Ministry for Primary Industries
Manatū Ahu Matua

Risk Management Proposal:

Craft Risk Management Standard for Vessels

FOR PUBLIC CONSULTATION

June 2016

New Zealand Government

Growing and Protecting New Zealand

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Submissions

The Ministry for Primary Industries (MPI) invites comment from interested parties on the proposed Craft Risk Management Standard: *Vessels (CRMS Vessels)* and the associated draft Guidance Document. The proposed measures are supported by this risk management proposal.

A craft risk management standard (CRMS) "specifies requirements to be met for the effective management of risks that are associated with the entry of craft into New Zealand territory" (section 24E(1) Biosecurity Act 1993).

MPI seeks comment on the proposed CRMS *Vessels*. MPI has developed this proposal based on best available scientific evidence and assessment of this evidence. If you disagree with the measures proposed to manage the risks, please provide either data or published references to support your comments. This will enable MPI to consider additional evidence which may change how risks are proposed to be managed.

The following points may be of assistance in preparing comments:

- wherever possible, comments should be specific to CRMS requirements or a question asked in this document (referencing section numbers or commodity names as applicable);
- where possible, reasons, data and supporting published references to support comments are requested;
- the use of examples to illustrate particular points is encouraged.

The requirements proposed in this document are intended to support the new CRMS to ensure that the biosecurity risks associated with vessels are managed in response to scientific knowledge and commercial practices.

MPI encourages respondents to forward comments electronically. Please include the following in your submission:

- the title of the consultation document in the subject line of your email;
- your name and title (if applicable);
- your organisation's name (if applicable); and
- your address.

Send submissions to: standards@mpi.govt.nz, however, should you wish to forward submissions in hard copy format (writing), please send them to the following address to arrive by close of business on the **5 August 2016.**

Biosecurity and Environment Group
Plant, Food and Environment Directorate
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Submissions received by the closure date will be considered during the development of the final versions of the standard and guidance document. Submissions received after the closure date may be held on file for consideration when the standard and guidance document are subsequently reviewed.

Official Information Act 1982

Please note that submitted documents are public information. These documents may be the subject of requests for information under the Official Information Act 1982 (OIA). The OIA specifies that information is to be made available to requesters unless there are sufficient grounds for withholding it, as set out in the OIA. Submitters may wish to indicate grounds for withholding specific information contained in their submission, such as the information is commercially sensitive or they wish personal information to be withheld. Any decision to withhold information requested under the OIA is reviewable by the Ombudsman.

Contents

Introduction

Purpose

1. The purpose of this document is to:
   - Clarify the formalisation of the existing Operational Standard for the Requirements for Vessels Arriving in New Zealand in the proposed Craft Risk Management Standard for Vessels.
   - Provide the rational for the proposed requirements being considered for managing the above-water biosecurity risk; and
   - Seek stakeholder feedback on the proposed measures in the Craft Risk Management Standard ("CRMS") and supporting guidance document.

   This document is not the subject of consultation but the Ministry for Primary Industries ("MPI") will accept comments and suggestions in order to improve future consultation.

2. MPI acknowledges that no biosecurity system is capable of reducing risk to zero. The proposed requirements in the CRMS seek to minimise the likelihood of all above-water regulated pests associated with vessels from establishing in New Zealand.

Background

3. It is internationally acknowledged that the movement of international sea craft ("vessels") have inadvertently been responsible for the introduction of non-indigenous species to new countries (MAF, 2009).
4. The Biosecurity Act 1993 ("the Act") sets out the requirements for the arrival of craft in New Zealand, including that cargo can only be unloaded from a craft with the permission of an inspector. In order to clarify the requirements that need to be met before an inspector gave such permission, in 2007 the then Ministry of Agricultural and Forestry Biosecurity New Zealand ("MAFBNZ") issued the Operational Standard for the Requirements for Vessels Arriving in New Zealand ("the operational standard"). Then in 2009, MAFBNZ undertook a vessel monitoring survey and risk analysis which confirmed that the vessel pathway remains a biosecurity risk pathway to New Zealand (Appendices 1 and 2).
5. The Act has since been amended to enable MPI to issue a CRMS in order manage the biosecurity risks associated with the arrival of craft (such as vessels) in New Zealand territory ("NZT"). As a result, the Act assumes that a CRMS is issued for craft where its arrival requires the management of biosecurity risks. As such, MPI is formalising the existing arrival procedures outlined in the operational standard into a CRMS. Where necessary the proposed biosecurity requirements have been developed to either reflect changes to the industry, above-water biosecurity risks or the requirements of the Act.
6. The proposed requirements of the CRMS for Vessels is intended to appropriately manage all known above-water biosecurity risks on the vessels pathway.

Out of Scope

7. In April 2014, MPI issued the CRMS for Biofouling, which manages the below-water biosecurity risks associated with the entry and arrival of vessels in New Zealand territory. This risk management proposal does not re-address any below-water biosecurity risks. Although the

CRMS for Vessels and the CRMS for Biofouling will both manage the entry and arrival of vessels in New Zealand, the CRMS for Vessels excludes all matters and below-waster risks related to the CRMS for Biofouling.

Context

International

8. The World Trade Organisation ("WTO") and Sanitary and Phytosanitary ("SPS") Agreements set in place rules that protect each country's sovereign right to take the measures necessary to protect the life or health of its people, animals, and plants while at the same time facilitating trade. It embodies and promotes the use of science-based risk assessments to manage the risks associated with the international movement of goods.

9. "The SPS Agreement will continue to guide how New Zealand sets standards and makes decisions related to biosecurity. In particular, it will be important to maintain the standards of transparency and scientific rigour required by the SPS Agreement, and to make decisions as quickly as possible. This will encourage other countries to comply with the rules of the SPS Agreement, and also demonstrate that New Zealand's strict controls are justified to countries that challenge them." Balance in Trade [online reference ISBN 978-0-478-33881-2].

Domestic

10. The New Zealand biosecurity system is regulated through the Biosecurity Act 1993. Section 24(E) of the Act describes a craft risk management standard and requires all risks associated with the arrival of a craft in New Zealand to be managed by one.

11. MPI is the government authority responsible for maintaining biosecurity standards for the effective management of risks associated with the importation of risk goods and the arrival of craft into New Zealand (Part 3, of the Act).

12. MPI is committed to the principles of transparency and evidence-based technical justification for all measures, new and amended, imposed on importing pathways.

Summary of above-water biosecurity risks

13. The 2009 MAF BNZ Vessel Monitoring Survey and Risk Analysis highlighted that hitchhikers and contaminants are only considered to be a biosecurity risk if they have certain characteristics. These characteristics include:

    i. the potential to harm New Zealand (regarding agriculture, the environment, horticulture, or human health);

    ii. have a regular mechanism of association with the vessel pathway; and

    iii. having a means of departing the vessels (either aided or unaided) while close to New Zealand shoreline.

    Animal species are referred to as hitchhikers, whereas plant material, soil and other organic debris are referred to as contaminants.

14. The CRMS for Vessels seeks to mitigate the above-water biosecurity risks (regulated species and contaminants) associated with the entry and arrival of vessels in NZT. The CRMS does not

manage cargo, ballast water, crew or passengers. While other pathways may present a higher biosecurity risk, risk analyses have shown that some above-water biosecurity risks associated with vessels require management (MAF, 2009).

15. Hitchhikers that pose a risk to New Zealand and are associated with vessels include ants, spiders, moths, mosquitoes, geckoes, termites and other species (MAF, 2009). These hitchhikers generally come aboard a vessel during loading and unloading of the vessel in off-shore ports, remain on-board throughout its journey and at times even maintain viable populations on-board the vessel for prolonged periods of time.

16. Contaminants that are found on vessels include seeds and grain as a result of cargo spillage, soil, and plant and animal debris that are transferred from packaging material and cargo (predominantly sea containers and machinery) (MAF, 2009). Such contaminants may be regulated pests or provide a habitat for invasive weeds, insect species and microbial organisms that are considered a biosecurity risk (MAF, 2009). Therefore some form of management is required to mitigate the potential risk to New Zealand from these contaminants.

17. A 2009 survey by the Ministry of Agriculture and Forestry (MAF) (now MPI) conducted 89 inspections on 66 international vessels arriving in New Zealand. It identified the type and quantity of hitchhiker organisms that were a biosecurity risk directly associated with the vessel. Eighty five percent of the hitchhikers and contaminants found on-board the vessels were classed as quarantine species or contained quarantine species. The vessel holds were identified as the area that is the area most likely to be contaminated and also has the highest level contamination. Approximately 88% of holds were contaminated on average with 16 contaminants or hitchhikers. Hitchhiker species found that were known biosecurity risks to New Zealand included brown widow spiders, Asian house gecko, mosquito, Asian gypsy moth, transverse ladybird, giant African snail and crazy ant. Some of which had established viable on-board populations (MAF, 2009).

18. The mobility of the hitchhikers plays an important role in determining the level of risk a hitchhiker on vessels poses to New Zealand. Many of these species only pose a risk if they have the ability to depart from vessels. Species with the means to depart from the vessel includes those that are mobile by themselves (for example, moths, mosquitoes, or other flying species) and those that do so with human assistance (on cargo or other items leaving the vessels).

Hitchhikers on vessels

19. Mosquitoes are acknowledged internationally as vectors of human and animal diseases that have been spread via the movement of international aircraft and vessels (MAF, 2007). New Zealand is not known to have the species of mosquito that are known vectors of diseases such as Malaria or viruses like Dengue and Yellow Fever, West Nile, and Zika. Mosquitoes have been identified as a biosecurity risk to New Zealand in risk analyses for pathways such as vehicles and used tyres as a result of their presence in pooling water on or within other commodities (MAF, 2007). Mosquitoes require suitable habitat on-board vessels, in this case pooled water, in order to survive the journey and then have a means of transport off the vessel in order to pose a threat to New Zealand. When vessels with pooled water infested with mosquito eggs or larvae enter NZT there exists the likelihood that the larvae hatch and mosquitoes disperse into New Zealand. It is considered that the biosecurity risk associated with mosquitoes on vessels is significant and requires some form of appropriate management (MAF, 2007 and 2009).

