

## Submission to MINISTRY FOR THE ENVIRONMENT on

# “PROPOSED REGULATION OF JETTISONED MATERIAL FROM SPACE LAUNCH VEHICLES UNDER THE EEZ ACT 2012” (SEPTEMBER 2016)

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## INTRODUCTION

1. Straterra<sup>1</sup> welcomes the opportunity to submit on the discussion document<sup>2</sup> concerning the regulation of jettisoned material from rockets or “space launch vehicles”, under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012. The submission deadline of 16 September is noted.
2. Straterra submits from the point of view that regulation needs to be set proportional to the matter being regulated, cost-effective, and fit for purpose. The present proposal stands in contrast to the proposed Code of Conduct for minimising acoustic disturbance to marine mammals, which specifies unnecessarily onerous and unworkable requirements on operators. We comment further on this matter below.

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<sup>1</sup> Straterra represents NZ minerals production, exploration, research, services, and support

<http://www.straterra.co.nz/about>

<sup>2</sup> <http://www.mfe.govt.nz/sites/default/files/media/Marine/space-launch-vehicle-discussion-doc.pdf>

## RECOMMENDATIONS

4. Straterra recommends the Ministry for the Environment to:
  - a) Note Straterra’s responses to the questions posed in the discussion document, below;
  - b) Note Straterra’s qualified support for the proposal to regulate the jettisoning of material from space launch vehicles into the EEZ as a permitted activity, subject to notification requirements to the Environmental Protection Authority; and
  - c) Note Straterra’s qualifications, which are that:
    - the Code of Conduct for minimising acoustic disturbance to marine mammals should be regulated along the same lines as the present proposal, because the adverse effects on marine mammals, and generally, of jettisoning material from space launch vehicles could be equal to or greater than those of seismic surveys;
    - more consideration to be given to how human activities within splash zones would be managed effectively to allow skipper of vessels to be confident of not being at risk of space junk strike;
    - consideration given to New Zealand’s obligations under the Marine Mammals Protection Act 1978 (within the Territorial Sea), and in respect of the International Whaling Commission; and
    - consideration of the effects of this proposal on the development of the Government’s policy on marine protected areas in the EEZ.

## EXECUTIVE SUMMARY / DISCUSSION

### Effects on marine biodiversity

5. At issue for this proposal is burning metal objects striking the ocean on the occasion of every rocket launch, as frequently as once a week. This space junk could fall anywhere within a long, relatively narrow splash zone covering around 140,000km<sup>2</sup>, and so the chance of anyone or anything being struck within this area is very small. At the point of impact, however, these objects would obliterate anything in their path, at or near the surface of the ocean.
6. The fact that most of the space junk would burn up completely in the atmosphere is irrelevant to this discussion; at issue is what actually lands in the ocean, and the risk presented.
7. The Minister for the Environment, Hon Dr Nick Smith, said in his foreword: *“We are proposing to make this activity permitted subject to conditions. This is similar to the approach we take to regulating the environmental effects of **seismic surveying**, marine scientific research, and prospecting and exploration for petroleum (excluding exploration drilling),”* (emphasis added).
8. In Section 3, it is stated: *“It can be permitted, meaning the activity can occur and does not require a marine consent as long as the activity meets certain conditions set out in advance. For example, marine scientific research is a permitted activity provided it meets certain conditions including*

*notifying the Environmental Protection Authority in advance, undertaking an initial impact assessment, and keeping a logbook.”*

