

Part 3K: Navigation Systems and Equipment

Proposal Summary for Consultation

This document is part of a series of documents to support consultation on changes to the existing Design, Construction and Equipment rules (the DCE rules). Other documents that form part of the consultation package include:

- *Invitation to Comment* - An overview of the consultation package and summary of the proposals, including information on how to have your say on the proposals.
- *Proposal summaries* - Details of the proposed changes for each of the four Rule topics being consulted on in this package: Navigation Systems and Equipment, Lifting Appliances, Loose Gear and Working Gear, Accommodation, Escape, Accessibility and Personal Safety and Survey and Certification. This document is the proposal summary for Navigation Systems and Equipment.
- *Draft Maritime Rules and draft Maritime Transport Instruments (MTI)* – a set of rules and MTIs for each of the four Rule topics.
- A template to support preparation of your submission.

These documents, and other supporting information, can be accessed at

<https://www.maritimenz.govt.nz/about-us/consultations/dce-40-series-package-3>

Contents

Purpose of this document	3
Introduction to Navigation	3
Reasons the Navigation rules need to change	4
Summary of proposed changes to Navigation Rules	5
Implementation	6
What do the changes mean for my ship/vessel/boat?	6
Proposal 1: Simplifying and combining vessel categories and requirements	7
Proposal 2: Allowing the second compass to be electronic	14
Proposal 3: Compasses and other navigational systems and equipment would need to meet updated technical performance standards	19
Proposal 4: Additional navigation systems and equipment to align with SOLAS	28
Proposal 5: Compasses on small vessels (Navigation Category 1) would need to be liquid filled	34
Proposal 6: Allowing handheld compasses for small tiller steered vessels	38
Proposal 7: Allowing alternative options to carrying a sextant and a chronometer	42
Proposal 8: More mariners would be able to train as a Compass Adjuster	46
How to have your say	52

Appendix 1: 'Snapshot' of the proposed changes to the current navigation rules	53
Appendix 2: Navigation systems & equipment requirements according to Navigation Category	58

Purpose of this document

1. Maritime NZ is proposing significant reform of the DCE Rules for domestic commercial vessels.
2. This document provides the detailed analysis of the proposed new Navigation Systems and Equipment Rules and MTI. It explains our understanding of the issues and current situation (the 'status quo') under the present rules and sets out the analysis and rationale behind the proposed changes. Any potential impacts we have identified from the proposed amendments are also described. The information included is intended to meet the Government's Regulatory Impact Analysis requirements.
3. This document should be read in combination with the Invitation to Comment (which provides an overview of the proposed changes) and other documents that form part of the consultation package, available on Maritime NZ's website at <https://www.maritimenz.govt.nz/about-us/consultations/dce-40-series-package-3>.

Note: The word 'ship' is used in the Maritime Transport Act 1994 and the proposed Rules and MTIs. This term is used to refer to any kind of boat or craft and does not refer to a craft of a specific size. For the avoidance of doubt, the terms vessel, ship and boat can be used interchangeably. This document uses the term 'vessel' unless ship and boat is used in a title, such as "Navigation Category 1 Ships".

Introduction to Navigation

4. Navigation equipment on a commercial vessel is essential for safety and for moving the vessel accurately and efficiently between locations. These systems show the vessel's position, help plan routes, and allow the crew to monitor the vessel's course. Reliable navigation is critical to avoiding collisions, which can put people at risk and cause serious damage to the vessel and the environment. Navigation equipment must work reliably in all weather and operational conditions. Because safe navigation is so important, backup and contingency systems must always be available to ensure the vessel can navigate safely without interruption, no matter the situation.
5. The current rules in Part 45 include a number of the requirements for shipborne navigational equipment contained in Chapter V of the International Convention for the Safety of Life at Sea 1974 (SOLAS), plus requirements for similar equipment on non-SOLAS vessels. The requirements for non-SOLAS vessels have been transferred and updated where applicable in the new Part 3K Navigation Systems and Equipment.¹ SOLAS vessels will be dealt with in another rule part to be consulted on as part of package 4.
6. Where practical, the proposed approach to the new Navigation Systems and Equipment Rules aligns requirements across the rules for passenger, non-passenger, fishing and sailing vessels.

¹ Navigation equipment requirements for SOLAS Ships will move to Part 2A SOLAS Ships, and Navigation equipment requirements for large fishing vessels will move to Part 404 Cape Town Vessels.

Reasons the Navigation rules need to change

7. The proposed new rules address a range of issues with the current Navigation Rules. The current rules are 26 years old and have not kept pace with developments in the sector. There are six key issues being addressed in the proposed new rules:
- **separate but overlapping Navigation Rules are not justified.** The current rules have 7 different categories with no clear reason for all the variation.² Much of this content is the same or similar and is repeated across the rules for different vessels. Some requirements are inconsistent between vessel types with no clear reason why.
 - **the use of electronic compasses and navigational aids.** Even though not required by the current rules, most vessels are now carrying electronic navigational aids (including electronic compasses) and are using them alongside traditional means of navigation, such as magnetic compasses and charts. However, many are only using the electronic navigation aids. There are currently no rules to support electronic navigation aids, and their use. Exemptions have been issued allowing non-magnetic compasses to be used as a second compass.
 - **the move away from sextant and chronometer use.** While these traditional forms of navigation are still considered the most reliable forms of navigation, equivalent navigational equipment with the right electronic backups can now offer a similar level of reliability. Proposed changes will provide more flexibility around how vessels that proceed into the unlimited area can meet navigational safety standards.
 - **standards for compasses and other navigational equipment have changed over time.** The rules need to be revised to reflect updated International Maritime Organisation (IMO) resolutions, including changes to SOLAS, and technical standards where these are appropriate for the domestic commercial fleet.
 - **lower requirements for small vessels operating close to shore.** Small vessels operating close to shore face lower navigation risks, so the rules continue to apply fewer compass requirements. However, these vessels would need to carry a liquid-filled compass because it is more stable and gives clearer readings. The rules would also continue to allow a handheld compass where a mounted compass cannot be practically fitted.
 - **recognition of compass adjusters.** New Zealand's seven recognised compass adjusters are at retirement age, and few new people are entering the role. Some other maritime

² Part 45 has 7 different categories with overlapping requirements repeated throughout, the current categories are:

1. All ships to which SOLAS is applied.
- 2- 6. All ships to which SOLAS is not applied:
 - Rule part: 45.20 Magnetic compasses - passenger ships of 150 tons gross tonnage or more that proceed outside restricted limits.
 - Rule part 45.21 Magnetic compasses - small passenger and non-passenger ships, and fishing ships.
 - Rule part 45.22 Magnetic compasses - small passenger ships, non-passenger ships, and fishing ships, to which rule 45.21 does not apply.
 - Rule part 45.23 Magnetic compasses - non-passenger ships and fishing ships of less than 6 metres in length that do not proceed beyond restricted limits.
 - Rule part: 45.24 Magnetic compasses - fishing ships that proceed into the unlimited area.
7. Ships of 500 tons gross tonnage or more to which SOLAS is not applied.

certificate holders have the training and experience needed to become competent compass adjusters, particularly as compass technology has changed. We propose allowing a wider range of qualified people to train as compass adjusters for small and medium-sized vessels in the domestic commercial fleet.

Summary of proposed changes to Navigation Rules

8. The proposed changes to the current Navigation Rules are based on risk and aimed at clarifying, simplifying and aligning the current rules, and include:
 - from the seven existing categories, two will move into separate chapters. Navigation systems and equipment requirements for SOLAS vessels and Cape Town fishing vessels will move to the new rule parts for those vessels – Part 2A and Part 404.
 - the remaining five categories would reduce to four, based on vessel size, type and operating area. Category descriptions have been clarified, and requirements have been standardised across vessel types where appropriate.
 - an electronic compass would be allowed as a second compass if it has an emergency electric supply.
 - technical performance standards for compasses and other navigation systems and equipment have been updated, and the proposed rules clarify when equipment must meet a standard, including those set by the IMO.
 - since the rules were first introduced there have been significant changes to SOLAS. The rules have been updated to reflect these changes, mostly to the 500 GT vessel categories.
 - vessels proceeding into the unlimited area would have the option to carry alternatives to a sextant and chronometer, including electronic options or chronometer equivalents.
 - small vessels operating close to shore can carry a handheld compass where there is nowhere to mount a magnetic compass and the compass must be liquid filled.
 - responsibilities of operators and compass adjusters have been clarified, including the keeping of records.
 - the list of maritime qualifications recognised as a basis for training to become a Compass Adjuster has been expanded. Over time this will allow for more Compass Adjusters to be recognised.
9. The main changes proposed in the draft Navigation Systems and Equipment Rules and MTI are outlined in the tables below under the following eight headings.
 - Proposal 1: Simplifying and combining vessel categories and requirements.
 - Proposal 2: Allowing the second compass to be electronic.
 - Proposal 3: Compasses and other navigational equipment would need to meet updated technical performance standards.
 - Proposal 4: Additional navigation equipment to align with SOLAS.
 - Proposal 5: Compasses on small vessels (navigation category 1) would need to be liquid filled.
 - Proposal 6: Allowing handheld compasses for small tiller steered vessels.

- Proposal 7: Allowing alternative options to carrying a sextant and a chronometer.
 - Proposal 8: More mariners would be able to train as a Compass Adjuster.
10. The tables in this document provide a summary of the proposed changes, the rationale for those changes and potential impacts.

Implementation

11. The Rule and MTI that will implement this proposal are set out below.
- Part 3K: Maritime (Design, Construction and Equipment – Navigation Systems and Equipment) Rules [year].
 - Maritime Transport (Navigation Systems and Equipment) Instrument [year].

Timing / Commencement date

12. The Rules and MTI are expected to commence in mid-late 2028. Note that this date is subject to analysis of submissions received during consultation, and Ministerial agreement to any changes subsequently made in response.
13. Under Proposal 3, compasses and other navigational equipment would need to meet technical performance standards. An existing vessel would have ten years to meet relevant technical standards and IMO resolution requirements for magnetic compasses.

Products envisaged to support implementation

14. Maritime NZ will provide a short guide for the sector explaining the changes introduced by the new Navigation Systems and Equipment Rules.

What do the changes mean for my ship/vessel/boat?

15. A 'snapshot' of the proposed changes to the Navigation system and Equipment Rules is included in Appendix 1 to this document.

