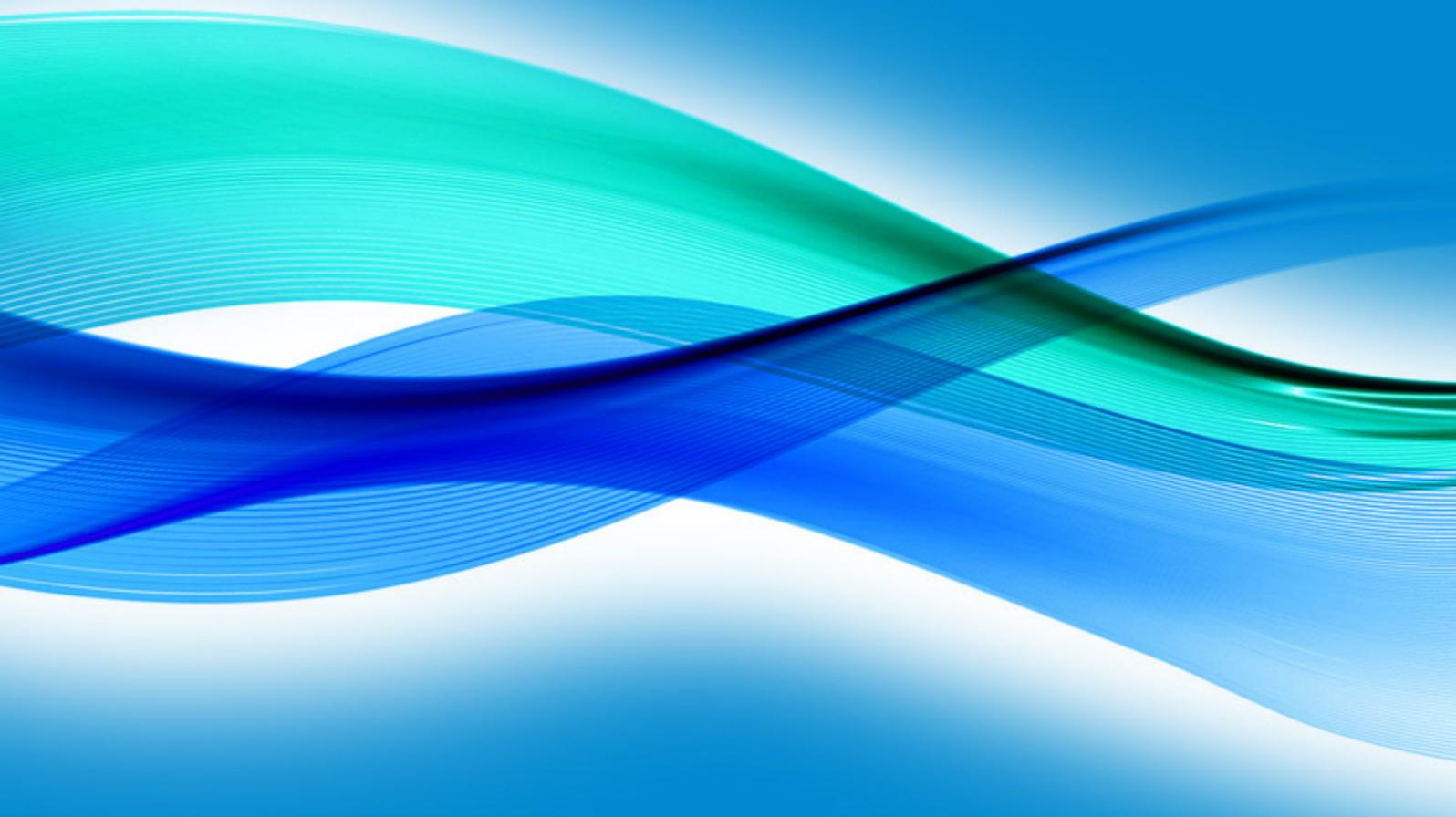


Safety guidelines for commercial high speed vessels

This guideline is for operators of commercial high-speed / thrill-ride vessels to support the development of safety management plans



Safety guidelines for commercial high speed vessel operators

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1. Overview

1.1 Purpose

This guidance provides information for operators of commercial high-speed / thrill-ride vessel experiences operating at sea or on lakes to assist them with the development and implementation of their safety management systems and to deliver their activities safely. They have been developed with input from operators and associated professionals.

