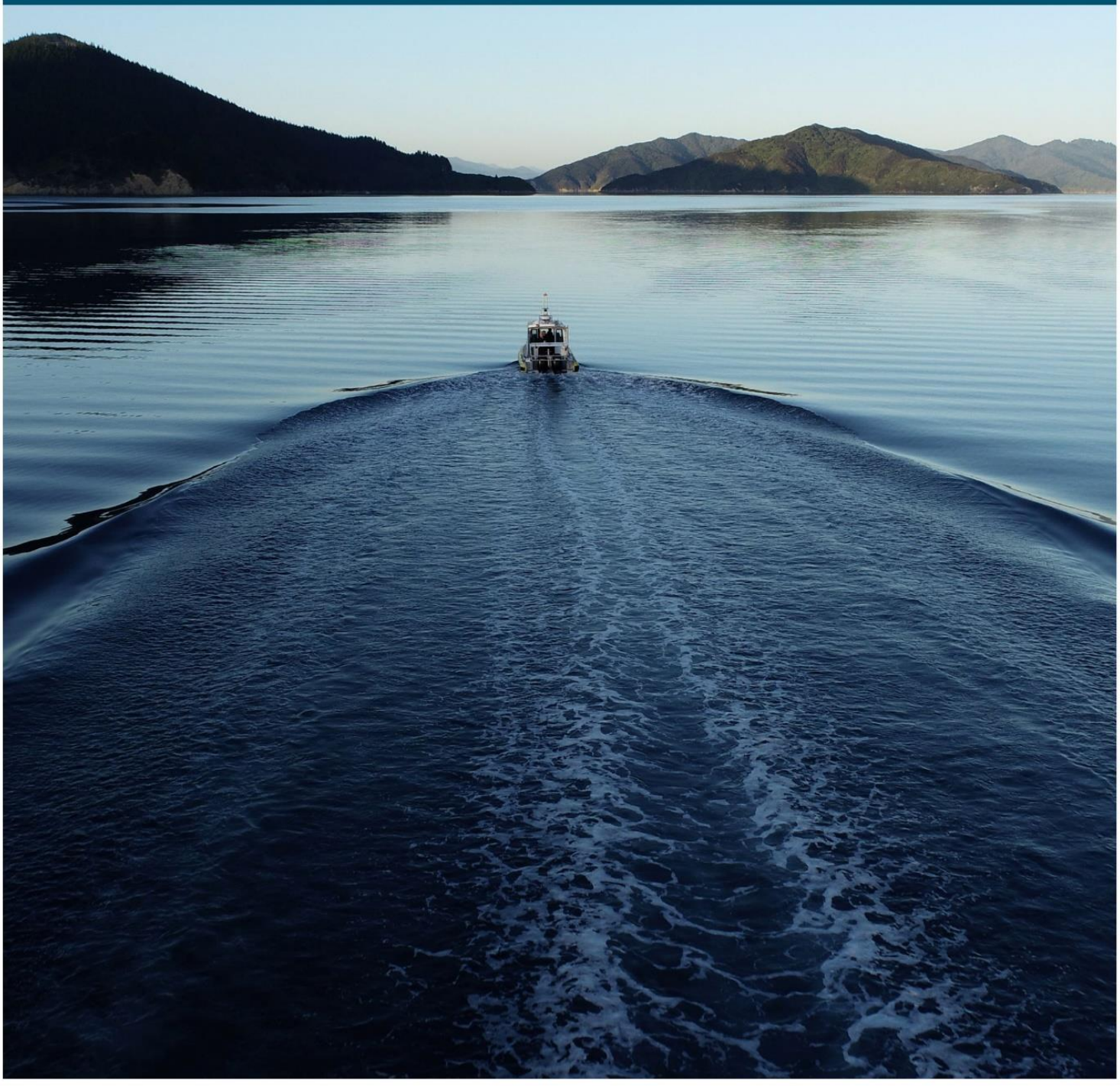
MARLBOROUGH DISTRICT COUNCIL

Harbour Safety Management Plan



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Revision History

Document Revision Record					Approval
Rev	**Date**	**Description**	**Prep**	**Check**	**Harbourmaster**
1	February 2020	Document created. Includes new material and elements previously found in the Harbour Activity Plan and the Harbour Safety Management System.	LGR	JEV	February 2020
2	July 2020	Document adjusted to better explain risk assessment processes and to incorporate elements of the Harbour Risk Management Standard.	LGR	JEV	July 2020
3	June 2023	Document reviewed and updated.	BHA	JOL	June 2023

All accepted issues and versions of this document will be stored in the Councils CM system.
The Harbourmaster is the only authorised editor for this manual.

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Glossary

Definition	Meaning
Access	Safe means of access and egress, to be suitably constructed, kept free from obstruction and to be well maintained. Concept can be applied to access to/from ship or structure or safe access/egress to/from a navigable area within Marlborough.
Aid to Navigation	A device or system external to vessels that is designed and operated to enhance the safe and efficient navigation of vessels and/or vessel traffic. This is to differentiate their provision from the equipment carried on vessels for navigational purposes, which are referred to as navigational aids. [MNZ Guidelines for Providing Aids to Navigation in New Zealand]
Allision	The running of one vessel into a fixed object, as distinguished from a collision, ie., the running of two vessels against each other.
Awareness	Workers shall be made aware of: • the OH&S policy and OH&S objectives; • their contribution to the effectiveness of the OH&S management system, including the benefits of improved OH&S performance; • the implications and potential consequences of not conforming to the OH&S management system requirements; • incidents and the outcomes of investigations that are relevant to them; • hazards, OH&S risks and actions determined that are relevant to them; the ability to remove themselves from work situations that they consider present an imminent and serious danger to their life or health, as well as the arrangements for protecting them from undue consequences for doing so. [ISO45001:2018]
As low as reasonably practicable [ALARP]	Concept used to help determine whether the risk level associated with a particular safety issue is acceptable. Generally, refers to a range of risk levels between intolerable and broadly acceptable, where there is some onus on the relevant organisations to demonstrate that they have addressed the safety issue as much as is reasonably practical to do in the circumstances. [TAIC]
Bylaw	Council has introduced navigation safety bylaws to regulate vessel traffic in the region and ensure navigation safety in the Marlborough Harbour. [MDC Harbour SMS]
Change Management	Systematic assessment and implementation of change to operations, processes, personnel, plant and equipment, products and services, premises, etc. [ICAM]
Collision	The act of ships or vessels striking together. In its strict sense, collision means the impact of two vessels both moving, and is distinguished from allision, which designates the striking of a moving vessel against one that is stationary. [Black's Law Dictionary]

Definition	Meaning
Communication	Transmitting information necessary for the safe and effective functioning of the organisation to the appropriate recipients in a clear, unambiguous what intelligible form. [ICAM]
Competence	A cluster of related abilities, commitments, knowledge, and skills that enable a person (or an organization) to act effectively in a job or situation. Competence extends beyond the completion of statutory training, ie., an STCW certificate of competence is not in itself evidence of competence.
Conflicting Activity	Potential clash of activities which could bring about and an undesired event or set of circumstances, eg. safety, environment, damage to assets, schedule, commercial, financial, etc. [IMCA M203 - Guidance on Simultaneous Operations]
Consequence	Outcome of an event affecting objectives. A consequence can be certain or uncertain and can have positive or negative direct or indirect effects on objectives. [ISO31000:2018]
Contractor Management	Evaluation, selection, control and monitoring of contractor activities including personnel, equipment and materials. [ICAM]
Controls	The measures put in place by an organisation to facilitate and assure safe performance of the operational components of the system—that is, operational personnel and equipment. Risk controls can be viewed as the outputs of the organisation's safety management system. Includes preventive and recovery risk controls. Sometimes known as defence, barrier or safeguard. [TAIC]
Critical Equipment	Equipment or systems whose failure may lead to a potential hazardous situation, thereby causing injury to personnel, loss of life or damage to marine environment or property.
Critical Risks	Critical risks are those with catastrophic consequences and are typically low probability.
Emergency Preparedness	Process(es) needed to prepare for and respond to potential emergency situations. [ISO45001:2018]
Enforcement	A successful and cost-effective compliance strategy will draw on a range of options for responding to non- compliance. Responses can range from encouraging and assisting an individual or business to comply where the risk presented is minor, to revoking an operating licence and bringing criminal or civil court action in cases of serious risk and deliberate non-compliance. [MDC Enforcement Policy]
Equipment Failure	Equipment, a control system or an individual protection device which in the event of a single point failure may: Result in a hazardous situation which could lead to an accident; or Directly cause an accident that results in harm to people or the environment. [OCIMF - Safety Critical Equipment and Spare Parts Guidance]
Error	An action o decision involving deviation from an accepted standard, and which leads to a desired outcome. They can be unintentional acts, or intentional acts with unintended outcome. [ICAM]
Fire/Explosion	Fire can occur when flammable material, oxygen and sufficient ignition energy are available. Explosion depends on an atmosphere of a mixture of flammable material with oxygen. The best approach to prevent fires and explosions is to substitute or minimise the use of flammable material. [Wikipedia]

