Part 3E: Machinery and Ancillary 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: Life-saving Appliances, Fire Protection, Machinery and Ancillary Equipment, and Anchors and Cables. This document is the proposal summary for Machinery and Ancillary Equipment.
- *Draft Maritime Rules and draft Maritime Transport Instruments (MTIs)* – a set of rules and MTIs for each of the four Rule topics.
- *What does this mean for me* – the main implications of the proposed changes for 14 representative vessels we consider reflect the majority of the New Zealand domestic commercial fleet.
- A template to support preparation of your submission.

These documents, and other supporting information, can be accessed at https://www.maritimenz.govt.nz/public/consultation/dce-40-series-package-1/

Contents

Note: This document refers to maritime incidents where people were injured or died. Specific incidents referred to are the i-Catcher and the Jubilee.

Purpose of this document

1. Maritime New Zealand - Nō te rere moana Aotearoa (Maritime NZ) is proposing significant reform of the Maritime Rules for vessel design, construction and equipment (the DCE Rules).
2. This document provides the detailed analysis of the proposed new Machinery and Ancillary Equipment Rules and Maritime Transport Instrument (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. This information is intended to meet the Government's Regulatory Impact Analysis requirements.
3. This document should be read in combination with the Overview of the Consultation package (Invitation to Comment) that is available on Maritime NZ's website at https://www.maritimenz.govt.nz/public/consultation/dce-40-series-package-1/

> 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'.

Introduction to Machinery and Ancillary Equipment

4. The Machinery and Ancillary Equipment rules bring together a range of sub-topics in which machinery plays a part. The propulsion engine is often referred to as the 'main machinery'. This is typically in internal combustion engine running on petrol or diesel, so the requirements for tanks are also included. Other machinery includes bilge pumps, which are connected to pipe work – as ancillary equipment.
5. Generally machinery is not an area where significant issues with current requirements have been identified. Much of the content is the same or similar across the rules for passenger, non-passenger, fishing and sailing vessels. The proposed approach to the rules for Machinery and Ancillary Equipment aligns requirements, where practical.

Reasons change is needed

6. Many current requirements will be carried over to the new rules with no or only minor amendments. The few areas where we propose change are outlined below.
   - **Some rules have not kept pace with sector changes** – for example the use of plastic seawater pipe and non-metal fuel tanks are currently restricted despite being allowed in other countries.
   - **Some rules are too onerous** – for example the required emergency power capacity for electrically powered bilge pumps in vessels operating in enclosed, inshore and coastal limits; or recognising that requiring bilge drainage systems in an open boat of less than 12 metres may not provide a safety benefit.
   - **Some rules have not kept pace with developments in safety technology** – for example having an indicator to warn of abnormal engine conditions, and the ability to stop the engine and cut of the fuel supply in an emergency.

Summary of proposed changes

7. The changes proposed in the new Machinery and Ancillary Equipment Rules and Maritime Transport Instrument are outlined in the tables below under the following proposal headings and summarised in Appendix 1:
   - **Proposal 1: Changes to fuel system rules**
   - **Proposal 2: Changes to main and auxiliary machinery rules**
   - **Proposal 3: Allowing plastic for use in sea water piping and bilge piping**
   - **Proposal 4: Consolidating and harmonising rules for number, type and capacity of bilge pumps**
   - **Proposal 5: Requirements for additional bilge level alarms**
   - **Proposal 6: Changes to bilge system arrangements**
   - **Proposal 7: Changes to requirements for electrically powered bilge pumps**
8. The tables provides a summary of the proposed changes, the rationale for those changes and the potential impacts (both negative and positive).

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

9. The proposed Machinery and Ancillary Equipment rules and maritime transport instrument have been tested against 14 representative vessels that we consider represent the majority of the New Zealand domestic commercial fleet. These 'worked examples' help to illustrate what the new rules will do. A blank template is provided to enable readers to undertake their own assessment by applying the rules and MTI to their specific circumstances. The 'worked examples and blank template are available on the website page at: https://www.maritimenz.govt.nz/public/consultation/dce-40-series-package-1/
10. In addition, a 'snapshot' of the proposed Machinery and Ancillary Equipment changes by vessel type, length and operating limit is included in Appendix 1 to this document.

> Please note that we cannot guarantee that this document includes all changes that may have an impact on a vessel or operation. Therefore we strongly recommend you also refer to the draft rule and maritime transport instrument.

Proposal 1: Changes to the Fuel Systems Rules

Two proposals are presented below on different aspects of the fuel system.

What we are proposing	
Fuel tanks: Fibre reinforced plastic (FRP) and thermoplastic fixed-in-place petrol fuel tanks will be allowed. Manufacturing standards and ventilation requirements will apply.	**Roll-over safety valves:** Vessels with a planing hull, less than 12 metres length overall, with a petrol fuel system fitted with a non-portable fuel tank must have a roll over safety valve fitted to the vent pipe, fitted as near as possible to the top of the fuel tank.
Status quo	
The current rules / regulatory environment **Fuel tanks:** Petrol tanks on passenger and non-passenger vessels must be constructed of mild steel, stainless steel or aluminium alloy.	**Roll-over safety valves:** There is currently no requirement for roll-over safety valves on small vessels with petrol fuel systems.
Our understanding of current practice **Fuel tanks:** Operators have needed to seek rule exemptions to use thermoplastic petrol fuel tanks. Others may have continued to use traditional material as the rules limited their options.	**Roll-over safety valves:** It is uncommon for vessels to have roll-over safety valves built in to their fuel systems. These are most likely to be found on small speed boats which have a higher risk of capsize.
What is the problem / rationale for the change?	
Fuel tanks: The current rules are out of date as high-density polyethylene (HDPE) and other thermoplastic tanks are accepted in overseas jurisdictions. Fuel tanks constructed of HDPE are increasingly popular in small vessels because of resistance to corrosion and reduced tendency to sweat causing moisture contamination in fuel.	**Roll-over safety valves:** This proposed change has been introduced following the i-Catcher incident where a petrol leak into the air pocket of the upturned vessel likely contributed to fatalities. A roll-over safety valve would prevent petrol leaking from the fuel system in the event of capsize.
Impact of the proposed change	
Fuel tanks: This proposal does not impact existing vessel arrangements. In future it provides operators with more durable and potentially cheaper options than traditional metal tanks and removes the need to apply for a rule exemption.	**Roll-over safety valves:** We estimate there will be a small cost fit roll over valves to existing fuel systems (a couple of hundred dollars). This would only apply to vessels with a higher risk of capsize due to their size and weight of hull (vessels less than 12m in length with planing hulls).
Mitigating the impacts	
Fuel tanks: No mitigations are required as this change does not impact existing vessel arrangements.	**Roll-over safety valves:** We are proposing a 2 year transition period for vessels to comply with new fuel roll-over safety valve requirements.
Timing / Commencement date	

Fuel tanks: Changes to the fuel system will take effect on commencement of the Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules. The estimated in-force date is currently 2026.	**Roll-over safety valves:** If the rules come in to force in 2026, operators will have until 2028 to meet this requirement (2 year transition period).
Options analysis	
Fuel tanks: Option 1: (Status quo). No changes to existing rules, continue with the status quo, use exemptions for alternative types of fuel tanks Option 2: (Preferred option). Revise the rules as proposed.	**Roll-over safety valves:** Option 1: (Status quo). No changes to existing rules, continue with the status quo. Option 2: (Preferred option). Revise the rules as proposed. Option 3: Use guidance to remind operators of risks and encourage upgrades to include fuel roll-over safety valves.
How do the options compare against the status quo *The changes provide flexible and adaptive regulation*: Option 2 reflects and enables new standards and knowledge to be incorporated into the rules (new types of petrol tank). *Rules are clear and easier to understand and apply*: Option 2 is mostly neutral on this measure. *Maritime safety is maintained or enhanced*: Option 2 seeks to adjust the current safety settings to better reflect risk (e.g. allow for use of different tank materials where risks can be managed). *Changes are practical and economically viable*: There are no costs to allowing new types of tank for operators. Costs of obtaining rule exemptions are removed.	**How do the options compare against the status quo** *The changes provide flexible and adaptive regulation*: Option 2 reflects and enables new standards to be incorporated into the rules. *Rules are clear and easier to understand and apply*: Option 2 is mostly neutral on this measure. *Maritime safety is maintained or enhanced*: Option 2 seeks to adjust the current safety settings to better reflect risk (e.g. manage risk of fuel spillage where risk of capsize is higher). *Changes are practical and economically viable*: Option 2 strikes a balance between requiring safety upgrades while ensuring that costs are imposed where the largest safety benefit can be obtained (i.e. on smaller lightweight vessels that are at higher risk of capsize).

