

## 6j Coastal protection management options

Exploring management and action for coastal conservation

# Objective for today

- To explore different options for managing erosion on the coast.

## Your task

- For each of the following examples explore:
  - What protection/enhancement/management options that have been used to manage coastal erosion?
  - How effective do you think this management option has been?

*Working together to care for our coast - Kia ngatahi te tiaki takutai*

# Ohiwa Coast Care



Ohiwa 1976 - Gazetted as 'Stock Reserve' in 1906



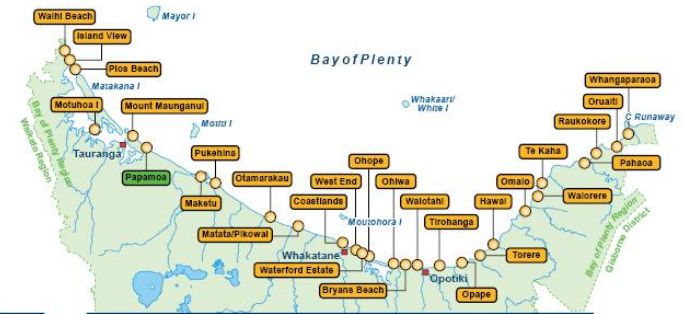
Ohiwa 1996

Wave action returned the sand during calm weather and due to changing weather cycles. This sand was then trapped and stored by native dune plants to rebuild the restored dune system.

Dunes are a dynamic natural system of balance. However the balance was tipped to favour erosion by changing weather patterns, in combination with the almost **total** removal of the native "sand binding" plants.

# Papamoa East Coast Care

- Motiti Road, the Storm Water Drain
- Dune Reshaping Trial



**August 1998.**

Saltwater susceptible plants fall over the edge as sand is removed by storm surge. Concrete and rubble has been dropped on the slope in a vain attempt to stem the erosion.



**May 2000.**

During the frequent autumn abundance of sand on beaches, a small quantity was moved up, under strict control by authorities, to reshape the dune front. This sand was planted with spinifex and pingao immediately to stabilise it.

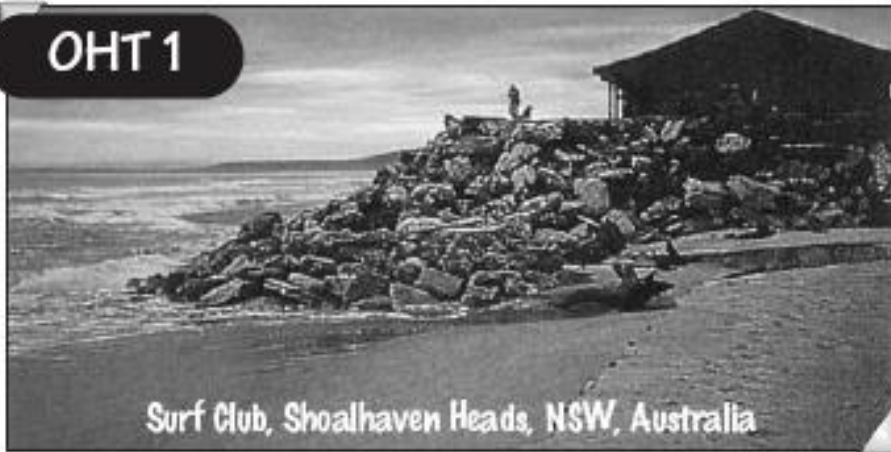


**May 2004.**

Just four years later, the plants are successfully restoring front dune function. This photo was taken after the impact of 10m waves from Cyclone Ivy. Note the buildup of sand relative to the storm water drain.

**Please Note:** Beaches and dunes are very complex and dynamic systems. Relocations of sand can have severe and unexpected consequences. A consent from Environment Bay of Plenty is required for sand disturbance to ensure the greatest opportunity for success, and to minimise the risk to property and the environment.

