooring line arrangements for ships berthed during periods of strong offshore winds.

The simulation software has been benchmarked against equivalent systems operating in New Zealand and Australia which is consistent with best practice. The simulator achieves a number of objectives for both Northport and others. By thoroughly investigating the response of ships to wind, wave, and tidal effects, it is possible to refine the procedures used by marine pilots and tug masters to effect safe movement of existing shipping in the harbour. In a marine incident, seconds count in response to a failure of a ships engines or rudders to enable the ship to remain in safe water. The simulator is used to find the most effective response of marine pilots and tugmasters and VTS for given incidents in the harbour.

⁶ <https://omcinternational.com/>

⁷ <https://imo.org/>

Potentially major environmental issues are addressed by the simulator with the aim of preventing grounding and collision incidents from large ships. Prevention of accidents involving large ships with resultant oil pollution is a key to protection of the environment of Whangarei Harbour.

The simulator mimics the environment in which ships safely operate. By imposing high winds, strong tides and large waves, the marine pilot and tug master can trial environmental conditions not often experienced. This can be used to set realistic environmental limitations on the movement of ships to ensure they can be at all times controlled.

New classes of ships to the harbour, such as containerships, car carriers and cruise ships may be outside the current experience of the marine pilots and tugmasters in the harbour. By modelling such ships and testing them in the simulator before they arrive, it is possible to develop procedures and conduct risk assessments to make safe operating conditions for these new arrivals. Modelling of the ships is based on data provided from the ships themselves, literature research, Portable Pilotage Units (PPU) and drone footage. Shore based monitoring of shipping movements is conducted through Local Port Services or Vessel Traffic Services. LPS operators must monitor compliance with regulations and bylaws and can train in the simulator to provide the most effective communications with shipping.

Finally, new channel designs to give more manoeuvring space for ships have been successfully trialled on the simulator. In the future, new berths can be thoroughly tested to meet the Harbour Safety Management Systems⁸. Risk assessments can be undertaken, and training effected for new harbour designs.

⁸ Northport 5Year Plan Navigation Safety 2022-2027

Table 4 shows some of the simulation work undertaken by the Marine Simulator to date:

Activity	Purpose	Client	Year	Status	Reference
Channel Optimization	Port Development	RNZ	2015/19	Complete	BERNZ2015 BERNZ2016 BERNZ2019
Containership 231m	Risk Assessment Manoeuvrability	Northport	2018	Complete	BENPL012018
Containership 260m	Risk Assessment Manoeuvrability	Northport	2018	Complete	BENPL022018
Car Carrier 200m	Risk Assessment Manoeuvrability	Northport	2020	Complete	2020002
Cruise Ship Northport	Risk Assessment Manoeuvrability	Northport	2020	Complete	2020001
Dry Dock	Port Development	Northport	2019	Ongoing	BENPL2019
Pilot Training	Professional Development	NorthTugz	2019/20	Ongoing	Training
LPS Training	Local Port Service Course	Northport	2019/20	Ongoing	Training
Emergency Response	Oil Spill Response Demonstration	NRC/MNZ	2019	Ongoing	Demonstration
Pilot Training	Professional Development	Eastport	2019/20	Ongoing	2020007
Pilot Training	Professional Development	NRC	2020	Ongoing	2020005
Berth overhangs	Risk assessment mooring line analysis	Northport	2019	Complete	2019001
LPS Training	Local Port Service Course	GWRC	2020	Ongoing	2020010
Pilot Training	Professional Development	NRC	2020	Complete	2020005
Containership 294m	Risk Assessment Manoeuvrability	Northport	2020/21	Complete	2020003 2021001
Containership 366m	Risk Assessment Manoeuvrability	Northport	2020	Ongoing	2020008
Operational Use of RNZ Jetty 3 with Proposed Northport Berths 4 and 5	Risk Assessment Manoeuvrability	Northport	2020	Complete	2020006
RNZS Aotearoa Manoeuvring at Western End of Northport Facility	Risk Assessment Manoeuvrability associated with shipyard facility	Northport	2020	Complete	2020009
Yacht Carrier Berth 3 Semi- submersible	Risk assessment mooring lines	Northport	2021	Complete	2021002
LR Product Tanker	Channel Navigation	Northport	2022	Complete	2022001
Containership 366m	Turning Basin Swings Berth 4/5	Northport	2022	Complete	2022004
Containership 294m	Turning Basin Swings Berth 4/5	Northport	2022	Ongoing	2022005

Table 4



Figure 5

Risk Control: Environmental Limitations

Northport shipping is subject to environmental limitations of tide and wind. The current tidal limitations are:

Displacement	Draft	Length	Tidal Limitation
≤ 45,000 T	≤11.8m	≤200m	Berth or depart any time
>45,000 T	>11.8m	>180m	Berth or depart any time but restricted to tidal window
>45,000 T	>11.8m but ≤ 13.0m	>200m	Berth on ebb tide only.
All vessels	>13.0m	Any	Movements restricted to 1 hr before slack water only
All vessels requiring berthing starboard side to		Any	Berth on flood tide only

Table 5

From Table 5 above it is seen that the greatest limitation for Northport shipping is deep ships with drafts greater than 13m. These ships' movements are currently restricted to 1hr before slack water only. Wind Conditions impose another environmental limitation on shipping movements at Northport. The current wind limitations are:

- Indicative maximum wind strength for standard ship handling is 30 knots mean wind strength from any direction.
- For high sided vessels such as 200m+ container ships and woodchip ships indicative maximum wind strength are 20 knots wind speed from all directions.

Experience and the use of the in-house simulator is used to test environmental limitations for Northport shipping. Tidal stream studies for the main shipping channel have been undertaken using

an Acoustic Doppler Current Profiler (ADCP). ADCP data, updated in 2018 by MetOcean New Zealand to extend over the Northport area, was loaded into the Northport in-house simulator. New tidal stream data has been modelled by MetOcean New Zealand. The data was loaded into the simulator in July 2021. Northport is reviewing specific tidal stream studies for the areas of the existing Northport Berths and Swing Basin for:

- The potential berth extensions to the east of the current facility.
- Opening the tidal window for deep draft ships in association with increased towage capability.

The Northport in-house simulator is also used to review the current wind limitations for high sided vessels. Specific studies are ongoing for:

- Large cruise ships berthing and departing.
- Large container ships berthing and departing.
- Mooring line analysis for high sided ships alongside in strong offshore winds

Risk Control: Pilotage and Towage Capability

Towage and pilotage for Northport is provided by NorthTugz. NorthTugz operate a fleet of vessels to facilitate Northport shipping operations. In general, two Azimuth Stern Drive ASD tugs (the Bream Bay and the Takahiwai) are used for all shipping movements at Northport Berths. The available bollard pull of the tugs has proven adequate for Northport and Channel Infrastructure shipping operations to date. Three tugs have been used for the larger containerships 261m to 294m. The tug Takahiwai is due for replacement in the near future. Northport Limited is reviewing the need for a stronger bollard pull tug to replace the role of the Takahiwai due to the potential increase in ship lengths and drafts in the future. Existing tugs are shown in Table 6 below.

Tugs	Bream Bay	Takahiwai	Marsden Bay	Kemp	Hobson	Daldy
Type	ASD	ASD	Conventional	Conventional	Conventional	Voith
Manning	2	2	2	2	2	3
Bollard Pull	68T	50T	27T	14T	3T	24
Build Date	2007	2000	2015	1992	1976	1977

Table 6

Escort Towage Capability

Escort towage is undertaken for Northport shipping in the main shipping channel at the present time. Active escorting is used for arrivals with the tugs made fast between buoy 5 and buoy 13. Passive escorting is used for departures and the tugs will remain with the vessel until clear of buoy 7. The existing tugs are not escort rated and are limited in their ability to provide active assistance at speeds in excess of six knots. With a potential increase in ship length and draft in the future, Northport is reviewing the need for additional escort capability to be added to the existing fleet of tugs. Preliminary simulation results have indicated for larger, deeper draft containerships, a stronger escort rated tug is preferred for both arrivals and departures. The primary reason for this review is that the larger containerships handle better at a higher speed of about 9 knots in the critical turn around buoys 12 and 14. The deeper drafts will mean the need for active escort assistance will be considered for departures as well as arrivals.

Tug Pontoons

Tugs currently berth at the MP Jetty see figure 1 which is subject to easterly swells (predominate direction) and strong winds from the SE backing NE. It is necessary to shift the tug fleet to more sheltered waters when storm events are forecast. There is a lack of safe mooring arrangements for the larger vessels of the tug fleet in storm events. Both Northport and Channel Infrastructure are reliant on adequate tugs on site for safe shipping operations. In predicted severe storm events, it is necessary to clear the berths of shipping as well as the tugs. This is allowed for under the Northport SMS and Whangarei Harbour SMS. Northport has proposed a new set of tug pontoons to replace the existing facilities at the MP Jetty. See figure 6 below.