Please note that this document sets out the main changes that are proposed but does not include all changes that may have an impact on an operation. Therefore, we strongly recommend you also refer to the draft rule and maritime transport instrument.

Proposal 1: Simplifying and combining vessel categories and requirements

What we are proposing

Under the proposed new Maritime Rule structure, SOLAS vessels and Cape Town vessels will each have a dedicated rule part that will include navigation equipment requirements.

Four simplified new categories would set navigation equipment requirements for the remaining New Zealand commercial vessels, as described below.

Navigation Category 1 ships

Small passenger vessels and small – medium non-passenger and fishing vessels that do not proceed beyond restricted limits/inshore fishing limits.

- Passenger vessels of 6 metres or less in Length Over All (LOA) that do not proceed beyond restricted limits.
- Non-passenger vessels of less than 12 metres in LOA that do not proceed beyond restricted limits.
- Fishing vessels of less than 12 metres in LOA that do not proceed beyond inshore fishing limits.

Category 1 would combine the current Part 45 categories in rules 45.22 and 45.23.³

Navigation Category 2 ships

A vessel that is of less than 500 Gross Tonnage (GT) and is a:

Passenger vessel that:

- is more than 6 metres in LOA and does not proceed beyond restricted limits; or
- is less than 24 metres in Load Line Length (LLL) and proceeds beyond restricted limits but not beyond offshore limits.

Non-passenger vessel that:

- is 12 metres or more in LOA and does not proceed beyond restricted limits; or
- proceeds beyond restricted limits but not beyond offshore limits; or

Fishing vessel that:

- is 12 metres or more in LOA and does not proceed beyond inshore fishing limits; or
- proceeds beyond inshore fishing limits but not beyond offshore limits.

³ A passenger, non-passenger or fishing vessel <6m in length that does not proceed beyond restricted limits; and a non-passenger vessel 6m or more but <12m in length that does not proceed beyond restricted limits or a fishing vessel 6m or more but <12m in length that does not proceed beyond inshore fishing limits.

Category 2 would combine previous Part 45 categories in rule 45.21.⁴

Navigation Category 3 ships

A vessel less than 500 GT that is:

- a passenger vessel that is of 24 metres or more in LLL that proceeds beyond restricted limits; or
- a vessel that proceeds into the unlimited area that is not a SOLAS vessel or a Cape Town Fishing Vessel.

Category 3 would combine aspects of previous Part 45 categories in rules 45.20, 45.21 and 45.24.⁵

Navigation Category 4 ships

A vessel that is 500 GT or more, operating within restricted limits that is not a SOLAS vessel or a Cape Town Fishing Vessel. Category 4 would combine categories in rules 45.26 – 45.34 for vessels that are:

- 500 GT and over
- not SOLAS vessels
- do not proceed on an international voyage
- are passenger or non-passenger vessels of more than 45m operating within restricted limits.⁶
- are not self-propelled mobile offshore drilling units.

Standardising vessel length thresholds

Length categories across the series of design, construction and equipment (DCE) rule parts are being standardised to make requirements consistent. We are proposing to use “more than 6m in length” and “6m or less in length” to replace the 6m length threshold currently being described as “6m or more in length” and “less than 6m”. This standardisation across the rule set does not negatively disadvantage any vessel.

Status quo

The current Navigational Equipment rules set requirements based on seven classes of vessel:

1. All ships to which SOLAS is applied.

All ships to which SOLAS is not applied:

⁴ A passenger vessel that is <150 GT and proceeds beyond restricted limits; or is 6m or more in length and does not proceed beyond restricted limits; A non-passenger vessel that is <45m in length and proceeds beyond restricted limits; or is 12m or more in length and does not proceed beyond restricted limits; A fishing vessel that proceeds beyond restricted limits but does not proceed beyond the offshore limit; or is 12m or more in length and does not proceed beyond restricted limits.

⁵ <45m fishing ships that proceed into the unlimited area (rule 45.24), ≥24m passenger vessels outside restricted (rule 45.20), and passenger and non-passenger vessels proceeding into unlimited (part of rule 45.21).

⁶ Vessels this size operating beyond restricted limits will be addressed under the new Part 2A for SOLAS vessels.

2. Rule part: 45.20 Magnetic compasses - passenger ships of 150 tons gross tonnage or more that proceed outside restricted limits.
3. Rule part 45.21 Magnetic compasses - small passenger and non-passenger ships, and fishing ships.
4. Rule part 45.22 Magnetic compasses - small passenger ships, non-passenger ships, and fishing ships, to which rule 45.21 does not apply.
5. Rule part 45.23 Magnetic compasses - non-passenger ships and fishing ships of less than 6 metres in length that do not proceed beyond restricted limits.
6. Rule part: 45.24 Magnetic compasses - fishing ships that proceed into the unlimited area.
7. Ships of 500 tons gross tonnage or more to which SOLAS is not applied.

What is the problem / rationale for the change?

The current rules are repetitive, and it is difficult to understand what is required. There are crossovers between the requirements for various categories with no clear rationale or benefit.

It is unclear why some smaller vessels have historically been allowed to proceed into the unlimited area while only meeting navigational equipment requirements that apply to domestic vessels operating close to shore. Higher navigation equipment standards should apply to these vessels because the unlimited area presents some of the most remote challenging sea conditions on the planet.

Where possible, navigation equipment should be aligned across similar vessel types and risk profiles.

Impact of the proposed change

This change is about clarifying the rules and making them easier to understand and apply. The changes proposed to the categories align the rules for the vessel types and group together vessels with similar risk profiles.

The creation of a clear category for vessels in the unlimited area is a change from the current rule set that spreads requirements for vessels venturing into the unlimited area across multiple categories. Combining all the provisions that apply to unlimited vessels into one category makes it clearer what applies when vessels venture offshore. This move aligns navigation equipment requirements across vessel types and ensures that vessels that proceed in the unlimited area carry appropriate navigation equipment.

Combining the current two low risk categories into one will provide greater flexibility for the types of compasses carried on those vessels.

This proposal in most cases is expected to be cost neutral or reduce transaction costs for most vessels. However, there may be costs to vessels in the new unlimited category (discussed below as part of Navigation Category 3) and for aligning better with the SOLAS provisions (discussed below as part of Proposal 4).

Options analysis

The following three options for defining navigation equipment categories and corresponding requirements (excluding SOLAS vessels and Cape Town Fishing Vessels, they will be in separate chapters) were considered:

Option 1: (Status quo). Keep the five existing categories used in Part 45.

Option 2: (Preferred option). Four categories. Two categories for small and medium sized vessels operating close to shore or within offshore limits. A third category for higher risk vessels including large passenger vessels under 500 GT and all vessels that proceed into the unlimited area. And a separate 500 GT or more category.

Option 3: Three categories. Option 2 but vessels of 500 GT or more included in category 3.

How do the options compare against the status quo

The following criteria have been used to assess the options. Refer to Table 1 for an assessment against these criteria.

The changes provide flexible and adaptive regulation:

Options 2 and 3 would provide better flexibility for smaller vessels to meet compass requirements.

Rules are clear and easier to understand and apply:

Options 2 and 3 would simplify the rules by grouping like requirements and risk. However, combining the 500 GT and over category into the highest risk category in option 3 would confuse and significantly complicate the rules. Keeping the 500 GT and over category separate helps ensure the rules are clear and understandable.

Maritime safety is maintained or enhanced:

Options 2 and 3 improve rule understanding and ease of application.

Changes are practical and economically viable:

Options 2 and 3 would simplify the rules and allow for greater efficiency in application and compliance.

Changes should lead to better understanding and application of the rules, improving efficiency and lessening costs of implementation and compliance.

Table 1: Comparing options of simplifying and combining vessel categories and requirements against the status quo

	1. Status Quo – five categories	2: Four categories – separate 500 GT	3: Three categories – combined 500 GT
Provides flexible and adaptive regulation	0	+	+
Rules that are clear and easier to understand and apply	0	++	+
Maritime safety is maintained or enhanced	0	+	+
Changes are practical and economically viable	0	++	+
Overall assessment	0	++	+

Key for qualitative judgements:

- ++ Much better than doing nothing/the status quo/counterfactual
- + Better than doing nothing/the status quo/counterfactual
- 0 About the same as doing nothing/the status quo/counterfactual
- Worse than doing nothing/the status quo/counterfactual
- Much worse than doing nothing /the status quo/counterfactual

Preferred option
Option 2 is the preferred option as it would introduce new rules that simplify and combine vessel categories and requirements while maintaining clarity. It meets all criteria and is much better than the status quo.
What are the marginal costs and benefits of the preferred option?
There may be short term marginal costs of surveyors and operators becoming familiar with the rules. Short term costs should be offset over the medium term because the simplified rules will be less complex and easier to use and enforce. The marginal costs and benefits are discussed in the table below.

Table 2: Marginal costs and benefits of the preferred option

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Vessel builders, owners, operators, and surveyors	Would need to become familiar with the new rules.	Medium	High MNZ has engaged with the sector and one of the main drivers for change has been the simplification of the rules.
Additional benefits of the preferred option compared to taking no action			
Vessel builders, owners, operators, and surveyors	Simplifying categories of vessel and rule requirements will make it easier to understand and comply with the rules.	Medium	Medium MNZ has engaged with the sector and one of the main drivers for change has been the simplification of the rules.
The regulatory system	The proposal would correct known inconsistencies and repetition in the rules and promote a consistent and streamlined regulatory approach.	Medium	Medium The shortcomings of the current rule set have been well documented and understood for some time.