20. Some species of termites, not indigenous to New Zealand, are considered invasive and biosecurity risks to New Zealand e.g. *Coptotermes acinaciformis*, Australian subterranean termite (MAF, 2007). As such, several import health standards require the treatment of wood based commodities to manage the potential risk posed by invasive termite species. Invasive termites

have also been intercepted on vessels that arrive in New Zealand, including in on-board wood based products (not imported under an import health standard) as well as in wooden panels and structures of the vessels themselves. Termites are considered to be organisms associated with the microhabitats on a vessel as defined by the 2009 vessel risk analysis and species in this category require appropriate management. Therefore, vessels that are infested with invasive termite species arrive in New Zealand present a biosecurity risk that requires some form of management.

21. The Giant African Snail (GAS) is an invasive species that is not present in New Zealand and is considered a biosecurity risk to New Zealand (MAF, 2009). It is predominantly associated as a hitchhiker with cargo and machinery (MAF, 2007). It is also a mobile species that has been intercepted within the holds and on the decks of vessels, making its association with vessels unpredictable. Unpredictable hitchhikers on vessels, which include GAS and Brown Marmorated Sink Bugs, require some form of mitigation in order to reduce and detect the presence of such high consequence biosecurity risk species on vessels (Appendices 1 and 2; MAF, 2009).

Asian Gypsy Moth

22. Moths in the genus *Lymantria* are pests of a broad range of coniferous and deciduous trees in temperate and subtropical parts of the world, including New Zealand (MAF, 2008). They feed on the foliage of a wide range of hosts of agricultural, forestry, horticultural or environmental importance. The regulated species of concern include *Lymantria albescens, Lymantria umbrosa, Lymantria postalba* and the Asian strains of *Lymantria dispar*; together commonly referred to as the Asian Gypsy Moth (AGM) (Appendix 2, MAF, 2008).

23. AGM is not known to occur in New Zealand, but environmental conditions in this country are known to be suitable for the establishment of AGM (MAF, 2008; Ross 2005). This was confirmed in 2003 when AGM was discovered as part of the routine AGM monitoring programme. AGM was subsequently reported as being eradicated from New Zealand in 2005 after an intense eradication programme was conducted (Ross 2005).

24. AGM egg masses have been intercepted at New Zealand borders in association with several pathways including used vehicles (MAF, 2007), sea containers (MAF, 2008) and vessels (MAF 2008 and 2009). AGM comes from multiple source countries including China, Korea, Japan and Far East Russia (MAF, 2008; NAPPO, 2009). During the peak population season, ports in infested areas of these countries experience increased presence from AGM and during the flight season females frequently fly at night and are attracted to lights at ports and on vessels. As a result eggs masses are routinely laid on ship structures and cargo (NAPPO, 2009). Each egg mass may also have greater than 1000 eggs resulting in huge population pressure. For example, Far East Russian ports experienced peak populations during the 2014 flight season resulting in large numbers (greater than 1000) of eggs masses being removed from single vessels prior to departure for New Zealand (Unpublished MPI Data, 2015).

25. AGM eggs are long-lived and can tolerate extreme temperatures and varying moisture conditions, which enables them to survive aboard vessels and in the port areas. The risk associated from AGM egg masses results with emerging larvae that disperse from the egg masses into the surrounding environment on the wind with silk threads in a natural process known as ballooning. AGM have been recorded to balloon several kilometres under the right conditions (MAF, 2008).

26. When vessels infested with AGM egg masses enter New Zealand there exists the likelihood that the larvae disperse from the vessels and establish in the vegetation surrounding New Zealand's

ports; therefore the biosecurity risk associated with AGM along the vessel pathway requires management (MAF, 2008).

27. This biosecurity risk also exists for Canada, Chile, Mexico and the United States of America (NAPPO, 2009).

28. For MPI's detailed risk analysis, please refer to Appendices 1 and 2 and MAF, 2008.

Risk Management

Existing arrival procedures

29. In 2007, MAF BNZ issued the Operational Standard for the Requirements for Vessels Arriving in New Zealand. This was done to clarify the procedures that needed to be undertaken under the Act for a vessel to arrive in New Zealand. For a summary of the existing arrival procedures, please refer to Appendix 3.

Formalising the existing arrival procedures in the proposed CRMS

30. MPI is formalising the current arrival procedures (specified in the operational standard) as requirements in the proposed CRMS to be an effective way for managing biosecurity risk associated with vessels, in doing so, MPI gave due consideration to a number of factors. These included whether New Zealand's existing border systems remained appropriate and effective risk mitigation measures, and looked at current scientific knowledge and internationally accepted best practices. Where appropriate existing border procedures have been incorporated into the proposed requirements as outlined in the following section. The explanations for the alteration of existing procedures in the CRMS are outlined in the feasibility and practicality of risk mitigation measures section of this document.

31. The CRMS and supporting Guidance Document have been set out in the new MPI Requirements & Guidance format to ensure consistency, to clarify legal requirements and to assist the reader in understanding the requirements and how they will be applied.

Proposed risk management

32. The vessel pathway is complex, as there are a variety of factors considered:
    - *i.* ports visited prior to departing for New Zealand (including ports in regions with known risks and those with unknown risks);
    - *ii.* vessels types entering New Zealand Territory (NZT) and arriving in New Zealand (vessels specifically for cargo (containerised, bulk carriers, tankers, and general cargo), passengers (cruise liners), fishing and recreational vessels such as yachts);
    - *iii.* activities undertaken (including discharging cargo, tourism, fishing, dredging, exploration and military);
    - *iv.* ports to be visited (including ports approved as a place of first arrival (POFA), ports not a POFA and places that are not ports); and
    - *v.* lengths of stay, from less than 24 hours through to indefinitely.

33. All of these factors have an effect on the potential above-water biosecurity risks that are often associated with vessels. MPI acknowledges the complexity of this pathway and is seeking to establish a set of requirements that are easy to understand and only triggered when mitigation actions are necessary to protect New Zealand.

34. In order for MPI to effectively manage the biosecurity risks as well as facilitate the movement of vessels in NZT and international trade, MPI has grouped the proposed management of above-water biosecurity risks into three generic risk mitigation measure categories:

    i. information,

    ii. on-board risk goods; and

iii. specific regulated pest species

These will be managed depending on the length (≤ 21 (short stay) or > 21 (long stay) consecutive days) and location (either at a POFA or places not POFA) of the vessel's stay in New Zealand.

35. The proposed risk mitigation measures are outlined below in the sequential order in which vessels enter NZT and then subsequently arrive in a New Zealand port or place; such as A) prior to entry into NZT, B) upon entry into NZT and C) upon arrival at a New Zealand port.

A) Prior to entry into New Zealand territory

36. To facilitate entry into NZT and the subsequent arrival of vessels at New Zealand ports, MPI proposes the following risk mitigation measures. These measures are intended to occur prior to the vessel's entry into NZT. This is to ensure that off-shore inspection and decontamination has been undertaken and that MPI has all the information it needs to make accurate risk assessments of each vessel.

Proposed information requirements

37. The CRMS proposes that the operator or person in charge of any vessel entering NZT and subsequently arriving in a New Zealand port needs to provide MPI with specific information. They need to inform MPI of the details of the vessel and its voyage, and its risk goods on board. This needs to be provided at least 48 hours prior to the vessel's entry into NZT. Other biosecurity information may also be appropriate such as if any pests have been seen on-route to New Zealand and if any risk goods will remain on-board a vessel that seeks to remain in NZT for less than 21 consecutive days. All these details provide MPI with the information needed for a risk assessment and to determine what level of intervention, if any, is required for the vessel's entry and arrival in New Zealand.
38. This information can be provided to MPI via a third party such as the agent for the vessel.
39. The proposed information requirements concern the vessel and voyage details and are set out in clause 1.4 of the CRMS.

Proposed Asian Gypsy Moth requirements

40. The CRMS seeks to require all vessels that enter NZT to be free of all life stages of AGM, the proposed AGM requirements are set out in clauses of Part 3 of the CRMS.
41. Not all vessels that enter NZT have the potential to be contaminated with AGM, as current scientific knowledge has defined the risk of AGM to specific locations at specific times of the year. Currently, known AGM source countries include Far East Russian, China, Korea, and Japan. The risk of vessel contamination arises when the AGM in these countries are in their flight season (usually the summer months). The biosecurity risk posed by vessels potentially contaminated with AGM may differ depending on the time of year. This is due to AGM egg masses having varying viability over time and different climatic conditions also influences viability (see summary of above-water biosecurity risks for details). As such, MPI has based its proposed risk mitigation measures on the flight seasons in the known source countries and when the vessel last visited the ports there. MPI did this so the proposed mitigation measures will only affect the vessels that have the potential to be contaminated with AGM.
42. The proposed requirements are based on the set of source countries and their ports (referred to as "risk areas") and their respective flight seasons (referred to as "risk periods"); these are listed

in full in Schedule 2 of the CRMS. The risk areas and periods are harmonised with the North American Plant Protection Organisation (NAPPO) Regional Standard for Phytosanitary Measures 33 - AGM requirements.

43. It is proposed that if a vessel has visited risk areas during the risk period within the last 12 months preceding to arrival in NZT, the CRMS will require the operator or person in charge of the vessel to ensure that the vessel has been inspected, any AGM egg masses removed and a certificate of freedom issued by an approved inspection body prior to entering NZT. The certificate also needs to be provided to MPI as part of the pre-arrival information. With these proposed requirements, MPI is satisfied that it is taking all practicable steps to mitigate the presence of AGM on arriving vessels without undue disruption to their movement.

Proposed general requirement before entry into NZT

44. The CRMS proposes a general requirement for all vessels as they enter NZT regarding the general cleanliness of the vessel. This sets the expectation that the operator or person in charge of the vessel take all reasonable steps to ensure that the vessel is as clean as practicable. This ensures that as few as possible hitchhikers or habitats for regulated pest to survive in are available and that the vessel is generally free of regulated pests and biosecurity contamination as they enter and remain in NZT. With this proposed requirement MPI is seeking to reduce the potential for random regulated pest and contaminants arriving in New Zealand, see summary of above-water biosecurity risk for details. In proposing this general requirement for all vessels in conjunction with the requirements for specific regulated pests, MPI is satisfied that it is taking all practicable steps to mitigate the presence of regulated pests and biosecurity contamination on arriving vessels without undue disruption to their movement.

