

11 April 2023

s 9(2)(a)

Our ref: F32209  
By email

Dear s 9(2)(a)

**Official Information Act request: request for copy of Towage and Salvage Report**

I refer to your email of 10 March 2023 under the Official Information Act 1982 requesting:

*“Can you also please provide me with a copy of the 2022 report mentioned in this letter?”*

Attached as Appendix One is the Emergency Towing and Emergency Salvage Study, 2022. This document is released in full.

Maritime New Zealand (Maritime NZ) is the national regulatory, compliance, and response agency for the safety, security, and environmental protection of New Zealand waters. As part of this role, we monitor what capability is available with respect to emergency towing and salvage, and provide information to Ministers and current and previous governments.

I trust this information fulfils your request. If you wish to discuss this response, please feel free to email [media@maritimenz.govt.nz](mailto:media@maritimenz.govt.nz) or phone 04 499 7318 or freephone 0508 225 522.

Please note, this response, with your personal details removed, may be published on the Maritime New Zealand website.

Yours sincerely



**Shelley Tucker**  
Deputy Chief Executive (Acting)  
Response Security and Safety Services

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# Emergency Towing and Emergency Salvage Study

**ETESS-2022**

For: Maritime New Zealand

By: South Maritime Solutions



Investigation | Innovation | Risk | Projects

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## Terms and Acronyms

Term / Acronym	Meaning
AHTS	Anchor Handling Tug Supply
ASD	Azimuth Stern Drive
Bollard pull	Measure of the pulling power of a vessel, comparable to the horsepower rating of conventional vehicle engines.
Context	The internal and external environment that the scope for the risk management process and sets the criteria against which the risks will be assessed.
Emergency towing	Maritime towing services provided to an actual or potential maritime casualty in an emergency situation outside existing port towage services to intervene and prevent or minimise the adverse impacts of the event
ETV	Emergency Tow Vessel
IMO	International Maritime Organisation
MNZ	Maritime New Zealand
PESTLE	Political Economic Societal Technological Legislative and Environmental
Salvage	Maritime salvage services (excluding emergency towing) provided to an actual maritime casualty to stabilise and remove a casualty from an existing hazardous condition
SWOT	Strength Weakness Opportunity Threat
TAIC	Transport Accident Investigation Commission
Te	Tonne

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Maritime New Zealand (MNZ) engaged South Maritime Solutions to conduct a study The Emergency Towing and Emergency Salvage Study 2022 (ETESS 22) the purpose of which is to outline and describe the maritime vessels, equipment, infrastructure and personnel currently available in NZ to deliver emergency towing and emergency salvage services. This report is a refresh of certain aspects of the more detailed report undertaken in 2015 (ETESS 15).

## 1 Executive Summary

With the risk of a maritime emergency not having decreased since the ETESS 15 report, statistically New Zealand is due another significant maritime incident. A finding of this report is that there are limited available vessels that could be used promptly to prevent the escalation of a maritime incident in all but the most benign conditions, principally because the main dedicated towing assets, harbour tugs, are not designed for emergency towage tasks. The report also finds that while there are numerous salvage-capable marine service providers located in New Zealand, none would be capable of conducting a significant salvage event. New Zealand would therefore be relying on large foreign salvage providers.

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## 2 Preamble

This section provides a general understanding of how this report was developed.

### 2.1 Methodology

Maritime New Zealand (MNZ) engaged South Maritime Solutions to conduct The Emergency Towing and Emergency Salvage Study 2022 (ETESS 22). The purpose of the study is to identify and describe the maritime vessels, equipment, infrastructure and personnel currently available in NZ to deliver emergency towing and emergency salvage services.

This ETESS 22 report refreshes certain elements of the earlier and more extensive review undertaken in 2015. The preparation of this report commenced with a structured environmental plan to understand the contextual change in the seven years since the 2015 report.

An extensive list of stakeholders was prepared, which was expanded on during the development of this report. Semi-structured interviews were conducted, the majority via online video meetings, examining the following key questions:

1. What suitable vessels were available and capturing their specific:
  - a. Capability, concerning:
    - i. Towage
    - ii. Salvage
    - iii. Firefighting
    - iv. Evacuation
    - v. Bollard pull
  - b. Limitations
  - c. Operating limits
  - d. Specialist equipment
2. Similar questions were asked for shore-side assets
3. Specialist expertise, including capabilities, experience, skills and experience
4. What threats should be considered that could prevent or hinder an emergency tow or salvage event

There was a high degree of support for this report from stakeholders, and many well-considered submissions were provided.