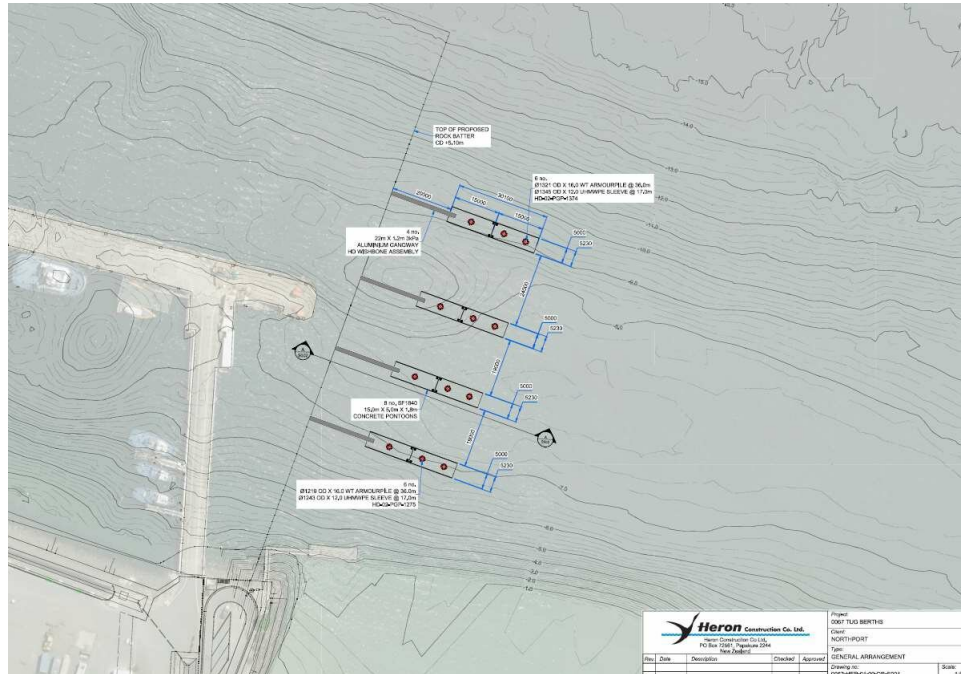


Figure 6

The proposed pontoons offer no advantages over the current arrangements for tug mooring with respect to storm events. Some potential advantages in normal operational conditions the pontoons will offer are:

- Safer access to crew
- More consistent mooring line loads within the tidal range
- Relocation for port growth

The new pontoons will need strict operational limitations re safe securing of tugs in predicted storm events. Overall there will have no material effect on navigation safety for the port.

The new pontoons project out into the operational area for small tankers using Jetty 3 at Channel Infrastructure. Simulation undertaken in 2020 of the proposed consent reclamation works found no material effect on the tanker operations at Jetty 3 of a proposed new tug pen design (Simstudy: 2020006). Final tug pen design will be further tested on the simulator however it is considered that there will be no material effect on the tanker operations at Jetty 3.

Pilot / Tugmaster Training

NorthTugz provides the pilotage and towage service to Northport. NorthTugz employs five marine pilots at the present time and has up to 15 staff available to crew a total of six tugs and a pilot boat. Pilots follow a structured training program which requires a total of twenty-four months to complete training to an unrestricted licence. Additional rigor has been introduced into the marine pilot program in the last 12 months by:

- Improved simulation training using the new Northport Marine Simulator
- A new annual assessment process and
- An extended audit process of all training

Tugmasters follow a similar structured training program which consists of understudy of senior tug masters and tug engineers with on the job training. This year NorthTugz intends to incorporate more simulation training for tugmasters. Future expansion of the port for the Project may require an increase in the number of pilots and tugmasters which will be managed through the existing training programs.

Risk Control: Navigation Aids

Northport is responsible for the main shipping channel navigation aids from sea to Portland. Northland Regional Council is responsible for Upper Whangarei Harbour (Onerahi to Town Basin). Northport Limited navigation aids are serviced and maintained by Northport staff and external contractors under a structured maintenance program which categorizes each aid on its relative importance for navigation safety. Review of the shipping channel in 2021⁹ identified changes to the navigation aids to improve navigational safety. Additional buoyage will provide redundancy in case of outages. North Tugz has implemented PPU (Portable Pilotage Units) carriage on all pilotages to improve the pilot's situational awareness when on the harbour. Northport is providing active assistance by facilitating PPU training within the in-house simulator and also considering implementing a Virtual Aids to Navigation (VToN) program for the harbour¹⁰. The virtual aids provide an electronic navigation aid visible on the pilot PPU and for the ship ECDIS (Electronic Chart Display Information System) which supplements and provides redundancy for the existing navigational buoys. Use of PPUs and VToN will provide a substantial improvement for Navigation Safety.