Table 1: Comparing Options against the Status Quo. Changes to Fuel Systems Rules

	1. Status Quo	2: Update safety requirements in rules	3: Guidance about the purpose of the rules (for roll-over safety valves)
Provides flexible and adaptive regulation	0	++	+
Rules that are clear and easier to understand and apply	0	+	+
Maritime safety is maintained or enhanced	0	++	0
Changes are practical and economically viable	0	+	0

Part 3E Machinery and Ancillary Equipment: Proposal summary

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 (proposed rule change to allow FRP and thermoplastic fixed in place petrol fuel tanks) is the preferred option. The status quo would require continued use of exemptions which is expensive for operators.	Option 2 (proposed rule change to require roll-over safety valves for vessels under 12m with petrol fuel systems) is the preferred option.
What are the marginal costs and benefits of the preferred option?	

Table 2: Marginal Costs and Benefits of Changes to Fuel Systems Rules

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Non-monetised costs Vessel owners and operators and surveyors	Users of the Maritime Rules will need to adjust to the new rules.	Low	High
Monetised costs Vessel owners and operators	Fuel tank materials Roll-over safety valves	None $200-$300	High Medium (see notes)
Additional benefits of the preferred option compared to taking no action			
Vessel owners and operators	Removal of exemption costs for using alternative fuel tanks. Provides a potentially cheaper option than traditional materials.	$1500-$2,000	Medium (see notes)
Passengers	Roll-over safety valves reduce risk of petrol leakage in event of capsize causing air pockets to be contaminated	Medium (low probability but high impact event)	High Roll-over safety valves could likely have contributed to better survival outcome in i-Catcher accident.

Assumptions and notes

- Non-monetised costs are based on observations that an investment of time is required for sector participants to understand regulatory changes. These have been assessed as Low because these requirements are expected to be straightforward.
- Cost for roll-over valves are based on estimated cost for part and labour to install. Estimated cost assumes that installation would be straightforward (no more than an hour).
- Monetised benefits are based on a saving of three to six per exemption application @ $245 per hour – the hourly rate fee specified in the Maritime (Charges) Regulations 2014 plus any preparation time.

Part 3E Machinery and Ancillary Equipment: Proposal summary

Implementation
The Rule(s) and Maritime Transport Instrument(s) that will implement this proposal • Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules • Maritime Transport (Machinery and Ancillary Equipment) Instrument [year] The rules and maritime transport instrument are expected to come into force in early 2026. For roll-over safety valves there will be an additional 2 year transition period for operators to meet this new requirement. A second-hand vessel entering the fleet (for example from overseas) would be treated as a new vessel, and would need to meet the new rules.

Question:

M 1.1 Do you agree with the proposed change to allow fibre reinforced plastic (FRP) and thermoplastic fixed-in-place petrol fuel tanks?

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

Why/why not?

M 1.2 Do you agree with the proposed changes to require roll-over safety valves for planing vessels less than 12 metres with petrol fuel systems?

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

Why/why not?

Proposal 2: Changes to Rules for Main and Auxiliary Engines

Two proposals are presented below on different aspects of Main and Auxiliary Engines.

<table>
<tr><th colspan="2">What we are proposing</th></tr>
<tr><td>Engine alarms: Vessels except those with outboard engines less than 120kW must have a visual or audible alarm to indicate abnormal engine conditions.</td><td>Engine shut-down: A remote manual shut down (or kill switch) is required where the engine is not readily accessible from a permanently manned control station.</td></tr>
<tr><th colspan="2">Status quo</th></tr>
<tr><td colspan="2">The current rules / regulatory environment

The current rules do not specify requirements for engine alarms or emergency shut-down.</td></tr>
<tr><td>Our understanding of current practice

Engine alarms: We expect that most vessel engines (inboard engines and larger outboard engines) are already exceeding current rules and will have visual or audible alarms to indicate abnormal conditions.</td><td>

Engine shut-down: We anticipate that most vessels will have readily accessible engines and so remote manual engine shut down would only be needed in rare cases.</td></tr>
<tr><th colspan="2">What is the problem / rationale for the change?</th></tr>
<tr><td colspan="2">The current rules do not require engines to have alarms or remote manual shut-down. Having alarms installed will ensure an operator is alerted to engine abnormalities and potentially reduce risk of engine failure. Requiring remote manual shut-down where an engine is not readily accessible would reduce the risk that an operator is unable shut down the engine in an emergency.

These new proposals also align with requirements in Australia’s NSCV which is one of our project aims (where it is practicable).</td></tr>
<tr><th colspan="2">Impact of the proposed change</th></tr>
<tr><td>Engine alarms: we anticipate that most engines will already have alarms fitted and so this change will not impact many vessels. We estimate that installation of alarms would cost between $400 - $600 for vessels with smaller engines and up to $800 for larger engines.</td><td>Engine shut-down: we anticipate that most engines will be readily accessible so remote manual shut down will only be required in rare cases. We estimate that could cost $1000 - $2000 (depending on how difficult it is to install).</td></tr>
<tr><th colspan="2">Mitigating the impacts</th></tr>
<tr><td colspan="2">Both requirements would be subject to five year transition periods to enable time for operators to meet the new standard.</td></tr>
<tr><th colspan="2">Timing / Commencement date</th></tr>
<tr><td colspan="2">Changes to the fuel system will take effect on commencement of the Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules. The estimated in-force date is currently 2026. With a five year transition period, that would mean operators would have until 2031 to meet these requirements.

A second-hand vessel entering the fleet (for example from overseas) would be treated as a new vessel, and would need to meet the new rules.</td></tr>
</table>

Options analysis

The following options were considered:

Option 1: (Status quo). No rule change – engine alarms and remote shut-down not required.

Option 2: (Preferred option). Rule changes as proposed.

Option 3: Use guidance to remind operators of risks and encourage upgrades to include engine alarms and remote shut-down where not already installed

How does the preferred option compare against the status quo

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

The changes provide flexible and adaptive regulation:	These proposals are unlikely to impact on the flexibility and adaptiveness of the rules.
Rules are clear and easier to understand and apply:	Making engine alarms and ability to manually shut down the engine in an emergency mandatory requirements will provide clear expectations for operators.
Maritime safety is maintained or enhanced:	New requirements will improve maritime safety and align with comparable international jurisdictions (e.g. Australia).
Changes are practical and economically viable:	Changes are unlikely to impact most vessels. We anticipate a small number of vessels would need to make upgrades and transition periods will be provided to allow time to make changes.

Table 3: Comparing options against the status quo. Changes to fuel systems rules

	1. Status Quo	2: Proposed rule changes	3: Guidance and education to encourage change
Provides flexible and adaptive regulation	0	0	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 2 (Rule change to require engine alarms and remote manual shut-down) is the preferred option as it provides clearer expectations for operators and is most likely to enhance maritime safety. Guidance could help encourage change but would not have the same authority as a rule.
What are the marginal costs and benefits of the preferred option?