Question:

- N 1.1 Do you support reducing the current vessel categories to four simplified navigation categories?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

- N 1.2 Do the proposed categories appropriately reflect different levels of risk, particularly for vessels operating in the unlimited area?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

- N 1.3 Are the proposed category definitions (including size limits, vessel types, and operating areas) clear and appropriate? If not, what should change?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 2: Allowing the second compass to be electronic

What we are proposing
We are proposing that if a vessel requires a second compass, then it could be either magnetic or electronic. An electronic compass could be a satellite (GNSS), gyro or a fluxgate compass. An electronic compass would require an independent source of emergency electricity. An electronic compass needs an interface with a suitable Marine Transmitting Heading Device (THD). The draft rules intentionally do not define “electronic compass”, therefore providing flexible rules that allow for advances in compass and navigation technology. Not defining electronic compass and allowing for a level of flexibility is also consistent with international best practice.
Status quo
Many larger vessels or vessels proceeding beyond restricted limits require two compasses in line with the requirements of SOLAS, where one is magnetic and the second is “equivalent”. Internationally “equivalent” has been interpreted to mean this allows for the second compass to be electronic. There are no current New Zealand rules guiding the use of electronic compasses and the rules do not currently allow for them as either the primary or secondary compasses. The rules for vessels of 500 GT or more (operating within restricted limits – non-SOLAS) require two compasses, one being a gyro. The current rules are silent on whether a magnetic compass is required. However, this seems to be an oversight as all vessels in this category appear to carry a magnetic compass (also in line with SOLAS) and this is how the rules appear to have predominantly been implemented. Surveyors have interpreted them to mean these vessels require at least one magnetic compass and a gyro compass as required by SOLAS.
What is the problem / rationale for the change?
The current rules are 26 years old and were written when electronic compasses and navigation systems and equipment were expensive, unreliable and uncommon. While magnetic compasses are still considered the most reliable option for vessel navigation, in practice most vessels are using electronic navigational aids that incorporate an electronic compass interfaced with a THD or GNSS. While electronic compasses are not considered reliable enough to completely replace magnetic compasses, the rules need to be updated to provide for electronic options where appropriate. Exemptions from the current rule requirements for a magnetic compass have been considered on a case-by-case basis. Alternative arrangements have been considered where a non-magnetic compass is:

- provided with an emergency electrical supply capable of operating the installation to a standard acceptable to a member of the International Association of Classification Societies (IACS) or another regulatory standardisation body acceptable to Maritime NZ.
- able to determine and display the vessel's heading independent of the main power supply⁷.

Impact of the proposed change

Introducing rules for the use of electronic compasses and navigational aids allows flexibility and provides clarity and standards for their use. This proposal is expected to be cost neutral or reduce transaction costs due to a second magnetic compass no longer being required, needing to be maintained or adjusted.

Options analysis

Three options were considered:

Option 1: (Status quo). No rules provided for electronic compasses. Rules do not guide their use and an electronic compass cannot replace a magnetic compass where two are required.

Option 2: Allow full flexibility to use either electronic or magnetic compasses.

Option 3: (Preferred option). All vessels would need to carry one magnetic compass. Where two compasses are required, the second can be electronic where an independent source of electricity is provided.

How do the options compare against the status quo

The following criteria have been used to assess the alternative options. Refer to Table 3 for an assessment against these criteria.

The changes provide flexible and adaptive regulation:

Options 2 and 3 are adaptive because they would introduce new rules to address emerging and established technology. Locating the requirements in an MTI is expected to result in a faster amendment process compared to rules as the technologies develop and standards are revised.

Rules are clear and easier to understand and apply:

Options 2 and 3 are clear and easy to understand. They reference internationally accepted technical standards for new and complex technology; this is a better approach than developing rules specific to New Zealand.

Maritime safety is maintained or enhanced:

Option 3 would maintain safety by ensuring a magnetic compass is available should an electronic compass not function for any reason. Option 2 may be less safe than Option 3 if both compasses were electronic. While unlikely, an event could

⁷ Non-magnetic compasses - July 2018 v 1.01 Maritime New Zealand Technical Clarification PS-04-18

	render both compasses inoperable. Option 2 does not align with SOLAS and international best practice.
<i>Changes are practical and economically viable:</i>	Options 2 and 3 would be practical to implement. Established standards for electronic compasses have already been developed, and commercial vessels are already using the technology. Allowing an electronic compass as a second compass will reduce costs over time. Many operators already have the technology and costs will reduce as the second magnetic compass does not need to be maintained or replaced.

Table 3: Comparing options of allowing for the second compass to be electronic against the status quo.

	1. Status Quo. No rules for electronic compasses	2: Either electronic or magnetic compasses allowed	3. Where two compasses required the second can be electronic
Provides flexible and adaptive regulation	0	++	++
Rules that are clear and easier to understand and apply	0	++	++
Maritime safety is maintained or enhanced	0	-	+
Changes are practical and economically viable	0	++	++
Overall assessment	0	+	++

Key for qualitative judgements:

- ++ Much better than doing nothing/the status quo/counterfactual
- + Better than doing nothing/the status quo/counterfactual
- 0 About the same as doing nothing/the status quo/counterfactual
- Worse than doing nothing/the status quo/counterfactual
- Much worse than doing nothing/the status quo/counterfactual

Preferred option
Option 3, requiring all vessels to carry one magnetic compass and allowing the second compass to be electronic where two compasses are required, is the preferred option. It increases flexibility

and recognises that most vessels now use electronic navigation as their everyday tool. It also maintains safety by ensuring that a magnetic compass is available as a back-up.

What are the marginal benefits and costs of the preferred option?

This proposal is expected to be cost neutral or reduce costs.

The marginal costs and benefits are discussed in the table below.

Table 4: Marginal costs and benefits of the preferred option

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Vessel builders, owners, operators, and surveyors	Low Proposal is optional. Many vessels already use electronic compasses. Would allow flexibility to choose between magnetic and electronic compasses so there are no costs associated with having to change.	Low	High Proposal is straightforward, and Maritime NZ has engaged with the sector.
Additional benefits of the preferred option compared to taking no action			
Vessel builders, owners, operators, and surveyors	Medium Will reduce costs where a vessel already carries an electronic compass and chooses not to replace a second magnetic compass where they were previously required to carry. The second compass will no longer require compass adjustment, and this will reduce costs.	Medium	High Most vessels already have electronic compasses fitted and in use.

Question:

- N 2.1 Do you support allowing an electronic compass to be used as the second compass where two compasses are required?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

- N 2.2 Are the proposed safeguards for electronic compasses (such as an independent power supply) appropriate and sufficient?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 3: Compasses and other navigational systems and equipment would need to meet updated technical performance standards

What we are proposing

Magnetic compasses

Magnetic compasses and navigational systems and equipment would need to meet the technical standards proposed below. These would be new requirements. Technical standards would be specified in a MTI.

Vessels already in the domestic commercial fleet would have a 10-year transition period to meet new technical standards for a magnetic compass. Category 1 vessels would need to have appropriate compasses at commencement, when the rules come into force.

Navigation Category	Proposed standards for magnetic compasses
Category 1	- Compass must be liquid filled with a floating card. - A technical standard is not specified.
Category 2	- IMO Resolution MSC A.128(75); - and either - ISO 14227:2001: Small craft - Magnetic compasses; or - ISO 25862:2019 - Ships and marine technology — Marine magnetic compasses, binnacles and azimuth reading devices.
Category 3 and 4	- IMO Resolution A.382(X) Magnetic Compasses Carriage and Performance Standards; and - ISO 25862:2019 - Ships and marine technology — Marine magnetic compasses, binnacles and azimuth reading devices.

Electronic compass used as a second compass

Electronic compasses would need to meet the IMO resolutions proposed below. This would be a new requirement.

	Proposed standards for electronic compasses
General standards that would need to be met	- IMO Resolution A.694(17): General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic Navigational Aids.

	- IMO Resolution MSC.114(73): Revised Performance Standards for Shipborne DGPS & GLONASS Maritime Radio Beacon Receiver Equipment. - IMO Resolution MSC.116(73) – Performance Standards for Marine Transmitting Heading Devices. - IMO Resolution MSC.166(78) - Application of Performance Standards for THDs to Marine Transmitting Magnetic Heading Devices (TMHDs).	
Additional requirement for fluxgate compass	- IMO Resolution MSC.116(73) – Performance Standards for Marine Transmitting Heading Devices. - IMO Resolution MSC.166(78) - Application of Performance Standards for THDs to Marine Transmitting Magnetic Heading Devices (TMHDs), if fitted on or after 1 July 2002.	
Additional requirement for satellite compass (standards apply depending on what vessel carries)	- Performance Standards for Shipborne global positioning system (GPS) receiver equipment (Resolution A.819(19)). - IMO Resolution MSC.74(69): Adoption of New and Amended Performance Standards. - Adoptions of the revised performance standards for shipborne GLONASS receiver equipment (resolution MSC.113(73)). - Adoptions of the revised performance standards for shipborne DGPS and GGLONASS maritime radio beacon receiver equipment (resolution MSC.114(73)). - Adoption of the revised performance standards for shipborne combined GPS/GLONASS receiver equipment (resolution MSC.115(73)). - Performance standards for shipborne Galileo receiver equipment (resolution MSC.233(82)). - Performance standards for shipborne Beidou Satellite Navigation System (BDS) receiver equipment (resolution MSC.379(93)). - Performance standards for multi-system shipborne radionavigation receivers (resolution MSC.401(95), as amended).	

Bridge Navigational Watch Alarm System (BNWAS)

A BNWAS would be required for Navigation Category 2 and 3 vessels of 24m or more LLL and all Navigation Category 4 vessels. It would need to comply with—

- IMO Resolution MSC A.128(75); – Performance Standards for a Shipborne Voyage Data Recorder (VDR) and
- regulation 19 of Chapter V of SOLAS, including annual testing.

Sextant

A sextant on a vessel that proceeds into the unlimited area would need to be a marine sextant that complies with the NBS Circular No.110.

Other navigation equipment (where relevant to Navigation Category 3 and 4 vessels)

Other navigation systems and equipment would need to meet performance requirements specified in IMO Resolutions. These have been carried over from Part 45 to the new MTI, with references updated as required and new requirements have been added to comply with changes to SOLAS.

Equipment	Standard specified
Gyro-compass	IMO Resolution A.424(XI) performance standards for gyrocompasses.
Indicators	IMO Resolution A.694(17) – General Requirements for Shipborne Radio Equipment Forming Part of GMDSS and for Electronic Navigational Aids.
Radar Installation	- IMO Resolution MSC.64(67) amended performance standards – integrated bridge systems (radar), if fitted on or after 1 January 1999. - IMO Resolution MSC.192(79) adoption of the revised performance standards for radar equipment, if fitted on or after 1 July 2008.
AIS	- IMO Resolution MSC.74(69), Adoption of New and Amended Performance Standards, Annex 3. - IMO Resolution MSC.570(109) - Performance standards for a universal shipborne Automatic Identification System (AIS), only applies to new installations from 1 January 2029.
ARPA	- IMO Resolution A.823(19) – Performance Standards for Automatic Radar Plotting Aids (ARPAs).
THD	- IMO Resolution MSC.166(78) – Application of Performance Standards for THDs to Marine Transmitting Magnetic Heading Devices (TMHDs), if fitted after 1 July 2002. - IMO Resolution MSC. 116(73) – Performance Standards for Marine Transmitting Heading Devices (THDs).
Echo-sounding	- IMO Resolution MSC.74(69) Adoption of New and Amended Performance Standards, if fitted after 1 January 2001.