Definition	Meaning
Fitness for Work	Fit for work means that an individual is physically and mentally able to perform assigned tasks competently and in a manner which does not compromise the safety or health of themselves or others. [WorkSafe]
Foundering	Instability, caused by the centre of mass of the ship rising above the metacenter resulting in the ship tipping on its side or capsizing. [Wikipedia]
Grounding	Ship grounding is the impact of a ship on seabed or waterway side. In accidental cases, it is commonly referred to as "running aground. [Wikipedia]
Hazard	Something with the potential for harm.
Harbour Information	Essential and timely information to assist the on-board decision-making process, which may include but is not limited to: • The position, identity, intention and destination of vessels; • Amendments and changes in promulgated information concerning the VTS area such as boundaries, procedures, radio frequencies, reporting points; • The mandatory reporting of vessel traffic movements; • Meteorological and hydrological conditions notices to mariners, status of aids to navigation; • Manoeuvrability limitations of vessels in the VTS area that may impose restrictions on the navigation of other vessels, or any other potential hindrances; or Any information concerning the safe navigation of the vessel. [IALA VTS Manual Ed.6]
Harbour Monitoring System	The technical, legal and institutional setup facilitating systematic monitoring of vessel movements and their physical and information tracking, improvement of safety of navigation and life protection in rescue operations, risk reduction of the ship accidents and reduction of all types of dangerous situations, improvement of search and rescue service and reduction of the sea pollution risks and coordination of the cleaning action in case of accidents. [EU Transport Research and Innovation Monitoring and Information System]
Harbour Safety Management Systems	MDC's Safety Management System used to promote navigational safety in the Marlborough District.
Health and Safety	Related to preventing accident or injury in workplaces or public environments. [WorkSafe]
Incident	An occurrence, other than an accident, associated with the operation of a transport vehicle which affects or could affect the safety of operation.
Individual/ Group Actions	Are observable behaviour performed by operational personnel. The term is generally used to refer to actions that increase safety risk, unless otherwise noted.

Definition	Meaning
Isolation	Preventing contact with or exposure to the risk. Separating people from the hazard/preventing people being exposed to the risk.
Leadership	Top management shall demonstrate leadership and commitment with respect to the OH&S management system by: • taking overall responsibility and accountability for the prevention of work-related injury and ill health as well as the provision of safe and healthy workplaces and activities; • ensuring that the OH&S policy and related OH&S objectives are established and are compatible with the strategic direction of the organization; • ensuring the integration of the OH&S management system requirements into the organization's business processes; • ensuring that the resources needed to establish, implement, maintain and improve the OH&S management system are available; • communicating the importance of effective OH&S management and of conforming to the OH&S management system requirements; • ensuring that the OH&S management system achieves its intended outcome(s); • directing and supporting persons to contribute to the effectiveness of the OH&S management system; • ensuring and promoting continual improvement; • supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility; • developing, leading and promoting a culture in the organization that supports the intended outcomes of the OH&S management system; • protecting workers from reprisals when reporting incidents, hazards, risks and opportunities; • ensuring the organization establishes and implements a process[es) for consultation and participation of workers; supporting the establishment and functioning of health and safety committees. [ISO45001:2018]
Likelihood	General description of probability or frequency, more so in qualitative terms rather than in mathematical or percentage terms.
Man Overboard	Where a person has fallen from a boat or ship into the water and is in need of rescue.
Memorandum of Understanding [MOU]	Formal agreements often used to document the division of responsibilities between the Council, port operators, the Harbourmaster, marine service providers and other relevant organisations. [NZ Port and Harbour Marine Safety Code]
Mental Impairment	Abnormal state of mind (whether of a continuous or an intermittent nature), characterised by delusions, or by disorders of mood or perception or volition or cognition, of such a degree that it: (a) poses a serious danger to the health or safety of that person or of others; or (b) seriously diminishes the capacity of that person to take care of himself or herself. [WorkSafe]

Definition	Meaning
Miscommunication	Failure to communicate adequately. [Dictionary]
Miscalculation of Risk	Failure to assign an appropriate level of risk to a identified hazard. [paraphrasing WorkSafe's definition of HSNO hazard rating] Underestimation of likelihood of something going wrong and the severity of the consequences. [ICAM]
Mooring Failure	Failure of ship's mooring.
Natural Hazard	A natural phenomenon that might have a negative effect on humans or the environment.
Operator Error	Failure to operate equipment or system as intended.
Operator Safety Management Systems	Operator's Safety Management System used to manage risk appropriate to their scope of operations.
Personal Protective Equipment (PPE)	Any item of equipment used to protect a person from hazards, for example, safety helmet, safety goggles, safety belt and line. [WorkSafe]
Personnel (Competent)	Any person who has: (a) the relevant knowledge, experience, and skill to carry out the task required; and (b) either (i) a relevant qualification evidencing the person's possession of that knowledge, experience, and skill; or (ii) if the person is an employee, a certificate issued by the person's employer evidencing the person's possession of that knowledge, experience, and skill. [WorkSafe]
Planning	The process of making plans for something. [Dictionary]
Pollution	Discharge including any release, disposal, spilling, leaking, pumping, emitting, or emptying. [MTA section 225]
Practicability	Extent to which it is reasonable for a particular organisation to address (or have addressed) a particular safety issue. Involves considering the level of risk, the state of knowledge about the safety issue and the ways it can be addressed, the availability and suitability of ways to address the safety issue, and the cost of addressing the safety issue. [TAIC]
Reason Model	Emphasises that unsafe acts have a key role to play in the development of accidents. However, the origins of unsafe acts are (usually] in management systems, not within the individuals who made the unsafe acts— that is, the model emphasises a 'system' approach to improving safety rather than an approach focusing on the individuals who make unsafe acts. [TAIC]
Reserved Area	Any area defined under the Marlborough Navigation Safety Bylaws Part 3.9 and further defined by words and maps, if any, in schedule 4 of that Bylaw. [MDC Navigation Safety Bylaws 2009]
Resources	Top management and oversight bodies, where applicable, should ensure allocation of appropriate resources for risk management, which can include, but are not limited to: • people, skills, experience and competence;