Table 4: Marginal costs and benefits of Changes to Rules for Main and Auxiliary Engines

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Non-monetised costs Vessel owners and operators and surveyors	Users of the Maritime Rules will need to adjust to the new rules.	Low	High
Monetised costs Vessel owners and operators	Engine alarms Remote manual shut-down	$500-$1000 $1000-$2000	Medium (see notes) Low to Medium (see notes)
Additional benefits of the preferred option compared to taking no action			
Vessel owners and operators	Alarms – will alert operator to engine abnormalities and potentially reduce risk of engine failure.	Low (as most will already have alarms)	High
	Remote shut down – reduces risk of event where unable shut down engine in an emergency.	Low (low probability event but high impact if occurs)	Medium

Assumptions and notes

- Non-monetised costs are based on observations that an investment of time is required for sector participants to understand regulatory changes. These have been assessed as low because these requirements are expected to be straightforward.
- Engine alarms – costs are based on internet research and include an estimate of parts and labour.
- Engine remote manual shut down – costs are given as a range as it is unclear how difficult it will be to retrofit to an existing vessel (it will depend on particular vessel design).

Implementation
The Rule(s) and Maritime Transport Instrument(s) that will implement this proposal • Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules • Maritime Transport (Machinery and Ancillary Equipment) Instrument [year] The rules and maritime transport instrument are expected to come into force in early 2026. With a five year transition period, that would mean operators would have until 2031 to meet these requirements.
Products envisaged to support implementation

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Maritime NZ will provide a short guide for the sector explaining the changes introduced by the new Machinery and Ancillary Equipment rules.

Questions: Machinery and Ancillary Equipment. Changes to Rules for Main and Auxiliary Engines

M 2.1 Do you agree with the proposed changes to require engine alarms?

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

Why/why not?

M 2.2 Do you agree with the proposed change to require remote manual engine shut-down where the engine is not readily accessible?

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

Why/why not?

Proposal 3: Allowing Plastic for Use in Sea Water Piping and Bilge Piping

What we are proposing

The rules for inlets, discharges and sea water piping have been consolidated into one set and carried over into the new Machinery and Ancillary Equipment rules. This does not result in change.

In addition, the proposed new rules will allow plastic sea water piping, including for bilge piping, under these specified conditions:

- Plastic pipe must be located so as to prevent mechanical damage and prevent contact with hot surfaces; and be accessible for inspection.
- To address in-flooding risks, plastic piping must be type approved or otherwise tested and verified by a recognised classification society, notified body or accredited test facility; or designed in accordance with IMO Resolution A.753(18) (excluding the fire endurance test); or designed and manufactured in accordance with AS/NZS 3518.
- The manufacturer of a plastic seawater piping must provide a manufacturer's test certificate confirming that the pipe complies with the specified design strength requirements.
- In an engine space, the risks associated with plastic pipe failure caused by a fire must be managed by having at least two widely separated bilge suctions; and the bilge system must be fitted with an approved ship side valve to prevent in-flooding should the plastic melt or fail. For vessels of less than 24m in length, this is considered a more useful approach than requiring compliance with the fire endurance test specified in IMO Resolution A.753(18).

The new rules reflect the approach adopted in Class Exemption EXA-719.

Status quo

The current rules / regulatory environment

The current rules do not recognise plastic pipe for use in inlets, discharges and sea water piping systems.

What is the problem / rationale for the change?

Our current rules have not kept up with changes in technology and industry practice regarding the use of plastic piping (these are allowed in Australia and by Classification Societies such as Lloyds). Because the current rule is out of date, Maritime NZ has since 2017 enabled their use through exemptions (first a general and now class exemption) subject to certain conditions (see current Class Exemption 719).

Impact of the proposed change

Allowing plastic pipe for use in inlets, discharges and sea water piping systems as an option supports the objective of having rules that are more flexible. It supports sector practice and sets conditions about how plastic pipe may be safely used.

Timing / Commencement date

Changes to the rules for inlets, discharges and sea water piping will take effect on commencement of the Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules. The estimated in-force date is currently early 2026.

These rules and MTI are not proposed to include a transition period because the proposal provides benefits and does not impose additional obligations on operators and vessel owners.

General Context / additional information

This proposal supports the objective of having rules that are risk-based, more flexible and allow for innovation.

Options analysis

Two options were considered:

Option 1: (Status quo). Continue the current approach of excluding the use of plastic pipe for use in inlets, discharges and sea water piping systems and using exemptions where these are used.

Option 2: New rules that allow the use of plastic pipe, with conditions.

How do the options compare against the status quo

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

The changes provide flexible and adaptive regulation:	Option 2 adds another option for vessel operators who wish to use it, and aligns the new rules with Australia.
Rules are clear and easier to understand and apply:	Option 2 is neutral on this criterion. The current rules do not address the use of plastic pipe. However, Option 2 aligns the rules with sector practice, and general and class exemptions
Maritime safety is maintained or enhanced:	Option 2 formalises the use of plastic pipe. The conditions for its use provide a benchmark for installing it safely.
Changes are practical and economically viable:	Option 2 is practical to implement. Plastic pipe is optional. It offers operators savings in convenience, ease of installation and cost.

Table 5: Comparing options against the status quo. Allowing Plastic for Use in Sea Water Piping and Bilge Piping

	1. Status Quo	2: Allow plastic pipe (under certain conditions)
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 (rule change to allow for the use of plastic pipe) is the preferred option. It meets all criteria and is better than the status quo, and removes the need for a class exemption.

What are the marginal costs and benefits of the preferred option?
The use of plastic pipe offers operators the option to make savings in terms of cost (plastic pipe is cheaper than metal pipe), convenience and ease of installation. No costs are imposed.

Table 6: Marginal Costs and Benefits of Allowing Plastic for Use in Sea Water Piping and Bilge Piping

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Non-monetised costs Vessel owners and operators and surveyors	Will need to become familiar with the new rules.	Low	High Proposal is straightforward, & Maritime NZ has engaged with the sector.
Monetised costs	No costs apply. This proposal provides an option for operators to take advantage of.		-
Additional benefits of the preferred option compared to taking no action			
Non-monetised benefits Vessel owners and operators	Supports flexibility by providing another option of pipe material	Medium	High Adds choice, and is supported by the sector.
Monetised benefits Vessel owners and operators	Operators who take up this option could benefit from lower material and installation costs compared with metallic pipe.	Medium	High There is a clear demand for this option

Assumptions and Notes

- The sector supports the use of plastic bilge pipe.
- Inlets, discharges and sea water piping systems tend to wear out over time due to abrasion. As a result, uptake on existing vessels is likely to be gradual, and take place when pipe needs to be replaced.

Implementation
The Rule(s) and Maritime Transport Instrument(s) that will implement this proposal • Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules • Maritime Transport (Machinery and Ancillary Equipment) Instrument [year] The rules and maritime transport instrument are expected to come into force in early 2026. These rules and MTI are not proposed to include a transition period because the proposal provides benefits and does not impose additional obligations on operators and vessel owners.
Products envisaged to support implementation Maritime NZ will provide a short guide for the sector explaining the changes introduced by the new Machinery rules.

Questions:

M 3.1 Do you have any comments on the conditions under which plastic piping may be used?

Proposal 4: Consolidating & Harmonising Rules for the Number, Type and Capacity of Bilge Pumps

What we are proposing

To simplify the rules and reduce duplication, requirements for the number, type and capacity of bilge pumps will be consolidated and harmonised across the different vessel types (passenger, non-passenger, fishing, and sailing). This will align the length thresholds at which bilge pump requirements apply. The proposed requirements are shown below.