	- IMO Resolution A.224(VII) – Performance Standards for Echo-Sounding Equipment.
Device for measuring speed and distance	- updated IMO Resolution MSC.74(69) Adoption of New and Amended Performance Standards.
GNSS receivers	- IMO Resolution MSC.112(73) IMO Resolution A.224(VII) – Performance Standards for Echo-Sounding Equipment. - IMO Resolution MSC.113(73) – Revised Performance Standards for Shipborne GLONASS Receiver Equipment. - IMO Resolution MSC.115(73) – Revised Performance Standards for Shipborne Combined GPS/GLONASS Receiver Equipment. - IMO Resolution MSC.401(95) – Performance Standards for Multi-System Shipborne Radionavigation Receivers.

Status quo

The current rules include some basic technical requirements for magnetic compasses but no standards and have no technical requirements or standards for electronic compasses. Navigation systems and equipment required on vessels of 500 GT or more are currently required to comply with a range of IMO resolutions, however many of these resolutions have now been superseded.

What is the problem / rationale for the change?

The current rules have not kept up to date with changes to IMO resolutions, SOLAS and technical standards which means older vessels have been operating under the same rules for 26 years.

Electronic compasses and other electronic navigational aids are being used extensively. However, there are currently no standards or rules for their use in the New Zealand domestic commercial fleet.

Impact of the proposed change

Navigation systems and equipment would need to meet a combination of technical standards, SOLAS requirements and IMO Resolutions. Many of the Resolutions have applied for a long time and the changes proposed are updates. However, the Resolutions that would apply to electronic compasses, THDs and AIS are new.

Requiring compasses to be built to a technical standard and specifying which technical standard a compass will need to meet, will bring clarity to the new rules and align New Zealand with other countries.

Most of New Zealand's domestic commercial fleet (over 1,000 vessels) will be in Navigation Category 2. While the proposal for compasses to comply with ISO 14227 is new to the rules, the

current rules already align with the standard. The changes would be to compass manufacture rather than placement on the vessel.

The compasses carried on Navigation Category 3 and 4 vessels (larger vessels) are likely to already meet the IMO Resolutions. Changes to Resolutions applying to other navigation systems and equipment on Category 4 vessels (500 GT or more) are a mixture of updates to align with revised IMO resolutions and alignment with SOLAS updates, rather than new requirements.

A 10-year transition period is proposed for vessels carrying equipment that will need to comply with new ISO standards for magnetic compasses, where previously this was not required. The changes to the category 3 and 4 vessel requirements to align with IMO resolutions and SOLAS changes are expected to have minimal impact on the existing domestic commercial fleet as they are already carrying this equipment and we expect that it was compliant when manufactured.

As part of a regular survey, surveyors will be able to determine if the navigational systems and equipment, including compasses, comply. If the surveyor cannot identify the make and model of a magnetic compass, a recognised compass adjuster will be able to determine compliance.

As the changes to category 3 and 4 vessels only affect approximately 20 vessels and many of the changes are updates to existing requirements, we expect a surveyor will be able to easily know if the equipment complies.

Options analysis

Three options were considered:

Option 1: (Status quo). No compass construction standards for small – medium vessels, continue to require larger and higher risk vessels to comply with IMO Resolutions.

Option 2: Most recent, relevant and appropriate technical standards, SOLAS and IMO regulations apply to all vessels.

Option 3: (Preferred option). Continue to apply current requirements largely unchanged to Navigation Category 1 ships (smaller and lower risk) but magnetic compasses would need to be liquid filled. Appropriate standards, SOLAS and IMO regulations applied to larger vessels (Navigation Category 2, 3 and 4), including new standards for a second compass that is electronic.

How do the options compare against the status quo

The following criteria have been used to assess the options. Refer to Table 5 for an assessment against these criteria.

The changes provide flexible and adaptive regulation:

Options 2 and 3 would provide an efficient way to incorporate changes in technical standards into the rules. Locating the requirements in a schedule to the MTI is expected to result in a faster amendment process compared to rules.

Rules are clear and easier to understand and apply:

Options 2 and 3 would include a list of resolutions and technical standards to be complied with. The final MTI would be available

	on Maritime NZ's website. The resolutions are available on the IMO website, and the technical standards are available for viewing at Maritime NZ offices, with copies available for purchase from the technical standard developers.
<i>Maritime safety is maintained or enhanced:</i>	Option 2 would help to ensure that the existing domestic commercial fleet meet a basic standard of safety, applicable to the navigation systems and equipment they carry. Option 3 requires the most relevant standards to be complied with, while allowing for some grandparenting of existing non-SOLAS vessels of 500 GT or more where some equipment will continue to be allowed to meet older standards where appropriate.
<i>Changes are practical and economically viable:</i>	Option 3 would require navigation systems and equipment to comply with a set of basic standards that an existing vessel could readily achieve. It would provide a sensible solution to the current lack of standards and strikes an appropriate balance between cost and safety.

Table 5: Comparing options of requiring compasses and other navigational systems and equipment to meet technical standards of construction against the status quo

	1. Status Quo	2: Most recent standards apply to all vessels	3: No standards for low-risk vessels, appropriate standards for other
Provides flexible and adaptive regulation	0	++	++
Rules that are clear and easier to understand and apply	0	+	++
Maritime safety is maintained or enhanced	0	++	+
Changes are practical and economically viable	0	-	+
Overall assessment	0	+	++

Key for qualitative judgements:

- ++ Much better than doing nothing/the status quo/counterfactual
- + Better than doing nothing/the status quo/counterfactual
- 0 About the same as doing nothing/the status quo/counterfactual
- Worse than doing nothing/the status quo/counterfactual

-- Much worse than doing nothing/the status quo/counterfactual

Preferred option
Option 3 is the preferred option. It meets all criteria and is significantly better than the status quo. It strikes a good balance between increased costs, compliance with international standards and setting appropriate requirements for smaller, lower risk New Zealand vessels.
What are the marginal costs and benefits of the preferred option?
We expect that most modern compasses installed in the last 20 years will meet the proposed standards. We expect the costs of meeting this proposal to either be neutral or a one-off cost of installing a compliant compass. A 10-year transition period would apply to Category 2–4 vessels, allowing any upgrade costs to be spread over time. The cost of checking compliance with the new standards is expected to be modest, as it can be incorporated into the cycle of regular surveys that check general compliance with the rules. It may be difficult to determine the standard of older compasses. In these cases, a compass adjuster will be able to confirm compliance. If the compass is found to not comply it would need to be replaced with a compliant compass. This could cost around \$400 for a Navigation Category 2 vessel and \$800 - \$2,000 for Navigation Category 3 and 4 vessels for the purchase of the compass and installation by a compass adjuster, depending on where the vessel is located. These costs are expected to apply to only a small portion of the existing domestic commercial fleet that carry compasses which are well past their serviceable life. Costs for increased requirements for larger Navigation Category 4 vessels and vessels that proceed into the unlimited area (Navigation Category 3) are less clear. There are around 20 existing NZ vessels in these categories. Maritime NZ holds limited information about equipment carried on vessels that is not currently subject to maritime rules and standards. Based on the vessels we have researched, the financial impact is expected to be minimal as the systems and equipment carried is likely to comply. Specifying standards for navigation systems and equipment on these vessels makes sense because it would bring them in line with international standards for these types of vessels, and because the consequences of navigation failure could be very serious. The cost of requiring sextants to meet the standard NBS Circular No.110 is expected to be minimal as most sextants will already meet it at manufacture. The standard was first published in 1921 and the cost of sextants has reduced significantly over the years. The marginal costs and benefits are discussed in the table below.

Table 6: Marginal costs and benefits of the preferred option

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			

Existing vessel operators	Compasses installed in the last 20 years will likely already meet the proposed technical standards. Older compasses that do not meet the standards would need to be upgraded if they are not deemed to comply by the compass adjuster. There would be a cost of getting the compass adjuster to inspect the compass. Vessels would have 10 years to comply so the checks can occur at the same time as periodic surveys and compass adjustments to minimise costs.	Low-Medium Estimated cost range of \$400 to \$2000 to a small number of vessels with old compasses	Medium Compass manufacturing standards and details are readily available from compass sellers and manufacturers and are usually found online. Evidence suggests compass adjustment is not occurring as often as required and compasses are not being properly maintained. Some of the costs associated with this change may be deferred maintenance.
Additional benefits of the preferred option compared to taking no action			
Existing vessel operators	A vessel that meets a minimum level of safety, compass construction and maintenance is less likely to have navigation issues.	Medium	High
People who work on or travel on commercial vessels	People voyaging on the existing domestic commercial fleet would benefit from better compass safety standards by being less exposed to risk.	Medium	Compasses are critical safety equipment, essential to safe navigation and avoidance of collision at sea.
Regulators / the regulatory system	The proposal aligns NZ with standard international practices and would correct known issues with the rules.	Medium	Low
			Difficult to assess the effects of the known issues, and the extent to which the proposal

			will restore confidence in the system.
--	--	--	--

Question:

- N 3.1 What impacts (costs, benefits, or practical challenges) do you expect from requiring compliance with these standards, particularly for older vessels and equipment?

[Answers: outline costs, benefits or operational challenges for your vessel(s), No comment]

- N 3.2 The proposal would require most compasses to be ISO compliant. Do you know if your compass is ISO compliant?

[Answers: Yes, No, Don't know]

Proposal 4: Additional navigation systems and equipment to align with SOLAS

What we are proposing

New Zealand is a signatory to the SOLAS Convention, which sets navigation systems equipment requirements for all vessels. However, SOLAS allows the Administration (i.e. New Zealand) to decide the extent to which some navigation systems equipment requirements apply to -

- vessels less than 150 GT engaged on any voyage; and
- vessels less than 500 GT that are not engaged on an international voyage; and
- fishing vessels.

New Zealand has previously chosen to exercise flexibility in relation to some SOLAS navigation systems and equipment requirements, and this is reflected in our current Part 45 Navigation rules, which do not completely align with SOLAS. In most cases, we are proposing to continue to exercise flexibility under SOLAS for commercial domestic vessels of less than 500 GT. This reflects New Zealand's operating environment and takes account of the high costs to fully meet SOLAS navigation requirements, which the sector may not be able to absorb.