Good safety practice consists of:

- operating to an acceptable safety standard
- complying with applicable legislation
- continually improving safety systems, including keeping up to date with current practice.

This guidance sets out recommended methods of achieving components of what Maritime New Zealand (MNZ) considers to be an acceptable safety standard. Unless otherwise expressly stated in this guidance, MNZ expects to see these methods, or comparable methods that can be shown to produce the same safety outcomes, reflected in an operator's Maritime Transport Operator Plan (MTOP) developed under Maritime Rule Part 19.

Consistency with this guidance will be assessed for the issue of a Maritime Transport Operator Certificate by considering whether an operator has implemented the specific recommendations or has developed an alternative approach that the Director of Maritime New Zealand (the Director) considers is likely to produce an equivalent outcome.

Operators should note, however, that this guidance is of a general nature and does not cover all possible things that MNZ expects to see in any particular safety system. Safety systems will be assessed as a whole, taking into account all relevant issues, including the implementation of this guidance material.

Disclaimer

This guidance provides information and explanations about the requirements set out in the maritime rules, but it is not a substitute for the rules themselves, which are the law. The maritime rules can be found at:

[maritimenz.govt.nz/rules](https://www.maritimenz.govt.nz/rules)

This guidance is intended to provide activity-specific safety information for operators of commercial vessels involved in high speed vessel activities, and operate alongside MNZ's health and safety guidance for work on board vessels, and where vessels are a place of work. This can be found on our resources page:

<https://www.maritimenz.govt.nz/hswa>

1. Overview (continued)

1.2 Intended audience

This guidance applies to all operators of commercial high-speed / thrill-ride vessel experiences on lakes or the ocean, where the vessel is exposing passengers or crew to gravitational forces in excess of 5 g at any stage of the ride. It does not apply to jet boat operations regulated under Maritime Rule Part 82: Commercial Jet Boat Operations – River, including when they are transiting lakes.

1.3 Relationship to legislative requirements

As an operator of a commercial high-speed / thrill-ride vessel experience, you have obligations under legislation such as the Maritime Transport Act 1994 (MTA), Maritime Rules, and the Health and Safety at Work Act 2015 (HSWA). Operators should make themselves especially familiar with the requirements of this legislation.

In general, the MTA and the rules made under that Act focus on vessel-related safety, while HSWA focuses on the safety of people at work. However, there is a degree of overlap, and Maritime Rule Part 19 focuses on whole maritime transport operations.

Maritime Rules and Marine Protection Rules are legal tools made by the Minister of Transport under the MTA. While the MTA specifies broad principles of maritime law, the rules contain detailed technical standards, requirements and procedures.

In addition, HSWA provides for the safety of people in the workplace, including by requiring persons conducting a business or undertaking (PCBUs; including employers and others) to take all practicable steps to ensure that no person is harmed in a place of work or through its activities. Vessels involved in most commercial operations are places of work. All practicable steps, in this context, will depend on the specific circumstances of the operation's activities. Officers (e.g. company directors), workers and others also have duties under HSWA.

1.4 Maritime Rules

Nothing in this guidance releases operators from their responsibility to meet their full obligations under the law and to ensure that their operations are managed safely.

Maritime Rule Part 19.42(1)(b) states that:

A maritime transport operator must develop and document a maritime transport operator safety system in the Maritime Transport Operator Plan that is consistent with safety guidelines and other safety information provided by the Director of Maritime New Zealand and best practice information contained in relevant industry codes of practice.

This guidance is provided by the Director. For this reason, operators operating under Maritime Rule Part 19 will need to ensure that their safety system is consistent with the information presented here. For operators operating under a deemed Maritime Transport Operator Certificate (see section 2.1), compliance with this guidance is voluntary, but operators are strongly encouraged to give this guidance full consideration.

1. Overview (continued)

1.5 Health and Safety at Work Act 2015 (HSWA)

HSWA places a duty of care on a person conducting a business (PCBU) to ensure, as far as is reasonably practicable, the health and safety of its own, and any workers that it influences or directs. The PCBU must also ensure that other people who could be put at risk, such as customers and visitors are not put at risk by its work.

HSWA requires you to ensure that your employees are adequately informed, trained and supervised to perform their duties without exposing people to health and safety risks arising from the work carried out. HSWA further requires employers to take a coordinated approach to the management of hazards, including identifying and assessing the significance of hazards, as well as implementing management strategies and processes that either eliminate, isolate or minimise hazards. Hazards in this case are all factors that have the potential to cause harm to people.

