

From Removal to Resilience: Adaptive Approaches to Historic Landfills on Public Conservation Land

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Outline

DOC's Stewardship

- DOC manages conservation land focusing on protecting and restoring nature. This involves maintain and improving the condition of land, water, ecosystems and cultural heritage.

Legacy Landfill Challenges

- Historic landfills in sensitive environments pose risks from erosion, climate change, and release of mixed waste contamination.

Remediation Strategies

- DOC applies tailored remediation: full removal, partial removal with protection, or retention with monitoring to safeguard ecosystems.

Balancing Values and Safety

- Approaches balance environmental, cultural values, and public safety while ensuring long-term sustainability and cost management.



Downer, 2026



DOC's legacy landfill challenge

Challenges

- Historic landfills are often in remote, ecologically sensitive or coastal areas, posing contamination and erosion risks.

Cultural and Environmental Responsibilities

- DOC collaborates with iwi to ensure environmental protection and respect cultural values while managing landfills.

Tailored Remediation Strategies

- DOC uses varied approaches: full removal, partial removal with coastal protection, and retention with monitoring. Remedial options are determined with stakeholder engagement.

Risk-Based Decision Making

- Decisions are guided by environmental assessments, cost-benefit analysis, iwi and stakeholder engagement.



A Sharma, DOC



P McGrouther, DOC

Full Removal

When landfill cannot remain in place due to:

- High energy environment
- Sea level rise
- Sensitive environment

Remediation

- Removal of all landfill material
- Site validation
- Restoration involves reshaping land contours and planting native species to minimise ecological disruption.

Benefits and Challenges

- Benefits include eliminating contamination risks and supporting cultural values; unlocking land for restoration or alternative uses/economic or operational benefit;
- Challenges include high costs, carbon footprint and temporary habitat disruption.

Long-term Management

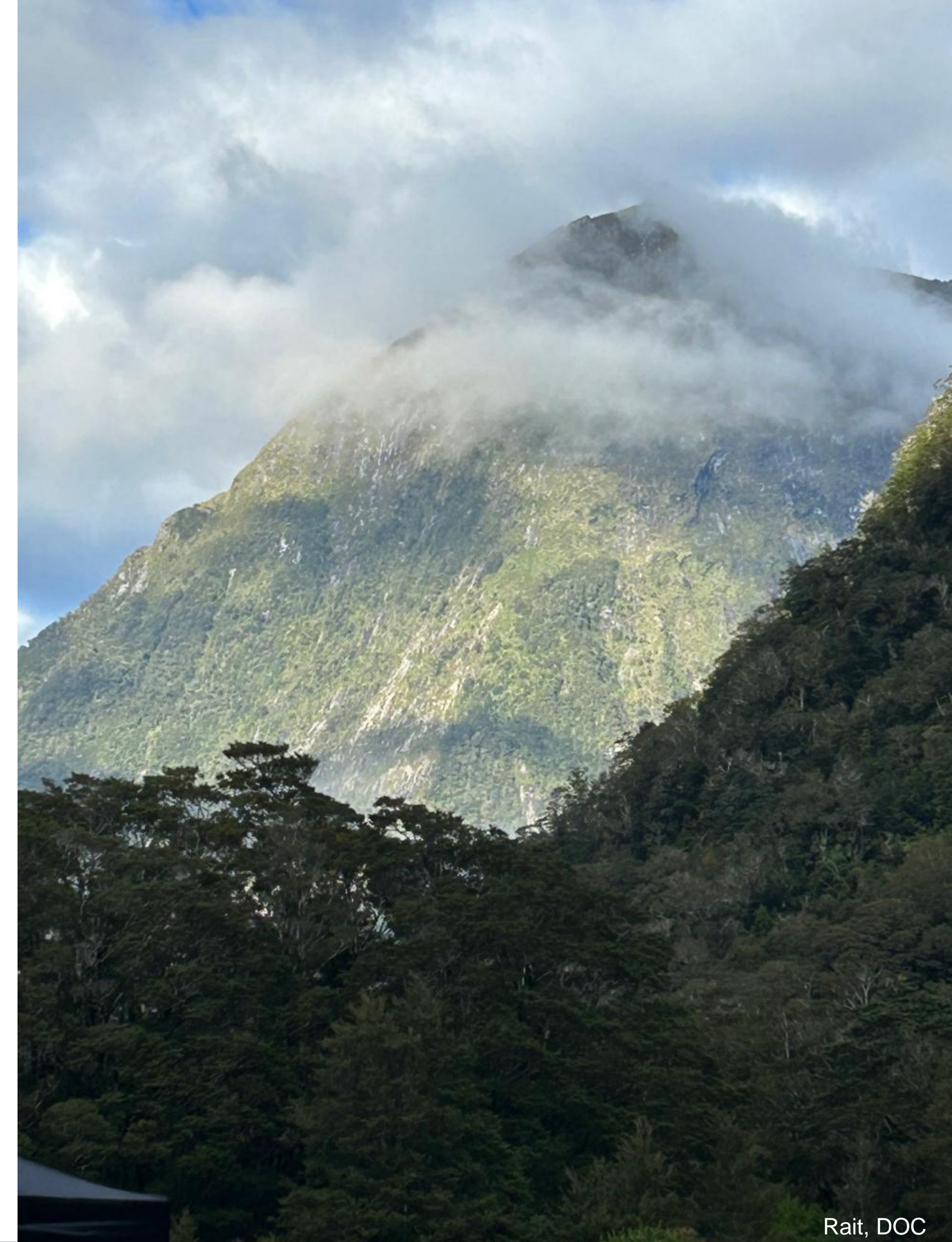
- Post-removal, only standard land management is required, allowing resource focus on other conservation priorities.