Number, capacity and type of bilge pumps

Limits	Ship length (LOA)	Manual pump		Powered pump	
		Quantity	Capacity kL/hr #	Quantity	Capacity kL/hr
Enclosed	Less than 15 m	1	5.5	-	-
	15 m or more and less than 24 m	1	5.5	1	11
	24 m or more and less than 45 m	-	-	2	11
Inshore & Inshore Fishing	Less than 15 m	1	5.5	1	11
	15m or more and less than 24 m	1	5.5	1	11
	24m or more and less than 45 m	-	-	2	11
Coastal & Offshore	Less than 15 m	1	5.5	1	11
	15 m or more and less than 24 m	-	-	2	11
	24 m or more and less than 45 m	-	-	2	15

The new rules propose a middle path between the current rules and the requirements for bilge pumps in Australia (NSCV) and the UK (MCA Workboat Code). The NSCV requires less capacity for vessels of less than 7.5 metres and higher capacity between 7.5 and 15 metres in length. The MCA Workboat Code is based more on the number of persons on board, but broadly requires more capacity for smaller vessels and less capacity for larger vessels than Australia or New Zealand.[1]

Passenger and non-passenger vessels will not be impacted by this proposal, which is very similar to the current rules.

The rules propose a **change for new fishing vessels**, as the current fishing vessel rules do not specify the number, type and capacity of bilge pumps. Existing fishing vessels will be allowed to continue to operate under their current arrangements, as the cost of changing the bilge system would not be justified by improvements to safety. If the bilge system of an existing vessel undergoes a major modification, then the new rules will apply.

Requirements for **sailing vessels** have been aligned with other vessel types, and this will result in a reduction in required capacity of between 4 Kl/hr and – 11 Kl/hr (depending on vessel length and operating limits) for sailing vessels of less than 15 metres in length. Conversely, the required pump capacity for sailing vessels of 15 metres or more and less than 24 metres operating in the coastal and offshore limits will increase by 5.5 Kl/hr. As with fishing vessels, existing sailing vessels will be allowed to continue to operate under their current arrangements, and the new rules will apply if the vessel undergoes a major modification to the bilge system.

Status quo

The current rules / regulatory environment

Passenger and non-passenger vessels share the same requirements for the number, type and capacity of bilge pumps, and the same length thresholds are used.

The current rules only set general bilge requirements for fishing vessels and do not specify the number, type and capacity of bilge pumps.

[1] Assuming that more people travel on a larger vessel.

The rules for sailing vessels use different operating limit and length thresholds to those for passenger and non-passenger vessels.

What is the problem / rationale for the change?

There is no obvious reason why vessels of the same size that operate in the same location should not have the same number, type and capacity of bilge pumps.

Impact of the proposed change

The changes will simplify the rules and make them more straightforward to understand and apply. The impact on costs is marginal – some requirements for new sailing vessels reduce and other requirements increase. In both cases this impact is minor and will apply to a very small number of vessels – perhaps 1 a year.

Mitigation

Existing fishing vessels and sailing vessels will be allowed to continue to operate under their current arrangements (i.e. grandparenting will apply). In the case of fishing vessels and sailing vessels of 15 metres or more and less than 24 metres operating in the coastal and offshore limits, the cost of changing the bilge system would not be justified by improvements to safety. (Note that requirements for other sailing vessels will reduce slightly).

The new rules will apply if a vessel undergoes a major modification to its bilge system.

Timing / Commencement date

Changes to the bilge rules will take effect on commencement of the Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules. The estimated in-force date is currently early 2026.

As noted, existing fishing vessels and sailing vessels will continue to operate under their current arrangements unless the vessel undergoes a major modification to its bilge system.

General Context / additional information

A guiding principle of the reform of the design, construction and equipment rules is that to the extent that is practicable, rules will be consolidated and harmonised across vessel types. The goal is to reduce duplication and complexity, and increase consistency.

Options analysis

Two options were considered:

Option 1: (Status quo). Reproduce the current rules for the number, type and capacity of bilge pumps, with variation in requirements between vessel types.

Option 2: (Preferred option). Improve the long-term usability of the rules by consolidating and harmonising the requirements for the number, type and capacity of bilge pumps across vessel types.

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:	Consolidating and harmonising the rules for the number, type and capacity of bilge pumps makes the rules more straightforward and easier to revise in future.

Rules are clear and easier to understand and apply:	A single set of bilge pumps rules of all vessel types, based on risk, is easier to understand and apply.
Maritime safety is maintained or enhanced:	Option 2 is neutral on this criterion. This proposal does not change safety settings. The reduction in the required pump capacity for sailing vessels brings them into line with other vessels of the same size.
Changes are practical and economically viable:	Option 2 is practical to implement. Most settings are unchanged. Several settings for sailing vessels reduce requirements and one setting increases requirements. Requirements for fishing vessels are introduced. Grandparenting provisions mean that existing vessels are not directly impacted by changes.

Table 7: Comparing options against the status quo. : Consolidating and harmonising the rules for the number, type and capacity of bilge pumps.

	1. Status Quo	2: Consolidating and harmonising the rules for the number, type and capacity of bilge pumps
Provides flexible and adaptive regulation	0	+
Rules that are clear and easier to understand and apply	0	+
Maritime safety is maintained or enhanced	0	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 Two (consolidating and harmonising the requirements for the number, type and capacity of bilge pumps) is the preferred option. It is part of a long term improvement to the status quo aimed at reducing duplication and making the rules more consistent, simpler and less bulky.

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

This proposal is one of a series of improvements collectively aimed at making the rules easier to use.

New sailing vessels of less than 15 metres in length will see a modest cost benefit due to a reduction in required bilge pump capacity, and new sailing vessels of 15 metres or more will face a modest cost increase due to an increase in required bilge pump capacity. Few sailing vessels enter the commercial fleet each year – in some years none do. Less than 20 commercial sailing vessels operate in New Zealand.

It is not possible to estimate the impact on fishing vessels because the current rules do not specify requirements, and information on the configuration of the bilge systems on existing fishing vessels is not available. The impacts are likely to be minor, because when rules are silent, designers typically base requirements on classification society rules or comparable jurisdictions. For example, the requirements specified in the Australian NSCV are very close to the requirements in this proposal.

Table 8: Marginal costs and benefits of consolidating and harmonising the rules for the number, type and capacity of bilge pumps

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Vessel owners and operators, surveyors and suppliers	Will need to become familiar with the new rules.	Low	High See notes and assumptions
Owner of new sailing vessel of 15m or more and less than 24m operating in the coastal and offshore limits	Increase by 5.5 Kl/hr in pump capacity	$400 per vessel	High
Additional benefits of the preferred option compared to taking no action			
Vessel owners and operators, surveyors, Maritime NZ	Rules are easier to use - more consistent and concise	Low	High Adds choice, and is supported by the sector. But most operators are likely to stick with what they know.
Owner of new sailing vessel of less than 12m	Reduction by 4 - 5.5 Kl/hr in pump capacity	$400 per vessel	Medium See notes and assumptions
Owner of new sailing vessel of more than 12m and less than 15m	Reduction by 11 Kl/hr in pump capacity	$500 per vessel	Medium See notes and assumptions

Assumptions and Notes

- Non-monetised costs are based on observations that an investment of time is required for sector participants to understand regulatory changes. These have been assessed as low because the changes are straightforward and have been developed in consultation with the sector.
- Non-monetised benefits have been assessed as low. This proposal is one of a series of improvements that will make the rules collectively easier to use.

Implementation

The Rule and Maritime Transport Instrument that will implement this proposal

- Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules
- Maritime Transport (Machinery and Ancillary Equipment) Instrument [year]

The rules and maritime transport instrument are expected to come into force in early 2026. A transition period is not required because existing vessels will be allowed to operate under the current rules (unless they have a major modification to the bilge system).

Products envisaged to support implementation

Maritime NZ will provide a short guide for the sector explaining the changes introduced by the new Machinery and Ancillary Equipment rules.