1.6 Health and Safety at Work (Adventure Activities) Regulations 2016

Commercial high-speed / thrill-ride vessel experiences are not covered by the requirements of the Health and Safety at Work (Adventure Activities) Regulations 2016 (which require adventure activity operators to obtain a safety audit and be registered) to the extent that the vessel is covered by a maritime document (see Regulation 4(2)(a)).

However, there may be aspects of your operation that are covered by the Adventure Activities Regulations or other legislation, and you should ensure that you are aware of and comply with any legal requirements that apply.

1.7 Other legislation relevant to your operation

This guidance is developed solely for the safety of people and does not replace or discharge operators' broader responsibilities under legislation managed by other agencies such as the Department of Conservation and regional councils.

Disclaimer

Relevant legislation, including the Maritime Transport Act 1994, Maritime Rules and the Health and Safety at Work Act 2015, are amended from time to time and we intend to update this guidance to reflect such amendments if necessary. However, the onus is on operators to check that they are operating to the latest Maritime Rules and other legislation and they should not rely on this guidance for currency. The reader should check Maritime New Zealand's website (maritimenz.govt.nz – search for 'guidelines') to ensure they have the most current version of these guidelines.

2. Minimum operating requirements

It is your responsibility to ensure that your Maritime Transport Operator Plan (MTOP) is up to date and appropriate for your operation. You must also ensure that all the vessels in your operation are safe.

2.1 Safety management system

No person may operate a commercial vessel without a valid Maritime Transport Operator Certificate. The Maritime Transport Operator Certificate is a maritime document for the purposes of the MTA. The Director is responsible for assessing an operator's MTOP in accordance with the process outlined in Maritime Rule Part 19.

2.2 Certificate of survey

All commercial vessels involved in your operation must have a valid certificate of survey in force at all times, applying to the vessel and its equipment in accordance with Maritime Rule 44.41.

2.3 Audits

The Maritime Operator Safety System (MOSS) audits look at how the operation is performing against the MTOP under the Maritime Transport Operator Certificate. These audits will determine whether the plan is:

- being implemented effectively
- suitable to achieve the safety management system objectives
- compliant with the applicable requirements of Maritime Rule Parts 19 and 44.

More information about MOSS and MOSS audits is available here:

maritimenz.govt.nz/MOSS

3. General harm prevention

As well as being aware of specific hazards and having effective safety systems to manage them, there are a range of general steps that can be taken to reduce the risk of harm to anybody involved with a high-speed / thrill-ride vessel experience.

Maritime transport operators have duties under both maritime law and health and safety law. They must meet their responsibilities under both sets of laws. MOSS is based on Maritime Rules made under the MTA and required operators document and operate to a safety plan. Other aspects of harm prevention are covered under the HSWA. MNZ's guidance on HSWA and the associated regulations for work on board vessels, and where vessels are a place of work, can be found in 'A Guide for Mariners' on our resources page:

www.maritimenz.govt.nz/hswa

3.1 Operating areas

Commercial vessels must operate within the operating limits assigned to them in accordance with Maritime Rule Part 20: Operating Limits. In general, this is likely to be within inshore limits.

3.2 General operating restrictions

Operators should have clear parameters and procedures in the operation's safety system to identify when operations will cease due to increased risk to passengers from any external influences, such as dangerous seas or other hazards..

3.3 Passenger restrictions

Operators should ensure that all passengers are able to be seated in such a way that their feet are flat on the floor or supported on a footrest while seated and their legs can act as shock absorbers. Operators should also ensure that all passengers are capable of holding onto a support structure (for example, a handrail) for the duration of the trip, and be seated facing forward in a position where they are able to see and anticipate situations where they may need to brace themselves to absorb shocks. Parental consent should be obtained for all passengers under the age of 16 who are not accompanied by an adult or guardian.

3.4 Fitness to take part in an operation

A robust screening process should be in place to ensure that skippers, crew members, other staff and passengers are mentally and physically fit to undertake their duties. The process should be sufficient to ensure that skippers, crew members, other staff and passengers do not participate in the operation when, in the opinion of the operator, they are impaired by fatigue, medical conditions, frailty or by the consumption of alcohol or drugs to a degree that they may be a risk to the safety of themselves or passengers.