Vessels of 500 GT or more (Navigation Category 4)

There is very limited flexibility available under SOLAS in relation to how these vessels can meet SOLAS requirements, and while we have exercised the flexibility available, non-SOLAS vessels of 500 GT or more operating within restricted limits would need to fully comply with SOLAS Chapter 19. This would mean new requirements to carry:

- automatic Identification System (AIS),
- automatic Tracking Aid (ATA),
- a signalling day lamp, and
- various requirements that apply to vessels of 3,000, 10,000 and 50,000 GT (note there are none in category 4 in the existing domestic commercial fleet).

Vessels that proceed into the unlimited area - that are not SOLAS Vessels or Cape Town Fishing Vessels (Navigation Category 3)

SOLAS allows a high level of flexibility for domestic commercial vessels of less than 500 GT. New Zealand has chosen to apply that flexibility in most cases. However, SOLAS requirements have increased for vessels that proceed into the unlimited area (beyond 200 nautical miles) and we are proposing that to meet the requirements these vessels would need to carry the following equipment.

A vessel of 300 GT or more proceeding into unlimited:

- an echo sounder

- a GNSS receiver
- radar
- AIS.

A passenger ship 24m LLL or more proceeding beyond restricted limits less than 500GT:

- a GNSS receiver.

The proposed requirements for vessels in the unlimited area to carry additional navigation systems and equipment would help to ensure that they are prepared for the offshore conditions they will face and the distance from land and emergency services if something was to occur. Carrying navigation systems and equipment that is more appropriate for the level of risk these vessels will experience better aligns with the requirements in SOLAS Chapter V.

The requirement to carry a GNSS receiver on a passenger ship more than 24m LLL proceeding beyond restricted limits less than 500 GT, aligns with SOLAS requirements and the proposed radio rules.

Status quo and what is the problem / rationale for the change?

The current navigation systems and equipment rules for large New Zealand non-SOLAS vessels, passenger ships 24m LLL or more proceeding beyond restricted limits less than 500 GT and vessels that proceed into the unlimited area, do not align with SOLAS requirements.

New Zealand has been a party to SOLAS since 1948 and remains subject to the obligations of SOLAS 1974, the version of the Convention in force today. The current domestic navigation rules came into force in 2000 and need updating because they do not include all of the SOLAS amendments made since then.

Vessels proceeding into the unlimited area are our most risky category of vessel and should be held to high vessel and safety standards. It is unclear why some vessel types have historically been allowed to proceed into the unlimited while only meeting domestic and close to shore navigational systems and equipment requirements.

The rule change will mostly not require the existing domestic commercial fleet to upgrade as they already carry the equipment, the rule changes are just codifying what already happens in practice. This move ensures that vessels in this category are equipped with appropriate equipment to proceed into higher risk operational areas with high risk to life, the environment and vessels if something does go wrong and help is a long way and a long time away.

Impact of the proposed changes

MNZ records show there are approximately 12 vessels rated to proceed into the unlimited area and 10 in the 500 GT and over category in the existing domestic commercial fleet. Analysis of these vessels indicates most are already carrying this equipment.

Options analysis

Three options were considered.

Option 1: (Status quo). Retain current rules. New Zealand would not have fully implemented SOLAS requirements for navigation systems and equipment; and non-SOLAS vessels over 500 GT and vessels proceeding in the unlimited area may carry inadequate navigation equipment.

Option 2: (Preferred option). Additional navigation systems and equipment requirements to better align with SOLAS for vessels of 500 GT or over, passenger vessels 24m LLL or more operating within restricted limits and vessels that proceed into the unlimited area. This represents alignment with SOLAS where it is required under SOLAS, and where flexibility is available New Zealand has chosen to exercise it.

Option 3: Full alignment with the SOLAS requirements and no or limited exercise of the flexibility allowed to nation states.

How do the options compare against the status quo

The following criteria have been used to assess the alternative option. Refer to Table 7 for an assessment against these criteria.

The changes provide flexible and adaptive regulation:

Under Option 2 and 3 navigation requirements would better align with international requirements and standards. Locating the new requirements in a schedule to the MTI is expected to result in a faster amendment process in future when amendments to SOLAS and IMO resolutions and technical standards are issued.

Rules are clear and easier to understand and apply:

Options 2 and 3 would set clear requirements that apply to all vessels.

Maritime safety is maintained or enhanced:

Options 2 and 3 would enhance and maintain safety as the additional navigation systems and equipment is required to keep vessels safe.

Changes are practical and economically viable:

Option 2 is straightforward to implement. The rule change will mostly not require the existing domestic commercial fleet to upgrade as they already carry the systems and equipment, the rule changes are just codifying what already happens in practice. Costs are expected to be neutral or minor.

Option 3 costs are expected to be significant.

Table 7: Comparing options for additional navigation systems and equipment to align with SOLAS against the status quo

	1. Status Quo	2. Partial alignment with SOLAS, flexibility exercised	3. Full alignment with SOLAS, limited or no flexibility exercised
Provides flexible and adaptive regulation	+	++	+
Rules that are clear and easier to understand and apply	+	+	+
Maritime safety is maintained or enhanced	0	++	++
Changes are practical and economically viable	++	++	-
Overall assessment	+	++	+

Key for qualitative judgements:

- ++ Much better than doing nothing/the status quo/counterfactual
- + Better than doing nothing/the status quo/counterfactual
- 0 About the same as doing nothing/the status quo/counterfactual
- Worse than doing nothing/the status quo/counterfactual
- Much worse than doing nothing/the status quo/counterfactual

Preferred option
Option 2 will ensure that vessels of 500 GT or over, passenger vessels 24m LLL operating in restricted limits and vessels proceeding into the unlimited are equipped with navigation systems and equipment that helps to make the vessel safer and better able to cope with the conditions they face. It meets all criteria, is not cost inhibitive and is better than the status quo.
What are the marginal costs and benefits of the preferred option?
This proposal is expected to be cost neutral or impose minor costs. However, some costs for increased requirements are not clear. There are few existing NZ vessels in the 500 GT or over and vessels proceeding into the unlimited (around 20 vessels total) and many of them already have modern equipment that would meet the proposed standards. We estimate about 47 passenger vessels 24m LLL or more proceeding beyond restricted limits less than 500GT, will be impacted by the increased requirements for GNSS receivers. However,

we are expecting the costs to be minimal as GNSS receivers are common vessel equipment and are already being proposed for the new rules for radio.

However, it is difficult to tell as Maritime NZ holds limited information on equipment on board domestic commercial vessels. From our research we expect the financial impact will be minimal as all the vessels we have investigated already carried equipment that is likely to comply. The rationale for imposing higher standards on these vessels is compelling as they proceed into the unlimited area and experience a high degree of risk as a result. The standards we are proposing will bring them in line with international standards for this type of vessel, risk level and operation.

The marginal costs and benefits are discussed in the table below.

Table 8: Marginal costs and benefits of the preferred option

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Vessel operators	Our research suggests that most vessels in these categories are already carrying this equipment. The one outlier may be AIS. We are unsure to what extent NZ vessels are carrying this equipment.	Neutral - low For most vessels the rule change is an acknowledgement of the equipment they already carry and is deemed necessary. For the few that don't, there would be costs to buy equipment. AIS – Medium	Medium Our research has included use of Maritime NZ records and some conversations with vessel operators in this category.
Additional benefits of the preferred option compared to taking no action			
Vessel operators and people who work on or travel on commercial vessels	Vessels have the equipment to stay safe in the unlimited area, recognising their risk profile.	Medium Increased safety and lowering of risks.	Medium Our research has included use of Maritime NZ records and some conversations with vessel operators in this category.

Questions:

- N 4.1 Do you support the additional equipment requirements for vessels operating in the unlimited area (e.g. radar, AIS, GNSS, echo sounder)?
[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]
Why/why not?
- N 4.2 Are there any other SOLAS navigational requirements you think NZ should adopt to better align with SOLAS and increase safety?
[Answers: list relevant SOLAS navigation requirements; No comment]
- N 4.3 What impacts (costs, benefits, or operational challenges) do you expect from these additional equipment requirements? Or do you already carry this equipment?
[Answers: Yes - outline costs, benefits or operational challenges for your vessel(s); No I already carry this equipment, No comment]

Proposal 5: Compasses on small vessels (Navigation Category 1) would need to be liquid filled

What we are proposing
We propose a new standard for handheld and mounted compasses required by the rules for small Navigation Category 1 ⁸ vessels, would need to be liquid filled rather than dry. ⁹
Status quo and what is the problem / rationale for the change
Currently no standards apply to the construction of handheld compasses carried on small vessels. The rules allow for any type of handheld compass to be carried, and it is up to the surveyor to determine if the compass is suitable for the vessel's operation. The proposed change is a clarification of what is already happening in the industry. Most permanently mounted marine grade compasses are already liquid filled. Dry compasses used for land-based activities such as orienteering are not suitable for navigation at sea.
Impact of the proposed change
The proposed new standard will ensure that handheld and mounted compasses carried on small vessels navigating close to shore are of a suitable standard, without imposing significant costs of requiring compliance with IMO resolution or ISO compass standards. The liquid in liquid-filled compasses stabilizes the magnetic needle and reduces its oscillation time for faster, more accurate readings.
Options analysis
Three options were considered for compasses on small (Navigation Category 1) vessels. Option 1: (Status quo). Any type of compass can be carried and no standards for their construction. Option 2: (Preferred option). Require standard that compasses be liquid filled. Option 3: Require compasses to meet specified technical IMO resolutions and ISO compass standards.

⁸ A Navigation Category 1 ship would be a

- passenger vessel of 6m or less in LOA that does not proceed beyond restricted limits; or
- non-passenger vessel of less than 12m LOA that does not proceed beyond restricted limits; or
- fishing vessel of less than 12m in LOA that does not proceed beyond inshore fishing limits.

⁹ Note: Proposed new standards for mounted compasses carried on Navigation Category 2, 3 and 4 ships are discussed in Proposal 3.

How do the options compare against the status quo?

The following criteria have been used to assess the alternative option.

<i>The changes provide flexible and adaptive regulation:</i>	Options 2 and 3 are both adaptive as they address a changing standard of compass use and construction.
<i>Rules are clear and easier to understand and apply:</i>	Option 3 would clearly specify the relevant standards in the rules. However, these would be higher and more complex requirements than Option 2.
<i>Maritime safety is maintained or enhanced:</i>	Options 2 and 3 would both improve safety.
<i>Changes are practical and economically viable:</i>	Option 2 is straightforward to implement and would improve safety with no or minor costs. Option 3 would involve greater costs as more expensive compasses and mountings would be required.