45. This proposed requirement is set out in clause 1.5(1) of the CRMS.

B) Upon entering New Zealand territory

46. In conjunction with the proposed requirements prior to entry, the CRMS proposes requirements for vessels upon entry into NZT in order to facilitate the vessel's stay into NZT and any subsequent arrival of vessels. MPI proposes the following risk mitigation measures during the vessel's entire stay within NZT to ensure that any potential biosecurity risks are effectively managed.

Proposed On-board Risk goods management

47. The CRMS proposes a requirement to manage on-board risk goods for the durations of the vessel's stay within NZT, especially before the vessel reaches its intended port of first arrival where MPI inspectors are present. This requirement ensures that all risk goods are secured on-board the vessel thereby reducing the potential for regulated pests and biosecurity contamination from arriving in New Zealand. This includes ensuring that waste, rubbish or trash, food stuffs that do not meet Rule 170.6 of the New Zealand Maritime Protection Rules, and any domestic pets (for example birds, cats, dogs, fish and other domesticated animals) or house plants are prevented from being disposed of overboard or otherwise leaving the vessel except for biosecurity clearance at a place of first arrival. In proposing this general requirement for potential risk goods on vessels, MPI is satisfied that all reasonable and practicable steps are taken to manage the all potential biosecurity risks (including unpredictable hitchhikers on cargo such as GAS (MAF, 2009) and Brown Marmorated Sink Bugs (Appendix 1)) on vessels during its time within NZT without presenting undue disruption to their movement.

48. This proposed requirement is set out in clause 1.5(2) of the CRMS.

C) Upon arriving in New Zealand

49. In conjunction with the proposed general requirements triggered prior to and upon entry into NZT, the proposed CRMS also has requirements that are triggered on arrival in a New Zealand port in order to facilitate the vessel's stay in ports and NZT. MPI proposes the following risk mitigation measures during and after a vessel's arrival at a port to ensure that MPI can continue to manage any potential biosecurity risks while the vessel remains in NZT.

Proposed on-board risk goods management for short stay vessels

50. The proposed CRMS seeks to re-classify "coastwise vessels" as "short stay vessels".

51. The proposed requirements for short stay vessels ensure that the risk goods to remain on-board are secured during the vessel's entire stay within NZT. In managing the risk goods that remain on-board in this manner (including dunnage, foodstuffs and garbage not destined to be imported into or disposed of in New Zealand), MPI is satisfied that the biosecurity risks associated with these risk goods have been mitigated to such an extent that they need not be removed from the vessel and disposed of.

52. The CRMS proposes a requirement to manage risks goods on short stay vessels. This can be achieved either with an inspector's approval for the secure manner in which risk goods are managed on-board or that the risk goods are removed using an approved system at a POFA.

53. This proposed requirement is set out in clause 1.5(2) of the CRMS.

54. The proposed CRMS is designed to restrict the length of the stay to 21 days (or less) and the movement of short stay vessels only to ports approved to receive vessels and risk goods from another country. In restricting the length of stay and movement of short stay vessels the CRMS ensures that:

    i. Vessels cannot stay indefinitely within NZT while retaining risk goods on board; and

    ii. Vessels only travels to approved ports with the right biosecurity systems in places to manage any biosecurity risk, should the need arise.

55. In managing the length of stay and locations of vessels that are permitted to retain risk goods on board, MPI is satisfied that the opportunities for potential biosecurity risks arrival into New Zealand are mitigated to such an extent that further management of these vessels and risk goods (i.e. such as those for long stay vessels) is not considered necessary.

56. This proposed requirement is set out in clause 2.1 of the CRMS.

Proposed long stay vessels requirements

57. Under the proposed requirements, operators or persons in charge of vessels that intend to be in NZT longer than 21 days or wish to visit places or ports not approved as places of first arrival will need to comply with the following. Such vessels need to be free of regulated pests and biosecurity contamination, and obtain a written CRMS compliance certificate from an inspector. By ensuring that every practical step has been taken to remove all biosecurity risks from the vessel in a secure and approved manner and location, MPI is satisfied that biosecurity risks have been mitigated to such an extent that the vessel can be released from biosecurity monitoring.

58. To ensure that the operators or persons in charge of a vessel do not delay obtaining a written compliance certificate to the extent that it increases the potential for biosecurity risks arriving in New Zealand, the CRMS proposes a 21 day limit before MPI will take further action to mitigate on board risk goods.

59. This proposed requirement is set out in clause 2.2 of the CRMS.

Feasibility and practicality of the proposed risk mitigation measures

Proposed Information requirements

61. Most of the proposed information requirements are already part of the existing arrival procedures. The only changes include the length of stay in New Zealand and for those vessels affected by the increased AGM source area.

62. Currently, all the pre-arrival and voyage information is collected via the Master's Declaration and Advanced Notice of Arrival forms which are available on MPI's website. The proposed CRMS does not alter the method with which MPI collects the arrival information, rather MPI anticipates the addition to or alteration of questions in the existing forms; similar to:

    i. Adding a question about the length of stay in NZT. The CRMS assumes that vessels will stay less than 21 consecutive days as the vast majority of vessels visiting New Zealand are short stay commercial vessels. As a result the forms will ask vessel operators to indicate if they intend to stay for more than 21 consecutive days.

    ii. Altering questions relating to AGM to include Japan, China and Korea as AGM source countries and their respective risk periods. This will include asking operators to indicate whether they have obtained a certificate of freedom if they have visited any of the source countries within their risk period.

63. As such, MPI does not consider the proposed information requirements to significantly alter the existing arrival procedures and thus will only a very minor effect on vessel operators.

Proposed requirements for risk goods

64. Risk goods on vessels have been managed under the Biosecurity Act 1993 since it come into force on 1 October 1993. For vessels arriving in New Zealand this has meant either securing risk goods on board in an appropriate manner or removing risk goods through an approved process at a POFA. Such risk goods are either disposed of, re-shipped or imported under the requirements of an import health standard. These arrival procedures were clarified in the Operational Standard issued in 2007.

65. While the proposed CRMS refers to risk goods generically rather than listing specific risks as in the operational standard, it does not significantly alter existing arrival procedures for vessels in regards to risk goods management. The proposed CRMS will continue to enable some risk goods to remain secured on board vessels that stay in NZT for a short time. Otherwise risk goods are removed from the vessel through an approved process at a POFA. Such risk goods are either disposed of, re-shipped or imported under the requirements of an import health standard. All of which are existing options.

66. Currently, vessels that only stay for a limited time in NZT are classed as "coastwise vessels' and have the ability to retain risk goods on board during their stay. Under the proposed CRMS these vessels will be classed "short stay vessels" and have the ability to retain risk goods on board. Coastwise vessel are currently limited to only visiting ports approved as places of first arrival due to the risk goods that remain on board and this will be the same under the proposed requirements for short stay vessel. The only proposed alteration to the procedures for short stay vessels is that the proposed CRMS has defined the limited time they can remain in NZT as up to 21 consecutive days only. The 21 day limit is proposed as it is consistent with the requirements of the CRMS Biofouling issued in 2014 and that will come into force in 2018.

67. If vessel operators intend to stay longer than the 21 consecutive days or visit places that are not POFAs, then the proposed CRMS requires them to have all the risk goods obtain biosecurity

clearance or be removed via an approved process at a POFA and vessel compliance confirmed by an inspector.

68. Currently, vessels that stay for a long periods in NZT are classed as "fully cleared vessels" and these have the ability to visit non POFAs during their stay in NZT. The proposed CRMS will class these vessels as "long stay vessels". Under the current procedures, vessels that either stay for long periods or visit places not approved as a POFA are required to have all risk goods managed appropriately. This is by having risk goods removed or obtaining biosecurity clearance for them at a POFA and then obtaining vessel clearance from an inspector to travel freely within NZT. The CRMS does not propose to changes this process. The proposed requirement will still require all risk goods to be removed or obtain biosecurity clearance, then obtain confirmation of compliance with the CRMS from an inspector before the vessel can move freely within NZT. The only difference in the proposed CRMS is in terminology, where the term "clearance" becomes "compliance".
69. As such, MPI does not consider the proposed requirements for risk goods to significantly alter the existing arrival procedures and thus having only a minor effect on vessel operators.

Asian Gypsy Moth

70. AGM is an regulated species of significance in New Zealand (MAF, 2008) and the pathways AGM is known to be associated with have been managed in some form since 1992 (NAPPO, 2009) and 1993 (New Zealand). Internationally Japan, Korea, Far East Russia and China have been recognised as source countries of AGM on vessels, with Canada, Chile, Mexico and United States of America having established mitigation measures for vessels that have visited ports in any of the known source countries during their flight seasons (NAPPO, 2009).
71. As a result of the known biosecurity risk AGM poses, New Zealand has had an AGM risk mitigation and monitoring programme since 1993, which enabled the detection and eradication of AGM from New Zealand in 2005.
72. Since 1993 New Zealand has been successfully managing the AGM risk from Far East Russia with the Russian Federations' Federal Services for Veterinary and Phytosanitary Surveillance by requiring certificates of freedom of AGM prior to vessel arrival in NZT.
73. In order to further manage the known AGM risks, MPI begun informally requesting and accepting certificates of freedom of AGM from the Japanese (2010), Korean and Chinese (2015) inspection bodies recognised by National Plant Protection Agencies of North America Organisation (NAPPO). The proposed requirements seek to formalise these informal requirements.
74. In alignment with NAPPO and the national regulatory agency of Chile AGM requirements (NAPPO, 2009, SAG, 2013), the proposed risk management measures of the proposed CRMS MPI will be continuing New Zealand's AGM risk management policy to reduce the risk of any future introductions of AGM. In harmonising the proposed requirements with those of the NAPPO (NAPPO, 2009) as much as possible, MPI will reduce the impact on the movement of vessels and international trade.
75. While MPI acknowledges that the proposed AGM requirements will require some vessel operators to alter some of their procedures prior to arriving in New Zealand, Canada, Chile, Mexico and the United State of America have similar requirements for AGM. Many vessels that visit New Zealand also visit these countries and MPI does not consider its proposed AGM requirements to be impractical or to unjustifiably impede the movement of such vessels.