Part 3E Machinery and Ancillary Equipment: Proposal summary

Questions:

M 4.1 Do you agree with the proposals to consolidate and harmonise the rules for the number, type and capacity of bilge pumps in the proposed new rules for Machinery and Ancillary Equipment?

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

Why/why not?

M 4.2 Do you agree with the number and capacity of bilge pumps proposed for new sailing vessels?

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

Why/why not?

M 4.3 Do you agree that the rules should specify the number of bilge pumps required and their capacity for new fishing vessels?

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

Why/why not?

Proposal 5: Requirements for Additional Bilge Level Alarms

What we are proposing

We propose to carry over to the new rules the requirement to have a bilge level device in the propulsion machinery space connected to an audible alarm at the steering position. These rules will be harmonised across vessel types.

In addition, the proposed new rules will:

- Clarify that fish holds require a bilge level device connected to an audible alarm at the steering position;
- Require a bilge level device in cargo holds connected to an audible alarm at the steering position;
- Require a bilge level device connected to an audible alarm at the steering position in watertight compartments that are separate from the machinery space - if these compartments contain seawater piping systems that could pose a risk of in-flooding if they are breached or fail.

Status quo

The current rules / regulatory environment

The current rules require a bilge level device in the propulsion machinery space of vessels with an inboard engine, connected to an audible alarm at the steering positon. An automatic submersible bilge pump must have an indicator at the steering position showing that it is running, but this indicator does not need to be an audible alarm.

The rules can be read as requiring a bilge level device connected to an alarm in a fish hold (on a fishing vessel), but the provisions are not clearly drafted. Cargo holds and other watertight spaces are not specifically addressed.

In 2017 Maritime NZ issued advice in Safety Bulletin number 35 recommending that a water activated alarm sound when the water level rises in “fish rooms”. The advice followed the Transport Accident Investigation Commission report into the sinking of the Jubilee, in which 3 men died.

What is the problem / rationale for the change?

The current rules do not effectively address potential water ingress in fish holds, watertight compartments and cargo holds. The rules are also not clear about the type of warning required when water is detected in a space on the vessel.

Fish holds

The current requirements in rule 40D.28 can be read as requiring a fish hold to have a bilge alarm, However, the rules are confusingly drafted - it is not immediate apparent that 40D.28(1) applies to a fish hold, as ‘watertight compartment’ is not defined. Although Maritime NZ issued advice in 2017, the anecdotal evidence suggests that this requirement is not widely understood.

Watertight compartments / cargo holds

Clause 5.8.7 of Australian NSCV C5A requires a bilge level alarm in “in the propulsion machinery space; and all other compartments that contain seawater pumping systems”.

The proposed rule uses the phrase “seawater piping systems”. This is considered to be more precise than the NSCV wording “seawater pumping systems”, as a seawater pump may have various functions on a vessel that are not necessarily associated with a risk of in-flooding.

Audible vs visual

The rules specify that a bilge system with “through hull fittings” must connect to an audible alarm located near the steering position. However, a submersible bilge pump is only required to have “a means of indicating that it is running” located at the steering position. This could be an indicator light which is easily overlooked (especially if no one is at the steering position).

Impact of the proposed change

The estimated cost of this proposal is $400 - $600 for each bilge level device and alarm installed.

Mitigating the impact

An existing vessel impacted by this proposal would have 2 years from when the rules come into force to meet the additional requirements.

Timing / Commencement date

Changes to the bilge rules will take effect on commencement of the Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules. The estimated in-force date is currently early 2026.

The rules are expected to specify a two year transition period in which existing vessels impacted by this proposal must install the required bilge level device and alarm.

General Context / additional information

The proposals align with the Australian National Standard for Commercial Vessels (NSCV). It is a principle of the project to reform the design, construction and equipment rules that where practicable we align the proposed new rules with the rules that apply in Australia.

Options analysis

Two options were considered:

Option 1: (Status quo). Continue the current approach of requiring a bilge level alarm in the propulsion machinery space, and using guidance to remind operators about additional risks associated with the build-up of water in watertight compartments on the vessel (other than the machinery space).

Option 2: (Preferred approach). Require bilge level alarms in the machinery space, fish hold and any other watertight compartment that is likely to accumulate water or that could be subject to back-flooding.

How do the options compare against the status quo

The following criteria have been used to assess the alternative option. Refer to Table 9 for an assessment against these criteria.

The changes provide flexible and adaptive regulation:	Option 2 is neutral in regards to providing flexible and adaptive regulation.
Rules are clear and easier to understand and apply:	Option 2 is clear and easy to understand. Option 1 – relying on guidance – is less clear and relies on operators being aware of and electing to follow the guidance.
Maritime safety is maintained or enhanced:	Options 1 and 2 both address safety. Option 2 provides more certainty because it is checked as part of the vessel survey process, while option 1 relies on operators choosing to follow the guidance. For example, although Maritime NZ published guidance about fish hold alarms in 2017 following the Jubilee tragedy, we are aware that not all operators have followed the advice.
Changes are practical and economically viable:	Options 1 and 2 are both practical to implement. Some judgement will be required when installing a bilge level device to ensure that the device does not activate due to presence of icy water normally occurring in the fish hold. Although the cost of Options 1 and 2 is about the same, vessel operators may prefer to install the bilge alarms

in a time frame that suits their own schedule (i.e. follow guidance), rather than being bound to a fixed two year timeframe.

Table 9: Comparing options against the status quo. Requirements for additional bilge level alarms

	1. Status Quo	3. Require additional bilge level alarms
Provides flexible and adaptive regulation	0	0
Rules that are clear and easier to understand and apply	0	+
Maritime safety is maintained or enhanced	+	++
Changes are practical and economically viable	+	+
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 (require bilge level alarms) is the preferred option. It improves rule clarity and will provide better safety outcomes.

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

Vessel operators impacted by this proposal could face estimated costs $400 - $600 to install additional bilge level devices and alarms.

The measures will increase the safety of seafarers by alerting them to flooding events. Such events are not common (low frequency) but can have tragic consequences.

Table 10: Marginal costs and benefits of requirements for additional bilge level alarms

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Non-monetised costs Vessel owners and operators and surveyors	Will need to become familiar with the new rules.	Low	High
Monetised costs Vessel owners and operators	An unknown number of vessels could be impacted by this proposal – potentially several hundred.	$400 - $600 for each bilge alarm installed	Medium See Assumptions & Notes
Additional benefits of the preferred option compared to taking no action			
Non-monetised benefits Seafarers working on commercial vessels	Reduces risk, increases safety	Medium	Medium See Assumptions & Notes

Monetised benefits Families of seafarers	Cannot be quantified		
Wider NZ	Avoidance of costs due to loss of life VOSL		Medium See Assumptions & Notes

Assumptions and Notes

Monetised costs

- A bilge level alarm or float switch is estimated to cost $400 - $600 (based on internet costing $350 - $400 plus installation).

Benefits

- This proposal will increase safety for seafarers working on vessels at sea. The likelihood of an event is low but the consequences for seafarers and their families are very high. It is difficult to quantify this loss.
- The costs of a tragic incident have a wider impact on New Zealand, including for example the various response services that need to be involved.

Implementation

The Rule and Maritime Transport Instrument that will implement this proposal

- Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules
- Maritime Transport (Machinery and Ancillary Equipment) Instrument [year]

The rules and maritime transport instrument are expected to come into force in early 2026. These rules and MTI are expected to include a two year transition period in which existing vessels impacted by this proposal must install the required bilge level device and alarm.

A second-hand vessel entering the fleet (for example from overseas) would be treated as a new vessel, and would need to meet the new rules.

Products envisaged to support implementation

Maritime NZ will provide a short guide for the sector explaining the changes introduced by the new Machinery and Ancillary Equipment rules.

Questions:

M 5.1 Do you agree with the proposal to require additional bilge alarms in fish holds, cargo holds and watertight compartments that are separate from the machinery space?