Table 9: Comparing options for liquid filled compasses and imposing technical standards against the status quo.

	1. Status Quo	2: Liquid filled compass	3: Specify technical standards
Provides flexible and adaptive regulation	0	+	+
Rules that are clear and easier to understand and apply	0	+	+
Maritime safety is maintained or enhanced	0	+	+
Changes are practical and economically viable	0	++	-
Overall assessment	0	++	+

Key for qualitative judgements:

++	Much better than doing nothing/the status quo/counterfactual
+	Better than doing nothing/the status quo/counterfactual
0	About the same as doing nothing/the status quo/counterfactual
-	Worse than doing nothing/the status quo/counterfactual
--	Much worse than doing nothing/the status quo/counterfactual

Preferred option
Option 2 is the preferred option and requires that compasses on small (Navigation Category 1) vessels be liquid filled. It would be an improvement on the status quo and would increase safety while not imposing undue costs or excessive regulation.
What are the marginal costs and benefits of the preferred option?
This proposal is expected to be cost neutral or reduce transaction costs as most compasses carried will already be liquid filled as they need to be marine grade and suitable to marine conditions. Some operators may need to upgrade to a liquid filled compass, but costs should be no more than \$100 to purchase and \$300 to install if mounted. The marginal costs and benefits are discussed in the table below.

Table 10: Marginal costs and benefits of the preferred option

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Vessel operators	We expect that most vessels compasses will already be liquid filled. However, some operators may need to upgrade, but the costs for a liquid filled handheld compass are low and they are readily available.	Low \$100 or less for handheld \$400 for mounted	Medium We have engaged with experts and the sector.
Additional benefits of the preferred option compared to taking no action			
Vessel owners, operators, people who work on or travel on commercial vessels	Ensuring the compass is suitable to be used in marine conditions will maintain or enhance safety.	Medium	Medium

Questions:

N 5.1 Do you agree that a compass on small (Navigation Category 1) vessels operating in restricted limits / inshore fishing limits should be liquid filled?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 6: Allowing handheld compasses for small tiller steered vessels

What we are proposing
We are proposing to clarify the rules that apply to carrying a handheld compass. Navigation Category 1 vessels that are steered by a tiller would have the option of carrying a handheld compass if no suitable permanent mounting location is available. These would be smaller vessels operating within restricted limits or inshore fishing limits.¹⁰
Status quo and what is the problem / rationale for the change
This proposal would allow greater flexibility for small tiller-controlled vessels such as inflatable boats used by Surf Lifesaving New Zealand to meet compass requirements without compromising safety. While vessels with a steering wheel can mount a compass on the steering wheel console, there is no practical way to mount a compass at the steering position of some small vessels steered by a tiller. A handheld compass is a pragmatic option. The current rules on the use of a handheld compass are ambiguous and not clearly stated in the current rules, although they have been implemented allowing for handheld compass use in some circumstances.
Impact of the proposed changes
This proposal is not expected to impact the existing domestic commercial fleet. Analysis of small vessels operating in restricted limits and inshore fishing limits indicates that tiller steered vessels are already carrying handheld compasses. Allowing tiller steered vessels to carry a handheld compass would provide certainty and allow for more flexibility in vessel design. Safety will be maintained, noting that this proposal is made in conjunction with proposals to improve standards for handheld compasses (discussed above in Proposal 5).
Options analysis
Two options were considered. Option 1: (Status quo). Retain current rules. It is unclear whether passenger and fishing vessels less than 6 metres and operating in restricted limits and inshore fishing limits can carry handheld compasses. Other small vessels operating in inshore limits must carry mounted compasses or must apply for an exemption.

¹⁰ A Navigation Category 1 vessel would be a passenger vessel of 6 metres or less in LOA that does not proceed beyond restricted limits; a non-passenger vessel of less than 12 metres in LOA that does not proceed beyond restricted limits; or a fishing vessel of less than 12 metres in LOA that does not proceed beyond inshore fishing limits. This is a combination of previous categories in rules 45.22 and 45.23.

Option 2: (Preferred option). Allow handheld compasses on tiller steered Navigation Category 1 small vessels operating within restricted limits or inshore fishing limits, if no suitable permanent compass mounting location is available.

Options 3: allow for all Navigation Category 1 vessels to carry a handheld compass.

How do the options compare against the status quo

The following criteria have been used to assess the alternative option. Refer to Table 11 for an assessment against these criteria.

<i>The changes provide flexible and adaptive regulation:</i>	Options 2 and 3 allow for greater flexibility to carry a compass suitable to the design and operation of the vessel.
<i>Rules are clear and easier to understand and apply:</i>	Options 2 and 3 would set clear requirements that apply to all vessels.
<i>Maritime safety is maintained or enhanced:</i>	Option 2 would maintain safety as the compass is better suited to the design and operation of the vessel. Option 3 may result in an overall drop in safety across the existing domestic commercial fleet.
<i>Changes are practical and economically viable:</i>	Options 2 and 3 are straightforward to implement. Our research shows the rule change will not require upgrades to the existing domestic commercial fleet as the changes allow for greater flexibly in compass choice. Costs would be neutral or reduce.

Table11: Comparing options for allowing handheld compasses for small tiller steered vessels against the status quo

	1. Status Quo	2. Compass requirement based on tiller or steering wheel	3. all Category 1 vessels can carry handheld compasses
Provides flexible and adaptive regulation	0	+	+
Rules that are clear and easier to understand and apply	0	+	+
Maritime safety is maintained or enhanced	0	++	+
Changes are practical and economically viable	0	++	++
Overall assessment	0	+	

Key for qualitative judgements:

- ++ Much better than doing nothing/the status quo/counterfactual
- + Better than doing nothing/the status quo/counterfactual
- 0 About the same as doing nothing/the status quo/counterfactual
- Worse than doing nothing/the status quo/counterfactual
- Much worse than doing nothing/the status quo/counterfactual

Preferred option
Option 2 is the preferred option as it allows for greater flexibility to meet safety requirements while not lowering safety requirements as our research suggests tiller steered boats are currently carrying handheld compasses rather than mounted. It meets all criteria and is better than the status quo.
What are the marginal costs and benefits of the preferred option?
This proposal is expected to be cost neutral or reduce transaction costs. The marginal costs and benefits are discussed in the table below.

Table 12: Marginal costs and benefits of the preferred option

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Vessel operators	The proposal is not expected to impact the existing domestic commercial fleet. Also, a surveyor can approve a different compass arrangement if appropriate.	Low Some vessels would have the flexibility to carry a handheld compass that suits the vessel operation. This would reduce costs for some operators.	High Any costs would only impact a small number of vessels.
Additional benefits of the preferred option compared to taking no action			
Vessel operators	Some operations would have more flexibility to carry a handheld compass.	Medium A reduction of costs where a vessel may have previously been required to have a mounted compass.	Medium

Questions:

- N 6.1 Do you agree that Category 1 small tiller steered vessels operating close to shore within inshore/restricted limits should be able to carry handheld compasses where no suitable mounting location is available?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

- N 6.2 Do you agree that allowing a handheld compass for tiller-steered vessels is a practical solution for small vessels without easy mounting options?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 7: Allowing alternative options to carrying a sextant and a chronometer

What we are proposing
Vessels that proceed in the unlimited area (beyond 200 nautical miles) would be allowed to carry alternatives to a sextant and a chronometer, provided those alternatives can perform equivalent functions. Electronic alternatives to a sextant and a chronometer would need to be provided with a backup (emergency) source of electrical power. Non-electronic chronometer equivalents such as atomic clocks would also be allowed. This proposal would not apply to fishing vessels of 24 metres or more or SOLAS vessels.¹¹
Status quo
Under the current rules, a commercial vessel that proceeds in the unlimited area must carry a sextant and a chronometer. SOLAS has not required vessels to carry sextants or chronometers since 2002. The New Zealand rules for sextants and chronometers have been in place for 26 years and this requirement is at odds with most other nation states who no longer require vessels proceeding internationally or into unlimited waters to carry them.
What is the problem / rationale for the change?
Sextants and chronometers have become outdated technology. They are no longer required by most jurisdictions and are no longer specifically required under SOLAS rules. However, a reliable alternative means of navigation in all weather and operational conditions still needs to be available for vessels that proceed in the unlimited area. Given advances in technology, it is appropriate to provide vessels with the option to carry other forms of reliable timekeeping besides a chronometer, and other forms of calculating position besides a sextant.
Impact of the proposed change
This proposal provides vessels that proceed in the unlimited area with flexibility in how to accurately keep time and establish position. This proposal would benefit around 12 New Zealand vessels that proceed in the unlimited area and are not SOLAS or Cape Town Fishing Vessels.

¹¹ Part 2A SOLAS Ships and Part 404 Cape Town Fishing Vessels would apply to these vessels.

Options analysis

Three options were considered:

Option 1: (Status quo). Require sextant and chronometer.

Option 2: Allow for modern equivalents of chronometers, such as atomic clocks, to be carried instead of a chronometer (and continue to require a sextant).

Option 3: (Preferred option). Allow for modern equivalents to chronometers (that is, Option 2) and also allow for electronic forms of navigational aid with a backup power supply to be carried instead of a sextant and chronometer (or chronometer equivalent).

How do the options compare against the status quo

The following criteria have been used to assess the alternative options. Refer to Table 13 for an assessment against these criteria.

The changes provide flexible and adaptive regulation:

Options 2 and 3 would be adaptive by responding to advances in navigational technology.

Option 3 acknowledges technological advances to a greater degree by allowing for electronic navigational aids.

Rules are clear and easier to understand and apply:

Option 2 and 3 are straightforward. One set of requirements would apply to all vessels proceeding into the unlimited area.

Maritime safety is maintained or enhanced:

Options 2 and 3 offer a similar level of safety compared with the status quo. While sextants and chronometers have the advantage of being analogue and not reliant on a power source, they are not used often by modern seafarers who likely lack experience in their use which can lead to navigational errors. Electronic navigational aids are now in standard use and seafarers are more likely to be knowledgeable about their use, which reduces the likelihood of making errors. An emergency backup power supply makes the electronic navigational aids comparable in reliability to sextants and chronometers.

Changes are practical and economically viable:

Option 2 allows for chronometer equivalents however these can be costly.