Summary

76. In developing the CRMS MPI gave due consideration to:
    i. New Zealand's existing vessel arrival requirements (in terms of practicality and effectiveness);
    ii. changes to international requirements for vessels;
    iii. the biosecurity risks to New Zealand associated with the vessel pathway; and
    iv. the practical implications of proposed requirements on the industry and trade.
77. In proposing these requirements for all vessels, MPI is satisfied that all practicable steps will be taken to mitigate the presence of regulated pests and biosecurity contamination under the Biosecurity Act 1993. These include unpredictable hitchhikers, those associated with micro-climates on a vessel, those associated with the vessel only, and those associated with the cargo on vessels arriving in New Zealand.
78. The proposed CRMS requirements are considered to be consistent with other standards that relate to the arrival of vessels in New Zealand, including the IHS Ballast Water, CRMS Biofouling, Place of First Arrival Standard and the Standard for General Transitional Facilities for Uncleared Goods.
79. MPI considers there to be significant scientific justification in proposing these requirements in order to protect New Zealand from regulated pests and biosecurity contamination while still enabling international trade and vessel movement, as is required for a member of the WTO and signatory of the SPS Agreement.

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Definitions and Acronyms

Unless a term has a specific definition listed below, then the meaning should be taken to be the same as that found in section 2 of the Biosecurity Act 1993.

Asian Gypsy Moth (AGM) means all life stages of the following species of Asian Gypsy Moth *Lymantria dispar asiatica, Lymantria dispar japonica, Lymantria umbrosa, Lymantria albescens* and *Lymantria postalba*.

Approved system means a system approved as part of the approval of a place of first arrival under section 37 of the Act.

New Zealand territory (NZT) means the land and the waters enclosed by the outer limits of the territorial sea. Where territorial sea has the meaning given to it in section 3 of the Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977.

Place of first arrival (POFA) means a seaport that has been approved under section 37 of the Act as a place of first arrival for vessels and risk goods.

Regulated pest and biosecurity contamination means a risk good not intended for clearance under the Act. For the purposes of this CRMS the following are examples of regulated pests and biosecurity contamination that are managed by this CRMS:

Domestic waste and the vacuums from cabin, deck, hold and other internal areas;

- Domestic waste and the vacuums from cabin, deck, hold and other internal areas
- Animals and plants and parts thereof (for example, fruit, house plants, floral arrangements, animal and plant waste);
- Soil;
- spillage from previous cargo in the hold; and
- Pests and their material such as nests or egg masses.

Risk area means a country or an area of a country that a vessel may have visited where contamination with AGM is likely to occur. If a vessel visits one or more of these areas during the risk period the CRMS imposes requirements on a vessel operator to obtain certification of freedom from AGM after visiting there; and listed in column 1 of Table 1 (Schedule 2).

Risk goods: as defined in section 2 of the Act. For the purposes of this CRMS the following are examples of risk goods that are managed by this CRMS:

- Uncleared goods or cargo (for example cargo destined for another country and spillage from previous cargo in the hold); and
- Wood packaging (for example dunnage).

Risk period means the period in respect to a risk area when a visiting vessel is likely to become contaminated with AGM due to it being the time for flight and egg laying by the female adults; and listed in column 3 of Table 1 (Schedule 2).

Secured means prevented from leaving or being removed from the vessel, including being removed by birds or vermin or prevented from releasing organisms that may establish in New Zealand. Appropriate methods of securing risk goods include the cook preventing access to prohibited food

items; garbage being kept in a leak-proof, vermin, insect and bird proof container or room; contaminated dunnage being kept inside a locker.

Substantially clean means substantially free of rubbish, uncontained food, standing water, insects, rodents and other pest-type organisms (including their nests and other signs).

Valid certificate of freedom from AGM means a document that certifies that the vessel is free of AGM and that is:

- issued by an inspection body that has been approved by the DG and listed on the website at the time the certificate was issued; and
- based on an inspection undertaken by that inspection body:
- during daylights hours on the same day as the vessel departs from the risk area; or
- at a later time outside the risk period; or
- after the vessel has departed from the risk area.

Vessel means a ship as defined in the Maritime Transport Act 1994.

Written CRMS Compliance means an official document issued by an inspector that confirms, that at time of inspection, the vessel meets the requirements of the CRMS and clears the vessel from biosecurity monitoring.

Acronyms

Act	Biosecurity Act, 1993.
AGM	Asian Gypsy Moth
CRMS	Craft Risk Management Standard
MPI	Ministry for Primary Industries
NZT	New Zealand Territory
POFA	Place of First Arrival

Appendix 1 - Technical advice on: Review and update of risk analyses related to vessels (above water)

Date: 10 Dec 2015

Name: Melanie Newfield

Position: Manager Plants and Pathways risk assessment

Purpose of document:

A Craft Risk Management Standard has been drafted for vessels and will be released for consultation in December 2015 or January 2016. There are risk analyses supporting this standard, but they are relatively old. These risk analyses are the pest risk assessment for Asian gypsy moth (MAF 2008) and the pathway risk assessment for vessels (MAF 2009).In addition, there are other pieces of work which cover the period since the risk analyses, including the brown marmorated stink bug risk analysis, technical advice on Asian gypsy moth and records from the emerging risk system.

This document summarises all the new information and is intended to be included as an appendix in the risk management proposal.

Summary:

- The scope of the 2008 risk analysis for Asian gypsy moth (AGM) was defined as forms of L. dispar "from Eastern Asia with predominantly flying females". The geographical area considered was Japan, China, the Korean Peninsula and Russia west of the Ural Mountains.
- The taxonomy of Lymantria dispar has been updated and the definition of AGM used in the 2008 risk analysis includes:
    - *Lymantria dispar asiatica* Vnukovskij
    - *Lymantria dispar japonica* (Motschulsky)
    - *Lymantria umbrosa* (Butler)
    - *Lymantria albescens* Hori and Umeno
    - *Lymantria postalba* Inoue
- Some new information has been published on the seasonality of the risk of Asian gypsy moth. While there is a lower risk of Asian gypsy moth establishing during the New Zealand winter, the information is not sufficient to determine a season of minimal risk.
- Some new hitchhiker pests have been identified which are potentially associated with the vessel pathway. All of these fit within the existing grouping in the vessels risk analysis, indicating that the risk analysis is still relevant.
- The brown marmorated stink bug (Halyomorpha halys) is the most important emerging risk associated with the vessels pathway. It is most likely to occur on vessels when brought on in cargo.

Advice:

Updated taxonomy for Asian gypsy moth

The most recent MPI pest risk analysis for AGM (MAF 2008) was based on the taxonomy of Schintlmeister (2004). Schintlmeister (2004) distinguished only *L. dispar dispar* and *L. dispar japonica*. Because this taxonomy was too broad to be useful for the risk analysis, the scope was narrowed to specific biological traits and geographical areas.

The scope of the MPI risk analysis was defined as forms of *L. dispar* "from Eastern Asia with predominantly flying females". The geographical area considered was Japan, China, the Korean Peninsula and Russia west of the Ural Mountains (MPI 2008).

A taxonomic review of the genus *Lymantria* by Pogue and Schaefer (2007) became available at around the same time as the MPI risk analysis was completed. The risk analysis did not take that review into account. However since then, that review has been widely accepted and incorporated into regulations for the management of Asian gypsy moth.

Using the taxonomy of Pogue and Schaefer (2007), the following species fit the definition of AGM used in the MPI risk analysis:

- *Lymantria dispar asiatica*
- *Lymantria dispar japonica*
- *Lymantria umbrosa*
- *Lymantria albescens*
- *Lymantria postalba*

This definition of AGM is consistent with that used in the regulations of other countries, for example the USA and Canada (NAPPO 2009).

Seasonality of AGM

MPI's pest risk analysis for AGM (MAF 2008) recognises that the spring period when deciduous host trees are leafing out is the most likely time for establishment of AGM in New Zealand. However it concludes that establishment cannot be ruled out at other times. Based on the available information at that time, hatching time was considered difficult to predict, due to different phenology dependent on the latitude and different weather conditions, as well as the unpredictable conditions that egg masses will have been exposed to prior to arrival in New Zealand (depending on the route of the ship and conditions in transit).

Since that time further models have been published indicating variation in the seasonal risk of Asian gypsy moth (e.g., Pitt et al. 2007, Gray 2010).

The work of Pitt et al. (2007), based on European gypsy moth (*Lymantria dispar dispar*) in North America, looked at establishment in parts of Canada and New Zealand following adult emergence at different times of year. Their work does indicate a period of minimal risk. The period when establishment was unlikely according to the model ran from mid-June to mid-September in the North Island of New Zealand (about 3 months), while in the South Island it is slightly longer, starting earlier and ending later. The New Zealand results were compared with results from the area of Canada with a similar climate type to New Zealand (New Brunswick, Nova Scotia and Prince Edward Island). The results from Canada showed a much longer period when establishment was unlikely – from the end of

October until the start of May (about 7 months). Note that the model was based on dates of adult emergence, and the dates need to be earlier to consider arriving egg masses.

Based on the model, the period of minimal risk for egg arrival in New Zealand runs from about mid-April to mid-July.

Although Pitt *et al*. (2007) do indicate a period of minimal risk, they indicate that the model may underestimate the risk when applied to AGM, based on differences in diapause and egg hatch. Depending on the differences among species which make up AGM, this period of minimal risk may be shorter or longer. Overall though, the model indicated that New Zealand does appear to have a much longer period suitable for establishment of *L. dispar* than does Canada.