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

Why/why not?

M 5.2 Do you agree with the proposal that an existing vessel would have 2 years from the commencement of the rules to install bilge level alarms in fish holds, cargo holds and watertight compartments if the space does not already have one?

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

Why/why not?

Proposal 6: Changes to Bilge System Arrangements

What we are proposing

Four changes to requirements are considered together in this section. They address detailed requirements or arrangements that are either minor or have a small impact and do not warrant a separate discussion.

1. Bailing bucket for all open boats 6 metres or less in length

We are proposing that all open boats 6 metres or less in length will require a bailing bucket. Bailing buckets are required for passenger and non-passenger open boats of less than 6 metres in length, but (for reasons unknown) are not currently required for fishing and sailing vessels.

The proposal makes the rules consistent across vessel types. A bailing bucket is a generally accepted, effective and reliable way to remove bilge water from an open boat and will improve safety for vessels that currently lack one.

2. Sealed watertight compartments in open boats of less than 12 metres in length overall will not require bilge drainage arrangements

Under the current rules, open boats of less than 6 metres in length do not require bilge drainage arrangements for sealed watertight compartments that are constructed of the hull material and integral with the hull or deck structure, provided that the boat meets stability requirements. The reason for this approach is that it is impractical to individually drain sealed compartments, and merging them together into larger compartments so that they can be pumped would require a series of openings in the compartments that could reduce the resilience and safety of the vessel.

We consider that this same logic also applies to larger vessel, and we are proposing to extend the threshold to include open boats of less than 12 metres in length overall, with two conditions:

- The boat will need to meet the stability rules when any one sealed watertight compartment is breached; and
- It must have a means to check the contents of the watertight compartments – for example a drain plug, bung, or inspection port.

3. A vessel of 15 metres or more that proceeds beyond the coastal limits must be able to pump and drain from every space in the vessel (except the machinery space) when any one watertight compartment is flooded

We are proposing that a new vessel of 15 metres or more in length that proceeds beyond the coastal limits must be able to pump and drain from every space in the vessel except the machinery space when any one watertight compartment is flooded. Arranging the bilge system in this way helps to make the bilge system resilient, because it must be designed so that flooding in one space does not prevent suction valves from being opened in that space or in adjacent spaces. In our view, the risk of bilge failure is greater in a vessel operating beyond coastal limits, and a more complex bilge system is appropriate for a vessel of 15 metres or more in length. Post-27 May 2004 passenger vessels already need to meet this requirement, and this proposal will make the rules consistent across vessel types.[2]

The proposal will have limited impact. It will only apply to a new vessel. Less than 30 vessels enter the fleet each year and on average half of these are less than 15 metres in length. The increase in cost will be marginal, as the rules are being aligned with current practice, and new vessels of this size built to operate in the open ocean are likely to be designed with these features already.

4. A vessel of 24 metres or more that proceeds beyond restricted limits must have at least two bilge suctions in the machinery space (if it is fitted with a bilge main)

We are proposing that a new vessel of 24 metres or more in length overall that proceeds beyond restricted limits must have at least two bilge suctions fitted in the machinery space if it is fitted with a bilge main. One suction must be directly connected to the bilge main. One suction must be a direct bilge suction led

[2] It is not known why the requirement does not currently apply to other vessel types

to an independent powered pump, arranged so that it can be used independently of the main bilge line suctions.

The current rules for post-27 May 2004 passenger and non-passenger vessels specify this requirement for vessels of 15 metres or more in length overall that proceed beyond restricted limits. It is not included in the rules for fishing and sailing vessels, and is not found in the MCA Workboat Code (United Kingdom) or the NSCV (Australia). The requirement make good sense from a risk perspective as it provides redundancy in case of blockage or failure. However, we are proposing that it is more suited to larger vessels – which are likely to be designed with this feature anyway.

Mitigation

Bailing bucket: A transition period is not proposed for changes to rules requiring a bailing bucket. A bailing bucket is a minor cost, few vessels are affected and we expect that most vessels will already have one.

Bilge drainage arrangements in sealed watertight compartments in open boats: A transition period is not proposed for the change to requirements for bilge drainage arrangements in sealed watertight compartments in open boats of less than 12 metres in length overall. This change increases options for designers and boat builders, and does not impose costs.

Bilge pumping arrangements on vessels of 15 metres or more; and bilge suction arrangements on vessels of 24 metres or more: The new rules propose that these requirements will apply to new vessels entering the fleet. The proposed rules allow existing vessels to continue to operate under their current arrangements (i.e. grandparenting will apply). It is not practicable to change existing bilge arrangements as the costs would not be justified by improvements to safety. The new rules will apply if the vessel undergoes a major modification to its bilge system.

Timing / Commencement date

Changes to the bilge rules will take effect on commencement of the Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules. The estimated in-force date is currently 2026.

How the proposals compare against the status quo

Four changes are being proposed:

1. Bailing bucket for all open boats of less than 6 metres in length
2. Sealed watertight compartments in open boats of less than 12 metres in length overall will not require bilge drainage arrangements
3. A vessel of 15 metres or more that proceeds beyond the coastal limits must be able to pump and drain from every space in the vessel (except the machinery space) when any one watertight compartment is flooded
4. A vessel of 24 metres or more that proceeds beyond restricted limits must have at least two bilge suctions in the machinery space (if it is fitted with a bilge main)

The changes provide flexible and adaptive regulation:	The changes will improve the quality of the rules but will not have much impact on their flexibility. The proposal for open boats of less than 12 metres in length overall makes the rules more sensible by removing an unnecessary requirement that may have the effect of increasing complexity and risk.
Rules are clear and easier to understand and apply:	The proposals will improve the status quo in terms of consistency. There is no obvious reason for the current differences which apply to vessels of the same size working in the same operating limits.

Maritime safety is maintained or enhanced:	Items 1, 3 and 4 standardise the approach across vessel types based on risk. By setting the threshold at less than 12 metres in length, item 2 achieves a balance between reducing transaction and actual costs and not lowering safety standards.
Changes are practical and economically viable:	The proposals are straightforward and practical to implement, with only marginal associated costs. - Item 1 is easily achieved at minimal cost. - Item 2 provides an option for designers and boat builders to reduce costs. The designated thresholds for Items 3 and 4 provide an appropriate balance between risk and cost. Costs will only apply to new vessels entering the fleet.

Assumptions and Notes

The impact of the proposed changes to bilge system arrangements has been assessed as low, as few vessels will be affected.

- Around 45 fishing and sailing vessels are 6 metres or less in length. A bailing bucket is priced at around $10.
- Around 8% of vessels in the fleet are 15 metres or more in length and operate beyond coastal limits. The proposal only applies to new vessels. Around 20 new vessels enter the fleet each year, of which 2 might be in this category.
- Less than 4% of the commercial fleet is 24 metres or more and operate beyond restricted limits. The proposal only applies to new vessels. Around 20 new vessels enter the fleet each year, of which 1 might be in this category.

Implementation

The Rule(s) and Maritime Transport Instrument(s) that will implement this proposal

- Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules
- Maritime Transport (Machinery and Ancillary Equipment) Instrument [year]

The rules and maritime transport instrument are expected to come into force in early 2026.

The proposed new rules for bilge pumping arrangements on vessels of 15 metres or more, and bilge suction arrangements on vessels of 24 metres or more, will allow existing vessels to continue to operate under their current arrangements (i.e. grandparenting will apply). The new rules will apply to a vessel that undergoes a major modification to its bilge system.

A second-hand vessel entering the fleet (for example from overseas) would be treated as a new vessel, and would need to meet the new rules.

Products envisaged to support implementation

Maritime NZ will provide a short guide for the sector explaining the changes introduced by the new Machinery and Ancillary Equipment rules.

Questions:

M 6.1 Do you agree that sealed watertight compartments in open boats of less than 12 metres should not require bilge drainage arrangements, provided the boat meets the stability rules and there is a way to check the contents of the watertight compartments?