Option 3 allows for either a sextant or chronometer / chronometer equivalent or an electronic navigational aid with backup power supply to be carried. This is cost effective as most vessels already carry electronic navigational aids. It is possible that installing back up electricity supply could incur some cost, however it is good practice for vessels traveling in the unlimited area to have an alternative power supply, and any costs would

be offset by no longer having to carry a sextant and chronometer.

Table 13: Comparing options against the status quo of allowing flexibility for equivalent to sextant and chronometers

	1. Status Quo	2: Sextant and chronometer or chronometer equivalent	2: Electronic navigation aid with backup power supply, plus Option 2
Provides flexible and adaptive regulation	0	+	++
Rules that are clear and easier to understand and apply	0	+	+
Maritime safety is maintained or enhanced	0	+	++
Changes are practical and economically viable	0	0	+
Overall assessment	0	+	++

Key for qualitative judgements:

- ++ Much better than doing nothing/the status quo/counterfactual
- + Better than doing nothing/the status quo/counterfactual
- 0 About the same as doing nothing/the status quo/counterfactual
- Worse than doing nothing/the status quo/counterfactual
- Much worse than doing nothing/the status quo/counterfactual

Preferred option
Option 3 is the preferred option as it allows for vessels to either carry a sextant and chronometer (or chronometer equivalent), or an electronic navigational aid and backup power supply. It meets all criteria, is better than the status quo, and acknowledges the realities of electronic navigation being preferred by most vessels while still maintaining safety.
What are the marginal costs and benefits of the preferred option?
This proposal is expected to be cost neutral or reduce costs, because most vessels already carry electronic navigational aids, and the changing from a sextant and chronometer to equivalent, to carrying electronic navigation aids with backup electricity supplies is optional. The marginal costs and benefits are discussed in the table below.

Table 14: Marginal costs and benefits of the preferred option

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Vessel operators	Allowing electronic navigational aids and chronometer equivalents gives vessels flexibility to carry what best suits their operations. In some cases, there may be a cost to switching to the preferred navigational item, but switching is optional.	Low	High
Additional benefits of the preferred option compared to taking no action			
Vessel operators, Crew and persons travelling on board	The rule change better reflects the equipment onboard and in use on these vessels. There may be a cost saving where vessels are no longer required to carry dated equipment they do not use.	Medium	High

Question:

- N 7.1 Do you agree that vessels proceeding into the unlimited should not need to carry a sextant and chronometer where an appropriate electronic navigational aid with backup power supply is available?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 8: More mariners would be able to train as a Compass Adjuster

What we are proposing

Under this proposal, a broader range of qualified mariners would be able to train and then work as compass adjusters.

The current requirements would remain in place. These are:

- a compass adjuster must pass a training course acceptable to the Director; and
- must have a base qualification and experience as either a master mariner, a chief mate or a Sub-specialist Navigation Officer in the Royal New Zealand Navy.¹²

In addition, a person could also be recognised as a compass adjuster if they complete a training course and hold one of the following certificates issued under Maritime Rules Part 32:

- a certificate of competency as a Master on ships less than 500 GT; or
- a certificate of competency as a Chief Mate on ships less than 3,000 GT; or
- a certificate of competency as a Chief Mate Yacht; or
- a certificate of competency as a Master Yacht less than 500 GT; or
- a certificate of competency as a Skipper Fishing Vessel – Unlimited.

A person holding one of these certificates would also need to:

- when making an application to be a compass adjuster for the first time, establish that they have assisted in four compass adjustments, including at least one adjustment on each category of ships (1-4 as described in Proposal 1 of this document). These would need to be supervised and signed off as accurate by a recognised compass adjuster.

Status quo and what is the problem / rationale for the change

Proposed rule changes may increase demand for Compass Adjusters

The proposed changes to the Navigation Rules could lead to a short-term increase in the demand for compass adjusters to certify existing compasses as ISO compliant. This increase in demand is dependent on how modern the compass is and how easy it is to tell what ISO standards the compass was constructed under. We expect that in most cases a surveyor would be able to tell if a compass complies without the need to consult a compass adjuster. Under Proposal 3, if documentation confirming compliance does not exist, then a compass adjuster would need to assess the compass to confirm compliance with the relevant ISO standard. A 10-year transition provision would apply to help accommodate the potential rise in demand for compass adjusters and to spread any costs required to meet the standards. Around 1,000

¹² Refer rule 45.35. A certificate of competency as Master or Chief Mate, or have worked as a Sub-specialist Navigation Officer in the Royal New Zealand Navy; and hold a certificate proving that the person has passed a compass adjuster's course acceptable to the Director.

vessels may be impacted by Proposal 3, although most are expected to have modern compasses that meet the standards and would not need a compass adjuster assessment.

New Zealand needs more Compass Adjusters

All seven New Zealand compass adjusters are at retirement age and may retire in the next decade. Compass Adjusters, Maritime NZ and the maritime sector all acknowledge that New Zealand needs a succession plan to recognise more compass adjusters. As the regulator, Maritime NZ needs to ensure that compass adjustment is available in New Zealand. The alternative is that vessel operators would need to import international adjusters, who would also need to be approved by the Director of Maritime NZ to meet the current and proposed rule requirements – at considerable cost.

The current settings significantly restrict the number of people who can be a compass adjuster

Only a small percentage of mariners hold certificates as a master mariner or a chief mate or have trained as a sub-specialist navigation officer in the Royal New Zealand Navy. And only some mariners from this small pool wish to be a compass adjuster.

Expanding the number of qualified mariners who can train as compass adjusters should lead to an increase in the number of people interested in training and working as a compass adjuster. This approach would align New Zealand with the approach used in Australia and Canada, where a compass adjuster does not need to hold a base qualification and experience as a master mariner or equivalent.

Other issues will still need to be resolved

Expanding the pool of people who can potentially qualify as a compass adjuster would go some way towards increasing the number of compass adjusters available to work in New Zealand. However, in addition to rule changes, some other steps will also be required.

NZ does not have a Compass Adjuster course

New Zealand does not currently have a dedicated compass adjustment course available. The Manukau Institute of Technology teaches a Master Mariners course, but it is unclear if this course qualifies a graduate to adjust compasses. Maritime NZ has previously worked with the sector to establish a course in New Zealand. However, providers have indicated that it is not financially viable to deliver a course of this type due to low demand. Part of implementing the changes to the Navigation Rules will include work to address this issue.

Maritime NZ does not have standards or criteria guiding Director decisions on recognition of Compass Adjusters or training courses

While the current rules describe a process for recognising compass adjusters, criteria¹³ to guide the Director's decisions about courses that would appropriately qualify compass adjusters have not been developed. The current compass adjusters were recognised many years ago and records of those decisions are not available. Part of implementing the changes to the Navigation Rules will include work to develop a structured recognition framework.

¹³ For example, competency standards

Impact of the proposed change	
This proposal is not expected to have any direct cost to the existing domestic commercial fleet. Over time, the cost of compass adjustment may reduce if more compass adjusters are available. Allowing a broader range of qualified mariners to be able to train and then work as compass adjusters would be an important step toward increasing the number of compass adjusters in New Zealand. However, it will not address the lack of compass adjustment training courses in New Zealand, or which courses should be recognised. These issues may not be settled by the time the new rules come into effect. These issues will be worked through and solutions reached, as part of implementation of the new rules.	
Options analysis	
Three options were considered. Option 1: (Status quo). Compass adjusters are master mariners or equivalent who can adjust all compass types on all vessels. Option 2: (preferred option). Allow a broader range of qualified mariners to be able to train and then work as compass adjusters. Require additional supervised experience for those with base qualifications less than the master mariner, chief mates and naval equivalents. Option 3: Allow recognised surveyors and a wide range of qualified mariners who have completed an appropriate compass adjustment course to perform compass adjusting on smaller vessels with simple compasses.	
How do the options to allowing more mariners to train as a Compass Adjuster compare against the status quo?	
The following criteria have been used to assess the alternative option. Refer to Table 15 for an assessment against these criteria.	
<i>The changes provide flexible and adaptive regulation:</i>	Options 2 and 3 are both adaptive as they would address a deficiency in the current rules.
<i>Rules are clear and easier to understand and apply:</i>	Options 2 and 3 clearly specify the relevant responsibilities. These would align with sector practice and other international maritime regulatory settings.
<i>Maritime safety is maintained or enhanced:</i>	Options 2 and 3 would both improve safety as they would result in compasses being checked for accuracy by an appropriately qualified person. However, option 3 would lower the standard of adjustment significantly from where it is now, while option 2 is a compromise between continuing to require higher qualification

	standards and qualifying a greater number of compass adjusters.
<i>Changes are practical and economically viable:</i>	Retaining the status quo is not deemed viable. New Zealand is likely to lose all its compass adjusters to retirement within a decade and there are no new adjusters to take their place. Options 2 and 3 require further work to be done during the rule implementation phase. Maritime NZ will need to work with the sector and training providers to establish a training course and recognition framework for the new tiers of compass adjuster. It is unclear how much this would cost and where the costs will fall.

Table 15: Comparing options of allowing more mariners to train as a Compass Adjuster against the status quo

	1. Status Quo	2: Broader range of maritime certificates recognised, experiential element to training	3: Allow recognised marine surveyor and lesser maritime certificates for simple compass adjustment
Provides flexible and adaptive regulation	0	++	++
Rules that are clear and easier to understand and apply	0	++	+
Maritime safety is maintained or enhanced	0	++	+
Changes are practical and economically viable	0	+	+
Overall assessment	0	++	+

Key for qualitative judgements:

- ++ Much better than doing nothing/the status quo/counterfactual
- + Better than doing nothing/the status quo/counterfactual
- 0 About the same as doing nothing/the status quo/counterfactual
- Worse than doing nothing/the status quo/counterfactual
- Much worse than doing nothing/the status quo/counterfactual

Preferred option
Option 2 is the preferred option. It represents an improvement on the status quo which cannot continue and is enabling of more compass adjusters to be qualified and recognised, while maintaining safety standards for compass adjustment.
What are the marginal costs and benefits of the preferred option?
This proposal is expected to be cost neutral or reduce transaction costs for compass adjustment. There will be consequential costs for implementing the new approach to recognising and training compass adjusters. The marginal costs and benefits are discussed in the table below.