⁹ Harbour Safety Meeting 23rd November 2021

¹⁰ Northport 5Year Plan Navigation Safety 2022-2027

Risk Control: Local Port Service / Vessel Traffic Service

Northport runs a Local Port Service (LPS) through Whangarei Harbour Radio. The service is operated 24/7 and was established in 2016.

A vessel traffic service (VTS) is a service implemented by a Competent Authority such as Maritime New Zealand, designed to improve the safety and efficiency of vessel traffic and to protect the environment¹¹.

The VTS service should have the capability to interact with the traffic and respond to traffic situations developing in the VTS Area. Formal VTS has not been declared as yet in New Zealand by the Competent Authority.

LPS is designed to improve port safety and co-ordination of port services within the port community by dissemination of port information to vessels and berth or terminal operators. It is mainly concerned with the management of commercial shipping and port facilities, by the supply of information on berth and port conditions. Provision of LPS can also act as a medium for liaison between vessels and stevedores or allied services, as well as providing a basis for implementing port emergency plans. The full differences between VTS and LPS is explained in the UK Maritime and Coastguard Agency Marine Guidance Note 401.¹²

The Northport Local Port Service meets the prerequisites for an LPS in that it is:

- equipped appropriate to task
- manned by trained and qualified staff
- not required to be authorised by the competent authority.

Equipment operated by Northport staff meets the standards required for a VTS Information Service. Staff are trained to the IALA V-103 standard as required for VTS. Potential traffic movements for Northport in the next seven years indicate that density of shipping does not warrant implementation of VTS, however due to the cultural and environmental importance of Whangarei Harbour, VTS could be implemented to help protect the environment. The competent authority to authorise VTS can be defined as Maritime New Zealand. It is considered that the Northport LPS meets all regulatory requirements for Whangarei Harbour and can be upgraded to VTS if authorized by Maritime New Zealand.

¹¹ Source: IMO Resolution A.857(20)

¹² https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/461544/MGN_401.pdf

Traffic Movements

Shipping numbers have been recorded over the last eight years. Table 7 below shows the shipping numbers for Northport and the entire Whangarei Harbour (including CI, Portland, and Upper Harbour). The Upper Harbour figures are typically 85% small vessels under 100GRT.

	2014/15	2015/16	2016/17	2017/18	2018/19	2019/2020	2020/21	2021/22
Northport	265	271	257	303	283	309	298	262
RNZ/ CI	223	221	192	202	198	220	159	146
Portland	189	185	134	62	94	60	116	114
Upper Harbour	27	23	56	19	12	12	23	12
Whangarei Harbour Total	704	700	639	586	847	952	596	534

Total movements = ship numbers x 2

Table 7

At present the layout of the berths at Northport and Channel Infrastructure is satisfactory with adequate distance between berths and sufficient ship handling space. The existing total traffic movements to Northport and Channel Infrastructure are safely handled with available tug capacity and existing operating procedures. The addition of two new berths to the east of the existing port servicing container ships, car carriers and cruise ships are expected to increase shipping numbers¹³. Offset against this is a predicted downturn in logships of 30%¹³ and a decline in the number of tankers visiting Channel Infrastructure. It is not expected there will be any significant change in the shipping numbers for Portland and Upper Harbour¹⁵. Overall, there is a potential small increase in ship numbers for the next seven years for Northport. As the distance between the berths at Northport and Channel Infrastructure is reduced there will be a need for increased traffic management to ensure safety of navigation. Similarly, as traffic movements increase due to more available berth space at Northport, there will be a need for increased traffic management. Pilot numbers and towage capability may need to increase to meet demands of increased traffic movements. Overall, it is concluded that future traffic movements are likely to increase slightly, which will not have a material impact on navigation safety.

¹³<https://forme.co.nz/projects/log-supply-logistics/>

¹⁴ 2021 Refining NZ advises intention to become an import storage terminal. 2022 RNZ renamed CI

¹⁵ Golden Bay Cement Northland Regional Council Interviews 2020/21

Future Shipping

Northport is evolving to meet the requirements of the New Zealand economy, in particular the Upper North Island. Key anticipated future changes are:

- Log trade has dominated at Northport since establishment of the port in July 2002. However, there is a predicted decline in log cargoes in Northland¹⁶.
- Increased container trade has occurred with the establishment of a second mobile harbour crane in early 2020. Cruise ship bookings have been initiated. Potential exists for the establishment of a car trade in Northport and an increase in established bulk and breakbulk cargoes. Ship types and dimension are shown in Table 8 which can service this future trade.