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

Why/why not?

M 6.2 Do you agree that a vessel of 15 metres or more that proceeds beyond the coastal limits should be able to pump and drain from every space in the vessel (except the machinery space) when any one watertight compartment is flooded?

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

Why/why not?

M 6.3 Do you agree that a vessel of 24 metres or more that proceeds beyond restricted limits should have at least two bilge suctions in the machinery space, if it is fitted with a bilge main?

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

Why/why not?

Proposal 7: Changes to Requirements for Electrically Powered Bilge Pumps

What we are proposing

This section considers four changes that will apply when electrically powered bilge pumps are used.

1. The emergency power capacity required for electrically driven submersible bilge pumps will reduce

The requirement to have 12 hours emergency / reserve electrical power for electrically driven submersible bilge pumps will reduce to 2, 3 or 6 hours for enclosed, inshore and coastal limits respectively.

The 12 hour emergency power requirement for electrically driven bilge pumps is based on minimum requirements specified in SOLAS.[3] However, following concerns raised by the sector, analysis found that The 12 hour emergency power requirement for electrically driven bilge pumps is not appropriate or necessary for domestic vessels operating in close proximity to other vessels and to assistance from organisations such as Coastguard. In addition, the batteries required to maintain 12 hours capacity are expensive, heavy and take up valuable space. As a result, the requirement was the subject of General Exemptions issued in 2019 and more recently Class exemption EXA 940 was issued in December 2023.

The revised timeframes are risk-based – based on how far the vessel is from shore. They align with the proposed new electrical rules and with the Australian NSCV.

2. Electrically powered submersible bilge pumps and the bilge level alarm will need to be on separate electrical circuits

We propose to require electric submersible bilge pumps and bilge level alarms to be wired on separate electrical circuits. This change is designed to prevent a situation in which a short circuit or other failure of the bilge pump circuit stops the bilge alarm from working – meaning that the master or crew could be unaware of in-flooding. Requiring separate circuits for these items is a safety measure that will align New Zealand rules with the Australian NSCV. The estimated cost is $500 – $700.

3. A bilge pump that operates automatically will need to have a manual override switch

Automatic bilge pumps operate by means of a float switch which identifies rising water levels and sends a signal to the pump to switch on. A manual override switch is a safety measure that allows the master to by-pass the float switch and turn on the pump manually.

In 2017 surveyors raised concerns with Maritime NZ that float switches periodically jam, and requested changes to the rules. In response, Maritime NZ published guidance in 2018 advising that an automatically controlled submersible bilge pump should be fitted with a manual override switch.[4] If a float switch jams, a bilge pump linked to it cannot start, which places the vessel at risk.

The proposed change is expected to have a minor cost impact. An existing vessel would have 5 years to install a manual override switch to an automatic bilge pump. We understand that a manual override switch is a common feature in electric bilge pumps, and that many or most vessels with an automatic pump will already meet this requirement.

4. New electric bilge pumps will need to have an IP67 rating

New electric bilge pumps and related wiring will need to have an IP67 rating. Water conducts electricity. In a wet environment, electrically powered bilge pumps and associated wiring can short-circuit and fail, or cause electric shocks – putting the crew and vessel at risk. An IP67 rating ensures that the installation is water resistant.

The proposed change will align the rules with the Australian NSCV, which requires an IP67 rating. The change is expected to have a minor cost impact. It will apply when a new electric pump is

[3] The International Convention for the Safety of Life at Sea

[4] Position Statement PS-06-18. Manual override switches for submersible bilge pumps, manually verifying the function of float switches, and independent high water level alarms

installed, so will not affect existing installations. We understand that many electric bilge pumps sold in the New Zealand market come with an IP67 rating.

Mitigating the impacts

Reducing emergency power capacity: A transition period is not proposed for changes that reduce the emergency power capacity required for electrically driven submersible bilge pumps. This change is a benefit to vessel operators and does not impose costs.

Separate circuits for electric bilge pumps and bilge level alarms: A transition period of 5 years from the commencement of the rules is proposed to give an existing vessel time to install electric bilge pumps and bilge level alarms on separate electrical circuits.

Manual override switch for automatic electric bilge pumps: A transition period of 2 years from the commencement of the rules is proposed to give an existing vessel time to ensure that automatic electric bilge pumps have a manual override switch.

IP67 rating for New electric bilge pumps: The proposed rules allow existing vessels to continue to operate under their current arrangements (i.e. grandparenting will apply). When an electric bilge pump is replaced, the new pump will need to have an IP67 rating.

Timing / Commencement date

Changes to the bilge rules will take effect on commencement of the Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules. The estimated in-force date is 2026.

How the proposals compare against the status quo

Four changes are being proposed:

1. The emergency power capacity required for electrically driven submersible bilge pumps will reduce
2. Electrically powered submersible bilge pumps and the bilge level alarm will need to be on separate electrical circuits
3. A bilge pump that operates automatically will need to have a manual override switch
4. New electric bilge pumps will need to have an IP67 rating

The changes provide flexible and adaptive regulation:	The four proposed changes are mostly neutral on this measure. Aligning with the Australian rules is an advantage for the New Zealand commercial maritime sector and fits with the broader New Zealand agenda of a close economic relationship. Reducing unnecessary reserve power requirements is adaptive, but does not really make the rules more flexible.
Rules are clear and easier to understand and apply:	The four proposed changes improve clarity by providing a structured and risk-based approach to the electrical requirements for electrically powered bilge pumps and bilge alarms.
Maritime safety is maintained or enhanced:	The four proposed changes adjust current safety settings to better reflect risk: - Unnecessarily onerous reserve power requirements will reduce. - Safety standards will strengthen in regard to electrical circuit arrangements, float switch details and the protection of submerged electrical installations.

Changes are practical and economically viable:	The four proposed changes are practical to implement and impose modest costs to operators. - Reductions in emergency power capacity will provide a significant saving for operators who have not already benefited from the General Exemptions / Class Exemption. - A manual override switch, and an IP67 rating for electric bilge pumps are already common features in the items sold on the New Zealand market. - The cost to provide a separate circuit for bilge alarms and electric bilge pumps is modest. This work is likely to be done when the operator is doing work on the bilge system - e.g. when installing a bilge pump or doing work on the bilge level alarm. Otherwise, the work must be done in within 5 years.

Assumptions and Notes

- Many automatic electric bilge pumps available on the New Zealand market are sold with a manual override switch. This means that many operators who use electric bilge pumps will already meet the proposed change requiring a manual override switch.
- Many electrically powered bilge pumps available on the New Zealand market come with an IP67 rating. The requirement to have an IP67 rating would only apply to a new pump. The change does not represent an additional cost. It only occurs if a pump needs to be replaced, when the vessel operator would incur the replacement cost anyway.
- The estimated cost to install separate circuits for electric bilge pumps and bilge alarms is $500 – $700.
- The four changes proposed are intended to increase safety on vessels at sea. The likelihood of an event caused by electrical issues related to bilge is low but the consequences for seafarers and their families could be very high.

Implementation

The Rule and Maritime Transport Instrument that will implement this proposal

- Part 3E: Maritime (Design, Construction and Equipment – Machinery and Ancillary Equipment) Rules
- Maritime Transport (Machinery and Ancillary Equipment) Instrument [year]

The rules and maritime transport instrument are expected to come into force in early 2026. These rules and MTI are expected to include a two year transition period in which automatic electric bilge pumps must have a manual override switch; and a five year transition period to install electric bilge pumps and bilge level alarms on separate electrical circuits. A vessel that had a major modification to its bilge system would need to meet the new requirements as part of that modification. A second-hand vessel entering the fleet (for example from overseas) would be treated as a new vessel, and would need to meet the new rules.