### 2.2 Consultation

In preparing this report, the consultants engaged with many stakeholders. All port operators and harbourmasters were contacted. While many marine service providers were identified and interviewed, the list cannot be considered definitive as these smaller operators regularly enter and leave the sector. The stakeholders consulted are shown in Table 2-1.

Table 2-1: Consultation

Group	Members Consultation		
Port Operators	CentrePort	Marine Service Providers / Fishers	North Tugz
	Eastland		Sealords
	Napier Port		Sanfords
	Port of Tauranga		Tally's
	Port of Auckland		Independent Fisheries
	Marsden Point / Whangarei		NZDS
	Taharoa Ironsands		NPUW
	Port Taranaki		Nautilus Pacific
	Whanganui		Nelson Dive Services
	Lyttelton Port of Christchurch		Commercial Dive Specialists
	PrimePort		Heron Construction
	Port of Otago		Seaworks
	SouthPort		Western Work Boats
	Waitangi Port		MMA Offshore
	Port of Marlborough		Commercial Dive Specialists
	Port of Nelson		Thompsons Towboats
	Total Marine Services		
	Seafuels		
	McCallum Brothers		

Group	Members Consultation		
			Real NZ Silver Fern
Local Government	Wellington Regional Council Hawkes Bay Bay of Plenty Regional Council Auckland Transport Northland Regional Council Waikato Regional Council Whanganui District Council Environment Canterbury Otago Regional Council Environment Southland Grey District Council Buller District Council Tasman District Council Nelson City Council Marlborough District Council	Other	Wellington Airport Auckland Airport Marsden Refinery Royal New Zealand Navy Coastguard Maritime Police Units Real NZ NIWA Department of Conservation

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## 3 Tugs

This section describes maritime vessels, equipment, infrastructure and personnel currently available in NZ to deliver emergency towing and emergency salvage services.

### 3.1 Offshore Tugs

Anchor Handling Tug Supply (AHTS) vessels are used to handle anchors for oil rigs, tow rigs to location, and use them to secure the rigs in place. AHTS vessels also serve as Emergency Response and Rescue Vessels (ERRVs) and offshore supply transports. The downturn in the offshore oil and gas industry generally and specifically in New Zealand, and the decommissioning of the Tui field, has reduced the demand for AHTS in New Zealand. The long-term operator, Swire Pacific Offshore, has left New Zealand. The only remaining full-time AHTS operator is MMA, which operates the MMA Vision (100Te bollard pull). Even with only one AHTS in New Zealand, the MMA Vision is alongside awaiting work for around 80% of the time. This is good news for emergency towage and salvage, as it facilitates reasonably good (but not assured) access to a powerful tow tug, with a crew likely to have experience in towing large vessels.

During the early stages of preparing this report, two capable offshore tugs were operating in New Zealand's waters: the Normand Tortuga and the Southern Star. The Normand Tortuga completed her deployment and returned to Western Australia. The Skandi Emerald is now working on a campaign offshore Taranaki and was vessel of opportunity engaged in the tow to safety of the La Richardais.

Figure 3-1: Skandi Emerald



Figure 3-2: Southern Star



The presence of 'ships of opportunity', such as the two above, depends on other work, and it cannot be assumed that they will be made available during an emergency response. For example, if they are engaged in dive support it may be a threat to diver safety to move the ship off station.

### 3.2 Harbour Tugs

New Zealand's ports predominantly use two specialist tug designers, Damen and Robert Allen. New tugs are built in yards in Asia or Turkey. Modern harbour tugs use one powerful winch (either over the stern for Voith or the bow for ASD), controlled from the wheelhouse, usually by the tug engineer. The minimum safe crewing is usually two or three (tug master, engineer and sometimes an integrated rating). This number of crew is insufficient for safe emergency towing or salvage. Both ASD and Voith tractor tugs can be used for escort towage and are ideally suited to push/pull harbour operations.