Ashlynn Scherp, Downer

Little Tahiti Landfill, Piopiotahi Milford Sound, Southland

- Site was vulnerable to river erosion.
- Mostly commercial and domestic waste.
- The purpose of this project was to remediate and validate as clean this landfill site in Piopiotahi Milford Sound.
- Started in 2020 with DOC contaminated sites staff, local DOC office and Environment Southland
- MFE CSVLF and DOC contributions
- Final cost ~\$3.0m



Rait, DOC



Little Tahiti Landfill

- The practical works started mid-April 2025 and completed late-June 2025
- 264 truckloads – 480km round trip Milford Sound to AB Lime Winton
= 126,000 km travelled.
- Total landfill removed 6,836 tonnes



Ashlynn Scherp, Downer



Little Tahiti Landfill

Challenges to navigate:

- Getting 30 tonne digger through Homer tunnel
- The weather!
 - 360mm rain over 36 hour during excavation process
 - Ice and wintery conditions
- Managing worker fatigue
- Carbon miles
- Driving kms



Ashlynn Scherp, Downer

Little Tahiti Landfill

Site post remediation.

- Site validation has shown that concentrations of contaminants are at or below background concentrations.
- This process has delivered a successful “on time” and “under budget” project to remediate this vulnerable site.
- This successful remediation will enable us all as stakeholders to utilise this site in the future without the pre-existing contaminated land risks.



Peter McGrouther, DOC



Pariora (Former Little Tahiti Landfill)

Blessing and renaming of
the site.

DOC, iwi and contractors
in attendance.



Gabriel Vilgalys, DOC

Partial Removal - Encapsulation

Partial Waste Removal Strategy

- High-risk waste is removed while stabilising remaining material onsite due to site constraints, cost and emissions concerns.

Rock Seawall Protection

- A robust rock seawall protects the site from storm surges and ongoing coastal erosion, reducing waste leakage into marine environments.

Environmental and Cultural Considerations

- Design includes iwi, council and community input to minimise cultural disturbance and respects local values while protecting wildlife and water quality.