Existing vessels will be allowed to continue to operate under their current arrangements (i.e. grandparenting will apply) until an electric bilge pump is replaced, at which point the replacement pump would require an IP67 rating.

Products envisaged to support implementation

Maritime NZ will provide a brief guide for the sector explaining the changes introduced by the new Machinery and Ancillary Equipment rules.

Questions:

M 7.1 Do you agree that electric bilge pumps and bilge level alarms should be powered on separate circuits?

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

Why/why not?

M 7.2 Do you agree that electrically powered bilge pumps should have a manual override switch?

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

Why/why not?

M 7.2 Do you agree with the proposed 2 year transition period in which existing vessels would need to meet the requirements to have a manual override switch for automatic bilge pumps and the 5 year transition period in which existing vessels would need to install separate circuits to provide power to electric bilge pumps and bilge alarms?

[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 18 October 2024*

11. This document is part of a package of documents on the proposed changes to the design, construction and equipment rules. Information on this consultation will be available on Maritime NZ's website.
12. Subject to interest, Maritime NZ will hold online information sessions on the proposals on 27 and 28 August and 24 and 25 September (times to be confirmed). 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.
13. 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/public/consultation/dce-40-series-package-1/), 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.
14. This document includes questions to help you focus your feedback. Answering the questions is optional.

Submissions are public information

15. Please let us know if your comments are commercially sensitive or if for some other 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.
16. 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.
17. We will acknowledge all submissions that we receive. Once the rule is finalised a summary of submissions will be published on our website.

Questions

18. The following questions have been included to help focus your feedback. Answering the questions is optional. Any and all feedback is welcome.

Proposal 1 – Changes to fuel system rules

M 1.1 Do you agree with the proposed change to allow fibre reinforced plastic (FRP) and thermoplastic fixed-in-place petrol fuel tanks?

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

Why/why not?

M 1.2 Do you agree with the proposed changes to require roll-over safety valves for planing vessels less than 12 metres with petrol fuel systems?

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

Why/why not?

Proposal 2 – Changes to rules for main and auxiliary machinery

M 2.1 Do you agree with the proposed changes to require engine alarms?

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

Why/why not?

M 2.2 Do you agree with the proposed change to require remote manual engine shut-down where the engine is not readily accessible?

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

Why/why not?

Proposal 3 – Allowing plastic for use in sea water piping and bilge piping

M 3.1 Do you have any comments on the conditions under which plastic piping may be used?

Proposal 4 – Consolidating and harmonising rules for number, type and capacity of bilge pumps

M 4.1 Do you agree with the proposals to consolidate and harmonise the rules for the number, type and capacity of bilge pumps in the proposed new rules for Machinery and Ancillary Equipment?

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

Why/why not?

M 4.2 Do you agree with the number and capacity of bilge pumps proposed for new sailing vessels?

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

Why/why not?

M 4.3 Do you agree that the rules should specify the number of bilge pumps required and their capacity for new fishing vessels?

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

Why/why not?

Proposal 5 – Requirements for additional bilge level alarms

M 5.1 Do you agree with the proposal to require additional bilge alarms in fish holds, cargo holds and watertight compartments that are separate from the machinery space?

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

Why/why not?

M 5.2 Do you agree with the proposal that an existing vessel would have 2 years from the commencement of the rules to install bilge level alarms in fish holds, cargo holds and watertight compartments if the space does not already have one?

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

Why/why not?

Proposal 6 – Changes to bilge system arrangements

M 6.1 Do you agree that sealed watertight compartments in open boats of less than 12 metres should not require bilge drainage arrangements, provided the boat meets the stability rules and there is a way to check the contents of the watertight compartments?

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

Why/why not?

M 6.2 Do you agree that a vessel of 15 metres or more that proceeds beyond the coastal limits should be able to pump and drain from every space in the ship (except the machinery space) when any one watertight compartment is flooded?

M 6.3 Do you agree that a vessel of 24 metres or more that proceeds beyond restricted limits should have at least two bilge suctions in the machinery space, if it is fitted with a bilge main?

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

Why/why not?

Proposal 7 – Changes to requirements for electrically powered bilge pumps

M 7.1 Do you agree that electric bilge pumps and bilge level alarms should be powered on separate circuits?

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

Why/why not?

M 7.2 Do you agree that electrically powered bilge pumps should have a manual override switch?

M 7.3 Do you agree with the proposed 2 year transition period in which existing vessels would need to meet the requirements to have a manual override switch for automatic bilge pumps and the 5 year transition period in which existing vessels would need to install separate circuits to provide power to electric bilge pumps and bilge alarms?

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Appendix 1: 'Snapshot' of the proposed Machinery and Ancillary Equipment changes

Machinery and Ancillary Equipment – Part 3E					
General approach	**Overall approach:** The current rules have been consolidated and harmonised into one Rule Part and one MTI. This results in some wording changes and a different format, but most current requirements are much the same. The new Machinery and Ancillary Equipment rules apply to all vessels except Cape Town Fishing Vessels, SOLAS Ships, Novel Ships and Hovercraft. The main changes are described in the Table below. **Existing vessels:** Once the new rules come into force, existing vessels will need to meet some requirements within a specified time period: 2 years: Fuel vent pipe roll-over safety valve; Bilge level alarms; 5 years: Bilge level alarms and submersible electric bilge pumps wired on separate circuits; Engine alarms; A means of shutting down the engine from outside the engine space.				
	Vessel type	**Operating limits**	**Vessel length**	**Requirements**	**Rule/MTI**
Fuel vent pipes will require a roll-over safety valve to be fitted	Will apply to all vessels with a planing hull	All operating limits	Less than 12m LOA	• Applies to non-portable fuel tanks that carry petrol. • Existing vessels will have 2 years to meet this requirement.	Rule C3.2(5)
Fibre reinforced plastic (FRP) and thermoplastic free-standing fuel tanks will now allowed	All vessel types	All operating limits	All lengths	Manufacturing standards and ventilation requirements will apply.	Rules C3.3(22)-(24)
The engine will require a visual or audible alarm to indicate abnormal engine conditions	All vessel types	All operating limits	All lengths	• Will not apply to outboard engines with a rating less than 120kW • Existing vessels will have 5 years to meet this requirement.	Rule C5.2(13); & Schedule 2(5)
Inboard engines will require a remote manual engine shut down (or kill switch)	All vessel types	All operating limits	All lengths	• Will apply if engine is not readily accessible. • Existing vessels will have 5 years to meet this requirement.	Rule C5.2(10); & Schedule 2(5)

Bilge level alarms	All vessel types	All operating limits	All lengths	• Bilge level alarms will be required in fish holds, cargo spaces and other watertight spaces if seawater pipes are present. • Existing vessels will have 2 years to meet this requirement.	Rule C7.4(1); & Schedule 2(5)
Electrical submersible bilge pumps and bilge level alarms will need to operate on separate circuits	All vessel types	All operating limits	All lengths	Existing vessels will have 5 years to meet this requirement	Rule C7.4(3); & Schedule 2(5)
New electric bilge pumps will require an IP67 rating	All vessel types	All operating limits	All lengths	Will apply when a new electric bilge pump is installed.	Rule C7.3(16) MTI 7.1(3)
Plastic sea water piping and bilge piping will be allowed	All vessel types	All operating limits	Vessels of less than 24m in length	Manufacturing standards and installation conditions will apply.	Rules C6.2(5) and C7.2(15) MTI 6.2
Emergency power capacity for electrically powered bilge pumps will reduce	All vessel types	Enclosed	All lengths	Battery capacity reduces from 12 hours to 2 hours	C7.3(17)
		Inshore	All lengths	Battery capacity reduces from 12 hours to 3 hours	
		Inshore fishing	All lengths	Battery capacity reduces from 12 hours to 3 hours	
		Coastal	All lengths	Battery capacity reduces from 12 hours to 6 hours	