Regulatory Impact Statement: Space vehicle jettison debris – Launch limit increase

Decision sought	Amend the Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013 to increase the permitted launch limit from 100 to 1,000 launches.
Agency responsible	Ministry for the Environment
Proposing Ministers	Environment, Space
Date finalised	29 October 2025

Description of the Minister's regulatory proposal

Increase the space vehicle launch limit to 1,000 in total under the Exclusive Economic Zone and Continental Shelf (Environmental Effects – Permitted Activities) Regulations 2013 ('the EEZ Regulations'). This will provide an immediate solution to near term capacity constraints.

Summary: Problem definition and options

What is the policy problem?

- New Zealand has an internationally recognised space vehicle launch capability. Interest is growing from space launch operators to expand their launch sites into New Zealand.
- During launch, space launch vehicles (rockets) jettison parts which are no longer needed. These fall back towards the Earth and are deposited on the seabed in the ocean.
- The EEZ Regulations manage space vehicle debris deposition in New Zealand's EEZ and Extended Continental Shelf (EEZ).
- These regulations currently allow for up to 100 launches in total to deposit debris in the EEZ without requiring a marine consent. The initial limit was set based on the results of an ecological risk assessment.
- The direct and indirect effects of space vehicle jettison debris are:
    - **environmental effects**: A 2025 ecological risk assessment[1] concluded that the environmental risk from jettison debris remains low for up to 1,000 launches, provided debris is not deposited on sensitive features like seamounts. There were three effects which could occur as a result of space vehicle jettison debris: direct strike causing mortality, noise disturbance, and smothering of seafloor (benthic) communities. The ecological risk assessment methodology did not account for risk from how often launches happen and uses a launch rate of one a month.
    - **economic effects**: The regulations enabling jettison of space vehicle debris enable the space and advanced aviation sector. The sector contributed around $2.5 billion to the New Zealand economy in 2023/24, with a strong export performance and high levels of research and development. Increasing the launch limit could enhance economic growth, attract investment and

[1] Thompson D, Anderson O, Pinkerton M, Macpherson D, Steinmetz T, Faulkner L, Thomson T, Brough T, Rowden A. 2025. *Ecological risk assessment of debris from space vehicle launches on the marine environment*. Earth Sciences New Zealand Client report 2025291WN. Prepared for the Ministry for the Environment. Wellington: New Zealand.

support high-skilled jobs. The impact of increased launches on the fisheries, maritime transport and oil and gas industries is expected to be low.
    - **effects on existing interests**: Impacts on maritime transport, commercial fisheries and Māori rights and interests are expected to be low due to the remote location of debris zones and limited activity in those areas.
- Due to the growth of the space and advanced aviation sector, the launch limit is expected to be reached in 2026. After this, each space vehicle launch will require a marine consent. This would create an administrative and financial burden on space vehicle operators and the Environmental Protection Authority (EPA).

What is the policy objective?

- The objective of a change to the EEZ regulations is to enable growth of the space and advanced aviation sector while safeguarding the environment and human health.
- It is expected that changing the limit will provide more certainty to commercial and non-commercial operators as space vehicle jettison debris deposition in the EEZ will remain permitted.
- We can assess how this objective is met in two ways:
    (1) operators continue to launch space vehicles in New Zealand, and
    (2) space vehicle jettison debris has a low effect on the marine environment

What policy options have been considered, including any alternatives to regulation?

- Three options have been identified:
    - Option 1: Keep the launch limit at 100 (we do nothing to change current regulations)
    - Option 2: Increase the launch limit to 1,000 in total
    - Option 3: Remove the launch limit
- The preferred option is Option 2: Increase the launch limit to 1,000 in total.

What external consultation has been undertaken?

