

Before the Expert Fast-track Panel

FTAA-2511-1150

Under the Fast-track Approvals Act 2024 (**FTAA**)

And

In the Matter of an application for approvals by **MCCALLUM BROTHERS LIMITED** for the Te Ākau Bream Bay Sand Extraction Project located at Te Ākau Bream Bay, Northland

**Evidence of Dr. Brett Beamsley on behalf of McCallum Brothers Limited in
Response to Invited Comments**

(Assessment of Surf Break Effects)

Dated 12 August 2026

Jeremy Brabant

Barrister

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Introduction

1. My name is Brett Beamsley.
2. I am General Manager of MetOcean Solutions (a division of the Meteorological Service of New Zealand Ltd).
3. I have over 25 years' experience in physical oceanography, coastal processes, ocean engineering applications and managing projects relating to dredging and disposal of dredged material. My professional outputs include more than 30 peer-reviewed papers and scientific publications (author and co-author). I have been involved in more than 150 technical reports covering a broad range of topics, including sediment dynamics and transport (including morphological modelling), drill cuttings and dredged sediment disposal characteristics, hydrodynamics and wave processes. In addition, I have specialist skills in finite-element model establishment, and I am a long-time user of the SELFE/SCHISM numerical hydrodynamic code.
4. This evidence is provided as part of McCallum Brothers Limited's (**MBL**) response to comments on the Te Ākau Bream Bay Sand Extraction Project (**Project**).
5. I prepared the following material lodged in support of MBL's application:
 - a. Report titled "Te Ākau Bream Bay Sand Extraction Project – Surf Break Assessment" (Report P0635-01 Rev 8.0) included as Attachment 17 to the MBL Assessment of Environmental Effects.
 - b. This evidence is provided in response to Invited Comments relating to surf breaks (Concerns No. 36, 39, 6, 16, 34, 18, 7 and 10) as listed in "MBL Persons Invited to Comment – Concerns Summary".

Scope of Evidence

6. My evidence addresses MetOcean Solutions' responses to concerns raised by invited commenters in relation to surf breaks and associated coastal and

wave amenity at Te Ākau Bream Bay. The concerns are grouped thematically below, with responses addressing common underlying matters together to avoid repetition.

7. My evidence responds to the following Invited Comments received on the Project relating to surf breaks:

- Comment No. 6 (Ocean Beach Residents Association);
- Comment No. 7 (Parihaka Waka Ama Club Inc.);
- Comment No. 10 (Ruakākā Reserve Board Inc.)
- Comment No. 16 (Waipū Residents and Ratepayers Association Inc.);
- Comment No. 18 (Langs Beach Society Inc.);
- Comment No. 34 (Ruakākā Residents and Ratepayers Association Inc.);
- Comment No. 36 (Langs Cove Residents Association Inc.);
- Comment No. 39 (Waipū Boat & Fishing Club Inc.).

Code of Conduct

8. Although this is not a hearing before the Environment Court, I confirm that:

- a. I have read and am familiar with the Environment Court's Code of Conduct for Expert Witnesses as specified in the Environment Court's Practice Note 2023 (**Code**); and
- b. The report referred to above authored by me:
 - i. Are within my area of expertise (except where I state that I rely upon the technical reports of other expert witnesses provided in support of the application);
 - ii. Have been prepared in accordance with the Code; and
 - iii. I have not omitted to consider any material facts known to me that might alter or detract from the opinions expressed.

Executive Summary

9. MetOcean Solutions prepared a surf break assessment (Report P0635-01 Rev 8.0) for the Te Ākau Bream Bay Sand Extraction Project using a rigorously validated SWAN wave model. Seven surf breaks were assessed under a worst-case scenario (full extraction of 8,450,000 m³ over 35 years with no sand replenishment). The modelling found changes in annual surfable conditions of between -0.1% and +0.1% at all assessed breaks – equivalent to at most a few hours per year and imperceptible to surfers. Maximum changes in significant wave height were within ± 0.04 m and wave direction changes were negligible. The concerns raised by the eight invited commenters relating to surf breaks or recreational activities are not supported by the modelling evidence, which demonstrates that the proposed extraction will have less than minor to negligible effects on surf break amenity and wave climate in Te Ākau Bream Bay.

Response to Comments

Modelling Methodology and Validation (Comment Nos. 6 and 39):

10. Comments Nos. 6 and 39 raise concerns regarding potential changes to coastal processes, recreational values and uncertainty associated with the modelling. Comment No. 6 also expressly refers to surf breaks. The surf break assessment (Attachment 17) uses a SWAN wave model with a dynamical downscaling approach across four nested grids (4 km to 30 m resolution), driven by 43 years of CFSR/CFSv2 wind re-analysis and validated against measured wave data in Bream Bay. The modelled year (2009) was selected as representative of both long-term average and 95th-percentile wave conditions. The worst-case scenario assumption (no sand replenishment over 35 years) is deliberately conservative and bounds the upper limit of any actual effect. Modelling uncertainty is therefore addressed within the assessment framework itself.