Maintenance and Limitations

- Periodic inspections and maintenance are required;
- Seawalls may alter natural coastal processes needing ongoing monitoring.
- Capital assets



P McGrouther, DOC

Ocean Beach Landfill Southland

- Large landfill on coastline near Bluff, Southland. DOC and ICC land on coast with the majority of the landfill on adjacent land behind.
- Waste consisting of demolition material including significant asbestos containing material eroding onto the protected marine area.
- A partial landfill removal of 'Cell D' at Ocean Beach, was completed allowing a seawall to be installed, mitigating risks to human health and the environment from ongoing erosion.
- This approach was agreed following stakeholder engagement and completion of a Remedial Options Assessment Report (ROAR) and the Remedial Action Plan (RAP) and use of an adaptive management plan approach.
- A long-term site management plan is operative post remediation.



Peter McGrouther, DOC

Ocean Beach Landfill

- Final cost ~ \$3m
- MFE, CSVLF and ICC funding
- Waste Levy and ETS exemption savings ~\$1M
- Works duration
 - Started June 6th 2025
 - Ended September 2025



Peter McGrouther, DOC



Ocean Beach Landfill

- Staged excavation keeping clean and contaminated equipment separate,
- Truck movements – 317 truckloads @ 124km return trip to AB Lime, Winton = 39,308 truck kilometres
- Total landfill removed – 9,189 tonnes
- 9160 tonnes of landfill removed
- 6500 tonnes of blasted and selected rocks from local quarry to engineers specification
- Total concrete diverted from landfill– 120 tonnes
- Design required large rocks to be individually placed rock in wall.



Ocean Beach Landfill

- Protection wall and carpark completed
- Planting and walkway finalised
- Long Term Management Plan - adaptive management plan and a partnership MOU between DOC and ICC is in place
- Work validated and all conditions met on the City Council and Environment Southland consents
- Ongoing plant restoration undertaken by DOC rangers
- Continued ongoing beach monitoring of ACM as it gets washed back to shore or unearthed from previous erosional episodes



Management and Monitoring only

Least Intrusive Landfill Strategy

- Retaining landfill material in place reduces ecological disturbance and aligns with cultural sensitivities.

Comprehensive Monitoring Program

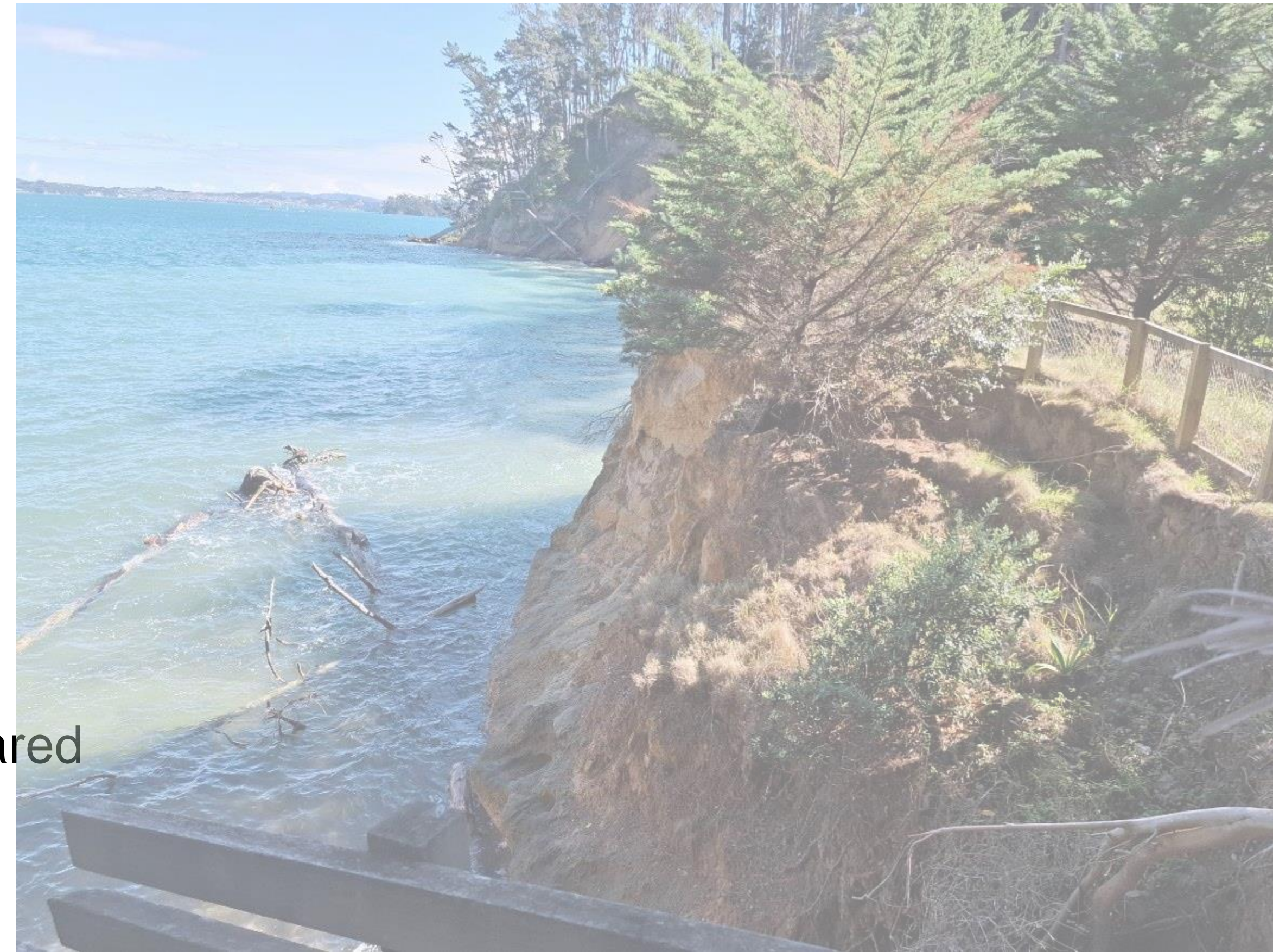
- Continuous tracking of surface, erosion, and water quality indicators ensures early detection of risks.