- Targeted engagement was undertaken with Treaty partners and persons with other existing interests, such as space vehicle operators, fisheries operators, Customary Marine Title/Protected Customary Rights holders and applicants, and regional councils.
- During targeted engagement process, officials met with members of Te Ohu Kaimoana and Ngā Hapū o Ngāti Porou, as well as Rocket Lab and UC Aerospace.
- The Ministry also undertook a two-week public consultation. Officials hosted a public webinar and released a discussion document and the ecological risk assessment.
- As per consultation requirements under the EEZ Act, officials notified the public, iwi authorities, regional councils, and persons whose existing interests are likely to be affected of the consultation period.
- 9(2)(ba)(i) [redacted]
- [redacted]
- Feedback received during public consultation supported the assessment of low effects on existing interests. Effects of space vehicle jettison debris on taonga species (eg whales, tuna/eel, snapper) and potential interaction with customary fisheries were highlighted as potential effects to consider.

Is the preferred option in the Cabinet paper the same as preferred option in the RIS?

- Yes

Summary: Minister's preferred option in the Cabinet paper

Costs

Description of costs and where they fall

- To ensure launches do not endanger mariners, a Temporary Notice to Mariners is issued by Toitū Te Whenua - Land Information New Zealand (LINZ) that specifies the Launch Hazard Area and time for each launch . Temporary Notices to Mariners are governed by the Maritime Transport Act 1994. Mariners are advised to avoid the area for a period of up to a day to ensure public safety. This affects customary fishing, recreational activities, and commercial activities such as fishing and maritime transport.
- The previous launch hazard areas have been in areas with very low vessel traffic and fishing effort. Less than 20 vessels annually pass through the area where debris has been deposited in the past.
- The proposal to increase the launch limit may mean that these temporary closures occur more frequently. However, the impact on mariners is expected to remain low given the limited amount of activity in the area.
- The costs to Māori of increasing the space vehicle jettison launch limit in the EEZ regulations are considered to be low. This is due to the low level of interaction with the area where space vehicle jettison debris is deposited.
- An ecological risk assessment on the effects of space vehicle jettison debris on the EEZ determined that there are three main environmental effects from the debris: direct strike causing mortality (death), noise disturbance and smothering of benthic organisms. These affect different groups of animals, plants and ecosystems such as seabirds, cetaceans, oceanic fish, and animals that live near or on the seabed.
- The ecological risk assessment concluded that the risk from space vehicle jettison debris is low for up to 1,000 launches, and the proposal is expected to have a limited adverse impact on the environment.
- Debris deposited on the seabed are a hazard to fishing vessels with seabed-contacting gear. More launches will mean an increased risk of this occurring. Contact between space vehicle jettison debris and fishing gear could result in damage or lost gear and can be a hazard to crew clearing the nets.
- The ecological risk assessment indicated that half the previous launches had debris fall into fishable areas (shallower than 1,600 metres), but only a handful of launches had debris fall in the trawl footprint (where fishing is occurring or has occurred in the past). There have been no recorded incidents of fishing gear interacting with space vehicle jettison debris.
- Increasing the number of launches could potentially see more debris fall in the trawl footprint or the wider fishable area. This could increase the likelihood of fishing gear interacting with space vehicle jettison debris.

Benefits

Description of benefits and where they fall

- The proposal will minimise costs for the space and advanced aviation sector as it will remove the need to seek a marine consent for each launch. A notified marine consent can cost between $180,000 and $630,000 for the EPA to determine and take up to 9 months from notification to be determined.
- The proposal will enable the space sector to remain competitive and continue growing at pace. The sector was estimated to contribute $1.69bn to the economy in 2018-2019 and support 12,000 full time equivalent jobs. A further study found that the space market grew 53% since then and had an 8.9% equivalent year-on-year

growth. The sector contributed $2.47bn to the economy in 2023-2024 and supported 17,000 full time equivalent jobs.
- The increased launch limit is expected to take decades to reach. This will enable the sector to continue growing and allow for the collection of more data on the cultural, economic and environmental effects of space vehicle jettison debris.
- Further assessment of effects would be required when the updated launch limit is near being reached.

