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Role of baseline (pre-development) monitoring at the Hananui site

Dear Thomas

This letter provides supporting technical information on the role of baseline monitoring for the Hananui Aquaculture Project (Hananui site in Rakiura / Stewart Island) on behalf of Ngāi Tahu Seafood Resources (Ngāi Tahu Seafood).

Baseline (or pre-development) monitoring at the Hananui site is proposed to capture natural interannual and / or seasonal environmental and ecological variability over specified time frames:

- 2-year period for biogenic habitat
- 1-year period for sandy habitat.

While there is extensive information for the local seabed environment, additional site-specific information collected prior to farm establishment is important – and considered essential to most developments – for a robust and defensible monitoring framework. The purpose of this work is not to address uncertainty but to refine the baseline to a level that allows clear attribution of future changes.

Pre-development monitoring provides:

- A high-resolution baseline dataset that reflects conditions immediately prior to farming, enabling confident differentiation between natural background patterns and any farm-related effects.
- Characterisation of seasonal and temporal variability, which is critical for interpreting long-term monitoring results and ensuring that natural fluctuations are not misattributed to farm activities.
- A clear understanding of baseline environmental conditions of key indicators and their natural variability, particularly for the less well-understood taxa comprising the biogenic habitat.
- Data to refine target methodological approaches.
- Calibration and validation of emerging monitoring tools, including environmental DNA (eDNA)-based methods, by comparing them with infaunal data collected across sites and seasons before farming begins. A 2-year monitoring period would capture both interannual and interseasonal variability, providing a robust foundation for validating relationships between eDNA indicators and infaunal communities.

- Verification of monitoring station placement, ensuring that long-term sampling locations are representative of the different habitat types and aligned with the final farm configuration.
- Alignment with best practice environmental management (e.g. Giles et al. 2021).

Ngāi Tahu Seafood are supportive of the inclusion of a pre-development monitoring approach. Stage 1 of the Hananui Aquaculture Project is expected to take 4–5 years to develop; within this overall development time frame, the proposed baseline (pre-development) monitoring can be undertaken without causing any delay to operational establishment. Baseline (pre-development) can be integrated into the planned development phase and undertaken in parallel with other requirements. Baseline (pre-development) monitoring is a key part of responsible farm establishment, ensuring that environmental effects can be clearly and confidently assessed throughout the life of the farm. This approach also enables the integration of emerging insights from other open ocean and offshore developments, alongside advances in monitoring technologies and tools, reflecting recent progress in areas such as eDNA-based methods.

Yours sincerely

Scientists

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References

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