There are additional reasons to think that Pitt et al. (2007) may have underestimated the suitable time period. The model makes the specific assumption that host plants are deciduous and therefore unavailable during mid-winter. However at least some species of AGM have evergreen hosts such as Eucalyptus spp. which are common in New Zealand (e.g. see Matsuki *et al*. 2011, MAF 2008).

Gray (2010) considered the likelihood of eggs hatching from ships and cargo shipped from Japan to New Zealand. His model also shows a seasonal pattern, with eggs on cargo arriving directly from Kobe hatching in New Zealand in November and December, with egg hatch completed before January. The model doesn't quite match the New Zealand experience with *L. umbrosa*, which was detected as an adult in March and assessed as most likely to have hatched in January (Ross 2006). However given that *L. umbrosa* occurs at higher latitudes that Kobe (Hokkaido northwards), a later egg hatch is not unlikely.

The model of Gray (2010) notes that eggs on ships which do not leave the northern hemisphere would not hatch until spring of the following year. It doesn't indicate what would happen if ships with egg masses stayed in the northern hemisphere for a period of time before travelling to New Zealand.

Together the two models are indicative of a period when there are unlikely to be viable eggs on ships and when hatched eggs are unlikely to survive. However they indicate that this period is likely to be much shorter than in the northern hemisphere, perhaps as short as three months. There is also still significant uncertainty due to the scope and assumptions of the models.

As a result, there is currently insufficient evidence to define a season when arriving AGM egg masses are unlikely to establish. There are some references indicating that a "minimal risk" season may exist. These references also indicate that if there is a "minimal risk" season, it is much shorter for the southern hemisphere than it is for the northern hemisphere.

New pests since the vessels risk analysis

The vessels risk analysis (MAF 2009 unpublished report) was one of a relatively small number of risk analyses done for "inanimate" pathways, rather than biological commodities like fresh produce or animal products. For most risk analyses the hazard identification is based on pest-commodity associations recorded in the scientific literature. Because associations between pests and inanimate pathways (often termed "hitchhiker" associations) are seldom recorded in the scientific literature, the hazard identification was based on interception records.

The pests recorded in the interception records were classified into five groups according to their method of association with ships. The five groups and the examples assessed are summarised in the table below.

Table 1 Characteristics of groups of hazards associated with vessels above the water line

Grouping	Characteristics	Example organisms
Human-associated hitchhikers	* can complete its life cycle entirely in human-modified environments; * can enter a vessel by any means and then establish long term ship-board populations.	*Latrodectus geometricus* (brown widow spider) *Hemidactylus frenatus* (Asian house gecko) *Paratrechina longicornis* (crazy ant)
Vessel micro-habitat-associated hitchhikers	* have specific habitat requirements for at least part of the life cycle; * can enter a vessel by any means, but will only survive if the specific habitat requirements are met on the vessel; * the presence of these habitats aids predictions of an association between a risk organism and the vessel.	*Culex annulirostris* (mosquito)
Aggregated vessel jumpers	* association with a vessel and means of getting off it in New Zealand is through the organisms' own propulsion; * have life history traits that result in aggregation.	*Agrotis infusa* (bogong moth) *Lymantria dispar* (Asian gypsy moth) *Coccinella transversalis* (transverse ladybird)
Cargo-associated hitchhikers	* have specific host or habitat associations for much of their life cycle, but also have a life stage that can survive periods away from their host and which can be transported; * get on and off a vessel in association with cargo.	*Achatina fulica* (giant African snail)
Unpredictable hitchhikers	* the circumstances behind the association with vessels do not follow a discernible pattern; * for vessels, the common features are flight ability and occurrence in sufficiently small numbers that establishment is unlikely.	*Gryllodes sigillatus* (tropical house cricket)

The grouping of the pests was aimed at covering all types of pests associated with vessels above the waterline. It allows the risk analysis to be robust even if there are new pests recorded, unless those pests do not fit into the existing categories.

Table 2 Alerts to the emerging risk system which are relevant to the vessels risk analysis (MPI unpublished data, Sep 2012-Nov 2015)

Emerging risk alert	**Group**
Seasonal outbreaks or increased populations of Asian gypsy moth, multiple alerts.	Aggregated vessel jumpers
Vineyard snail (*Cernuella virgata*) – increased awareness of this species as a risk to New Zealand. Recognised as a hitchhiker on cargo.	Cargo-associated hitchhikers
Spread of brown widow spider (*Latrodectus geometricus*) to new countries. Recognised as a hitchhiker on a range of inanimate pathways.	Human-associated hitchhikers
Spread of Turkestan cockroach (*Blatta lateralis*) in the USA. Able to live in houses and other buildings.	Human-associated hitchhikers
Yellow spotted stink bug (*Erthesina fullo*) detected at the New Zealand border. Has some life history traits indicating it may be a hitchhiker.	Cargo-associated hitchhikers
Spread of brown marmorated stink bug (*Halyomorpha*	Cargo-associated hitchhikers

halys), multiple alerts.	
Spread of tiger mosquito (*Aedes albopictus*) to new countries. A container-breeding mosquito.	Vessel micro-habitat-associated hitchhikers.
Portuguese millipede (*Ommatoiulus moreletii*) outbreaks reported in Australia. Reported as a hitchhiker in passenger baggage and some cargo.	Cargo-associated hitchhikers

All of the hitchhiker alerts in the emerging risk system fit within the groups identified in the 2009 risk analysis, indicating that the risk analysis is still applicable to the types of pests associated with vessels.

Brown marmorated stink bug

The most important new hitchhiker pest to emerge since the vessels risk analysis was done is the brown marmorated stink bug (*Halyomorpha halys*). The brown marmorated stink bug was considered briefly at the time of the vessels risk analysis but at this point there was limited information about it. It was considered to be one of the species that fitted into the "aggregated vessel jumpers" group, given its aggregation behaviour and flight ability.

Brown marmorated stink bug has some of the traits associated with the aggregated vessel jumpers group of hitchhikers. As stated in the 2012 pest risk analysis (MAF 2012), it:

- is usually associated with a wide range of plant species
- has adults which aggregate away from host plants in the autumn
- enters diapause and can then survive for months away from the their host plants
- has sufficient flight ability to fly onto vessels.

However the aggregation usually occurs relatively close to host plants, for example a number of recent vehicle interceptions came from factories directly adjacent to soybean fields (MPI unpublished data). It therefore doesn't meet the criterion for aggregated vessel jumpers that "association with a vessel depends on the location of the vessel in relation to the critical life stage which is transported".

In addition to a number of emerging risk alerts, an all pathway pest risk analysis has been conducted on the brown marmorated stink bug (MAF 2012). The pest risk analysis considered vessels (vessel holds) and aircraft as a pathway for brown marmorated stink bug. Brown marmorated stink bug was considered most likely to get onto vessels and into vessel holds by being transported on cargo and then moving from that cargo in transit. This

conclusion was based on the limited likelihood of a vessel or aircraft being adjacent to areas containing host plants.

The 2012 pest risk analysis conclusions indicate that brown marmorated stink bug best fits into the category of cargo-associated hitchhikers. Recent interceptions of brown marmorated stink bug in association with used vehicles and machinery, or in ship holds carrying used vehicles and machinery (summarised in MPI 2015) support the conclusion that brown marmorated stink bug fits into the cargo-associated group of hitchhikers.

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Appendix 2

Extract from MAF Biosecurity New Zealand's unpublished:

Data Analysis, Survey, and Risk Analysis Teams

Vessel Monitoring Survey and Risk Analysis

March 2009 - June 2009

BMR 08–09/05

Section 7: Risk Analysis pages 27-35

7 Risk Analysis

The draft standard for vessel clearance instigates a more risk-targeted approach to biosecurity inspection and management (MAFBNZ, 2007). Vessel inspectors will specifically search areas of vessels that past compliance records, profiling and intelligence indicate as high risk.

To implement this approach, the above-water as well as below-water biosecurity risk from vessels arriving in New Zealand needs to be understood. Further, the organisms that pose a biosecurity risk on this pathway need to be identified in addition to the vessels likely to carry them. Organisms associated with the above-water parts of vessels are hitch-hiker organisms, that is, they have an opportunistic association with the vessel rather than a biological host relationship. Because vessels are a hitch-hiker pathway, literature reviews are of limited value in determining which organisms may pose a biosecurity risk. Instead, records of organisms intercepted during the course of vessel inspections or surveys are essential to provide evidence of an association between an organism and the pathway and its ability to survive translocation to New Zealand. Interception records used in combination with information about the biology of the organisms enables the most likely types of organism to be associated with vessels to be determined and allows the identification of representative/ example species.

The results of the vessel survey, the vessel organism identification study and historical interception records from vessels provide the data to enable potential hazard organisms to be identified. For this analysis, these interception records have been used to identify groups of organisms with similar characteristics. Example species in each group of organisms have been subjected to more detailed assessment, to determine whether there is a risk worth managing. Note that this analysis only addresses biosecurity hazards above the water line. Hazards associated with biofouling and ballast water are considered elsewhere.

The vessel survey has demonstrated that vessels have a large number and varying types of organisms associated with them. However, these organisms are only likely to be a biosecurity risk if they have a mechanism for regular association with the vessel pathway and a means of departing the vessel whilst it is close to shore in New Zealand. These two factors have been used to group the intercepted organisms. Table 1 outlines the characteristics of the groups, and Annex 1 allocates all live organisms intercepted during the vessel survey to one of these groups. Grouping is a means to understand and effectively manage the risk posed by a large range of organisms. It helps separate hitch-hikers that are regularly associated with the pathway from the very occasional ones. It takes account of organisms that have not been detected in the course of the short duration survey but may be a biosecurity risk. The identification of risk factors, using example organisms for each group, should make the analysis robust for other organisms with similar characteristics. The groups are not absolute: they merely provide a means of understanding the different types of hitch-hiker likely to be associated with vessels.