9. The proposed approach to space junk in terms of environmental effects is reasonable, as far as effects on marine biodiversity are concerned, but stands in contrast to the proposed Code of Conduct for minimising acoustic disturbance of seismic surveying on marine mammals. In that Code, it is proposed that operators will need to engage with iwi, communities and environmental interests before every seismic survey. We consider this to be unworkable, and unprincipled.
10. The effects of seismic surveys on marine mammals are likely to be similar to or less damaging than the potential effects of space junk, bearing in mind that in the future there may be several sources of space junk, generated in different parts of New Zealand, affecting, potentially, a large part of the EEZ.
11. Page 19 of the DD discusses disturbance of marine fauna (including underwater noise): *“The chance of repeated disturbance to the same individuals or groups of marine mammals or seabirds increases with the number of launches. This was assessed as a low risk for up to 100 launches over two years, a moderate risk for up to 1000 launches over almost 20 years ...”*
12. Specifically, there is a possibility of burning objects exceeding 300kg striking marine mammals at very high speeds. While the chance of such an event is very slim, if it happened, the consequences would be serious, e.g., for a pod of whales comprised of mothers and calves. A near miss would be expected to cause significant disturbance to marine mammals.
13. Straterra offers qualified support for this proposal - as appropriate to managing the adverse effects of the activity on marine biodiversity. One condition is that seismic surveys should be regulated in the same way. (If the Government, however, insists on demanding engagement with iwi, communities and environmental interests before every seismic survey, then the same conditions should be imposed on generators of space junk.)

#### **Other effects**

14. We now raise two matters of serious concern for the Government to consider in deciding how to regulate the proposed activity:
15. The first relates to maritime safety. Rocket Lab, the sole proponent of space launches in New Zealand at the present time, is proposing up to 52 launches a year from its Mahia site. This is an average figure; it is not one launch per week. The exact timing of launches will depend on weather, and client requirements.
16. On that basis, every shipping company, or commercial fisher, or seabed miner, scientific research vessel, or any other user of the EEZ would want assurance of being safe if intending to cross or navigate within a splash zone. That is because of the time it could take to evacuate from the area ahead of a rocket launch – e.g., a trawler, a yacht under sail, or a vessel carrying out a seismic survey – and the need to do so may be known only at very short notice, and at irregular intervals. We suggest that more thought will need to be given on how to manage this issue, and to the costs that users of these areas would incur.

17. The second area of concern relates to developing Government policy on marine protection. Straterra understands that the Government is working on legislation for the creation of marine protected areas in New Zealand's marine jurisdiction, with the scope of an earlier proposal being extended into the EEZ.
18. It is difficult to imagine how New Zealand could designate MPAs in areas where space junk is landing in the oceans. Such areas could be hardly said to be protected from the adverse effects of human activities if items exceeding 300kg are striking the MPA once a week for the foreseeable future.
19. To further complicate the matter, we understand that Rocket Lab has been considering a second site near Lake Ellesmere / Te Waihora. Other space launch vehicle companies could set up business in other places in New Zealand. Arguably, this is marine spatial planning – that pre-empts MPA legislation - that benefits rocket launching companies and adversely affects every other interest in the oceans.
20. There are also New Zealand's obligations under the Marine Mammals Protection Act 1978 to consider, as well as New Zealand's participation in the IWC. On the latter, it will take some managing, we suggest, to square our position on commercial whaling with our willingness to accept the risk of marine mammals being struck by space junk.

## ANSWERS TO QUESTIONS

### Environmental effects

1. *Do you agree that the environmental effects described are the main environmental effects likely to occur as a result of the activity? If not, why not?*

Yes, with qualifications. The discussion document considers the proposed activities of one company in one part of New Zealand. What if the launching of space vehicles became more widespread? There could be space junk landing all over the EEZ, accepting that this would occur over known areas, and at known times.

This will likely have an impact on the development of marine protected areas in the EEZ, and could interfere with the Government's plans to develop policy in this field.

(Refer to the answer to question 9).

2. *Do you agree with the scale of the described environmental effects? If not, why not?*

Yes, to a degree.

Straterra considers a light-hearted approach has been taken to discussing effects on, for example, marine mammals. While the chances of a whale being hit by space junk must be considered very small, the consequence for any whale that is hit is going to be extreme.

The impact on a pod of migrating whales, e.g., of mothers and suckling calves, from a space junk strike would have a significant impact at the population level of the affected species, as well as on the individuals.

As to space junk narrowly missing marine mammals, one may expect the survivors to suffer psychological trauma (to the extent that this can be determined).

This is a matter likely to be of interest to iwi, communities, environmental interests, the Department of Conservation, and to the Ministry of Foreign Affairs and Trade, in terms of New Zealand's participation in the International Whaling Commission.