OHT 1



Surf Club, Shoalhaven Heads, NSW, Australia

**1984**



Small scale sand nourishment and replanting

**1994**



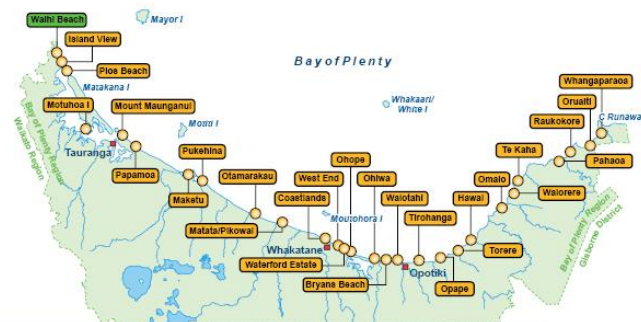
Sand accretion by dune plants offers protection to clubhouse

**1998**

# How can it be?

Both photos were taken at Waihi Beach on the same day, on the same tide and only 250m apart.

The Norfolk Island Pine tree circled in photo 2, is the same tree in photo 1.



## Waves Smashing Into Rocks At The Loop

Turbulence resulting from wave impact has stripped sand off the beach, lowered the level of the beach, which allows waves to reach close to the houses. This situation can not improve unless functional dunes are re-established.

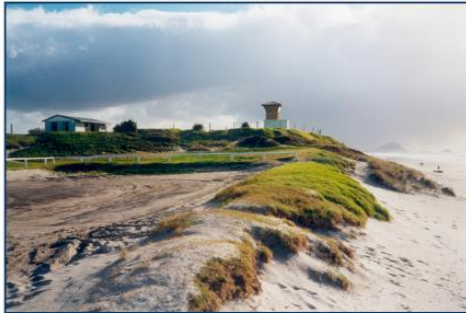


## Affected But Secure Foredune

Native dune plants have resisted wave attack and minimised erosion. Note how wide the beach is at exactly the same tide time as Photo 1. Natural dune function is providing a stable and safe beach that is self-sustaining.

# Papamoa Domain

This popular area provides easy access to great coastal views and beach, and attracts many people year round.



**June 1995**  
Lack of native front-dune plants meant sand was regularly blown onto the carpark, blocking access on occasion.



**August 2000**  
Coast Care BOP members designed, installed and planted leaf shaped plots to create multiple access points, blocking access on occasion.



**June 2002**  
The "weather bomb" struck and the spinifex and pingao trapped vast quantities of sand. The bollards and ropes had to be raised to renew effectiveness.



**31 December 2002**  
Just six months later, the plants have emerged completely, ready to trap more sand in the next storm event.



**9 January 2003**  
Nine days later it happened again.



**6 May 2004**

# Back from the Brink



Wind erosion was threatening the stability of the Papamoa Surf Rescue Base (see the broken concrete at the front of the building, placed to reduce wind erosion of the foundations).



Planting native species and subsequent natural dune rebuilding have increased the stability of this important building, and created a wider beach for people to enjoy.





# Raumati “Beach” Coastal Protection

Rock walls reflect waves and  
can prevent sand building a  
safe beach

# Dune management in Ohope

## Maraetotara Reserve



### Dune Front



A storm water drain (by peg in middle of photo) was lowering beach level, which promoted wave attack on the dune front slope.



Whakatane District Council removed the storm water drain and formed a drainage swale behind the dune. Excess sand from the swale was used to fill in the embayment. Ohope Coast Care members planted the sand with functional dune plants.

### Dune Backslope



The eroded front slope encouraged wind erosion of sand over the crest, to be deposited on the backslope. This untethered sand was smothering daisies and weeds, and blowing towards the road and houses.



The wind deposited sand was also planted with functional dune plants by Ohope Coast Care, to result in a functional and stable dune.



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*Working together to care for our coast – Kia ngatahi te tiaki takutai*



**Bay of Plenty Regional Council** in partnership with Tauranga City Council; Whakatane, Western Bay of Plenty, and Opotiki District Councils; and the Department of Conservation.