Balance of benefits and costs

Does the RIS indicate that the benefits of the Minister's preferred option are likely to outweigh the costs?

- The benefits are expected to far outweigh the costs.
- The ecological risk assessment indicated that environmental risk is expected to remain low until 1,000 launches are reached. This risk is determined on recurring launch events at a theoretical rate of one launch per month. The risk is determined by cumulative deposition events rather the amount deposited each time or the rate of deposition.
- The cost to the fishing industry is expected to remain low: the Launch Hazard Area closure will not significantly affect commercial fishers' ability to take fish.
- Maritime traffic will need to avoid the Launch Hazard Area when it is in place, but the effect on shipping is expected to be low.
- The risk to fishers from space vehicle debris deposited on the seabed could increase. There is limited information to quantify this risk.

Implementation

How will the proposal be implemented, who will implement it, and what are the risks?

- The proposal will be implemented through an amendment to Regulation 8A of the Exclusive Economic Zone and Continental Shelf (Environmental Effects – Permitted Activities) Regulations 2013.
- The proposal is limited to changing the launch limit, and current compliance arrangements will remain. Operators will continue to provide pre- and post-launch reports to the regulator (the EPA).
- There will be no need for transitional arrangements as the compliance system remains unchanged.

Limitations and constraints on analysis

- There is no readily available data on the cost of space vehicle launch temporary closures on commercial and customary fisheries or shipping.
- Similarly, there is no available data on the costs of gear entanglement on space vehicle debris on the seabed. However, this may change as technology develops.
- There is no information on where debris from future launches might be deposited within the Authorised Launch Debris Area, or on whether there will be more seabed trawling outside of the current trawl footprint in the future.
- Information on the marine environment is limited to broad environmental classes. The ecological risk assessment methodology does not account for risk from how often launches happen and uses a theoretical launch rate of one per month.
- The environmental effects of launches based on the rate of deposition or the volume of material deposited are unable to be quantified using existing data. As a result, options based on the volume of material deposited or an annual/quarterly limit are unable to be considered. The risk assessment considered a rate of one launch per month.
- There is not a large evidence base regarding Māori rights and interests or their experiences of launch debris in the EEZ. There is more information on the economic

	and environmental effects of space vehicle jettison debris than on cultural or spiritual effects specifically, noting that environmental effects and cultural and spiritual effects are often intertwined (eg an environmental impact may have an effect on cultural practices and cultural identity).

I am satisfied that, given the available evidence, this RIS represents a reasonable view of the likely costs, benefits and impact of the preferred option.

Responsible Manager signature:

Matthew Barbati-Ross
Manager, Marine Policy
30 October 2025

Quality Assurance Statement	
Reviewing Agency: Ministry for the Environment	**QA rating:** Meets
Panel Comment: A Quality Assurance Panel with members from the Ministry for the Environment has assessed the Regulatory Impact Statement (RIS). The Panel considers that the RIS outlines the policy problem, assesses the associated options, and sufficiently justifies the preferred option. Using the criteria (complete, convincing, consulted, clear & concise) the Panel considers that the paper meets the quality assurance standard. The Panel notes the public consultation period was short (2 weeks) but likely appropriate for a targeted, narrow amendment.	

Section 1: Diagnosing the policy problem

What is the context behind the policy problem and how is the status quo expected to develop?