Surf Break Effects at Langs Beach and Langs Cove (Comment Nos. 36 and 18):

11. The Langs Cove Residents Association (Comment No. 36) raises concerns about surf quality, beach amenity and coastal stability at Langs Beach, Ding Bay and Waipū Cove, relying on historical aerial photographs and post-Cyclone Gabrielle observations. The Langs Beach Society (Comment No. 18) raises concerns regarding recreational amenity at Langs Beach, and draws comparisons with observed shoreline change at Pākiri and Mangawhai.
12. Wairahi Langs Beach is one of the seven surf breaks explicitly assessed in Report P0635-01 Rev 8.0. The modelling found the change in annual surfable conditions at Langs Beach to be +0.1% under conservative thresholds and 0.0% under all other criteria – a difference of approximately 8.8 hours per year, well below the threshold of perception for any surfer. Maximum changes in significant wave height were within ± 0.02 m and wave direction changes within $\pm 2^\circ$. These changes are imperceptible. The surf break assessment is site-specific and based on Te Ākau Bream Bay bathymetry and wave climate; the analogy with Pākiri is therefore not directly applicable to surf break effects.
13. Beach geomorphology and sand volume changes fall within the Coastal Process Effects Assessment (Attachment 8), not the surf break assessment.

Surf Break Effects at Waipū Cove and Waipū River Mouth (File Nos. 16, 39):

14. The Waipū Residents and Ratepayers Association (File No. 16) and the Waipū Boat & Fishing Club (File No. 39) raise concerns about risk to beach environment, coastal amenity, dunes, recreational activities and potential alteration of wave refraction, hydrodynamics and erosion risk.
15. Waipū Cove and Waipū River Mouth are both explicitly assessed as surf breaks. At Waipū Cove, the modelling found 0.0% change in annual surfable conditions under all threshold criteria. At Waipū River Mouth, the change was -0.1% under conservative thresholds and 0.0% under others. Wave height and direction changes at both locations were negligible. The concern

that extraction would alter wave refraction to a degree perceptible to beach users or recreational water users is not supported by the modelling evidence.

Surf Break Effects at Ruakākā and Ruakākā River Mouth (File Nos. 34, 10):

16. The Ruakākā Residents and Ratepayers Association (File No. 34) raised concerns about beach amenity and recreation and argues Channel Infrastructure's existing dredging already represents sufficient seabed disturbance. The Ruakākā Reserve Board (File No. 10) raises concerns about impacts on recreation, visual and natural character, and ecosystem integrity including specific reference to surfing activity.
17. Both Ruakākā and Ruakākā River Mouth are assessed in the surf break study. The findings are that changes in surfable conditions at these breaks are 0.0% under all threshold criteria considered. During the three representative swell events analysed, wave height and direction differences at these breaks were negligible. The modelling is the only evidence before the Panel specifically addressing surf break effects at Ruakākā, and it does not support the contention that the proposed extraction would further degrade surf or beach recreational amenity at those locations.

Recreational Marine Use and Waka Ama (File No. 7):

18. Parihaka Waka Ama Club (File No. 7) raises concerns about navigation safety, vessel interactions, degradation of the marine environment and lack of local benefits. The surf break assessment does not address navigation safety, which is covered by Assessment of Navigational Safety Effects (Attachment 19), or water quality (Attachment 9).
19. In relation to recreational marine use relevant to waka ama, the modelling found wave conditions at the seven assessed surf breaks are not materially affected by the extraction. Maximum changes in wave height and direction at these locations are imperceptible, and the overall character of the marine wave environment in Te Ākau Bream Bay is not altered at a level that would affect paddlers or other recreational water users any more than the ambient conditions create.

Conclusion

20. The Assessment of Surf Break Effects (Attachment 17) demonstrates, under a deliberately conservative worst-case scenario, that the proposed extraction will have at most a negligible and imperceptible effect on surf break conditions at all seven assessed breaks in Te Ākau Bream Bay. Changes in annual surfable conditions range from -0.1% to +0.1% (at most approximately 17.5 hours per year), and changes in wave height and direction at break locations are too small to be perceived by surfers or other recreational water users. The concerns raised by invited commenters regarding surf break and wave amenity effects are not supported by the modelling evidence.

Brett Beamsley

12 August 2026