Ship Type	Class	LOA	Beam	Draft
Container 12,500 TEU	New Panamax	366	49	15.2
Container 8,500 TEU	Post Panamax	340	43	14.5
Container 4,500 TEU	Panamax	294	32	12.5
Car Carrier	Green lake	200	32	9.5
Cruise Ships	Norwegian Jewel	294	32	8
Cruise Ships	Ovation of the Seas	348	43	8.9
Log ships	Handy Max and Supra Max	200	30	11.5
Bulk/ B Bulk	Handy Max and Supra Max	200	30	11.5
Woodchip	Handy Max	200	32	10.5

Table 8

- Northport to date has modelled containerships of LOA 320m and 366m and preliminary indications from simulation are that these ships should be able to use the harbour with some changes to channel configuration in the vicinity of buoys 8 and 11. Channel configuration changes would involve repositioning of some navigation aids and if deeper ships are required then some dredging.

¹⁶<https://forme.co.nz/projects/log-supply-logistics/>

Recreational Traffic

Recreational traffic in Whangarei Harbour is concentrated in the major marinas and mooring areas through the harbour. In the lower Harbour in the vicinity of Northport, Marsden Cove Marina and moorings are to the west and moorings exist at Urquhart and McLeod's Bays to the east. None of these areas are impacted by the proposed port expansion. Recreational traffic passes Northport travelling to and from Whangarei Heads. The presence of destinations elsewhere, deep water, significant tidal streams, and security requirements (restricted area) mean that most recreational craft do not anchor or stop in the vicinity of Northport. Similarly, recreational traffic avoids the area in the vicinity of the Channel Infrastructure jetties (prohibited area). As a result, the area of the proposed expansion is not often used by recreational craft and the proposal is considered to have a low impact on recreational traffic. Due to the presence of commercial shipping, local yacht clubs do not organize regattas in the vicinity of Northport. Other aquatic events are kept clear of Northport due to commercial shipping movements. Small craft fishing occurs in the commercial shipping channel but mainly in the vicinity of buoy 7. Especially during summer months these craft fishing can be a hazard to commercial shipping, but this is managed through the Local Port Service and Pilotage provider and will not be affected by the proposed expansion.

Effect of Proposed Pocket Park

Northport is proposing developing a pocket park and public jetty at the eastern extremity of the reclamation site. See Figure 7 below.



Figure 7

The site of the proposed public jetty will be adjacent to the new proposed tug pontoons as shown in figure 6. Public access by swimmers and divers to the tug pontoons is not allowed due to safety considerations of people being swept into the propellers of tugs. This risk must be mitigated with appropriate vessel procedures, signage, and fencing. As the existing public jetty and MP Jetty are adjacent one another and there is a similar risk, it is considered this new public jetty will not materially effect navigation safety. The positioning of the new public jetty is not considered to materially affect small tanker operations at CI Jetty 3.

Summary of impact of proposal on Navigation Safety in Whangarei Harbour

Following a comprehensive study of the proposed expansion, which includes simulation studies, it can be concluded that the expansion will likely result in a small increase in overall shipping movements which can be managed by existing risk controls.

In particular it is concluded:

- Reduction in the size of the Northport turning basin (resulting from the proposed reclamation) is considered to not materially impact shipping below 300m LOA.
- Channel navigation to and from the Northport berths as a result of the proposed expansion is not considered to be materially impacted (Simstudy2020008). The existing Channel Infrastructure jetties already impose a speed restriction on Northport traffic and project further north into the harbour than the proposed new Northport berths.
- Recreational boating is not materially restricted by the proposed expansion. Recreational traffic moving to and from Whangarei Heads is restricted to the northern part of the shipping channel which is the existing situation due to the presence of both the existing Northport berths and Channel Infrastructure jetties. The reclamation associated with the proposed expansion will impact an area not often used by recreational craft, as the Channel Infrastructure jetties already curtail recreational boating use.
- Any deepening of the channel and realignment consented by Channel Infrastructure will not materially affect the above conclusions.

Management of the Harbour has been improved since 2016 by

- Implementation of a Local Port Service.
- Establishment of a ship handling simulator for conducting risk assessments and training of marine service staff.
- Ongoing and continuous risk assessments using risk assessment tools (Hazman2).
- Presence of a local Deputy Harbourmaster in the Lower Whangarei Harbour.

Overall, it is concluded:

The proposed port expansion will not negatively impact on navigation safety for both commercial and recreational vessels.