

**BEFORE THE ENVIRONMENTAL PROTECTION AUTHORITY  
AT WELLINGTON**

**IN THE MATTER** of the Exclusive Economic Zone and  
Continental Shelf (Environmental Effects)  
Act 2012

**AND**

**IN THE MATTER** of a decision-making committee  
appointed to hear a marine consent  
application by Trans Tasman Resources  
to undertake iron ore extraction and  
processing operations offshore in the  
South Taranaki Bight

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**EXPERT REBUTTAL EVIDENCE OF BARRIE MALCOLM FORREST ON BEHALF  
OF TRANS TASMAN RESOURCES LIMITED**

**7 FEBRUARY 2017**

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## INTRODUCTION

1. My name is Barrie Malcolm Forrest.
2. I prepared Expert Evidence dated 15 December 2016 (First Statement) with respect to these proceedings on behalf of Trans Tasman Resources Limited (TTR).
3. My qualifications and experience as a Senior Marine Ecologist with expertise in marine biosecurity are set out in paragraphs 1-4 of my First Statement.
4. I repeat the confirmation given at paragraph 6 of my First Statement that I have read the Code of Conduct for Expert Witnesses and agree to comply with it.
5. The purpose of this Rebuttal Evidence is to respond to biosecurity matters raised in the statements of evidence on behalf of the Fisheries Submitters by:
  - (a) **Dr Gregory Barbara;**
  - (b) **Andrew Smith;**
  - (c) **Douglas Saunders-Loder;** and
  - (d) **Helen Anderson.**
6. In preparing this evidence I have reviewed these statements of evidence, and also the primary and rebuttal evidence of **Dr Lawrence Cahoon** and **Daniel Govier** for TTR.
7. The biosecurity matters raised by **Andrew Smith, Douglas Saunders-Loder** and **Helen Anderson** were, in my opinion, adequately addressed in my First Statement, or are addressed below in my response to specific matters raised by **Dr Barbara.**
8. Dr Barbara addresses marine biosecurity issues in paragraphs 58-65 of his evidence. Many of the general concerns raised by Dr Barbara regarding invasive marine species were

covered in my First Statement. Additional specific issues raised by Dr Barbara that I address below relate to the following:

- (a) Ballast water risk and discharge operations from vessels associated with TTR operations; and
- (b) Specific concerns raised by Dr Barbara regarding the potential introduction of harmful algal species via ballast water discharge.

### **BALLAST WATER RISK AND DISCHARGE OPERATIONS**

- 9. At paragraph 61 Dr Barbara states: *'It is an accepted best practice that international vessels discharge ballast water in open waters outside of territorial waters in order to minimise the risk of ballast water borne organisms reaching suitable settlement locations in ports or coastal waters. TTR propose to discharge ballast water from the bulk carrier within the PPA which lies within New Zealand waters'*.
- 10. These statements are incorrect, and in fact the converse is true. That is:
  - (a) TTR vessels will discharge ballast water **outside** territorial waters while taking on processed iron sand. Loading operations are expected to mainly occur offshore from the sand extraction area.
  - (b) All other export vessels that visit New Zealand (i.e. unrelated to TTR) will discharge ballast water **within** territorial waters while they take on cargo; i.e. usually while berthed in New Zealand ports. In terms of Dr Barbara's statement relating to *'..ballast water borne organisms reaching suitable settlement locations..'* these port environments provide a range of suitable habitats that greatly amplify ballast risk compared with the offshore nature of the TTR discharges.

## HARMFUL ALGAL SPECIES INTRODUCTIONS

11. Dr Barbara's particular concerns (in paragraphs 58-65) relate to the risk of algal blooms, and the introduction of phytoplankton species in ballast water that are known to be associated with harmful algal blooms (HABs).
12. The risk that mining activities could lead to algal blooms (e.g. via release of nutrients from the seabed) is covered in the evidence of **Dr Cahoon**. Dr Cahoon concluded that '*Region-wide effects of iron-sand mining on short-lived primary producers will be indistinguishable within natural oceanographic variability*'.
13. The risk that visiting vessels will introduce harmful algal species (e.g. as plankton in ballast water or as cyst stages in ballast tank sediments), was not covered in my First Statement. In that statement I discussed biosecurity risk generically rather than focusing on particular species or groups.
14. To minimise ballast water risk, TTR has proposed conditions that require it to adopt international best management practices (i.e. ballast water treatment or mid-ocean exchange) that meet stringent standards prescribed by the International Convention for the Control and Management of Ships' Ballast Water and Sediments. In New Zealand, Maritime New Zealand Marine Protection Rules (Part 300: Ballast Water Management) will give effect to the Convention.
15. The prescribed ballast water management measures are based on minimising risk, as it is not feasible for the shipping industry to negate risk completely. As such, there remains a possibility that HAB species could be discharged in ballast water. The significance of this risk is reduced by the fact that the known high-risk HAB species globally (or closely related species) have already been introduced to (or exist in) New

Zealand waters. However, these species may not necessarily all occur in the project area and its immediate environs.

### **MITIGATION SOUGHT**

16. Dr Barbara suggests the following actions to address his concerns:
  - (a) Effective management of ballast water to minimise the risk of introducing HABs and other potential harmful species; and
  - (b) Environmental monitoring (of sediments and water) for HAB species and other non-indigenous species (NIS), as an early warning of NIS introduction.
17. With respect to **ballast water management**, as I describe in my First Statement and above in paragraphs 14 and 15, TTR will manage ballast water risk to stringent international standards. Practically, there is nothing else that can be done to reduce risk further.
18. With respect to **environmental monitoring**, the primary evidence of **Mr Govier** described a comprehensive programme for baseline and ongoing monitoring. Specific biosecurity monitoring is described in paragraphs 140-145 of Mr Govier's evidence, and focuses on biofouling surveillance on TTR infrastructure and opportunistic monitoring for target species in conjunction with intertidal reef monitoring. As reflected in the rebuttal evidence of Mr Govier, TTR have agreed to expand the scope to include the additional monitoring suggested above in paragraph 16(b).

### **CONCLUSIONS**

19. The points raised in submitter evidence do not affect the conclusions of my First Statement regarding biosecurity risk.
20. To address specific concerns outlined by Dr Barbara, TTR have agreed to expand the scope of baseline and ongoing

monitoring to more comprehensively address biosecurity aspects.

**BARRIE MALCOLM FORREST**

A handwritten signature in black ink, appearing to read 'Barrie Forrest', with a long horizontal stroke extending to the right.

**7 February 2017**