3. *Are there any other environmental effects that you are aware of that the Government should consider? If so, what are they?*

Not answered.

#### **Economic effects**

4. *Do you agree that the economic effects described are the main economic effects likely to occur as a result of the activity? If not, why not?*

5. *Do you agree with the scale of the described economic effects? If not, why not?*

Not answered.

6. *Are there any other economic effects that you are aware of that the Government should consider? If so, what are they?*

The adverse economic effects of the proposed activity on marine traffic, commercial fishing, potential seabed mining, and on other human activities in the EEZ have not been assessed, as far as we can determine. Perhaps, this falls within the scope of existing interests.

#### **Effects on existing interests**

7. *Do you agree that the existing interests described are the main existing interests? If not, why not? Please describe any other existing interests you are aware of that may be affected by the activity.*

Maritime traffic. Commercial fishing. The exercising of kaitiakitanga by Maori. The exercising of a seabed mining permit, as a logical consequence of prior minerals exploration. All other human activities undertaken within splash zones.

8. *What do you think the main effects will be on existing interests? Please provide any information you have in relation to those effects.*

The DD has encouraged submissions from affected users of the EEZ. At issue is that Rocket Lab, or any other rocket-launching company, will not be able to follow a regular schedule. The exact timing of launches will depend on weather conditions, and client requirements, with changes likely to be made at short notice. In principle, the risk presented should be manageable.

There will be costs to existing interests, and, doubtless, other submitters will provide an indication.

**Classifying the deposit on the seabed of jettisoned material from space launch vehicles as a permitted activity**

9. *Do you agree that the deposit on the seabed of jettisoned material from space launch vehicles should be classified as permitted? If not, how should the activity be classified or regulated?*

This is a difficult question to answer, in consideration of the need to consider the effects of the proposed activity on:

- marine mammals, and New Zealand's obligations under the MMPA and in respect of the IWC;
- all human activities within splash zones; and
- on the future of marine protection in New Zealand's EEZ.

The Government may wish to consider these questions before making a decision on how to regulate the proposed activity.

For our part, Straterra supports the proposal with qualifications, as discussed throughout our submission.

**Proposed conditions for the activity**

10. *Do you agree with the proposed conditions for the activity? If not, what changes would you propose and why?*

In terms of managing the risk of a direct strike on marine mammals, we agree that these conditions are fit for purpose, cost-effective, and proportional to the matter under regulation, and are consistent with the Order in Council made on 24 June 2013<sup>3</sup>.

That is not always the case for other permitted activities under the EEZ Act (refer to the answer to question 12).

11. *Are there any other conditions that you think should be set on the activity?*

There may be scientists interested, for example, in the impacts of the proposed activity on marine mammals in affected areas. Perhaps, they should have access to relevant data.

There are other areas of concern to consider as discussed in the answer to question 9.

**Other comments**

12. *Do you have any other comments you wish to make?*

Yes. This proposal for regulation of an activity as permitted, subject to notification requirements to the EPA, is sensible and logical, as opposed to the notification and engagement requirements that could be imposed on operators conducting other types of permitted activity in the EEZ.

The proposed Code of Conduct for minimising acoustic disturbance to marine mammals from seismic surveying contains a requirement for operators to engage with iwi, communities, and environmental

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<sup>3</sup> <http://www.legislation.govt.nz/regulation/public/2013/0283/latest/DLM5270601.html#DLM5297700>

interests before every seismic survey. This requirement is out of proportion to the nature of the activity and its actual or potential effects, confers no benefits to marine mammals or society, and for most operators will be unworkable. The conditions proposed for jettisoned space junk should apply also to seismic surveys, as a permitted activity in the EEZ.

On the basis of the foregoing discussion, Straterra's support of the present proposal is conditional on:

- the Government removing any requirement for engagement with iwi, communities and environmental interests before every seismic survey;
- more thought being given as to how to manage human activities within the areas of splash down;
- consideration of New Zealand's obligations under the MMP, and in respect of the IWC; and
- consideration of the effects of this proposed regulatory approach on the development of the Government's policy on marine protected areas.