Definition	Meaning
	• the organization's processes, methods and tools to be used for managing risk; • documented processes and procedures; • information and knowledge management systems; professional development and training needs. [ISO31000:2018]
Risk	Effect of uncertainty on objectives. Risk is usually expressed in terms of risk sources potential events, their consequences and likelihood. [ISO31000:2018]
Risk Analysis	Involves a detailed consideration of uncertainties, risk sources, consequences, likelihood, events, scenarios, controls and their effectiveness, purpose of the analysis, the availability and reliability of information, and the resources available. Analysis techniques can be qualitative, quantitative or a combination. [ISO31000:2018]
Risk Assessment	The overall process of risk identification, risk analysis and risk evaluation.
Risk Awareness	Appropriate and timely involvement of stakeholders enables their knowledge, views and perceptions to be considered. This results in improved awareness and informed risk management. This enables organizations to explicitly address uncertainty in decision-making, while also ensuring that any new or subsequent uncertainty can be taken into account as it arises. [ISO31000:2018]
Risk Evaluation	Risk evaluation involves comparing the results of the risk analysis with the established risk criteria to determine where additional action is required. Decisions should take account of the wider context and the actual and perceived consequences to external and internal stakeholders. [ISO31000:2018]
Risk Management	Coordinated activities to direct and control an organization with regard to risk. [ISO31000:2018]
Risk Treatment	The purpose of risk treatment is to select and implement options for addressing risk. Risk treatment involves an iterative process of: • formulating and selecting risk treatment options; • planning and implementing risk treatment; • assessing the effectiveness of that treatment; • deciding whether the remaining risk is acceptable; if not acceptable, taking further treatment. [ISO31000:2018]
Safe Access	For details of factors to be taken into account see Report on Environmental Factors Affecting Safe Access & Operations within New Zealand Ports and Harbours.
Safety Culture	Safety culture is the collection of the beliefs, perceptions and values that employees share in relation to risks within an organization, such as a workplace or community. [Wikipedia]

Definition	Meaning
Safety System	A structured and documented system enabling harbour, port and ship operators to implement their health, safety and pollution prevention policies. This may include: • the design of work in which risks have been controlled; • the process, pace and flow of the work; • work practices used; • the design and use of plant and equipment, and the effect of environmental factors.
Seismic Activity and Tsunami	The shaking of the surface of the Earth, resulting from the sudden release of energy in the Earth's lithosphere that creates seismic waves. The long, high sea wave caused by an earthquake or other disturbance. [Wikipedia]
Signage	Signs advising of hazards. These are subdivided as follows: Danger signs. Signs warning of a particular hazard or hazardous condition that is likely to be life-threatening. Warning signs. Signs warning of a hazard or hazardous condition that is not likely to be life-threatening. [WorkSafe]
Stakeholder	Person or organization that can affect, be affected by, or perceive themselves to be affected by a decision or activity. [ISO31000:2018]
Standard Operating Process [SOP)	Step-by-step instructions compiled by an organization to help workers carry out complex routine operations. [Wikipedia]
Task Complexity	The degree of complicated actions needed to complete a task. [Psychology Dictionary]
Time Pressure	Performance degradation in the performance of complex tasks due to the shortage of cognitive resources thus leading to adoption of simple strategies and increased performance errors. [ICAM]
Tool Availability	Correct tools are immediately available for use by the competent person.
Training	Action of teaching a person a particular skill or type of behaviour. [Wikipedia]
Unsafe Vessel	Taking into account the nature of the service for which the vessel is intended, the vessel is unfit to go to sea without serious danger to human life. A vessel may be unsafe due to: • the ship's condition, or unsuitability for its purpose, or its machinery or equipment • under manning • overloading or unsafe or improper loading any other matter relevant to the safety of the ship [UK Merchant Shipping Act 1995]
Violation	A deliberate deviation from a rule or procedure, essentially breaking the rules. [ICAM]

Definition	Meaning
Workload	The amount of work to be done by someone or something. [Dictionary]
Work Conditions	The way in which work is structured, supervised and processed. It deals with the institutional features of work such as the nature of the organisational chart, who is the boss, power, authority, responsibilities, how work gets done, the nature of tasks including such features as workload and content. It is the objective nature of the work process. [WorkSafe]
Worst Credible Scenario	The worst occurrence, in terms of the severity of its consequences, that could occur as a result of a safety issue, after consideration has been made of the risk controls and management processes in place to minimise risk. Concept used in risk analysis.
Worst Possible Scenario	The worst occurrence, in terms of the severity of its consequences that could occur as a result of a safety issue. No consideration is made regarding the risk controls or management processes in place to reduce the consequences or likelihood of such a scenario.

Vision Statement

Provide a local maritime regulatory system that consistently delivers safe, navigable, and clean waterways to the users of the Marlborough Harbour and upholds the rights of freedom of navigation and supports the spirit of exploration.

Introduction

This plan aims to:

- Clarify the role and responsibilities of the Harbourmaster in reference to the Maritime Transport Act and the New Zealand Port and Harbour Safety Code.
- Illustrate how the processes of risk assessment and incident management are interlinked and critical to the work of the Harbourmaster.
- Identify the controls the Harbourmaster has in place to manage risk in the harbour and provide details as to the work activity the Harbourmaster undertakes to ensure the effectiveness of these controls.
- Demonstrate Councils efforts to meet its obligations as a harbour authority under the Maritime Transport Act and in particular to demonstrate consistency with the Port and Harbour Safety Code.

A Function of Risk

The statutory function of the Harbourmaster is to manage maritime risk.

Maritime safety is a regional council function and is set out in Section 33C of the Maritime Transport Act 1994 (the Act) as follows:

"For the purpose of ensuring maritime safety in their regions, regional councils may regulate:

a) The ports, harbours, and waters in their regions; and

b) Maritime related activities in their regions."

Maritime safety is the term used in the Act to refer to the safe conduct of activities related to all aspects of the operation of ships. However, it is important to note that under the Act 'a ship' means every boat or craft used in navigation (whether or not it has any means of propulsion). The term navigation is not defined in the Act and the common meaning can be assumed.

This implies that Council has a duty of care toward all harbour users and a degree of responsibility to ensure the provision of a safe and navigable harbour. Although the exact legal extent of that responsibility is uncertain, significant liability may arise if a Council is found to be negligent in its efforts to ensure maritime safety.

The Act provides the following mechanisms which a council may use to meet its obligations; specifically a council may:

- Create navigation safety bylaws.
- Appoint a Harbourmaster for any port, harbour, or waters in its region.

Once appointed, the Act provides Harbourmasters with a range of powers for the purposes of ensuring maritime safety, or enforcing navigation bylaws, regulations and rules made under the Act.

The Marlborough District Council has created navigation safety bylaws and appointed a Harbourmaster, Captain Jake Oliver.
The Harbourmasters office is located in Picton and is staffed as follows:

Harbourmaster - Captain Jake Oliver

Deputy Harbourmaster – James Oliver

Harbour Protection Officer - Jason Moore

Maritime Officer – Brittany Hamilton

Maritime Officer – Hamish Baxter-Broad

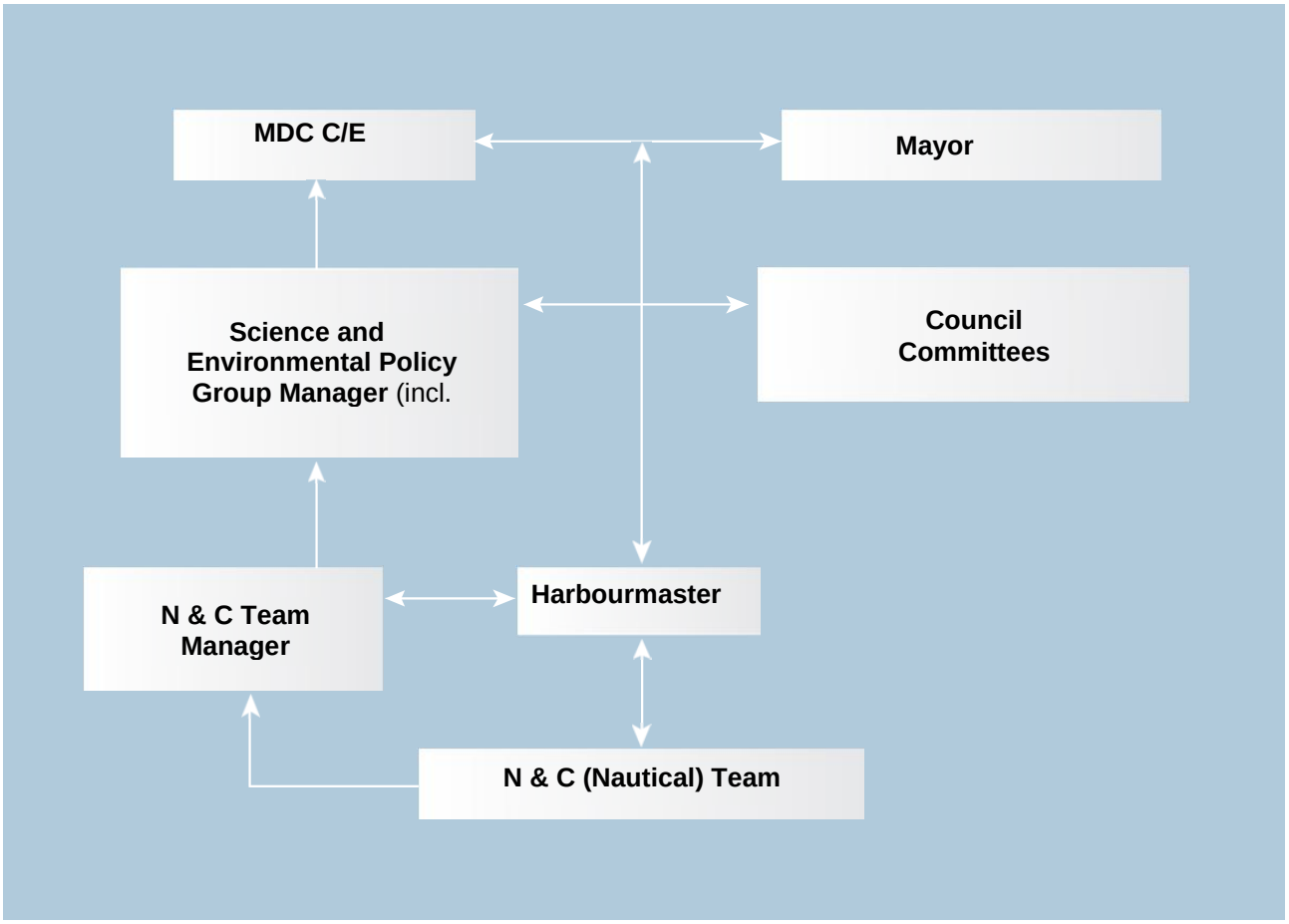
Nautical & Coastal Team Co-ordinator – Janina Duessler

Additional harbour patrol skippers and crew are appointed on casual contracts as required.

Internal Reporting Structure

The Nautical and Coastal Team is part of the Environmental Science and Policy Group.

The relationship between the Nautical and Coast Team, the Chief Executive and elected officials is shown in the following diagram:



Port and Harbour Marine Safety Code

The Port and Harbour Safety Code (the Code) is a Partnership arrangement between Maritime NZ, port operators and regional councils that aims to ensure maritime risks are identified and managed to a recognizable standard of good practice.

The forerunner of the current Code was prompted by groundings such as the Jody F Millennium and Tai Ping in 2002 but was closely reviewed following the Rena grounding in 2011. The 2016 Code continues to promote a systems approach to safety management.

The code requires that all code members (ports and harbours) carry out a code application assessment to determine the areas in which the Code should apply. A formal risk assessment is then conducted for these areas and a safety management system developed to ensure all identified risks are being properly managed.

The code applies to all waters within the Marlborough harbour limits and the Harbourmaster is the person with the responsibility for ensuring its implementation.

A Brief History of Risk Assessment in Marlborough

Risk assessments (RA) have been carried out extensively in the Marlborough Harbour with comprehensive risk assessment completed as follows:

2006 - Marico Marine - Formal RA

2009 - Marico Marine - Formal RA review 2013 - Marico Marine - PEC licensing

2017 - Marico Marine - Formal RA (Draft rejected)

2020/2021 – Internal Risk Assessment

2023 – Internal Risk Assessment

These risk assessments closely followed a risk assessment approach as outlined in the Maritime Safety Authority (now Maritime New Zealand) Guidelines for Port and Harbour Risk Assessment and Safety Management Systems 2004.
This approach was a useful first step toward understanding and managing harbour risk in Marlborough.

In 2015 the Marlborough District Council was found to be code consistent following a peer review by Port and Harbour Safety Code panel members. However, a recommendation in the review noted:

...the Port Risk Assessment has different scoring and thresholds to the MDC Harbour Risk Assessment and they do not obviously appear to mesh, which may be problematic… MDC and PMNZ should work toward greater integration of their respective risk assessments…

At the time of the recommendation the Harbourmaster had recently commissioned a new formal harbour risk assessment and it was expected that this would provide an opportunity to pursue greater integration between port and harbour.

Unfortunately, the selected provider of services failed to deliver the report on time and although a draft risk assessment was eventually received in 2017 it did not meet the expected standard.
The selected provider of services was unable to complete the risk assessment or associated risk report.

Further, in January 2016, the Cruise Vessel Azamara Quest grounded in Tory Channel and subsequent Transport Accident Investigation Commission report made the following finding:

Port Marlborough's port risk assessment and Marlborough District Council's harbour risk assessment could not be easily integrated, making it difficult to have one integrated risk assessment for the Harbour.

This underlined the importance integrating the port and harbour risk assessments and since that time both Port Marlborough and MDC have been working hard to ensure a shared understanding of risk.
To date, significant progress has been made by both organizations.

2018 Harbour Risk Assessment

In early 2018 the Harbourmaster began working with a new risk management consultancy namely, GBT International to better understand risk in the Marlborough Harbour and improve risk management systems.

In 2018 GBT International was engaged to review the existing harbour risk assessment, risk management processes and the Harbour Safety Management System (SMS) and to propose appropriate improvements.

Working in close consultation with the Harbourmaster GBT International created a number of draft documents that served to reduce the complexity of the Marlborough SMS and risk assessment and simplify the language of risk assessment in use in the Harbour.

The documents included:

1. Marlborough Marine Safety Risk Report 2019
2. Marlborough Maritime Risk Management Standard
3. A Marlborough Harbour Coarse Risk Register
4. A Draft Marlborough Safety Management System Manual.

These documents provided a platform from which the present Safety Management System, Harbour Safety Plan and Harbour Risk Assessment have been developed.

The Harbour Safety Plan

This Harbour Safety Plan should be read in conjunction with the Harbour Safety Management System (SMS). Whilst the SMS provides a high-level overview of its many components and the roles and responsibilities of its main participants, the Harbour Safety Plan provides specific detail about the manner and means by which the Harbourmaster manages maritime risk.

Specifically, the plan explains the following;

- The principles of risk management applied to formal risk assessment in Marlborough.
- A description of the formal risk assessment process as used to monitor maritime risk and determine an annual work plan.
- A description of the incident management system, how it works and how it links to the risk assessment process.
- A description of the risk controls presently in place in the Marlborough Harbour and the frequency with which they are reviewed.