The operator or skipper should take all reasonable steps to ensure that the passengers do not have any health conditions or impairments that could affect their ability to undertake the trip. This information could be gathered through a pre-trip checklist.

3. General harm prevention (continued)

3.5 Safety briefings and information

High speed vessel rides are an adventure activity which involves inherent risk of harm. While it may be expected that passengers signing up for a trip are aware of the risks involved in participating in the activity, you should tell them explicitly. Clear and comprehensive briefings and safety information should be provided to passengers about the vessel's safety equipment and the risks that passengers may be exposed to during the trip. Ensure that every passenger is told verbally of the risk(s) and if the passenger is a minor, then a responsible adult guardian should be told. Briefings and information should at least include:

- a description of what the activity broadly involves
- a verbal briefing at the start of the trip (and at subsequent passenger pick-up points, if any), with relevant parts repeated before the high-speed / thrill component of the trip starts
- Photos, videos or simulations of real experiences depicting the 'high thrill' aspects of a normal operation, so passengers are well prepared on what to expect
- written material, stylised visual displays and clear and comprehensive safety signage in languages or pictorial forms designed to be understood by as many passengers as reasonably possible
- advice on the physical demands of the trip and the level of "thrill" the passengers may experience
- Advice that that high-speed or thrill rides may put people suffering from medical conditions at heightened risk of harm. For example, stress or panic that could aggravate heart disease, which may result in cardiac arrest and possibly death, and back conditions being seriously exacerbated by the jolting and g-forces experienced during the ride, which could result in serious spinal trauma
- ensuring your operation's website, crew and passenger safety briefings and passenger information sheets discuss the importance of disclosing medical conditions that may be exacerbated by the trip
- an emphasis on the need to have the physical strength to brace against jolts during the trip (not being a passive load)
- recording any medical conditions that passengers have identified and sensibly managing them during the trip
- advice about the optimal seating position (including active use of passengers' legs), purpose and use of the handrail in front of each seat, how to correctly use the seatbelt or other method for restraining the person in their seat, and that seatbelts or other restraining methods should be used at all times.

Passengers should be briefed as early as possible so they can decide whether or not they wish to proceed with the trip.

If you feel that a passenger is having difficulty understanding the briefing or demonstrations, give them a safety briefing card. The safety briefing card should be visual and easily understood, particularly for those of whom English is not their first language.

At regular intervals during the trip the skipper/crew should check that no passengers are in distress or are uncomfortable, and seatbelts or other restraining methods have not been undone or loosened.

3. General harm prevention (continued)

3.6 Equipment

All equipment should be fit for purpose (including suitable for the conditions) and should be fitted, inspected, maintained, replaced and used in accordance with the manufacturers' specifications, or to a higher safety standard if it is necessary to maintain safety. This includes seating and its attachments, seatbelts or other restraining methods, protective clothing and on-board communications equipment.

No equipment should be used by any person if the operator knows or suspects the equipment is unsafe. Examples of unsafe equipment are when equipment has been weakened by ultraviolet light or damaged, or is ill fitting or incorrectly sized for the user.

All equipment should be listed in the operation's maintenance plan to ensure the equipment's condition is routinely inspected. Any repairs or replacement of equipment should be recorded. Particular attention should be given to structural weakness in the hull, seats, handrail mounts and seatbelt or other restraining method mechanics.

The skipper is responsible for conducting daily inspections on equipment that is to be checked daily, and notify any matters requiring attention to the operator. Where any failing may impact on the safety of the trip, the skipper should not operate the vessel until the failure has been remedied. Items such as seats and seatbelts or other restraining methods should be checked before every trip to ensure that they are operating correctly.

3.7 Emergency response plans and procedures

Appropriate emergency response plans and procedures should be in place for emergency situations that may arise, even if these emergencies are unlikely to occur. All crew should be familiar with and trained in emergency response and procedures, including undergoing regular drills (at least every six months). Operators should ensure that on each trip, all crew and passengers are aware of what to do in an emergency and appropriate equipment is carried.

Emergency situations that should be addressed include capsize, damage or engine failure of the ship, lost passenger, injury, illness or incapacity of a passenger, and hypothermia in a passenger. Emergency response plans should also include a record of emergency equipment carried on board, and provide for the equipment to be regularly checked and maintained.