1. New Zealand has a globally competitive space sector which contributes $2.47b to the economy annually[2]. The sector has grown 8.9% a year since 2019. The Government's Space and Advanced Aviation Strategy 2024–2030 aims to double the size of the space and advanced aviation sector by 2030.
2. New Zealand currently has one commercial operator that launches spaces vehicles (Rocket Lab in Mahia). The University of Canterbury has a student-led aerospace club that does not operate commercially.
3. The wider space sector includes manufacturing, space operations, space applications, ancillary services, education/R&D and Government support.
4. Space operations, which includes space vehicle launches, contributes $597 million to the space sector. The other parts of the space sector support space operations.
5. The space sector direct supports an estimated 7,000 full-time equivalent roles (FTEs). Total employment, including indirect effects, is estimated to be 17,000 FTE.
6. After lift-off, space vehicles jettison parts which fall back towards the Earth during the various flight stages. The jettisoned material may burn up in the atmosphere but some of it may reach the Earth's surface. Any jettisoned material that lands in the sea is likely to sink, either immediately or over a short period of time, to the seabed.
7. This deposition can have an environmental effect and is managed under the Exclusive Economic Zone (Environmental Effects – Permitted Activities) Regulations 2013 (EEZ Regulations).
8. In 2016, the Government introduced a permitted activity classification for the deposit of jettisoned material from space vehicles in the EEZ. The classification was based on a 2016 ecological risk assessment by NIWA and on feedback from public consultation. The ecological risk assessment used the deposition of debris from a 40-tonne space vehicle to assess the effects on the marine environment. It determined that the risk of negative effects was low for up to 100 launches.
9. The classification was designed to support the development of a safe, responsible and world-leading space industry in New Zealand, while ensuring environmental effects were reduced or avoided. The classification allowed the:
    a. deposition of jettisoned material from up to 100 launches in total in the authorised test launch deposit area (two areas to the east of New Zealand)
    b. launch of space vehicles without the need for fully notified marine consents, which would have added significant cost and time delays to each launch.
10. The regulations were amended in 2018. This was in response to industry requests to expand the authorised test launch deposit area. An updated ecological risk assessment

[2] Deloitte Access Economics & Space Trailblazer. (2025, April). *Innovation for growth: Charting the space and advanced aviation sectors* (Ministry of Business, Innovation and Employment Report). Ministry of Business, Innovation and Employment. https://www.mbie.govt.nz/dmsdocument/30716-innovation-for-growth-charting-the-space-and-advanced-aviation-sectors-pdf

was used to inform the expansion of the launch deposit area. The launch deposit area was increased to a wider area of the east coast of New Zealand.

11. Any launches beyond the launch deposition limit would require a marine consent under the Exclusive Economic Zone (Environmental Effects) Act 2012 (EEZ Act). In 2024, there were 13 launches. There were 12 launches to August 2025, for a total of 55 launches. The launch limit is expected to be reached in late 2026.

Space vehicle launches are managed under multiple pieces of legislation

EEZ Permitted Activity Regulations

12. Deposit of material on the seabed from the launch of space vehicle is a permitted activity under regulation 8A of the EEZ Regulations.
13. The deposit of jettisoned material from space launches onto the seabed of the EEZ is classified as a permitted activity, provided operators comply with several conditions, which:
    a. restrict where debris may be deposited (requiring operators to avoid closed seamounts and deposit within the authorised launch deposit area)
    b. limit the number of permitted space vehicle launches to 100 in total.
14. Operators must also meet pre- and post-launch reporting requirements. They must notify the Environmental Protection Authority (EPA) no later than 10 working days before a launch and submit post-activity reports to the EPA no later than 5 working days after a launch, as well as quarterly or after 10 consecutive launches, whichever happens first.
15. The limit is shared between all operators. There are currently two operators in New Zealand—Rocket Lab and University of Canterbury Aerospace.

Outer Space and High-altitude Activities Act 2017

16. The Outer Space and High-altitude Activities Act was enacted in 2017 to regulate space and high-altitude activities conducted in New Zealand and by New Zealanders overseas. The Act introduced a licencing and permitting regime, requiring operators to hold a licence to launch a space vehicle or a payload from a launch facility. Launch facilities must be authorised by the Minister for Space. Operators must meet conditions to be granted a launch licence or payload permit.

9(2)(h)

9(2)(h)

What is the policy problem or opportunity?

23. Once the 100-launch limit is reached, the deposit of material on the seabed from the launch of space vehicle will become a discretionary activity - requiring a notified marine consent for each subsequent launch.