The Principles of Marine Risk Management

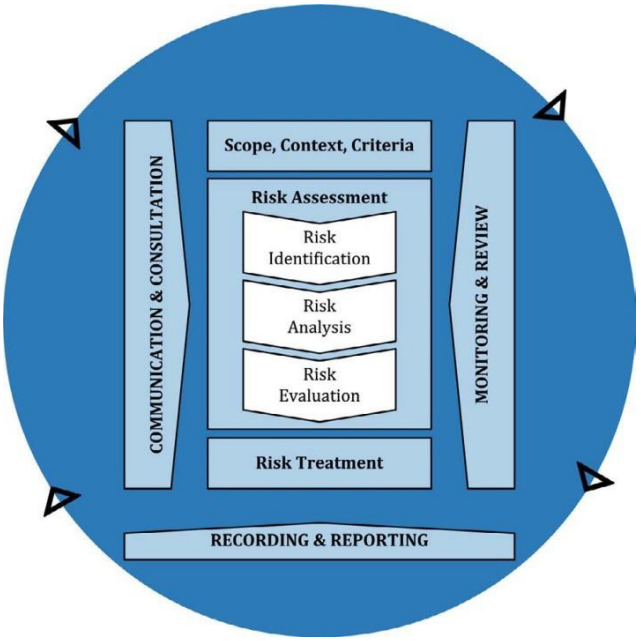
The Marlborough Harbourmaster is committed to following the guidance provided by the Port and Harbour Marine Safety Code with regard to good practice risk management. At present, the Code is promoting risk management principles to ensure that marine risk management systems are:

1. Developed with careful consideration of the local context.
2. Tailored to suit the extent of risk and the circumstances.
3. Evidence based.
4. Continuously reviewed and updated.
5. Considerate of social licence and the communities' tolerance for risk.

Risk Assessment

Risk assessment is the process at the heart of the risk management systems as demonstrated in the diagram from ISO 31000/2018 international standard for Risk Management. This diagram illustrates that risk assessment has three distinct steps:

1. Identifying undesirable outcomes, events or circumstances,
2. Analysing the potential impacts of these outcomes, events or circumstances,
3. Evaluating the risk or chance that these outcomes, events or circumstances will occur.



Risk Management Process (ISO31000:2018)

The level of rigor applied to the risk assessment process or the methodology to be used is not defined as these factors should be adjusted to suit circumstance.

This Harbour Safety Plan focuses on the process of Formal Risk Assessment applied in Marlborough and describes the methodology used for this purpose.

As illustrated by the diagram, the other elements of risk management include risk treatment, monitoring and review, communication and consultation and recording and reporting.

Formal Risk Assessment

A formal risk assessment process is useful in that it provides a systematic process through which the risk manager can periodically identify, analyse and evaluate risks for the purpose of enabling strategic, rather than reactive, risk management practices.

In addition, the insight into marine risk gained through the formal risk assessment process may serve the risk manager well when circumstances demand a time critical risk management decision.

The formal risk assessment process employed in Marlborough requires that at least annually the Harbourmaster and Harbours team carry out a structured risk workshop using the Harbours Operational Risk Register as a framework.

Risk Hazards and Incidents

The Harbours Operational Risk Register avoids using the terms ‘hazards’ or ‘risks’ as nouns and instead focuses on the incident categories that exist in the harbour incident register. Categories are not limited to incidents that have occurred but also include categories of incidents that we seek to prevent from occurring.

This provides a clear link between the risk assessment (what we think might happen) and the incident register (what has happened).

An advantage of this approach is that should an incident occur in the Harbour which cannot immediately be categorised with an existing incident category it is an indication that a new risk is present.

The Harbours Operational Risk Register has a total of 14 incident categories and these incident categories are further divided into the sub categories as shown in the table.

Incidents as Categorised in the Marlborough Harbour Risk Assessment and Risk Register

Ship Incidents	Incident Sub Category
Critical Incident	Fire/Explosion Grounding Foundering/Sinking Contact/Allison Collision Flooding
Loss of Position	Anchoring Mooring Berthing Navigating
Ship Equipment Failure	Propulsion Manouvering Navigation Anchoring Pilot/Personnel Transfers Mooring/Towing SOLAS FFA
Breach of MTA	Direction Section 65 Other

Ship Incidents	Incident Sub Category
Breach of Bylaw	Speed Dive Ops PFD’s Navigation Lights Water Skiing and Towing Vessel Name Other
Pollution Wake	Oil Spill Other

Environmental Incidents	Incident Sub Category
Navigation Hazard	
Seismic Activity/Tsunami	
Severe Weather	

Critical Incidents

Critical incidents form a special category in the Harbours Operational Risk Register. These are the incidents for which the maximum credible event (MCE) is potentially catastrophic and as such, critical incidents are closely monitored. This is not to assume that critical incidents are always catastrophic but rather, recognises the potential associated with such events. When these events occur (especially in relation to shipping) it is essential to understand how and why the incident occurred even if the consequences and outcomes were not significant. This acknowledges that critical incidents can occur without catastrophe but catastrophe cannot occur without critical incidents.

Harbour User Groups

The harbour incident register provides important evidence to support the risk assessment process. Data from the incident register feeds into the risk assessment process ensuring that the risk assessment takes full account of all known incidents in the Harbour.

The incident register divides harbour users into eight distinct categories, these are:

- Port Marlborough
- Ferries
- Recreational
- Commercial (excluding ships)
- Community
- Agencies
- Aquaculture

These categories are further divided into subcategories which can be is useful for analysis of incident data. For example, when considering incident data involving recreational harbour users it is possible to filter only for jet ski incidents using the PWC sub category of harbour users.

The risk associated with a particular incident category will vary depending on the harbour user group involved. However, it would not be practical to run an intensive formal risk assessment process for every sub category of each harbour user group. Thus, the Harbours Operational Risk Register broadly divides harbour users into two groups, ‘shipping’ and ‘recreational’. This ultimately enables two distinct work plans to be created, one for managing ‘recreational’ risks and the other for managing ‘shipping’ risks.

Risk Score

The Formal Risk Assessment process requires evaluation of a risk score for each incident category in the Operational Risk Register. The risk score is determined by applying the formula:

Risk = Consequence of Maximum Credible Event (MCE) X Likelihood

To assist with the risk analysis, and to assure that risk analysis is consistent with the understanding of risk achieved, the following consequence and likelihood scales are used:

Consequence

#	Title	Description			
		People	Property	Environment	Reputation
0	Eliminated	No injury. No health effects.	No attributable cost	No identifiable impact.	No identifiable damage.
1	Low	First aid or no treatment injury. Minor health effects.	NZ$0-10,000	Negligible environmental impact. Tier 1 may be declared.	No comment in media.
2	Minor	Medical treatment required. Restricted Work Injury or Illness (temporary)	NZ$10K-100K	Tier 1 criteria reached. Small operational spill.	Bad local publicity short-term loss of revenue.
3	Moderate	Lost time injury Restricted Work Injury or Illness (permanent)	NZ$100K-1M	Tier 2 Spill criteria reached, capable of being limited to immediate area within harbour.	Bad widespread publicity Temporary navigation closure or prolonged restriction of navigation.
4	Major	Multiple Lost Time Injuries or Single Fatality	NZ$1M-10M	Tier 3 criteria reached, with pollution outside harbour or port zone expected. Chemical spillage or small gas release. Potential loss of environmental amenity.	National Publicity Harbour temporarily closed, navigation channel / port movements affected for several days. Loss of trade.
5	Catastrophic	Multiple Fatalities. Long term health impact. Permanent harm health effects (single or multiple)	NZ$10M+	Tier 3 criteria reached with international cleanup support required. Widespread beach contamination or serious chemical/gas release. Significant threat to environmental amenity.	International media publicity. Port closes, navigation seriously disrupted for an extended period. Serious long-term loss of trade.

Likelihood

#	Title	Description
0	Eliminated	Opportunity for harm eliminated through effective action.
A	Rare	Exceptionally unlikely, even in the long term. Never heard of in the marine industry.
B	Unlikely	A very uncommon event but could occur. Heard of in the marine industry.
C	Possible	Might be expected to occur occasionally. Has occurred in New Zealand. Can be expected to happen once or more a year in the marine industry.
D	Likely	Can be expected to occur frequently. Has occurred within Marlborough. Will probably occur in most circumstances.
E	Frequent	Is expected to occur in most circumstances. Can be expected to happen once or more a year in Marlborough.