Operations should have a written record of the number of passengers, and the name and address of each passenger on a commercial high-speed or thrill ride who is involved in an accident or serious mishap that is required to be reported. In all cases, accidents and serious mishaps should be treated as serious and the operator should return to base in the safest and fastest route as far as is practicable.

3.8 Crewing ratios

Maritime Rules establish required crewing ratios, and these must be complied with.

3. General harm prevention (continued)

3.9 Recommended training, skills and experience

All personnel involved in the activity should be adequately trained, skilled and experienced for the roles they perform and to address the potential risks of providing high-speed or thrill-ride vessel experiences. The paramount consideration should be safety – so the training, skills and experience must be sufficient and appropriate to ensure that the operation can be conducted safely.

The operator or the skipper (if a different person) should hold the maritime qualifications relevant to the type of vessel and limits they operate in, and be adequately trained.

The skipper of a high-speed / thrill-ride vessel should not undertake the ride without in-depth training over an extended period in a variety of water and weather conditions.

The operator should develop and implement an in-house training system that all new skippers complete. This should involve the operator being satisfied – as a result of observations – that the new skipper is competent in various sea or lake conditions and situations before the new skipper is permitted to operate the vessel solo in those conditions. For example, the skipper should demonstrate competence in light sea conditions before they are permitted to skipper alone in light sea conditions, and demonstrate competence in moderate sea conditions before they are permitted to skipper alone in moderate sea conditions. For vessels that undertake specific manoeuvres as part of the high-speed or thrill component of the trip, the skipper should demonstrate – to the satisfaction of the operator – that they are competent in those manoeuvres before they are permitted to perform them alone.

The operator/skipper and other crew, if any, should also be adequately trained to address the potential risks of providing high-speed / thrill-ride operations. This training should at least include:

- **speed perception** – understanding how speed affects reaction time
- **the lookout routine used** – understanding that the lookout routine should be modified to suit the reduced reaction time available when travelling at high speed
- **collision avoidance** – appreciating that assessing the risk of collision and then taking collision avoidance action is different at high speed, and understanding that early action to prevent a collision situation from developing is an important strategy
- **navigation and awareness** – recognising that standard navigational techniques and situational awareness may not work at high speed, and the need to develop a technique that works on the specific high-speed or thrill-ride vessel (taking into account any navigational instruments fitted)
- **handling** – demonstrating practical competency in handling the vessel at high speed in a range of circumstances and conditions, and the ability to select appropriate trim, engine and ride settings according to the vessel's equipment
- **operations** – understanding the importance of the ride tempo; choosing a speed that suits the conditions at all times; pre-empting hitting larger waves by throttling back; choosing a course through the waves that provides a thrill but minimises g-forces; and demonstrating ability to implement risk assessment and risk reduction measures

3. General harm prevention (continued)

- **passenger safety** – demonstrating an understanding of passenger attitudes and behaviour when on a high-speed or thrill ride; appreciating passenger concerns; communicating with passengers; understanding passenger placement within the vessel (for example determining which passengers should be seated in the stern to avoid g-shocks) assessing passenger fitness and strength to participate; and other factors that mitigate potential passenger harm or discomfort during the ride; and understanding the impact of g-forces on the body and how to drive the vessel to minimise those impacts while still giving the perception of speed (for example, how to approach and exit waves)
- **emergencies** – demonstrating competence in handling typical emergencies that could occur with a high-speed or thrill-ride vessel.

All crew should have a current first aid certificate and knowledge of spinal and neck injury first aid, use of a neck brace and immobilisation techniques.

3.10 Periodic reviews

A review of procedures should be undertaken at least every 12 months and as soon as practical after every incident, accident or mishap to check that:

- the operation's MTOP is being followed
- correct and full safety training is being provided to crew
- a clear and comprehensive safety briefing is being given to passengers
- any poor practices are identified and improved procedures are implemented as soon as possible.

Reviews should also determine what could be learnt when accidents happen among other operators or new knowledge about risks or equipment becomes available.

3.11 Notifying accidents, incidents and mishaps

Under the MTA and HSWA there are obligations to report accidents, incidents or mishaps involving serious harm, death or risk of serious harm. Under the MTA, the master of a New Zealand ship (or a foreign ship in New Zealand waters) must report these matters to MNZ as soon as practicable. Other people may also be required to report under Maritime Rules. Under Section 56 of HSWA, a PCBU must report notifiable events (including serious harm or accidents involving a ship as a place of work) to the Director of MNZ as soon as possible after they become aware of the occurrence. Further information on the requirement to report can be found under 'safety' at:

maritimenz.govt.nz/commercial (go to safety then accidents and reporting)

The practices of the skipper should be periodically peer reviewed. The reviews should be of a sufficient scope and frequency to ensure that the skipper is adequately trained, current and proficient for their duties. Where a review identifies any adjustments needed to safety measures, those adjustments should be carried out as soon as practicable.