24. Marine consent applications for a notified marine consent can cost between $180,000 and $630,000 for the EPA to determine the consent and take up to 9 months from notification (although consent timeframes can be extended). The long timeframes and the risk that they can be extended (for example through appeals) would make it hard for an operator to guarantee launch dates to potential clients, and reduce their competitiveness compared to overseas operators. Marine consents would also increase the cost of operating in New Zealand.

25. Having to obtain a marine consent for each launch would severely constrain the sector, making launching from New Zealand unlikely to be competitive for commercial operators. The commercial sector contributed around $2.5 billion to the New Zealand economy in 2023/24, with a strong export performance and high levels of research and development. Increasing the launch limit could enhance economic growth, attract investment and support high-skilled jobs. Non-commercial University of Canterbury launches would likely stop given the costs of marine consent.

What objectives are sought in relation to the policy problem?

26. The technologies delivered by the space and advanced aviation sector are considered essential to the day-to-day functioning of New Zealand; enabling navigation and communication, security and defence, environmental monitoring, disaster response and recovery, weather forecasting and natural resource management.

27. The Government has developed a space and advanced aviation sector strategy to support growth of the sector. The sector strategy positions New Zealand to become a global leader in space and advanced aviation, while contributing to long-term economic growth and resilience. It also positions environmental sustainability as a principle of the strategy.

28. To inform enabling economic growth within environmental limits, the Ministry for the Environment commissioned Earth Sciences New Zealand (formerly the National Institute of Water and Atmospheric Research) to undertake an ecological risk

assessment on the effects of space vehicle jettison debris on the EEZ.[3] The report updated the 2017 risk assessment and assessed the ecological impact of jettisoned material from space vehicles. The assessment used updated information on the environment and real-life data from space vehicle launches in New Zealand.

29. The report assumed that the jettison debris from a 1 tonne space vehicle – Stage 1 and fairings – does not break up in the atmosphere and is deposited on the seabed. It assessed the potential for three environmental effects from the debris: direct strike causing mortality (death), noise disturbance and smothering of benthic organisms.
30. The report considered the consequences of these effects on different groups of animals, plants and ecosystems within the EEZ and assessed the likelihood of each effect. The groups of animals and plants were:
    a. air-breathing fauna – this includes birds, whales, dolphins and other animals that breathe air
    b. the pelagic community – this includes fish, sharks and other animals and plants that live in the water column
    c. the demersal community – this includes animals and plants that live near or on the seabed
    d. benthic invertebrate community – this includes animals and plants that live on the seabed and do not have a backbone.
31. This assessment provided a risk rating for each ecosystem and each group of animals and/or plants.

What consultation has been undertaken?

32. The Ministry wrote to persons with existing interests in the EEZ and Treaty Partners to undertake targeted engagement before public consultation. These groups were identified using a desktop analysis of Treaty settlements, other arrangements, and existing interests in the Exclusive Economic Zone.
33. Officials met with 9(2)(a) to discuss the results of the ecological risk assessment and initial thoughts on policy options.
34. Public consultation was open for a period of two weeks, from 6 October 2025 to 19 October 2025. Officials notified the public, iwi authorities, regional councils, and persons whose existing interests are likely to be affected of the consultation period.
35. A public webinar explaining the review and policy options was held on 8 October 2025. This was recorded and the recording made available online. The ecological risk assessment was released alongside a discussion document and a Cabinet Paper.
36. Officials received 29 submissions during the public consultation period. One submission was from a space vehicle operator, six were from Iwi/Hapū, two were from NGOs and the rest were individual submissions.
37. 12 submitters were in favour of increasing the launch limit from 100, but there was some variation in the number of launches to be permitted (from 150 – 1,000). Eight

[3] Thompson D, Anderson O, Pinkerton M, Macpherson D, Steinmetz T, Faulkner L, Thomson T, Brough T, Rowden A. 2025. *Ecological risk assessment of debris from space vehicle launches on the marine environment*. Earth Sciences New Zealand Client report 2025291WN. Prepared for the Ministry for the Environment. Wellington: New Zealand.

submitters noted their support for an increase was conditional on regular reviews of effects.