Risk Score Matrix

		Consequence					
		Eliminated 0	**Low 1**	**Minor 2**	**Moderate 3**	**Major 4**	**Catastrophic 5**
Likelihood	**Rare A**	**A0**	**A1**	**A2**	**A3**	**A4**	**A5**
	Unlikely B	**B0**	**B1**	**B2**	**B3**	**B4**	**B5**
	Possible C	**C0**	**C1**	**C2**	**C3**	**C4**	**C5**
	Likely D	**D0**	**D1**	**D2**	**D3**	**D4**	**D5**
	Frequent E	**E0**	**E1**	**E2**	**E3**	**E4**	**E5**

Risk Analysis

The risk score should not be interpreted as measure of the actual quantifiable risk of an MCE occurring in the Harbour. This is because the process of determining a risk score is extremely subjective, entirely qualitative and prone to the biases of the persons conducting the risk assessment. For this reason the risk score is not useful as a reporting tool as is easily misunderstood.

However, whilst the accuracy of the risk score is questionable, significant value can be gained through the process of determining a risk score. For example, consideration of an MCE against the likelihood and consequence tables should cause much discussion among participants in the risk assessment process. It is through this discussion in which the risk is analysed and understanding of the risk grows.

Risk Evaluation

Risk evaluation is the comparison of the risk score with the Marlborough risk acceptability criteria described in the following table. At this point risk management becomes the evaluation of:

- Can we live with the risk as it is?
- Can we do anything better or do anything else?
- Are we demonstrating due diligence?
- Have we acted reasonably in terms of our efforts and decisions to manage risk?
- Who needs to know?

Effective risk evaluation occurs when participants in the risk assessment actively engage in answering these questions.

Risk Acceptability

Risk Rating	Accept	Elevation	Action
Low Risk	Yes	HM Group	Risk and associated controls must be monitored and maintained. No further risk reduction required unless the cost of risk controls are far outweighed by benefits achieved. Further control(s) may be required to meet changing regulatory or industry standards.
Medium Risk	Yes	Harbourmaster	Risk and associated controls must be monitored and maintained Further actions to be considered during risk review to reduce risk so far as is reasonably practicable (SFAIRP) - risk tolerable only if ALARP. If further controls are available, reasonable and practicable, they should be implemented. Benefit/cost type decision required to demonstrate sacrifice is not grossly disproportionate to the benefit.
High Risk	No	MDC Chief Executive	A high level of risk should only be tolerated if: Controls have been implemented to a standard that reflects due diligence. The level of risk is understood by those who are exposed to the consequences of the incident to which the risk relates. Existing controls are monitored and maintained.
Very High Risk	No	Council	A very high level of risk should only be tolerated if: Controls have been implemented to a standard that reflects due diligence. The level of risk is understood by those who are exposed to the consequences of the incident to which the risk relates. Existing controls are monitored and maintained. There is no reasonably way to further reduce or eliminate the risk.

Hierarchy of Risk Controls

When assessing which available controls should be used, good practice requires that the hierarchy of controls be considered. The hierarchy of risk controls, in order of preference are:

Hierarchy of Risk Controls

Control	Explanation
Elimination	Avoiding the sources of harm e.g. removing a trip hazard or getting faulty equipment repaired
Substitution	Using a less hazardous thing, substance or work practice, e.g. using non-toxic glue instead of toxic glue
Isolation	Preventing contact with or exposure to the risk. Separating people from the hazard/preventing people being exposed to the risk, e.g. putting screens around an area where welding is being performed
Engineering	Using physical control measures, e.g. fitting screens to a grinder or extraction fans above welding area
Administration	Using safe systems of work, processes or procedures designed to minimise risk, e.g. painting walkways and hazards so that pedestrians know where to walk and which areas to avoid
PPE	Using safety equipment to protect against harm. PPE acts by reducing exposure if an incident occurs, e.g. Grade 5 ear protection in workshop

Geographic Areas

The risk score for any incident category and user group combination will likely vary in different parts of the harbour. For example, it may be that a risk of grounding exists in numerous locations but only one location is susceptible to the maximum credible event.

For this reason provision is made in the Harbours Operational Risk Register to record the areas of greatest concern for each risk. If an area of particular concern is identified it can be more closely investigated through a separate and targeted risk assessment process. Tory Channel provides an example where this has occurred.

Risk Treatment and Controls

Risk treatments and controls can be determined at the conclusion of the risk assessment process. Marlborough Operational Risk Register shows associated MCE, risk score and geographic locations of concern. The controls are also listed which can be easily reviewed by those involved in the formal risk assessment process.

Special care should be taken when considering incident categories against which incidents have recently occurred. This is because the occurrence of an incident indicates that the controls in place may be ineffective or in need of adjustment.

Risk treatment is the decision about the approach to be taken. Treatment might involve putting in place new preventative controls or accepting the level of risk (the residual risk) and focusing on response and recovery measures.

A **risk control** is one or more measure(s) that modifies a risk.

A control might be a process, policy, system, device or practice. The tables below set out the risk controls in the harbour that are the responsibility of the Harbourmaster. However, all harbour user and stakeholders will have their own controls.

For example, Port Marlborough has its own risk assessment and has determined necessary controls. Likewise, Maritime New Zealand contributes to controlling maritime risk though regulatory measures such as port state control of ships, certification and licensing and Marine Transport Operator Plans. These risk controls fall under the responsibility of other agencies but are also summarised in the Harbour Operational Risk Register.

All risk controls applied by the Harbourmaster can be assigned to one of the following categories;

- Risk management
- Incident Management
- Compliance
- Harbour Assets and Services

To assist with the processes of risk assessment and incident management these control categories are divided into subcategories and thereafter specific controls.

These specific controls reflect the work and tasks the Harbourmaster undertakes to manage maritime risk.

Control Category: Risk Management

Subcategory	Specific Controls
Audit and Verification	Navigation safety assessments. Marine farm lighting. Salmon farm anchoring and mooring AtoNs. ISO compliance.
Harbour Information	Pre arrival information. Navigation warnings. Website. Cruise Guide. Safe boating and tides. Publications (Admiralty, etc.)
Permits and Exemptions	Hotwork. Engine immobilization. Events on water. Drone Operations. Bylaw exemption. Diving Ops.
Pilots and PEC	Passage Plan Review. PEC Training and Proficiency Plan Review. Pilot Training and proficiency Plan.review PEC licensing. Pilot licensing.
Policy and Strategy	Asset maintenance. Compliance Strategy. Hydrographic Policy. Local port service SLA. Passage Planning Policy. Pilot and PEC plans. Personnel training. Reporting (to Council). Works in Harbour Strategy. Wrecks, derelict vessels and abandoned ships.
Risk Assessment	General harbour risk assessment. Subject specific risk assessment. Risk Review Meetings.

Control Category: Harbour Assets and Services

Subcategory	Specific Controls
Stakeholder ISM/SMS	Wave, tide AIS Network
Monitoring Network	Vessels. Fixed Speed Cameras. Weather Stations. AIS/VHF and Data Network.
Aids to Navigation	Buoys, lights beacons. 5 knot buoys. Ski lanes. Signage.

Control Category Response

Subcategory	Specific Controls
Response Plan	Fire on ship. Fire at a Maritime Facility Ship Collision/Grounding/ Foundering. Hazardous Goods Spill Unstable Vessel. Mass Rescue Operation Bomb Threat (ship) Tsunamis. Oil Spill Response
Harbourmaster Availability	Duty Roster to ensure 24/7. Harbourmaster access. Call Care Service.
Incident Management	Incident response Incident register. Analysis and lessons learned. Media Messaging.

Control Category Compliance

Subcategory	Specific Controls
Regulation	Bylaws. Directions. Resource consent monitoring (nav safety).
Education	Safer boating workshops. Safe boating and tides brochure. Boat ramp safety days. Media messaging. Harbour Patrol.
Enforcement	No excuses campaigns. Investigation. Infringements and prosecution.