Table 16: Marginal costs and benefits of the preferred option

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Maritime NZ and educational institutions	Costs of setting up and running courses and recognising new compass adjusters.	High	High
Persons who wish to be qualified and recognised as compass adjusters	Costs of getting qualified.	Medium	High
Additional benefits of the preferred option compared to taking no action			
Vessel owners and operators	Greater access to compass adjustment. May reduce costs of compass adjustment over time.	High	High
People who work on or travel on commercial vessels	Standards of compass safety will improve.	Medium	Medium
Prospective new compass adjusters	Being a compass adjuster will be an option for a broader range of maritime professionals.	Medium	High

The regulatory system	The integrity of the regulatory system is maintained.	High	High
-----------------------	---	------	------

Questions:

N 8.1 Do you support expanding eligibility so a broader range of qualified mariners can train and work as compass adjusters?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

N 8.2 Do you agree with the proposed qualification and experience requirements (including supervised adjustments) for new compass adjusters?

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

N 8.3 Do you agree this proposal will help address the anticipated shortage of compass adjusters in New Zealand? Please explain.

[Answers: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

How to have your say

The deadline for providing comment on these proposals is **5pm on Friday 25 September 2026**.

This document is part of a package of documents on the proposed changes to the DCE rules. Information on this consultation will be available on Maritime NZ's website and through Maritime NZ's SeaChange newsletter.

Subject to interest, Maritime NZ will hold online information sessions on the proposals during the weeks of **17 to 21 August and 7 to 11 September**. Please contact us at the email address provided below if you would like to attend a session or if you would like us to contact you to discuss any of the proposals.

We welcome any feedback you would like to provide. Submissions can be made by completing the submission form on our website <https://www.maritimenz.govt.nz/about-us/consultations/dce-40-series-package-3> or in any other written form; and:

- emailed to us at 40.series@maritimenz.govt.nz; or
- posted to the Regulatory Reform Projects Team, Maritime NZ, PO Box 25620, Wellington 6140.

This document includes questions to help you focus your feedback. Answering the questions is optional.

Submissions are public information

Please let us know if your comments are commercially sensitive or if for some reason you consider they should not be disclosed. If your submission is subject to an Official Information Act (OIA) request, Maritime NZ will consider your confidentiality request in accordance with the grounds for withholding information set out in the OIA.

In addition, if you are an individual (that is your comments are made personally and not on behalf of a company or an organisation), please let us know if you have reasons that your identity should not be disclosed.

We will acknowledge all submissions that we receive.

Appendix 1: ‘Snapshot’ of the proposed changes to the current navigation rules

Main changes	What would change	How the proposal would apply	Rule reference
Combining vessel categories	The current rules have 5 vessel categories, that would reduce to 4 in this ruleset for applying navigation systems and equipment requirements. The new vessel categories would be: Navigation Category 1: Small vessels (<12 metres LOA, or ≤6 metres LOA if a passenger vessel) that do not proceed beyond restricted limits or inshore fishing limits. Navigation Category 2: Passenger vessels less than 24 metres LLL and 500 GT that do not proceed beyond offshore limits and are not Category 1 vessels. Other vessels less than 500 GT that do not proceed beyond offshore limits and are not Category 1 vessels. Navigation Category 3: Vessels less than 500 GT that are not Category 1, Category 2, SOLAS, or Cape Town vessels. Navigation Category 4: Vessels 500 GT or more that do not proceed beyond restricted limits and are not SOLAS or Cape Town vessels. Navigation requirements for SOLAS vessels would move to the new Part 2A SOLAS vessels; and requirements for fishing vessels of 24 metres or more in length would move to Part 404 Cape Town Fishing Vessels. Both are to be consulted on as part of Package 4.	Would apply to all vessels in the domestic commercial fleet when the new rules take effect.	Rule C1.1

Main changes	What would change	How the proposal would apply	Rule reference
Allowing the second compass to be electronic	If a ship requires a second compass, it could be electronic. An electronic compass could be a satellite (GNSS), gyro or fluxgate compass. An electronic compass would require an alternative source of electricity and would need to interface with a suitable Marine Transmitting Heading Device.	Would apply to some vessels in navigation category 2 and all vessels in navigation categories 3 and 4. Would apply when the new rules take effect.	MTI 2.4(2)(a), 2.5(2)(b)(ii), 2.6(2)(b)(i), 3.2(4).
Compasses and other navigational systems and equipment would need to meet technical performance standards	Compasses and navigation systems and equipment would be required to meet appropriate IMO resolutions and technical standards. A surveyor would confirm that compasses and other navigation systems and equipment meet the standards at the next periodic survey. Where the standard for a magnetic compass is not evident, a compass adjuster would need to determine whether the compass meets the ISO standard or needs to be upgraded.	Would apply to all vessels, except those in the small vessels Inshore/restricted and inshore fishing category 1. Ten-year transition would apply to any magnetic compass upgrades required for all vessels impacted in categories 2 - 4.	Rule D3.1 MTI Section 3

Part 3K Navigation Systems and Equipment Proposal Summary

Main changes	What would change	How the proposal would apply	Rule reference
Additional navigation systems and equipment to align with SOLAS	In accordance with SOLAS, vessels would be required to carry the following additional navigational systems and equipment: Navigation Category 3 passenger vessels $\geq 24\text{m}$ LLL that proceed beyond restricted limits: - GNSS receiver Navigation Category 3 vessels ≥ 300 GT that proceed into the unlimited area: - Echo sounder - GNSS receiver - Radar - AIS Navigation Category 4: - AIS - ATA - Signalling day lamp - Additional requirements for ship over 3000, 10000, and 50000 GT.	Would apply to category 3 and 4 vessels. Would apply when the new rules take effect.	MTI 2.5(4), (5) & (6), and 2.6 (6), (10), (11), (12), (13) & (17).
Allowing handheld compasses for small tiller steered vessels	Tiller steered vessels operating in restricted limits and inshore fishing limits would be able to carry a handheld compass where a there is no suitable mounting position for a compass.	Would apply to all vessels in the small vessels Inshore/restricted and inshore fishing navigation category 1. Would apply when the new rules take effect.	MTI C3.2(2)

Main changes	What would change	How the proposal would apply	Rule reference
Allowing alternative options to carrying a sextant and a chronometer	Vessels that are currently required to carry a sextant and a chronometer would be allowed to carry alternatives that perform equivalent functions. If the alternative is electronic, it would require an alternative source of electrical power.	Would apply to all vessels proceeding into the unlimited. Would apply when the new rules take effect.	Rule D2.1(3) MTI 2.7
Compasses on small category 1 vessels must be liquid filled	Compasses carried on board a small category 1 vessel must be liquid filled. This is a clarification rather than a change as most marine compasses will already be liquid filled.	Would apply to all vessels in the small vessels Inshore/ restricted and inshore fishing navigation category 1. Would apply when the new rules take effect.	MTI 3.2(1)(a)

Main changes	What would change	How the proposal would apply	Rule reference
Compass adjuster recognition opened up to more mariners	In addition to a master mariner, a chief mate or a sub-specialist navigation officer in the Royal New Zealand Navy (the same qualifications that are currently required under Part 45¹⁴), a person could also be recognised as a compass adjuster if they have a base qualification and experience as either: - a certificate of competency as a master on ships less than 500 GT; or - a certificate of competency as a chief mate on ships less than 3000 GT; or - a certificate of competency as a chief mate yacht; or - a certificate of competency as a master yacht less than 500GT; or - a certificate of competency as a skipper fishing vessel – unlimited (as outlined under current Rule Part 32). In addition to having the one of the above listed base qualifications and a compass adjustment course, mariners with less than a master mariner, a chief mate or a sub-specialist navigation officer in the Royal New Zealand Navy qualifications must do four compass swings, with at least one swing on each type of the category 2-4 vessels supervised and signed off as accurate by a certified compass adjuster.	Would apply to compass adjusters. A suitable compass adjuster course needs to be developed. Would apply when the new rules take effect.	Rule Section 6. MTI Section 6.

¹⁴ A certificate of competency as Master or Chief Mate or have worked as a Sub-specialist Navigation Officer in the Royal New Zealand Navy; and hold a certificate proving that the person has passed a compass adjuster's course acceptable to the Director.

Appendix 2: Navigation systems & equipment requirements according to Navigation Category

Equipment / System	Navigation Category 1	Navigation Category 2	Navigation Category 3	Navigation Category 4
Binoculars	Required if > 6 metres. Required if ≤6 metres operating at night.	Required.	Required.	Required.
Magnetic compass	Required (permanently installed). Handheld only if tiller-steered.	1 magnetic compass required. If 2 compasses required, 1 magnetic.	2 compasses in total required, 1 magnetic.	2 compasses in total required, 1 magnetic.
Steering compass	Not required.	Required (magnetic or electronic). Must be forward of wheel, visible.	Required (magnetic, electronic, or gyro).	Required (magnetic, electronic, or gyro) or a suitable heading repeater.
Additional compass	Not required.	Required if steering electronic compass or poorly located.	Required (magnetic, electronic, or gyro).	Required (electronic or gyro).
Gyro-compass	Not required.		Optional (counts as second compass).	Optional; if fitted ≥1600 GT, gyro-repeaters and bearing equip required.
BNWAS	Not required.	Required if ≥24 m LLL.	Required if ≥24 m LLL.	Required for all.
Radar	Not required.		Required if ≥300 GT and proceeds into unlimited area.	1 radar (non-passenger).
Automatic radar plotter / ARPA / ATA	Not required.		Not required.	Automatic radar plotter required. ARPA if ≥10,000 GT. 2 ATA if ≥3,000 GT.
GNSS receiver	Not required.		Required if passenger ship >12 passengers. Required if ≥300 GT and unlimited area.	Required.

Part 3K Navigation Systems and Equipment Proposal Summary

Equipment / System	Navigation Category 1	Navigation Category 2	Navigation Category 3	Navigation Category 4
Echo-sounding device	Not required.		Required if ≥ 300 GT and unlimited area.	Required.
Speed & distance log	Not required.			Required if $\geq 10,000$ GT.
THD	Not required.			Required.
Rudder angle indicator	Not required.			Required if power-operated steering gear is fitted.
Propeller RPM indicator	Not required.			Required for each propeller.
Pitch / Mode indicators	Not required.			Required for variable-pitch and lateral-thrust propellers.
Signalling daylight lamps or alternative	Not required.			Required.
Emergency steering comms	Not required.			Required: comm link plus heading repeater.
AIS	Not required.		Required if ≥ 300 GT and unlimited area.	Required.
Sextant / Chronometer/ Electronic nav aid	Not required		Required when ship in unlimited area and no electronic navigational aid	Not required