Harbour tugs are expensive. Most New Zealand port companies have established their tug capacity around what they require for their current operations. Few, if any, have allowed for redundancy should they lose a tug through long-term mechanical failure or total loss. There is therefore an element of vulnerability across the New Zealand Port Sector. This has been identified by some port companies and discussions have taken place over establishing a common pool of spare tugs that can be leased by port companies on a short-term basis to manage this risk. To date these discussions have not been progressed. There is perhaps an opportunity to help manage the New Zealand risk of having limited tow salvage capability if such a pool were of the type better suited to providing ocean towage.

When replacing old tonnage, most port companies have simply opted for purchasing more powerful tugs of the same size and type to cater for the trending increased size of visiting vessels, particularly high-sided vessels such as container, passenger and car carrier ships. Most port companies are opting to purchase tugs of less than 24 metres in length because they consider the maritime rule requirements for ships over 24 metres in length to be commercially restrictive.

At least one port company is considering reducing the number of tugs due to the predicted downturn in shipping activity in its area.

### 3.2.1 Azimuth Stern Drive

Azimuth Stern Drive (ASD) tugs are propelled and steered by two independent thrusters near the stern. These tugs tow with a single line over the bow and push with the bow. In terms of this report, ASD tugs are directionally unstable when operating stern-first.

Figure 3-3: Azimuth Stern Drive Tug



### 3.2.2 Voith Schneider

Conventional Voith tractor tugs are equipped with two Voith Schneider propellers located at the bow. The new RAVE (Robert Allan Voith Escort) tug concept uses two Voith Schneider propeller, one at the bow and the other at the stern. Voith tractor tugs are very directionally stable when operating either ahead or astern at all speeds, and they can move effectively in any direction when at slow speeds.

Figure 3-4: Conventional Voith Tractor Tug



Figure 3-5: Robert Allan Voith Escort



They tow with a single line over the stern. They also push with the stern, and this makes them suitable for efficient push/pull operations. The tow line is on a stern winch before it passes through a fixed staple aft of midships, which reduces the risk of girting.

### 3.2.3 Conventional Twin Screw Tugs

Conventional twin-screw tugs no longer used as primary harbour tugs but are often used by marine service providers for tasks such as barge towage. Propulsion is typically two independent engines driving their own propeller, with a rudder aft of each propeller. They have lower bollard pull than modern harbour tugs but will provide good straight-line pulling (up to around 30Te bollard pull) and maintain their role in higher sea conditions. These smaller tugs typically use a single line connected to a towing hook over the stern. To push, these tugs use their bow. They may help pull small ship's off beaches, provided their crew are familiar with towing operations.

**Conclusion**  
Harbour tugs are not designed for emergency towage tasks

## 3.3 Heavy Lift Ships

There are two principle heavy lift ships:

1. Crane (single or doubled-up in tandem) used to lift heavy construction or project items
2. Semi-submersible, which use ballast to sink to float the cargo on the deck

Both are useful in emergency response/salvage. Heavy lift cranes (with long reach) were used for discharging containers during the Rena response. These ships are expensive, are in strong demand and will need to be mobilized from Western Australia or Singapore / Battam.

### 3.4 Offshore Support Vessels

Offshore vessels are ships that specifically serve operational purposes such as offshore oil exploration and construction work. There are a variety of offshore vessels, which are now finding work in wind farm development, crew exchange and field decommissioning, but they also provide critical roles in emergency response include evacuation, rescue and firefighting. Specialist offshore ships include:

- Oil Exploration Vessels
- Oil Drilling Vessels
- Seismic survey vessels
- Offshore Construction Vessels
- Well Intervention Vessels
- Pipe Lay
- Dive Support Vessels
- Flotels

These ships have specialist capabilities that may be of use in an emergency response, but they are unlikely to be available in New Zealand for any given emergency. The nearest pools of such vessels are in Singapore / Batam and Western Australia. Mobilisation of such vessels, if made available, is likely to be three weeks or more.

### 3.5 Emergency Tow Vessels

An emergency tow vessel (ETV) is used to tow disabled ships. The disabled vessel is either towed to a safe place or kept in place until the ship can maneuver on its own accord. The need for ETVs arose as the number of salvage tugs reduced. The risk of ship groundings, foundering and fire has not reduced.