Control Activity Detail

Summary detail of the work undertaken by the Harbourmaster for each control activity is provided below along with the frequency with which the control should be reviewed. Comprehensive procedures and processes are available for many activities and available in the ISO system.

Risk Management

Subcategory: Audit and Verification

Control Activity	Activity Detail	Frequency
Navigation Safety Assessments	Formal navigation safety assessments are conducted by a person appointed by the Harbourmaster to assess the standard of navigational practices on-board ships. This pertains primarily to bridge operations. The deputy Harbourmaster has completed the Nautical Institutes Navigation Assessor Course.	As required. Proposed: Annually for all pilots and PEC Masters.
Marine Farm Lighting	Visit all 600+ marine farms and check compliance with the lighting plan.	All farms every 3 years.
Salmon Farm Anchoring and Mooring	Visit all Salmon Farm sites and assess compliance with the mooring maintenance policy, navigation management plan and oil transfer plans. Need to establish an ISO process.	All farms at least one visit annually.
AtoNs	Visit all aids to navigation (buoys lights and beacons) that have been gazetted in the Nautical Almanac and ensure each is maintained as per IALA guidelines (international association of lighthouse authorities) and ISO process.	Annual visit to each AtoN (minimum).
Picton Harbour Radio	Assess activity within Picton Harbour Radio to verify alignment of practice with service level agreement.	Annual review.
ISO Compliance	All critical documents are maintained and stored in the CM system. This includes standard operating procedures, the marine operator safety system (MOSS), the harbour safety management plan and this activity plan.	Reviewed yearly.

Subcategory: Harbour Information

Control Activity	Activity Detail	Frequency
Pre arrival Information Requires Review	Provides information to the ship to enhance safe navigation, for example radio calling requirements. Seeks a declaration from ship as to: • To establish whether a ship is safe to enter the harbour; • To establish whether the intended destination of that ship is suitable to accept that ship; • To establish that all marine services used by the ship are of an acceptable standard.	Every visit of every ship over 500GT except ferries. For example, all cruise ships and log ships.

Control Activity	Activity Detail	Frequency
Navigation Warnings	Issued as required for VHF radio broadcast under agreement when uncharted hazards have been identified or conditions arise that may affect safe navigation.	As required.
Website	An additional means to promulgate port and harbour information including navigation warnings, directions and documents such as bylaws and the harbour safety management system.	Updated as required.
Cruise Guide App	Focussed on providing useful information to recreational harbour users to facilitate safer boating. Contains safe boating guidance and an easy process to report incidents to the Harbourmaster.	Continuously maintained monitored and updated.
Safe Boating and Tides	Annual publication proving boat safety information to recreational harbour users including tides.	7000 copies published and distributed annually.
Publications (Admiralty, etc)	Pilot books, sailing directions, port guide, etc.	Information updated upon request.

Subcategory: Permits and Exemptions

Control Activity	Activity Detail	Frequency
Hotwork	As per navigation bylaws permit is required form the Harbourmaster to undertake hot work (welding and cutting) on any vessel within harbour limits.	As required by harbour users.
Engine Immobilisation	Engine immobilisation permit is required prior to disabling ships engine (>500GT) for repairs.	As required.
Events on Water	As per navigation bylaws event permit is required for any event that will occur within harbour limits that may impact navigation safety.	As required.
Drone Operations	Picton harbour is an official aerodrome. Permission must be granted from Harbourmaster to fly within 4km of the aerodrome.	As required.
Bylaw Exemption	Provision exists in the bylaws for the Harbourmaster to exempt any person from a specific bylaw.	A required.
Diving Ops	Permission to dive in and around high-risk areas such as port wharves and marinas requires agreement form the Harbourmaster.	As required.

Subcategory: Pilots and PEC

Control Activity	Activity Detail	Frequency
Passage Plan Review	New or amended passage plans of ferry operators and pilots must be submitted to the Harbourmaster for review.	As required.
PEC Training and Proficiency Plan review	As per Maritime Rule 90.102(c) the Harbourmaster must be consulted on new or amended PEC plans. SOP required.	As required for external plans. Annually for MDC PEC Plan.
Pilot Training and Proficiency Plan review	As per Maritime Rule 90.102(c) the Harbourmaster must be consulted on new or amended PEC plans.	As required.
PEC Licensing	Under delegation from MNZ, the Harbourmaster conducts examinations of all candidates seeking pilot exemption licences for the gazetted pilotage areas. A PEC exam preparation pack is also provided.	As required.
Pilot Licensing	As per Maritime Rule 90.112 the Harbourmaster required to examine candidates for the issuance of a pilot's licence.	As required.

Subcategory: Policy and Strategy

Control Activity	Activity Detail	Frequency
Compliance Strategy	This strategy outlines how the Harbourmaster encourages compliance in the maritime space and aligns with MNZ compliance strategy. It is the overarching document for compliance activity.	Annual review.
Hydrographic Policy	Outlines the Harbourmasters responsibilities and activities as pertain to collection and distribution of hydrographic data.	Annual review.
Picton Harbour Radio service level agreement	Defines the relationship between Picton Harbour Radio and the Harbourmaster. Specifically, the issuing of navigation warnings and radio protocols.	Annual review.
Passage Planning	Defines the expectations of the Harbourmaster as to the standard of passage plans that are submitted for review.	Annual review.
Personnel Training	Defines training and experience requirements for each role within the harbours function and encourages professional development.	Annual review.
Harbour User Engagement Strategy	This strategy outlines how the Harbourmaster engages with each harbour user group, the mechanisms used and the frequency.	To be created.
Reporting (to Council)	Preparation of reports for the environment committee and audit and risk committees. Preparation of reports to management meetings.	As required. All management meetings.

Control Activity	Activity Detail	Frequency
Works in Harbour Policy	Policy outlining how the process for conducting harbour works.	Annual review.
Wrecks, Derelict Vessels and Abandoned Ships	Policy outlining how the Harbourmaster deals with wrecks, derelict vessels and abandoned ships.	Annual review.

Subcategory: Risk Assessment

Control Activity	Activity Detail	Frequency
General Harbour Risk Assessment	Assess risk in the harbour via an intensive process to maintain an overall awareness of maritime risk and the effectiveness of controls. Process should align with the PHSC risk management guidelines.	Continuous.
Port Risk Assessment	Engage with port and ensure full and complete understanding of port risk assessment.	Annual.
Subject Specific Risk Assessment	Risk assessments for subjects that require a finer scrutiny than is available via harbour risk assessment. Recent examples: Ngakuta Bay, Tory Channel, Northern Entrance (PEC licencing), Admiralty Bay.	As required.
Risk Review Meetings	Focus groups composed of relevant persons are assembled to discuss specific risks or concerns relating to maritime risks.	As required.

Harbour Assets/Services

Subcategory: Monitoring

Activity	Activity Detail	Frequency
Weather, Wave, Tide and Current (environmental data)	Provide weather, wave, tide and current data from all necessary strategic locations so as to generate data of sufficient quality and reliability to support safe shipping.	Continuous monitoring, attend and repair as required. Regular review of sites.
AIS/VHF	Capture and provide real-time AIS data to facilitate monitoring of ships, incident investigation, compliance, geo-fence triggers and virtual AtoNs.	Ongoing.
Data Network	Install, expand and upgrade harbours network to ensure effective transmission of environmental and AIS data to harbour users form remote sites.	Ongoing.
Fixed Speed Cameras	Install speed and monitoring cameras at strategic locations to encourage compliance and increase understanding of vessel traffic profiles.	Ongoing.
Vessels	Vessels providing acceptability to all on water and remote assets. Must be maintained as per Marine Operator Safety Plan.	Annual Review, 5 yearly MNZ audit.