38. One submitter was in favour of removing the launch limit, due to the speed at which it was reached.
39. 15 submitters were not in favour of increasing the launch limit at all. Most submissions were not in favour due to effects out of scope of the review.
40. One submitter did not support space vehicle launches in New Zealand due to matters which are not in scope of the review.

Section 2: Assessing options to address the policy problem

What criteria will be used to compare options to the status quo?

41. The following criteria will be used to compare options to the status quo:
    a. **Meets the EEZ Act's purpose and New Zealand's international obligations**—the EEZ Act's purpose is (in part) to promote the sustainable management natural resources in the EEZ and the continental shelf, including (1) safeguarding the life-supporting capacity of the environment and (2) avoiding, remedying, or mitigating any adverse effects of activities on the environment. New Zealand has international obligations under UNCLOS and the Noumea Convention that apply to deposition on the seabed.
    b. **Meets government objectives**—Government objectives for the sector include a space and advanced aviation sector strategy aiming to make New Zealand a global leader in space and advanced aviation, while contributing to long-term economic growth and resilience. Another government objective is to safeguard the environment and manage activities within environmental limits.
    c. **Uses best available information**—Section 34 of the EEZ Act requires that the Minister for the Environment *must* base decisions on the best available information, which is defined as '*the best information that, in the particular circumstances, is available without unreasonable cost, effort, or time*.' The Ministry has commissioned an Ecological Risk Assessment to inform options.
    d. **Provides certainty for operators and their clients**—commercial operators need to be able to guarantee launches for their clients to operate and options should provide this medium-term certainty.

What scope will options be considered within?

42. Earth Sciences New Zealand concluded that the risk to the marine environment in the authorised launch deposit area is 'low' for up to 1,000 launches depositing 1 tonne of debris. While environmental effects will increase with the number of launches, the ecological risk assessment determined that the overall environmental risk will remain low for up to 1,000 launches.
43. Above 1,000 launches, the risk becomes moderate, which is considered too high a risk to the EEZ Act's purpose of protecting the environment. Further assessment of environmental effects would be required when the updated launch limit is near being reached.

44. The ecological risk assessment methodology does not account for risk from how often launches happen and uses a theoretical launch rate of one per month. The option of using an annual limit to manage the environmental risk from jettisoned debris has therefore been excluded as there is insufficient evidence to base an annual limit on.
45. An option for regulating launches using the tonnage of deposited material was considered. It was not retained because it did not account for the number of jettison events and would not have managed the effects of direct strike causing mortality (death) and noise disturbance, which increase with the number of launches rather than the amount deposited.
46. An option for dual limits (for example tonnage of space vehicles and number of launches) was not retained. There was insufficient evidence to determine how the amount of debris affects the strength of environmental effects compared to the number of launches.

What options are being considered?

Option One – Keep the launch limit at 100 [No change]

47. Deposition of material jettisoned from the launch of a space vehicle would remain a permitted activity for up to 100 launches - the limit derived from the 2017 environmental risk assessment.
48. This limit would likely be reached in 2026 and any launches over the limit would require a notified marine consent.

Option Two – Increase the launch limit to 1,000

49. Deposition of material jettisoned from the launch of a space vehicle would remain a permitted activity for up to 1,000 launches. This updated limit would include existing launches.
50. The requirements for deposition to be within the authorised launch deposit area and to avoid deposition on closed seamounts would remain.

Option Three – Remove the launch limit

51. Deposition of material jettisoned from the launch of a space vehicle would remain a permitted activity, with no limit on the number of launches.
52. The requirement would remain for deposition to be within the authorised launch deposit area and to avoid deposition on closed seamounts.

How do the options compare to the status quo/counterfactual?