4. Specific identified hazards

4.1 Injuries sustained through vessel movement

Spinal damage from strong jolting is a significant hazard associated with high-speed / thrill-ride vessel experiences, with the potential to inflict very serious injuries if the risks are not adequately managed. It is therefore imperative that your safety system is sufficient to minimise the risks to passengers and crew from jolting. The operator of the vessel should also ensure that they operate the vessel in a way that manages the risk of serious injuries (such as lower back compression), as far as is practicable.

Other serious injuries can also occur because of the high-speed nature of the activity. Specific safety guidance to help minimise the risk of injuries through vessel movement is set out in sections 4.2 and 4.3.

4.2 Measuring and recording g-forces

Operators should have ways of measuring and recording g-forces so that data can be gathered in a variety of sea conditions. This data can be used to inform decision making about the vessel's seating and safety equipment, and skipper monitoring and training, to ensure that impacts on passengers are mitigated. Accelerometers and vibration monitors are examples of equipment for measuring and recording g-forces.

4.3 Seats and seatbelts (or other restraining methods)

All seats should be fit for purpose, taking into account the nature of the operation, likely loading, passenger safety and comfort. The vessel (with special attention to the hull) and the seating should be designed so that they work together and are tested as a package.

There are three types of seating: chair, jockey type and bench. All seats should:

- be forward facing
- have a back rest
- in most vessels, have a handrail in front (including the forward-most seats) that is within easy reach so that seated passengers holding onto it have their backs supported by the back rest and do not need to lean forward (to reduce thoracic spinal injuries)
- be appropriately upholstered to allow sufficient cushioning so that the padding is not completely compressed due to the forces experienced during the ride, and to prevent passenger shoulders from knocking into each other during the trip
- be designed so they use the body's natural muscle strength to help combat injuries (that is, encouraging passengers to use their main leg muscles during the ride and being physically engaged in the ride, not a passive load)
- be designed to withstand high g-forces.

All seats should have a seatbelt designed to withstand high g-forces or use some other method of restraint to ensure passengers are not thrown up and down or side to side from or within their seats.

Seatbelts or other methods for restraining passengers in their seats should be designed in conjunction with the seat so that they complement each other.

4. Specific identified hazards (continued)

The purpose of the seatbelts or other restraining methods is more than simply keeping the passenger in the seat; it is also to keep them sitting back in the seat, which is the posture considered most important for protecting the spine against injury.

Operators should consider engaging an expert about the design of the seats and seatbelts (or other restraining methods) and comply with any limitations identified for their use, such as weather conditions, passenger size, and so on.

The operator should also adhere to the manufacturer's maintenance and replacement specifications for seating, restraints and any other associated equipment.

4.4 Cold temperatures

Passengers may be at risk of hypothermia if it rains or is cold, so they should be advised to dress warmly if the weather on the trip is likely to be wet or cold.

4.5 Other

Bulwarks, guardrails and handrails should be constructed without sharp edges that a passenger could come into contact with as the result of any motion or sudden stopping of the vessel.

5. Where to get further information

- Health and Safety at Work Act 2015 (go to www.legislation.govt.nz)
- Health and Safety at Work (Adventure Activities) Regulations 2016 Guidance for Operators (go to the WorkSafe NZ website at www.worksafe.govt.nz and search for 'Adventure Activities Guidance')
- Maritime Transport Act 1994 (go to www.legislation.govt.nz)
- Maritime Transport Rules (go to www.maritimenz.govt.nz and click on 'Rules')
- 'Support Adventure', the website for the adventure tourism and outdoor commercial sector (for assistance to develop your safety system for your commercial operation, go to www.supportadventure.co.nz)

6. Contact us for help

Maritime NZ

If you need more information about safety management systems, visit the following section of our website:

maritimenz.govt.nz/commercial/safety

If you can't find the information you need, send us an email:

enquiries@maritimenz.govt.nz

Tell us what you need help with and remember to include your contact details (email address and phone numbers).