Subcategory: Maintenance

Activity	Activity Detail	Frequency
Vessels	Maintain as per marine operator safety system plan.	Annual internal review, 5 yearly MNZ audit.
Fixed Speed Cameras	Maintain in operation condition.	Continuous monitoring, attend and repair as required. Unknown quantity.
Weather Stations	Maintain to a standard that ensures reliability of accurate data.	Annual visit and constant monitoring.
AIS Radio and Data Network	Maintain to a standard that ensures reliability of accurate data.	Annual visit and constant monitoring.
Works in Harbour Policy	Policy outlining how the process for conducting harbour works.	Annual review.

Subcategory: Aids to Navigation

Activity	Activity Detail	Frequency
Buoys Light and Beacons	Provision of lights to IALA standard.	Respond to all failures in specified IALA timeframes.
5 Knot Buoys	Provision of 5 Knot buoys so as to ensure public safety in high-risk areas.	Bi-annual clean or as required.
Ski Lanes	Maintain buoyage and signage to ensue visibility of lane and encourage compliance with ski lane rule.	Regular visits during summer patrols.
Signage	Install and maintain signage at strategic locations to enhance boating safety. May be standard signs or electronic signs such as in Picton and Havelock.	Constant Monitoring.

Subcategory: Emergency Response Plans and Drills

Activity	Activity Detail	Frequency
Marine Emergency Drills	Drill for Marine Emergencies; Fire on ship, Fire at a Maritime Facility, Hazardous Goods Spill, Tsunamis, Ship Collision/Grounding/Foundering, Unstable Vessel, Mass Rescue Operation, Bomb Threat (ship).	Annual drill.
Marine Emergency Plan	Review plan for all emergency scenarios.	Annual review.

Subcategory: Harbourmaster Oil Spill Response

Activity	Activity Detail	Frequency
Oil Spill Response Team Drills	Regional oil spill response drills team drills.	Quarterly.
Oil Spill Equipment Maintenance	Maintain all tier 2 oil spill equipment to a standard as agreed with Maritime New Zealand Oil Pollution Response Service.	Quarterly.
Oil Transfer Sites	Certify sites in Marlborough and Audit as required.	Certificates every 3 years, annual audits for sites.
Oil Spill Response	Respond to oil pollution events as per plan.	As required.
Oil Spill Investigation	Conduct investigations into marine oil spills.	As required.

Subcategory: Harbourmaster Availability

Activity	Activity Detail	Frequency
Harbourmaster Available 24/7	Maintain an on-call duty roster such that the Harbourmaster services can be mobilised at any time.	Roster issued fortnightly.
Duty Officer Manual	Provide a duty officer manual to guide immediate actions of duty officer on receipt of a call.	Annual review.

Subcategory: Incident Management

Activity	Activity Detail	Frequency
Incident Response	Respond in a timely manner to all incidents that require the services of the Harbourmaster and/or could impact on maritime safety in the harbour.	As required.
Incident Register	Maintain an incident register of all incidents that occur and are relevant to understanding the harbour risk profile.	As required.
Analysis and Lessons Learned	Convene a meeting with all relevant stakeholders to de-brief incident and evaluate response with a view to encouraging continuous improvement.	As required.

Compliance

Subcategory: Regulation

Activity	Activity Detail	Frequency
Bylaws	Establish and maintain navigation bylaws that are fit for purpose and meet the requirements of the LGA and MTA.	Every five years.
Directions	Issue Direction as required to ensure maritime safety in a manner that meets the requirements of the MTA.	As required. Review annually at a minimum.

Activity	Activity Detail	Frequency
Resource Consent Monitoring	Provide comment on navigation safety matters for resource consent applications, hearings and environment court as required. Typically includes moorings, marine farms, structures and works.	As required.

Subcategory: Education

Activity	Activity Detail	Frequency
Safer Boating Workshops	Provide an opportunity for recreational boat users to upskill their boating safety knowledge.	Five courses annually.
Jet Ski Safety Programme	Provide an opportunity for Jet Ski users to upskill their safety knowledge and encourage a safe culture.	To be established 20/21.
Safe Boating and Tides Brochure	Publish and distribute 7000 brochures annually so as to provide useful knowledge to harbour users.	Annual publication. Year-round distribution.
Boat Ramp Safety Days	Undertake boat ramp safety education days to encourage safe boating in the region.	Three ramp days per year.
Media Messaging	Provide editorial comment, issue press releases and advertise in print and digital media to spread safe boating messages.	Fortnightly during summer. As required at all other times.
Harbour Patrol	Maintain an effective and efficient harbour patrol and presence on the water throughout the summer months.	At least 100 days of harbour patrols over the boating season.

Subcategory: Enforcement

Activity	Activity Detail	Frequency
No Excuses Campaigns	Undertake ‘no excuses’ campaign days targeting problem areas and/or user groups. As many as possible should involve Maritime New Zealand.	10 no excuses days per year.
Infringements and Prosecution	Issue infringements and take prosecutions as necessary in accordance with the compliance policy.	As required.
Incident Investigation	Investigate incidents as required to enable an understanding of what occurred and how to prevent it from re-occurring. Collect evidence for to a standard sufficiently robust to enable enforcement action as required.	As required.

Program of Future Work

The Marlborough Operational Risk Assessment provides the Harbourmaster with a framework to assess maritime risk with consideration of incident categories, harbour user groups and geographic areas. Risk treatments and controls are then applied and through the workshop process where gaps, weaknesses and concerns can be identified. This determines the program of future work.

It will be apparent that the effectiveness of the formal risk assessment process is entirely dependent on the participants involved. It is essential that there is sufficient expertise, local knowledge and experience in the group to enable a robust assessment of marine risk to occur.

The draft programme of future work is created in the Harbour Operational Risk Register. This is formalised in the Annual Plan and Long-Term Plan reporting processes. Progress toward completion of the work is monitored through Trello.

Key Performance Targets

Key performance targets are established as part of the Annual Plan and Long-Term Plan processes and reported on annually. Each key performance target has a clearly defined methodology describing how it is measured and assessed. The present harbours key performance targets are available in the council's content management system in the folder CM F230-A20-08-03.
An activity report is also provided to Councillors as part of the same process to provide an update on emerging issues and expected changes in the Harbour. This activity report is compiled by the Harbourmaster and informed by a review of the work plan and its progress.

Communications and Engagement

Consultation is an important aspect of risk management is best achieved by including stakeholders and Iwi directly in risk management processes. The Harbourmaster is committed to establishing harbour user forums through which to engage formally with harbour users on matters of risk assessment.

It is intended that the risk management framework outlined in this Harbour Safety Plan can be used to facilitate collaborative risk assessment processes with any harbour user group.

The present methods the Harbourmaster uses to achieve effective communication and engagement with harbour stakeholders are defined in the Harbour Safety Management System.

Health and Safety

The Harbours Group performs tasks, functions and duties within an office environment, an industrial workshop in Lagoon Road and within the greater Marlborough Sounds area, both ashore and afloat.

Within all work environments, staff health and safety is governed by the Council's Health and Safety Operational Plan for Harbours. This plan is located in the council's content management system C500-005-005-19.

One Harbourmaster Group staff member is also a member of the Council's Health and Safety Committee.

Health and safety of vessel operations is incorporated into the Maritime Operators Safety System (MOSS) the regulatory regime applicable to commercial vessels operating in New Zealand waters. The Harbourmasters vessels operate under a valid MOSS certificate issued by Maritime New Zealand and the system is subjected to regular audit by Maritime New Zealand.

Safe work practices are embedded in operational activity through standard operating procedures and practices including:

- Job safety analysis for all high-risk work
- Toolbox meetings for every job.
- A hazard observation, reporting and management system.
- Health and Safety is a fixed agenda item for Group Staff meetings.

All records relating to Health and Safety activities are located in CM H100-021.

Budget

Information as to the Harbourmasters group budget is contained within the Councils Annual Plan document.

Harbour Limits

The limits of the Marlborough Harbour are shown below. A precise description is provided in the Marlborough Navigation Safety Bylaws.

Marlborough Harbour Limits