Australian Maritime Systems Limited and Teekay Shipping (Australia) operates the ETV Coral Knight for AMSA in the sensitive sea areas of the northern Great Barrier Reef and Torres Strait. This ETV has a bollard pull of 82Te. The vessel is Australian flagged and has an Australian crew.

Figure 3-6: ETV Coral Knight



## 4 Emergency Towage Capability

Maritime emergency towing services are those services provided to an actual or potential maritime casualty in an emergency situation, outside existing port towage services. The objective is to intervene and prevent or minimise the adverse impacts of the event. This section provides a description of type and scope of emergency towage capabilities available in New Zealand in 2022.

### 4.1 Potential Adverse Events

The following are the credible, potential, scenarios requiring an emergency towage response:

1. Dragging anchor
2. Loss of propulsion in adverse conditions adjacent to a lee shore
3. Loss of propulsion or steerage (such as after a mechanical failure, fire, explosion or grounding)
4. Mooring breakout

### 4.2 Available Towage Assets

There are many marine assets available around New Zealand that might prove useful in managing a salvage response. However, marine assets capable of towing to avert a marine disaster scenario listed above are few.

There are a few ocean-going tugs around the New Zealand coast associated with marine construction project work, and generally their crews are trained and experienced in ocean towing. However, their size and bollard pull would limit their use to small (perhaps medium) size vessels only and they are usually committed to commercial projects. Similarly, there are numerous large factory fishing trawlers that would be capable of towing small to medium vessels. These trawlers have suitable trawl equipment and winches making them suitable for towing. However, although their crews do occasionally engage in towing operations (usually towing similar sized fishing trawlers that have become disabled) they could rarely be considered experienced in ocean towing.

An adverse event involving a large ship (the size of which are increasing year on year) would be problematic. There is no emergency towing vessel on standby to respond to adverse events requiring emergency towage of a large vessel.

The most prevalent tugs that might have sufficient bollard pull to maneuver a large ship in distress are the various harbour tugs owned and operated by port companies. However, these tugs have inherent weaknesses, such as:

- They are designed and constructed to operate in comparatively benign harbour conditions
- Port operators and marine service providers are choosing to purchase/build tugs of less than 24 metres in length due to the costs of manning and equipping vessels over 24 metres in accordance with Maritime Rules.
- Towing over the bow (ASD tugs) is not effective for emergency towage
- They have restricted operating limits
- Manning is appropriate for harbour towage, not emergency towage
- Their crews are generally not trained in emergency or ocean towing

In most potential groundings, successful intervention by harbour tugs outside of port limits is unlikely, due to either the tug's limited seakeeping capabilities, or their operational limitations.

The most powerful tug(s) around New Zealand are those that support oil and gas operations offshore of Taranaki. Most of New Zealand's ports and principal shipping routes are located on the east coast. This means there is a significant delay in mobilizing these vessels (presently the MMA Vision) from Port Taranaki to the location of the incident. The table below provides indicative, best case, mobilisation times, assuming the MMA Vision is in port when notified, is not constrained by existing work, has been released by the operator, and does not suffer weather delays enroute.

Table 4-1: Mobilisation Time

Port	Distance*	Steaming Time**	Prep Time***	Total Mob Time
Auckland	509	1 day 12 hours	4 hours	1 day 16 hours
Lyttelton	316	23 hours	4 hours	1 day 3 hours
Tauranga	577	1 day 17 hours	4 hours	1 day 21 hours
Wellington	178	13 hours	4 hours	17 hours

\* From Port Taranaki

\*\* At MMA Vision's maximum speed of 14 knots

\*\*\* Preparing for sea including departure pilotage

There are limited available vessels that could be used promptly to prevent the escalation of a maritime incident in all but the most benign conditions

### 4.3 Competent Crew

SeaCert is Maritime NZ's framework for seafarer certificates and operational limits. Certificates of competency are required for all crew employed in positions of responsibility on board tugs and ships. Operational limits define the boundaries within which the certificates can be used<sup>1</sup>.

A certificate of competency does not assure competence in non-routine tasks such as emergency towage or salvage. For non-routine maritime tasks, competence is considered the product of: specific knowledge, skill and ability in the performance of complex tasks emanating from critical thinking, and intentional performing of those tasks in practical situations.