Table 1 Characteristics of groups of potential hazards associated with vessels above the water line

Grouping	Characteristics	Example organisms	Number of samples
Human-associated hitch-hikers	- can complete its life cycle entirely in human-modified environments; - can enter a vessel by any means and then establish long term ship-board populations.	*Latrodectus geometricus* (brown widow spider) *Hemidactylus frenatus* (Asian house gecko) *Paratrechina longicornis* (crazy ant)	**554**
Vessel micro-habitat associated hitch-hikers	- have specific habitat requirements for at least part of the life cycle; - can enter a vessel by any means, but will only survive if the specific habitat requirements are met on the vessel; - the presence of these habitats aids predictions of an association between a risk organism and the vessel.	*Culex annulirostris* (mosquito)	**316**
Aggregated vessel jumpers	- have specific host or habitat associations for much of their life cycle, but also have a life stage that can survive periods away from their host and which can be transported; - association with a vessel depends on the location of the vessel in relation to the critical life stage which is transported; - association with a vessel and means of getting off it in New Zealand is through the organisms' own propulsion; - have life history traits that result in aggregation.	*Agrotis infusa* (bogong moth) *Lymantria dispar* (Asian gypsy moth) *Coccinella transversalis* (transverse ladybird)	**173**
Cargo-associated hitch-hikers	- have specific host or habitat associations for much of their life cycle, but also have a life stage that can survive periods away from their host and which can be transported; - get on and off a vessel in association with cargo.	*Achatina fulica* (giant African snail)	**5**
Unpredictable hitch-hikers	- the circumstances behind the association with vessels do not follow a discernable pattern; - for vessels, the common features are flight ability and occurrence in sufficiently small numbers that establishment is unlikely.	*Gryllodes sigillatus* (tropical house cricket)	**122**

The risk from at least one example organism in each group is assessed, more where the range of biology within the group is diverse. Well known, high consequence organisms are selected as examples where possible. It is assumed that risk management for these species will also manage risks associated with other species in the same group. If hitch-hikers are later identified that have not been assessed and are not likely to be managed under the identified approaches, further assessment will be needed.

Options for managing the risk from biosecurity hazards identified on this pathway are considered below.

7.1 Human associated organisms

Some organisms can complete their entire life cycle in anthropogenic environments with no requirement to be associated with host plants or other features of the natural environment. They are frequent hitch-hikers on inanimate pathways (e.g. Biosecurity New Zealand, 2007a). They can enter a vessel by a variety of means and establish a long-term population on board a vessel.

Potential hazards within the group of human associated hitch-hikers that establish a population on a vessel include: many spiders, reptiles and social insects particularly ants, as well as less visible organisms such as earwigs (Annex 1).

Risk assessments for *Latrodectus geometricus*, brown widow spider, *Hemidactylus frenatus*, Asian house gecko and *Paratrechina longicornis*, crazy ant were undertaken as examples of this group.

Conclusion of the risk assessments

Latrodectus geometricus appears to establish populations on board vessels. It is only likely to enter New Zealand from vessels in association with cargo or containers infested while being transported in a vessel. This likelihood is considered to be low and the likelihood of establishment in New Zealand is high in restricted parts of New Zealand. The consequences of establishment are non-negligible.

The risks from *Hemidactylus frenatus* and *Paratrechina longicornis* on vessels are similar to that from *L. geometricus.*

Overall, the risk for the human associated group of organisms on the vessel pathway is much lower than it is for the same organisms on other pathways, such as imported vehicles or containers. This is because of the low likelihood of these organisms departing a vessel and getting to a location in New Zealand where the organism is able to establish. However, the risk is such that risk management options are worth considering.

Opportunities for risk management

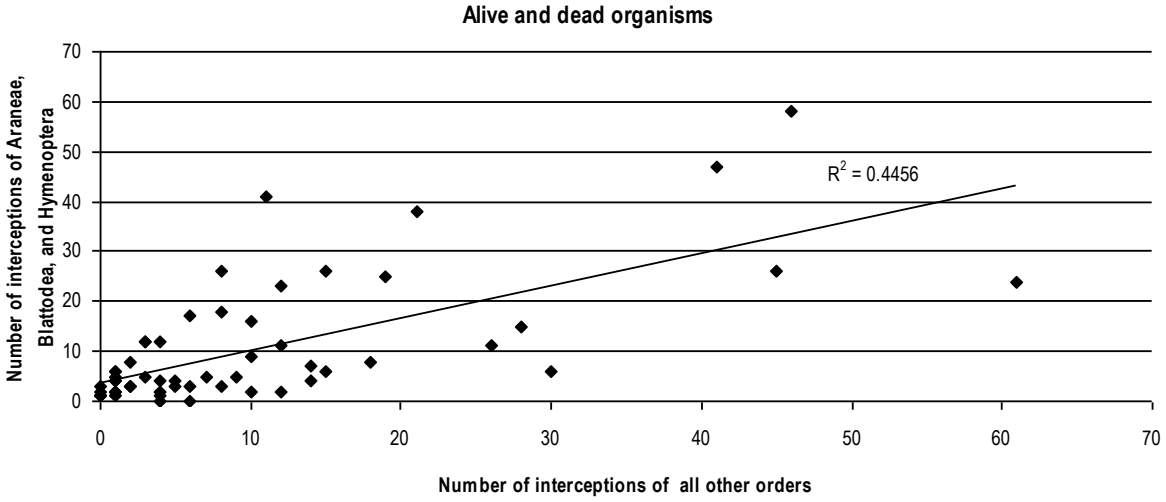
Populations of some organisms, particularly cockroaches and ants, in the human associated group of potential biosecurity hazards are already being managed in the inhabited parts of some vessels. It may be difficult to further manage the risk from these organisms. Options include control of on-board populations, or preventing the organisms getting on and off the ship. For either option it is first necessary to identify the vessels for which management is required.

Since organisms in this group establish ship-board populations, voyage characteristics of the vessel and the type and origin of the cargo are irrelevant. Visual inspection is not an effective way to detect these organisms. This is because many spiders and geckos are nocturnal and actively hide from sources of light. Other organisms are difficult to detect, particularly in the hold of a vessel. For instance, very few spiders and ants were detected during the organism identification study. The routine vessel inspections in that study did not include holds.

However, examination of vessel contamination rates indicates that the overall level of infestation of a vessel may be used as an indicator to identify the vessels most likely to be

infested with spiders and ants, and conversely that the presence of spiders, ants or cockroaches is likely to be an indicator that the vessel is infested with other organisms (Figure 1). Therefore, visual inspection for overall contamination rates can be used to indicate the vessels that are highest risk for this group

Figure 1 Relationship between Araneae, Blattodea and Hymenoptera and other orders found during the vessel survey.



Visual inspection of holds to identify the most highly infested vessels may be practical. Only six out of the 66 surveyed vessels fit the description of "highly infested" (defined as having more than 50 contaminants). These vessels could be flagged for more intensive management using baits, traps or general cleaning. Alternatively the ships could be required to be fumigated.

Managing the risk from geckos on vessels is a particular challenge. They are likely to have been under-recorded in the survey due to their nocturnal nature and lack of association with obvious signs, such as webbing (by which many nocturnal spiders are detected). The vessels in which geckos were found in the survey are not, with one exception, those with high levels of other contaminants. On the basis of current information, profiling vessels to identify those likely to be higher risk for geckos is not possible. Given the uncertainty about consequence and the low likelihood of entry via vessels, this may be considered acceptable.

7.2 Organisms associated with micro habitats on a vessel

Some hitch-hikers have specific habitat requirements for at least part of their life cycle. If these requirements are known, the presence of these habitats on a pathway may enable predictions of an association between a risk organism and the pathway. These hitch-hikers can enter a vessel by any means, but will only survive if the specific habitat requirements are met on the vessel. Habitats such as soil, plant debris, dead animal material, water, food or cargo residues may occur on vessels. Many organisms in this group of hitch-hikers are small, often microscopic, and therefore difficult to detect.

Potential hazards within the group of hitch-hikers associated with micro habitats on board vessels include:

- stored product/food pests (beetles, flies, moths, silverfish, psocids, diseases associated with seeds). However, many of the organisms of this type intercepted in the survey are already established in New Zealand;
- organisms associated with pooled water (mosquitoes);
- organisms associated with wood (beetles, a cockroach, carpenter ants, millipedes).

A risk assessment was undertaken for the mosquito, *Culex annulirostris* as an example of this group.

Conclusion of the risk assessment

The likelihood of *Culex annulirostris* entering New Zealand from vessels is considered to be moderate. The likelihood of establishment in New Zealand is moderate and the potential consequences of establishment are high.

C. annulirostris has been assessed as a high consequence example of hitch-hiker organisms associated with particular micro habitats on a vessel. Mosquitoes such as *C. annulirostris* can enter New Zealand via vessels either as adults accidentally trapped in the vessel, or as desiccation-tolerant eggs, or as larvae in water-containing receptacles on a ship. The likelihood of entry by trapped adults is low and it is difficult to predict which vessels are likely to be affected. Specific risk mitigation is not likely to be practical. The risk from life stages associated with receptacles that can contain water is higher, although lower than pathways such as imported tyres. The risk is such that risk management options are worth considering. The likelihood is higher from recreational vessels that spend longer periods within flying distance of shore.

The risk from organisms associated with other micro habitats on vessels such as stored products and cargo residues has not been assessed in detail. The main risk factors in all cases are the presence of the relevant habitat on the vessel, whether the habitat remains permanently on the vessel and the mobility of the potential hazards. The risk will be higher when the habitat occurs on deck, such as water-containing receptacles in the case of mosquitoes or dunnage in the case of wood-associated organisms. This is because opportunities for getting off the vessel to a suitable location in New Zealand are increased.

Opportunities for risk management

Biosecurity risk from this group of potential hazards can be managed through management of the habitats on the vessel with which they are associated.

The biosecurity risks from potential hazards associated with stored products or cargo residues in vessels could be managed through requirements for cleaning holds, decks and stores and appropriate disposal of the sweepings. Whilst the biosecurity risks associated with the management of ships stores are outside the scope of this assessment, it should be possible to manage them effectively through the existing processes for ships stores. Similarly biosecurity risks associated with timber and dunnage are likely to be adequately managed through existing procedures. The risks associated with grain spilt from grain containers has not been assessed, but could be managed through a requirement to seal the doors prior to shipment. However, the older, more battered containers are likely to pose a greater risk from spillage and these are likely to be most difficult to seal effectively.