	Option One – Keep the launch limit at 100 [We do nothing]	Option Two – Increase the launch limit to 1,000	Option Three – Remove the launch limit
Meets the EEZ Act's purpose	0	++	0
Meets New Zealand's international obligations	0	++	-
Meets government objectives	0	++	+
Uses best available information	0	+	-
Provides certainty for operators and their clients	0	+	++
Overall assessment	0	++	+

Key for qualitative judgements:

++ much better than doing nothing

+ better than doing nothing

0 about the same as doing nothing

- worse than doing nothing

-- much worse than doing nothing

9(2)(h)

Government objectives and certainty for operators

57. Both Options 2 and 3 meet the Government's objective of enabling growth of the space and advanced aviation sector and enabling economic growth: they would enable the sector to continue launching without the need for a marine consent and provide for enough launches to enable sector growth. Option 1 would lead to each launch requiring a marine consent and would severely constrain sector growth.

58. Another Government objective is economic growth within environmental limits. Options 1 and 2 retain a limit within which the sector will operate, based on environmental information. Option 3 removes this limit and would not meet this objective.

59. Options 2 and 3 provide certainty to operators. Options 3 completely removes the launch limit and allows operators to launch indefinitely, provided they meet other requirement in the EEZ Act such as the need to avoid seamounts protected from fishing. While Option 2 limits launches to 1,000 across operators, it may take decades to reach this limit. Option 2 therefore provides certainty to operators over a reasonably long term.

60. Maintaining the current regime (Option 1) will mean that a marine consent will be necessary for each launch. This would greatly reduce operator certainty about their ability to launch within specified timeframes. The financial and administrative costs associated with applying for a marine consent would diminish the competitiveness of New Zealand based commercial operators.

Best available information

61. The status quo option is based on older information that overestimates the environmental risk form space vehicle launches and does not use the best available information. It is based on a 2017 risk assessment that was done without knowledge of how much debris launch activities would jettison. The risk assessment was conservative by design and considered 40,000 tonnes of debris per launch. Now that

the industry is established, the actual amount jettisoned per launch has been confirmed as much closer to 1,000 tonnes.

62. The updated risk [4] assessment indicates that the environmental risk from space vehicle jettisoned debris is low for up to 1,000 launches. Option 3, in removing the launch limit, could allow launches to pose a moderate risk, especially if launch cadence increases. Option 3 is not aligned to the ecological risk assessment, whereas Option 2 is.

63. Environmental data on the impact of space vehicle jettison debris and the marine environment where it lands is limited. This is due to the general lack of information about the marine environment beyond the coast, and the relative novelty of space vehicle jettison debris. Option 3 does not meet the precautionary approach required by the EEZ Act when information is uncertain or limited. Options 1 and 2 meet this requirement.

[4] Thompson D, Anderson O, Pinkerton M, Macpherson D, Steinmetz T, Faulkner L, Thomson T, Brough T, Rowden A. 2025. *Ecological risk assessment of debris from space vehicle launches on the marine environment*. Earth Sciences New Zealand Client report 2025291WN. Prepared for the Ministry for the Environment. Wellington: New Zealand.

What option is likely to best address the problem, meet the policy objectives, and deliver the highest net benefits?

64. Option 2 best addresses the Government's objectives and provides certainty to operators while mitigating environmental risk. It also provides for meeting New Zealand's international obligations and the EEZ Act purpose.
65. Option 2 will likely enable sector growth, include potential competition from new commercial operators.
66. Increased launches will increase the three main environmental effects from jettison debris: direct strike causing mortality (death), noise disturbance and smothering of benthic organisms. These affect different groups of animals, plants and ecosystems such as seabirds, cetaceans, oceanic fish, and animals that live near or on the seabed.
67. The 2025 ecological risk assessment concluded that the risk from space vehicle jettison debris is low for up to 1,000 launches, and the proposal is expected to have a limited adverse impact on the environment.
68. Increased launches will mean that the temporary 'Launch Hazard Area' is closed more often to ensure public safety. This affects commercial fishing, customary fishing, recreation and shipping. However, the closed area is only closed for a short amount of time and there is low vessel traffic in the area. The impact of increased launches is limited.
69. Increased launches will increase hazards to fishing vessels with seabed-contacting gear. However, the updated environmental risk assessment indicates that so far only a handful of launches had debris fall in the trawl footprint (where fishing is occurring or has occurred in the past), and about half had debris fall in the fishable area (shallower than 1,600 meters). Increasing numbers of launches could potentially see more debris fall in the trawl footprint or the wider fishable area.
70. The benefit of continued launches and potential space sector growth are considered to far outweigh the costs to other marine users.