Harbour tug crew are subject to the port's competence assurance processes to ensure they are competent to operate their vessels within the confines of their harbour. These crews are unlikely to be considered competent in the execution of emergency towing outside of their port limits, particularly in adverse sea conditions

Deep sea fishing vessel's crew (such as those operated by Sealords, Sanfords, Tallys and Independent Fisheries) may have experience in towing other fishing vessels as they are periodically required to tow fishing vessels from their own and other companies. These fishing vessels are unlikely to have ship-specific towing manuals as part of their MTOPs (reviewed by Maritime NZ). Such manuals are intended for the execution of emergency towing by that vessel in a safe and effective manner in an emergency situation where the crew of the towing vessel organizes the towing operation and passes the towline to the vessel in distress<sup>2</sup>. The crew may be considered competent for emergency towage, only if such a towing manual exists and the crew have completed practical exercises following that manual. Otherwise, the Maritime NZ guidance for Towing Another Vessel – MOSS operators is relevant.

Anchor Handling Tug Supply (AHTS) vessels, such as the MMA Vision, are designed and built to handle anchors for oil rigs, tow them to location, and use them to secure the rigs in place. AHTS also serve as Emergency Response and Rescue Vessels (ERRVs) and are used for towing large offshore floating structures. As such, the crew may be competent for emergency towage.

AMSA's Coral Knight is an AHTS modified for the role of dedicated emergency towage vessel (ETV). The crew of a ETV are very likely to be competent in emergency towage and salvage tasks, but the nearest ETV is based in Australia.

#### Conclusion

There is limited crew in New Zealand who have expertise in emergency towage

### 4.4 Permission to Tow

During the preparation of this report, several respondents indicated a reticence to provide emergency towage without clear direction from Maritime NZ. One respondent noted that in the early phases of mobilizing assets and personnel for emergency towage (the same applies for salvage) that a clear understanding of the terms of engagement would be beneficial.

Reference was made to the Maritime NZ Guidance For Towing Another Vessel -Moss Operators – which says *'towing another vessel beyond the terms of your operator plan might constitute a breach of the maritime rules. More importantly, it might be unsafe to you, your vessel, passengers and crew. Under the Act the Master is responsible for the safe operation of the ship and the safety of all passengers and crew (s. 19(1)(a)).'*

Some concern was expressed over the validity of an operator's asset insurance if tasked outside of their approved operating limits. Most insurance policies are only considered valid when the assets are in current survey and operating strictly within the parameters of their approved documents, including being crewed accordingly. Many assets have been down-graded for commercial reasons due to what their owners perceive as onerous and changing requirements of Maritime Rules.

Also, most of the assets are engaged in short to long-term contracts and might not be readily available at short notice.

### 4.5 Towing Gear

An emergency towing arrangement should be fit for purpose in its entirety, including:

- Fittings on the casualty
- Fittings on the towing vessel
- Tow line components

<sup>1</sup> SeaCert: Seafarer Certification and Operational Limits Framework. July 2021.

<sup>2</sup> MSC.1/Circ.1255: Guidelines for Owners/Operators on Preparing Emergency Towing Procedures

IMO's Revised Guidelines in Shipboard Towing and Mooring Equipment<sup>3</sup> provides guidance on the required characteristics of emergency towing arrangements, including the tow line components. During the research for the preparation for this report, no specialist emergency towage gear was identified in New Zealand.

To manufacture a suitable tow line will take time. It is preferable that pre-fabricated tow lines of various sizes to match the available tow assets are available near to where they can be expected to be used.

Note that harbour tugs can push and pull but pushing in an emergency such as preventing a ship grounding, is unlikely to be appropriate in an emergency response as this is most likely to place the tug on the shallow side of the casualty, and potentially into a hazardous situation.

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<sup>3</sup> MSC.1/Circ.1175/Rev.1

## 5 Salvage Capability

Maritime salvage services (excluding emergency towing) is that provided to an actual maritime casualty to stabilise and remove a casualty from an existing hazardous condition. This section provides a description of type and scope of possible emergency salvage capabilities in 2022.