The information required to identify which vessels carry receptacles that can contain water is not available. Therefore, it is not currently possible to identify and target vessels that are a high risk for mosquitoes. Risk mitigation options may include highlighting the need to ensure that no receptacles likely to contain water are available on deck and any that are (for instance those that are part of the structure of the vessel) are treated. The MAFBNZ approved treatment for pooled water is to drain it and treat the cavity with 1 % solution of a range of chlorination solutions (Biosecurity New Zealand, 2007b). Note that since chlorine is potentially corrosive, treated parts of a vessel should be adequately flushed with water at the end of the required treatment period. Disinsection of inhabited parts of vessels with a residual insecticide, similar to the process used for aircraft, could be an option to manage the risk from adult mosquitoes.

7.3 Organisms associated with vessels determined by access through their own mobility (aggregated vessel jumpers)

Some organisms (many of which are plant pests) have specific host or habitat associations for much of their life cycle, but have a life stage that can survive periods away from their host and which can be transported. The association of these organisms with a pathway depends on the location of the transported item in relation to the critical life-stage which is transported.

In the case of vessels, there are two components to this group, the first of which is organisms whose association with a vessel and means of getting off it in New Zealand is through their own propulsion.

Hitchhiking organisms that are capable of flight can readily enter and exit a vessel. However, in order for establishment to occur, life history traits that result in aggregation are necessary. Different biological life cycles can have this effect. Either,

- Multiple individuals (or a gravid female) must be trapped on a vessel **and**
- The voyage must be short enough for the organisms to survive **or**
- The flighted adults must lay large numbers of desiccation tolerant eggs on the vessel and these must hatch synchronously while the vessel is in New Zealand waters.

Potential hazards within the aggregated vessel jumpers group of hitch-hikers (Annex 1) include some moths, beetles, locusts and Hemiptera that form mass aggregations, and some moths that lay multiple egg masses on ships.

Risk assessments were undertaken for Bogong moth, (*Agrotis infusa)*, Asian gypsy moth, (*Lymantria dispar*), and transverse ladybird (*Coccinella transversalis)*, as examples of this group of potential hazards.

Conclusion of the risk assessments

The likelihood of entry of mass aggregating species of Australian moth species such as *Agrotis infusa* into New Zealand via large numbers of adults arriving on vessels is considered to be high when particular meteorological conditions coincide with vessel loading at some Australian ports. These vessels are also likely to have other hitch-hikers whose risk has not been assessed. The likelihood of establishment in New Zealand is uncertain but non-negligible. The consequences of establishment of *A. infusa* could be moderate.

A. infusa has been assessed as a well known example of the vessel jumper group of hitch-hiker organisms. Asian gypsy moth, *Lymantria dispar* is also a high consequence example of

this group, although its biology is very different. In this case, female moths are attracted to lights and can lay large numbers of egg masses on vessels. Simultaneous hatching of eggs while an infested ship is in a New Zealand port provides the opportunity for large numbers of larvae to jump ship by 'ballooning' ashore. The likelihood of *L. dispar* entering and establishing in New Zealand via this means is lower than for other pathways, however synchronous arrival of large numbers of larvae would increase the likelihood of establishment. As for *A. infusa* only a few vessels are a risk.

The association between *Coccinella transversalis* and vessels is uncertain, but it appears that there are occasions when particular weather conditions and vessel loading procedures coincide with large aggregations of beetles on the east coast of Australia. These vessels are also likely to have other hitch-hikers whose risk has not been assessed. The numbers of beetles associated with vessels in these circumstances greatly increases the likelihood of their surviving shipment to New Zealand, leaving the vessel and establishing in New Zealand. The number of vessels involved is likely to be small but the risk is considered non-negligible. A similar species is *Hippodamia variegata*, a predatory ladybird. This species is native to Europe and Asia and has recently been introduced to Australia: it is likely to present a similar risk to that from *C. transversalis.*

Opportunities for risk management

Instances of multiple arrivals of adult moths and beetles have been associated with vessels whose last port of call is on the east coast of Australia, particularly Brisbane. Other risk factors include weather conditions at the time of loading and night loading. The number of vessels involved in multiple arrival events is small. Provision of accurate information from the crew prior to the vessels' arrival in New Zealand could enable these vessels to be identified and targeted for management. Liaison with the Australian Quarantine and Inspection Service may also help identify high risk periods and vessels.

Possible options for managing the risk from multiple egg masses of species such as *L. dispar* are discussed in MAFBNZ (2008). At present, targeted inspection are undertaken on all vessels that have been in known high-risk ports within the previous 1-2 flight seasons. Information gained from these inspections should help narrow down either the list of vessels which require this intensive inspection, or the regions on these vessels that require inspection.

7.4 Organisms whose association with a vessel is determined by cargo/container storage factors

A fourth group of organisms is similar to the previous group, in that they have a life-stage that can be transported on vessels. They differ from the previous group in that they get on and off the vessel in association with cargo, rather than under their own propulsion. Snails are considered to be potential hazards in this group (Annex 1). A risk assessment for giant African snail, *Achatina fulica*, was undertaken as an example of this group of potential hazards.

Conclusion of risk assessment

The likelihood of *A. fulica* entering New Zealand from vessels would only be in association with cargo or containers infested while being transported on a vessel. This likelihood is considered to be very low. The likelihood of establishment in New Zealand is uncertain. The potential consequences of establishment are considered to be high. The risk is such that risk management options are worth considering.

A. fulica has been assessed as a well known, high consequence example of hitch-hiker organisms whose entry onto and exit from a vessel is via cargo or containers. Relevant risk factors are the presence of high populations of snails in locations where they can infest cargo and an ability of the snails to survive extended periods of adverse conditions. The latter factor is common to many snails. Although the data are limited, the association between vessels and *A. fulica* appears related to conditions at ports in the Pacific islands.

Opportunities for Risk Management

Snails were recorded from only a small proportion of vessels in both the survey and the organism identification study. Since the risk is associated with infested cargo or containers, it can be managed by preventing or reducing infestation of the cargo/containers prior to loading. An example is the programme operating at some Pacific island ports to improve the cleanliness of containers, prevent re-infestation, and modify habitats to reduce the population levels of pests in the vicinity of ports (Lach et al, 2009).

All vessels from which *A. fulica* was intercepted had multiple other interceptions. This suggests that snails might be a more visible indicator of contaminated vessels. Historical evidence indicates that vessels infested with snails often carried cargo or containers with a variety of biosecurity contaminants. The presence of snails in a vessel may therefore also be used as an indicator to identify infested cargo/containers. An option could be for cargo/containers from these vessels could be flagged for more intensive management.

7.5 Unpredictable hitch-hikers

Some hitch-hiker organisms are accidentally associated with a pathway. The circumstances behind the association do not follow a discernable pattern and the likelihood of association is therefore very difficult to predict and manage. These organisms are trapped in a vessel but the reason for their presence in the vessel is not clear. In the case of vessels, the characteristic features of organisms in this group appear to be flight ability and occurrence in sufficiently small numbers that establishment is unlikely.

Potential hazards within the unpredictable group of hitch-hikers (Annex 1) include a wide range of organisms including some in the following Orders: Hymenoptera, Coleoptera, Diptera, Hemiptera, Isopoda, Neuroptera, Odonata, Psocoptera and Orthoptera as well as some seeds. A risk assessment for tropical house cricket, *Gryllodes sigillatus* was undertaken as an example of this group of potential hazards.

Conclusion of risk assessment

The likelihood of *Gryllodes sigillatus* entering New Zealand from vessels in sufficient numbers for a population to occur is considered to be negligible. *G. sigillatus* has been assessed as an example of hitch-hiker organisms whose association with vessels is unpredictable. The risk is likely to be similar for other organisms in this group that occur as single individuals in vessels.

Opportunities for risk management

Risk management is unlikely to be necessary for this group of organisms occurring on vessels because the risk is considered to be negligible.

Summary of findings

There were five groups of contaminants that were associated with vessels. These were human associated hitch-hikers, vessel micro- habitat-associated hitch-hikers, aggregated vessel jumpers, cargo-associated hitch-hikers, and unpredictable hitch-hikers (Table 2). Most of these groups of species can be managed according to the risk management options outlined in Table 2. Species that are considered as unpredictable hitch-hikers are more difficult to manage. However, the risk associated with these types of species is considered minimal.

Table 2 Summary of groups, characteristics, examples and risk management options for organisms found contaminating vessels.

Grouping	Characteristics	Example organisms	Risk management options
Human associated hitch-hikers	- can complete its life cycle entirely in human-modified environments; - can enter a vessel by any means and then establish long term ship-board populations.	*Latrodectus geometricus* (brown widow spider) *Hemidactylus frenatus* (Asian house gecko) *Paratrechina longicornis* (crazy ant)	- use the overall level of infestation of a vessel as an indicator to identify the vessels most likely to be infested with risk organisms. - require more intensive management of these vessels using baits, traps or general cleaning, alternatively these vessels could be fumigated.
Vessel micro-habitat associated hitch-hikers	- have specific habitat requirements for at least part of the life cycle; - can enter a vessel by any means, but will only survive if the specific habitat requirements are met on the vessel; - the presence of these habitats aids predictions of an association between a risk organism and the vessel.	*Culex annulirostris* (mosquito)	- manage the habitats on the vessel with which risk organisms are associated; - require cleaning of holds, decks and stores and appropriate disposal of the arisings*;* - require treatment of any water containing receptacles on a vessel deck; - disinsection of the inhabited parts of vessels.
Aggregated vessel jumpers	- have specific host or habitat associations for much of their life cycle, but also have a life stage that can survive periods away from their host and which can be transported; - association with a vessel depends on the location of the vessel in relation to the critical life stage which is transported; - association with a vessel and means of getting off it in New Zealand is through the organisms own propulsion; - have life history traits that result in aggregation.	*Agrotis infusa* (bogong moth) *Lymantria dispar* (Asian gypsy moth) *Coccinella transversalis* (transverse ladybird)	- require accurate information from the crew prior to a vessels' arrival in New Zealand to identify vessels carrying mass aggregations of insects and target these for management. Liaise with the Australian Quarantine and Inspection Service to identify high risk periods and vessels; - inspect the subset of vessels that have been in a port in countries in which *L. dispar* (& other insects that lay multiple egg masses on vessels) occurs, within the previous 1-2 flight seasons. Remove infestations or treat affected vessels and record results.
Cargo-associated hitch-hikers	- have specific host or habitat associations for much of their life cycle, but also have a life stage that can survive periods away from their host and which can be transported; - get on and off a vessel in association with cargo.	*Achatina fulica* (giant African snail)	- prevent snails (and organisms with similar traits) entering vessels by reducing infestation of the cargo/containers prior to loading. For instance expand the container hygiene programme; - use the presence of snails in a vessel as an indicator ofbiosecurity contamination in the vessel and associated containers.
Unpredictable hitch-hikers	- the circumstances behind the association with vessels do not follow a discernable pattern; - for vessels, the common features are flight ability and occurrence in sufficiently small numbers that establishment is unlikely.	*Gryllodes sigillatus* (tropical house cricket)	- none required since the risk is considered to be negligible.