Long-Term Risk and Resource Commitment

- Ongoing monitoring and potential remediation require sustained resources and management over time.

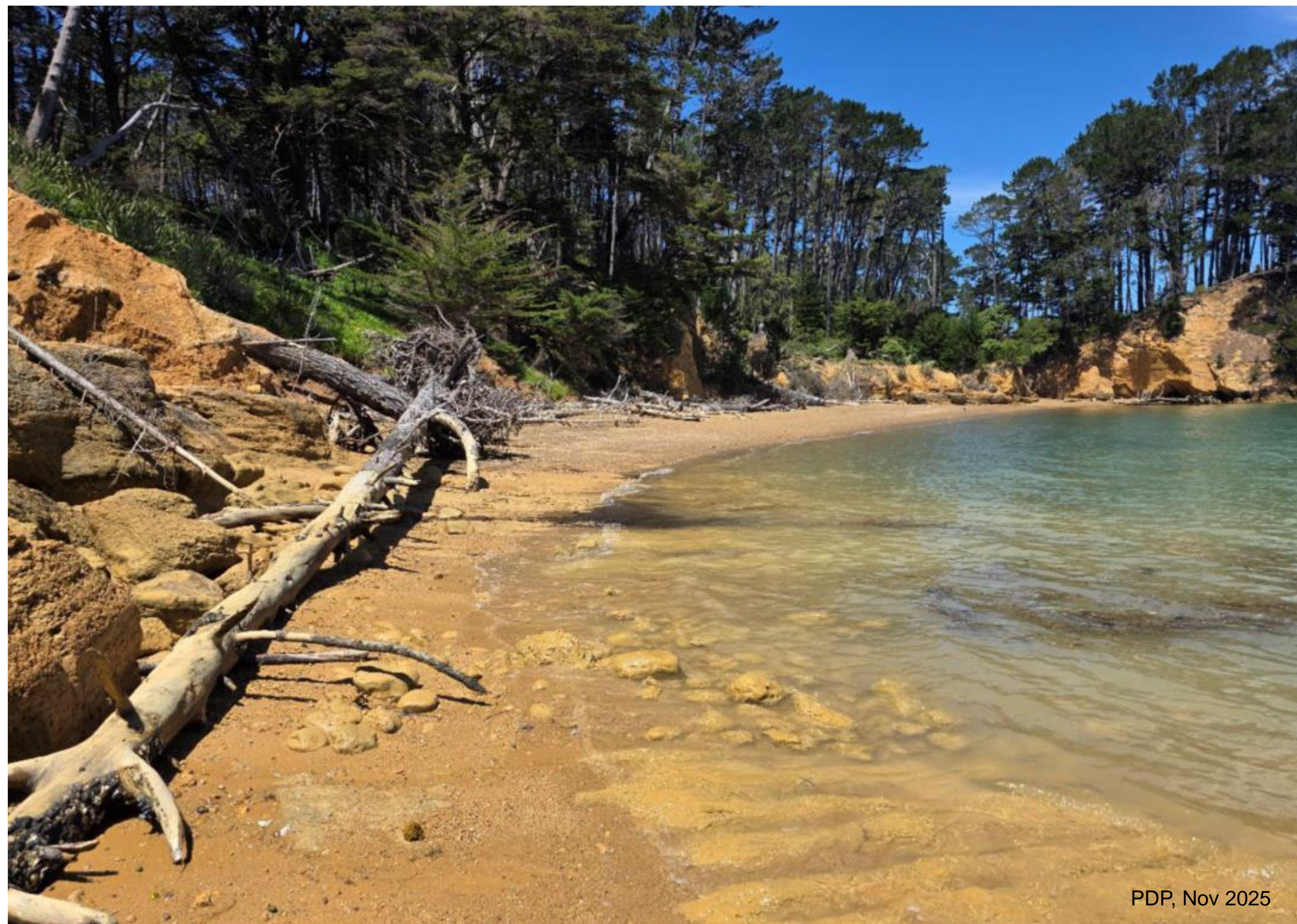
Community and Cultural Engagement

- Transparent communication with communities ensures shared understanding of risks and responsibilities.



Lady's Bay, Auckland

- Lady's Bay is a sheltered bay, it is a popular location for visitors to Kawau Island. It can be accessed from land or by boat.
- Former gullies that face Lady's Bay beach have been filled with demolition type waste material including bricks, concrete, glass, plastic, metal and asbestos containing material (ACM).
- The presence of visible ACM on the beach and the landfill face, coupled with proximity to surface water and visitors made this a site needing immediate management.
- DOC commissioned a Preliminary Site Investigation (PSI). It concluded that the site as it currently stands represents a low risk to human health and the environment, however this could change in the event of further erosion, without appropriate remedial actions



PDP, Nov 2025

Lady's Bay, Auckland

- DOC is working closely with the Auckland Council
- 'Beach Closed' sign with asbestos debris warning has been installed.
- Consideration of complexity and cost of the long-term management solution as well as the need for an immediate solution to prevent exposure of humans and marine life to contaminant discharges from the landfill.
- Further sampling was completed to delineate the extent of the landfill and for waste characterisation to better understand volumes of fill



PDP, Nov 2025

Lady's Bay, Auckland

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- Further sampling was completed to delineate the extent of the landfill and for waste characterisation to better understand volumes of fill
- Interim Site Management Plan (ISMP) was implemented
 - Ongoing monitoring
 - Asbestos waste beach pickups



Summary of Approaches and Insights

Approach	Risk Reduction	Cost	Environmental Impacts	Long Term commitment
Full remediation	High	High	Moderate short-term, highly positive long-term	Low
Partial removal + Seawall	Moderate - high	Moderate	Moderate	Moderate
Retain in place + monitoring	Low - moderate	Low	Low short - term	High



Key Learnings

- DOC sites have competing priorities that require consideration
- Successful remediation requires customised solutions and early collaboration with iwi and local communities to respect cultural values
- Adaptive frameworks enable flexible responses to changing environmental conditions, ensuring long-term project sustainability
- Continuous monitoring and integrating climate resilience into planning safeguard against rapid environmental changes

One size doesn't fit all