### 5.1 Potential Adverse Events

The following are the credible, potential, scenarios requiring a salvage response:

- Sinking / foundering
- Collision
- Grounding
- Contact
- Loss of stability
- Fire and explosion
- Abandonment
- Loss of cargo (containers lost overboard)

### 5.2 Changes in Salvage

The 1989 International Salvage Convention which came into force in July 1996. The Convention formalized the 'safety net' principles and introduced a compensatory regime, which mitigated the strict 'no cure, no pay' principle that is a key feature of Lloyd's Open Form<sup>4</sup>.

### 5.3 Changes in Availability of Salvors

The salvage industry has been under financial pressure for some time. This has led to a number of companies leaving the industry or consolidation of several operators. Some salvage advisors, such as London Offshore Consultants (also subject to consolidation) have also shed much of their salvage expertise to focus on other more profitable opportunities.

For example, in the South Pacific, Svitzer Salvage, then part of the Maersk Group, and Titan Salvage, part of U.S.-based Crowley Group merged to become Ardent. Ardent's operation were wound down, exiting the salvage sector in 2020 to focus on oil and gas decommissioning. The sole credible salvor in the region for responding to large ship events is United Offshore based in Port Kembla. United Salvage is presently engaged in salvaging two tugs that were sunk in an allision incident in Hobart, Tasmania.

There are other large salvage companies based outside of the South Pacific region. These may be available but not necessarily at short notice and with a longer lead time to deploy to New Zealand.

### 5.4 Salvage Kit

United Salvage has an inventory of essential salvage equipment packaged ready for immediate deployment from its warehouse in Port Kembla. This kit can be transported by air to New Zealand for deployment. There is no salvage equipment available in New Zealand for responding to a large event such as the Rena grounding. However, there are several smaller salvage companies capable of assisting in a large response, and one in particular that could respond to a small adverse event and is currently building its inventory in preparedness for larger events. Like United Salvage, they have ready-packed modules based in the Auckland/Northland region that can be transported by land, sea or air, albeit on a smaller scale.

There are other salvage providers further afield that have similar capability to that of United Salvage. These companies could be engaged for large scale, less time-dependent, salvage work.

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<sup>4</sup> <https://www.marine-salvage.com/overview/no-cure-no-pay/>

## 6 Conclusions

The following table summary of conclusions reached, as described in detail earlier in this report:

1. There are limited available vessels that could be used promptly to prevent the escalation of a maritime incident in all but the most benign conditions
2. Harbour tugs are not designed for emergency towage tasks
3. There is limited local emergency towage expertise

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## 7 Authors

### Mike Pearson

Mike is a Master Mariner with more than 38 years of international experience working with some of the most respected names in the marine and offshore industries. He had ten years at sea before being seconded ashore into liner operations management. He has been involved in marine safety management since 1995 when he wrote his MSc thesis on the ISM Code. Since then he has gained significant experience in the regulation, development and practical implementation of risk and marine management systems. Mike headed the American Bureau of Shipping's ISM program in Europe, Africa and the Middle East. Returning to New Zealand, Mike was the inaugural Regional Harbour Master for Southland.

Completing his MBA in 2006, Mike established his maritime consultancy which has included diverse projects such as managing the risk management for the salvage of the West Atlas, establishing a number of high-performance maritime management systems, emergency response plans (including Ebola response for a West African client), feasibility studies and expert witness, and most recently becoming involved in green ship recycling. Mike is member of the:

- Fellow of the Nautical Institute
- New Zealand Company of Master Mariners
- Business Mentors New Zealand

### Tim Burfoot

Tim is a Master Mariner with 22 years' experience in maritime operations and 20 years in accident investigation. His 17 years at sea culminated with five years in command of various ship types on international trades. He has extensive shore-based leadership experience, including five years marine operations management for a fleet of Roll-on Roll-off passenger, freight and seasonal fast ferries.

After 5 years' experience as a maritime accident investigator with the New Zealand Transport Accident Investigation Commission Tim took on the role of its Chief Investigator and General Manager Investigation Services, responsible for a team of 15 investigators working across maritime, aviation and rail accident investigations to international standards.

He represented New Zealand at international forums such as the International Maritime Organisation (IMO), the International Civil Aviation Organization (ICAO) and Marine Accident Investigators International Forum (MAIIF). Tim is a member of the:

- Nautical Institute (AFNI)
- Marine Accident Investigators International Forum – Roll of Honour (MAAIF)
- New Zealand Institute of Directors
- Chartered Master Mariner – Company of Master Mariners