Appendix 3 – Summary of existing vessel arrival procedures

from the

Operational Standard for the Requirements for Vessels Arriving in New Zealand

Arrival of vessels

1. Requirement 5.1 sets out that:
    i. vessels are required to only arrive in ports approved as places of first arrival pursuant to S37 of the Act, unless approval has been given to arrive in non-approved place under S37A of the Act; and
    ii. an advance notice of arrival specifying the port of arrival is to be sent to MPI 48 hours prior to arrival;
2. Requirement 5.2 sets out the classifications of vessels upon arrival;
    i. Coastwise vessels: vessels that do not receive biosecurity clearance and remain under biosecurity surveillance within New Zealand territorial waters and these vessels can only visit ports approved as place of first arrival subsequent to its arrival in New Zealand.
    ii. Fully cleared vessels: vessels that have received biosecurity clearance and are no longer under biosecurity surveillance within New Zealand territorial waters. The following vessels are required to become fully cleared vessel at the place of first arrival:
        A. Vessels cruising New Zealand territorial waters and visiting places that are not approved places of first arrival;
        B. Vessels that will remain in New Zealand territorial waters for more than 1 year.
    iii. To become fully cleared the following criteria must be met:
        A. All stores food be that are risk goods are too be removed from the vessels
        B. All cargo either removed or obtain biosecurity clearance
        C. All animals either removed to a quarantine facility, re-shipped or destroyed.
        D. All passengers and crew processed for entry into New Zealand
        E. All risk goods have been either removed or obtain biosecurity clearance.
3. Requirement 5.3 sets out the information requirements that must be sent to MPI 48 hours before arrival, as follows:
    i. Master's declaration
    ii. Advanced notice of arrival
    iii. Ballast water declaration

Specific biosecurity risk area requirements

4. Requirement 6.1 – *foodstuff*: sets out that no foodstuff is to be taken off the vessel unless the following criteria have been met:
    i. Permission has been given by an inspector; AND
    ii. They are being transferred to another vessel under supervision; or
    iii. Being held ashore in a transitional facility; or
    iv. Removed for disposal as refuse; or
    v. biosecurity clearance has been received.

5. Requirement 6.2 – *refuse*: requires all galley and food waste to be securely stored and can only be removed from the vessel via an approved system. No waste is to be discharge into the sea within 3nm from shore.
6. Requirement 6.3 – *other waste*: all waste that is not galley or food waste is required to be disposed of on-shore via an approved system.
7. Requirement 6.4 – *holds and decks*: MPI encourages vessel masters to maintain clean and tidy decks and holds in order to reduce the presence of contaminants such as ants, moths, mosquitoes, and spiders, and to dispose of materials that harbour such contaminants.
8. Requirement 6.5 – *dunnage*: must comply with the IHS for Wood Packaging Material from All Countries.
9. Requirement 6.6 – *ballast water*: must comply with the IHS for Ship's Ballast Water from All Countries.
10. Requirement 6.7 – *hull fouling*: sets out MPI's intention to bring in requirements for hull fouling in the future and encourages vessel master to maintain a clean hull.
11. Requirement 6.8 – *animals kept on board vessels*: all animals must comply with the relevant IHSs if they are to come off-board; otherwise cats and dogs are to be securely stored on-board with permission from an inspector.
12. Requirement 6.9 – *plants*: sets out that plants can only be taken off the vessels if they can be imported under an HIS, otherwise they are to be securely stored on-board with permission from an inspector.
13. Requirement 6.10 – *passengers and crew*: sets out that all persons are to complete an arrival declaration and present themselves and their declaration and belonging (luggage) to an inspector on disembarkation.

Appendix 1 – Asian Gypsy Moth Risk Vessels

14. This appendix sets out the requirements for vessels that have visited the specified ports at the specified times of the year – including off-shore inspection, certification and potential for off-shore or in-port inspections. This section also sets out MPIs intention to risk assess and potential inspect vessels for AGM that have visited other Asian ports in order to mitigated the risk AGM poses to New Zealand.

Appendix 4 - Comparison of the existing arrival procedures and the proposed requirements.

Risks	Existing procedure in the Operational Standard	Proposed Requirements within the proposed Standard
Food stuffs	Requirement 6.1 – *foodstuff*: sets out that no foodstuff is to be taken off the vessel unless the following criteria have been met: i. Permission has been given by an inspector; AND ii. They are being transferred to another vessel under supervision; or iii. Being held ashore in a transitional facility; or iv. Removed for disposal as refuse; or v. biosecurity clearance has been received.	All foodstuffs meet the definition of a risk good under the Biosecurity Act and are subject to existing import health standards. Under the proposed CRMS, all foodstuffs are risk goods. All risk goods are managed with the requirements of CRMS until such time as the relevant import health standard is triggered, i.e. when the foodstuffs are about to be removed from the vessel. Proposed requirements that manage risk goods are: • Clause 1.5(2). • Clause 2.2
Refuse	Requirement 6.2 – *refuse*: requires all galley and food waste to be securely stored and can only be removed from the vessel via an approved system. No waste is to be discharge into the sea within 3 nautical miles from shore	All refuse meets the definition of a risk good under the Biosecurity Act and some refuse may be subject to existing import health standards. Under the proposed CRMS, all foodstuffs are risk goods. All risk goods are managed with the requirements of CRMS until such time as the relevant import health standard is triggered, i.e. when the refuse is about to be removed from the vessel. Proposed requirements that manage risk goods are: • Clause 1.5(2). • Clause 2.2
Other waste	Requirement 6.3 – *other waste*: all waste that is not galley or food waste is required to be disposed of on-shore via an approved system	All other waste meets the definition of a risk good under the Biosecurity Act and some other waste may be subject to existing import health standards. Under the proposed CRMS, all other wastes are risk goods.

		All risk goods are managed with the requirements of CRMS until such time as the relevant import health standard is triggered, i.e. when the other waste is about to be removed from the vessel. Proposed requirements that manage risk goods are: • Clause 1.5(2). • Clause 2.2
Holds and Decks	Requirement 6.4 – *holds and decks*: MPI encourages vessel masters to maintain clean and tidy decks and holds in order to reduce the presence of contaminants such as ants, moths, mosquitoes, and spiders, and to dispose of materials that harbour such contaminants	Under the proposed CRMS, the cleanliness of and the present of regulated pests on the vessel are managed by: • Clause 1.5(1).
Dunnage	Requirement 6.5 – *dunnage*: must comply with the IHS for Wood Packaging Material from All Countries	All dunnage meets the definition of a risk good under the Biosecurity Act and are subject to existing import health standards. Under the proposed CRMS, all dunnage are risk goods. All risk goods are managed with the requirements of CRMS until such time as the relevant import health standard is triggered, i.e. when the dunnage is about to be removed from the vessel. Proposed requirements that manage risk goods are: • Clause 1.5(2). • Clause 2.2
Ballast water	Requirement 6.6 – *ballast water*: must comply with the IHS for Ship's Ballast Water from All Countries	This is not covered by the CRMS as it is covered by an IHS. This information is made available in the "Other requirements of the Act" section of the CRMS
Hull Fouling	Requirement 6.7 – *hull fouling*: sets out MPI's intention to bring in requirements for hull fouling in the future and encourages vessel master to maintain a clean hull	This is not covered by the CRMS as it is covered by another CRMS. This information is made available in the "Other requirements of the Act" section of the CRMS.
Animals on-board - including Cats and Dogs	Requirement 6.8 – *animals kept on board vessels*: all animals must comply with the relevant IHSs if they are to come off-board; otherwise cats and dogs are to be securely stored on-board with permission from an inspector	All animals meet the definition of a risk good under the Biosecurity Act and are subject to existing import health standards (and permits are required).

		Under the proposed CRMS, all animals are risk goods. All risk goods are managed with the requirements of CRMS until such time as the relevant import health standard is triggered. Proposed requirements that manage risk goods are: • Clause 1.5(2). • Clause 2.2
Plants	Requirement 6.9 – *plants*: sets out that plants can only be taken off the vessels if they can be imported under an HIS, otherwise they are to be securely stored on-board with permission from an inspector	All plants or parts thereof meet the definition of a risk good under the Biosecurity Act and are subject to existing import health standards. Under the proposed CRMS, all plants or parts thereof are risk goods. All risk goods are managed with the requirements of CRMS until such time as the relevant import health standard is triggered, i.e. when the plants or parts thereof are about to be removed from the vessel. Proposed requirements that manage risk goods are: • Clause 1.5(2). • Clause 2.2
Passengers and Crew	Requirement 6.10 – *passengers and crew*: sets out that all persons are to complete an arrival declaration and present themselves and their declaration and belonging (luggage) to an inspector on disembarkation	This is not covered by the CRMS as it is covered by sections of the Act. This information is made available in the "Other requirements of the Act" section of the CRMS.