Is the Minister's preferred option in the Cabinet paper the same as the agency's preferred option in the RIS?

71. Yes

What are the marginal costs and benefits of the preferred option in the Cabinet paper?

Affected groups	Comment	Impact	Evidence Certainty.
Additional costs of the preferred option compared to taking no action			
Regulated groups	None: compliance costs are unchanged.	N/A	High
Regulators	Compliance costs are unchanged (cost-recoverable for non-government funded activities), but a new ecological risk assessment would need to be commissioned in 10-15 years to account for sector growth.	Very low	High
Commercial fishing sector	Fishing activity could be displaced temporarily as the deposit area will be closed during launches (as is currently the case) with changes to the limit likely leading to the area being closed more often. The previous launch hazard areas have been in areas with very low vessel traffic and fishing effort. There will be some increased risk of gear entanglement if more material is deposited on the seabed in areas where fishing occurs. If entangled fishing gear needs to be discarded by fishers, it will	Very low	Medium

	increase the risk to marine species.		
Shipping sector	Shipping activity could be displaced temporarily as the deposit area will be closed during launches (as is currently the case) with changes to the limit likely leading to the area being closed more often. The previous launch hazard areas have been in areas with very low vessel traffic.	Very low	Medium
Others (eg, recreational fishing other recreational activities, customary fishing, oil and gas sector etc.)	Activity could be displaced temporarily as the deposit area will be closed during launches (as is currently the case) with changes to the limit likely leading to the area being closed more often. The previous launch hazard areas have been in areas with very low activity.	Very low	Medium
Total monetised costs			
Non-monetised costs		Very low	
Additional benefits of the preferred option compared to taking no action			
Regulated groups	The preferred option removes the need for a marine consent for each launch. Marine consent applications for a notified marine consent can cost between $180,000 and $630,000 for the EPA to determine the consent and take up to 9 months from	High	High

	notification to be determined.		
Regulators	The preferred option removes the need for a marine consent for each launch, and thus the need for the EPA to assess these consents.	Low (Marine consents and permitted activity notification costs to the EPA are cost recoverable)	High
Total monetised benefits	Based on 16 launches in 2024, marine consent costs would have been between $2,880,000 and $10,080,000.		
Non-monetised benefits		Medium	

Section 3: Delivering an option

How will the proposal be implemented?

72. The proposal will be implemented through an amendment to Regulation 8A of the Exclusive Economic Zone and Continental Shelf (Environmental Effects – Permitted Activities) Regulations 2013.
73. The proposal only changes the launch limit number and maintains other regulatory and operational arrangements in the foreseeable future:
    a. The activity remains permitted and there is no additional burden on operators or the regulator. The regulator's costs of administering permitted activity notifications is cost recoverable.
    b. The EPA retains its regulatory role as currently set out by the legislation and EPA tracks the number of launches against the limit.
74. Operators will continue to provide the EPA with pre- and post-launch reports, and the EPA will continue to make these publicly available.

How will the proposal be monitored, evaluated, and reviewed?

75. The proposal sets a limit of 1,000 space vehicle launches. After the limit is reached, operators will require a marine consent. As the limit is near being reached, this will trigger a review process that will require another ecological risk assessment. This will be used to determine how jettisoned debris from space vehicle launches is best managed.
76. The EPA will continue to track the number of launches against the limit through pre- and post-activity reports submitted by operators.