# Flaxmill Bay Coastal Protection

Frequently Asked Questions

### Q1. Why is beach nourishment needed at Flaxmill Bay?

The western end of Flaxmill Bay has been gradually eroding for decades — around 7–8 metres of shoreline has been lost since 1970. This threatens Purangi Road, the footpath, public toilets, and the boat ramp.

Although sand is not being permanently lost from the bay, it naturally migrates around within it. Beach nourishment redistributes this sand to where it is most needed — building up the beach between the groynes, protecting the dune toe, encouraging native dune plants to establish, and helping to buffer the shoreline from wave action.

### Q2. What is the five-year trial, and what was it trying to achieve?

In December 2020, Thames-Coromandel District Council installed three geotextile (sand-filled fabric) groynes along the western beach at Flaxmill Bay, together with an initial 2,800 m³ of beach nourishment — sand that was collected from the intertidal area within the bay and placed between the groynes.

The trial was intended to test whether this combination could:

- Retain sand on the beach and reduce erosion of the dune and reserve
- Improve recreational amenity by creating a wider, sandier beach
- Provide an alternative to extending the existing rock revetment

The trial has been monitored by regular drone (UAV) surveys, and is consented under Waikato Regional Council consents as a five-year trial expiring in October 2026.

## What Has the Monitoring Found?

### Q3. Have the groynes worked?

The results have been mixed. On the positive side, the groynes helped retain nourished sand on the upper beach and reduced erosion within the groyne field (the stretch of beach between and around the three structures). A recreational beach has been maintained in this area.

However, there have been significant adverse effects:

- About 80% of the original 2,800 m³ of nourished sand has been lost from the groyne field over five years.
- The beach has narrowed and the groynes are now exposed along their full length.
- By restricting the natural eastward movement of sand, the groynes contributed to serious erosion of the spit and the eastern section of the reserve — in some places more than 10 metres of shoreline was lost between 2021 and 2023.
- In response, the Council lowered two of the groynes in August 2023 to allow more sand to pass through. The spit has since partially recovered, but the eastern reserve continues to show signs of erosion.

### Q4. Why did the eastern end of the beach and the spit erode?

Groynes work by trapping sand on their western (updrift) side as it moves naturally eastward along the beach. This is useful for the groyne field, but it means less sand reaches the area east of the structures — including the sand spit near the Flaxmill Stream mouth and the eastern reserve.

The monitoring period also coincided with an unusually severe storm season in 2022–2023, including Cyclone Hale and Cyclone Gabrielle, which caused significant coastal erosion right across the eastern Coromandel. These storms worsened the sediment deficit created by the groynes.

After the central and eastern groynes were lowered in August 2023, sediment transport to the eastern areas improved and the spit has substantially recovered. The eastern dune, however, recovers more slowly.

### Q5. Is there still a problem with beach width?

Yes. As of April 2025, the beach within the groyne field is less than 5 metres wide in some areas — the threshold that triggers maintenance nourishment under the monitoring plan. In most places there is still around 3 metres of high tide beach, but ongoing sand loss means the beach will continue to narrow without further action.

### Q6. Has the total amount of sand in the bay changed?

No — the total volume of sand within Flaxmill Bay has remained broadly stable. Sand is not being permanently lost from the bay; it is redistributing between the main beach, the spit, and the eastern beach in response to natural processes and the influence of the groynes. This is why beach nourishment at Flaxmill Bay involves moving sand from one part of the bay to another, rather than importing material from outside.

## What Are the Options Going Forward?

### Q7. When does a decision need to be made?

The resource consent for the groynes expires in October 2026. If Council wishes to retain the structures beyond this date, a new resource consent application must be submitted by April 2026. Three main options are being considered and will be discussed with the community.

### Q8. What are the options being considered?

Option 1 — Keep the groynes (two variations):

- 1a: Retain the three existing groynes and continue periodic beach nourishment (up to 600 $m^3$/year).
- 1b: Keep the groynes and add a fourth groyne to provide additional protection to the eastern section of the reserve, along with ongoing nourishment.

Option 2 — Remove the groynes and continue nourishment (three variations):

- 2a: Remove all three groynes and manage erosion with beach nourishment and scraping only.
- 2b: Remove the groynes but keep the resource consent active so they can be reinstated if necessary.
- 2c: Remove the groynes gradually in stages while monitoring the shoreline response, with consent retained to rebuild if needed.

Option 3 — Remove the groynes and build a rock revetment:

- Remove the groynes and construct a new engineered rock seawall to protect the reserve and road. This is the most expensive option and would likely result in loss of the sandy beach over time.

### Q9. What happens if no decision is made?

If no consent application is lodged and no option is chosen, the existing structures will need to be removed when consent expires in October 2026. There would then be no consent in place to manage erosion or undertake beach nourishment, leaving the reserve, path and road more vulnerable to ongoing coastal erosion with limited ability to respond.

## Environmental and Practical Questions

### Q10. Will sand always need to be moved around?

Almost certainly yes, regardless of which option is chosen. Flaxmill Bay is a naturally dynamic environment where sand moves cyclically in response to storms, tides, and seasonal patterns. When the eastern beach is wide, the main beach tends to be narrower — and vice versa. This means periodic redistribution of sand is likely to be an ongoing requirement to maintain beach amenity and erosion protection.

## Q11. Are there environmental concerns with the groynes?

Yes, several have been identified:

- Disruption to natural sand movement, which affects the spit, eastern beach, and potentially nearby coastal areas.
- Loss or reduction of the sand spit threatens habitat used by nesting dotterels (a threatened shorebird) and may affect nearby shellfish beds.
- The existing geotextile bags (pre-2019 manufacture) are showing signs of deterioration. Microfibres (microplastics) have been found along the shoreline. If the groynes are retained, some or all bags may need to be replaced with newer, more UV-stable materials within the next few years.

## Q12. What are the plants on the dunes and why do they matter?

The dune plants are native sand binders, primarily spinifex and pīngao. They play an important role in dune health:

- Their roots and foliage trap windblown sand, helping the dune grow in height and extent.
- They stabilise the dune face, helping it recover after storm erosion.
- A healthy dune with established vegetation acts as a natural buffer, absorbing wave energy and protecting the land behind it.

Beach nourishment at the dune toe supports these plants by giving them a larger sand base to work with.

## Q13. Why not just build a rock wall?

A rock wall (revetment) would provide strong, reliable protection for the road and reserve infrastructure, but it comes with significant trade-offs:

- As sea levels rise and erosion continues, the sandy beach in front of the wall is likely to diminish or disappear over time — a process known as coastal squeeze.
- Loss of the beach would reduce public access and recreational use of the foreshore.
- A hard structure would also alter the natural character and visual amenity of the bay.
- This is by far the most expensive option, with estimated new construction costs of around $600,000 for a 100-metre revetment, and resource consent would be required as a discretionary activity under the Waikato Regional Coastal Plan — which is not guaranteed to be granted.

## Q14. What is the best option?

There is no single 'best' option — each involves genuine trade-offs. The right choice will depend on what the community values most:

- Coastal and infrastructure protection
- Maintaining a beach for recreation and public enjoyment
- Environmental outcomes, including the spit, bird habitat, and ecology
- Long-term costs and financial commitment from Council

The monitoring report presents the evidence gathered over five years to help Council and the community make an informed decision. Community feedback is an important part of this process.