A photograph of a leatherback turtle swimming in the ocean. The turtle's head and front flippers are visible above the water, creating a splash. The background shows the ocean waves under a blue sky.

A Preliminary Study of the Effects of Seasonal Beach Dynamics on the Nests of the leatherback turtle (*Dermochelys coriacea*) at Matura and Grande Rivière

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Status of the Leatherback Turtle

- Critically endangered – IUCN 2008
- Threats are both natural and anthropogenic
- Most vulnerable in early life stages
- Hence a need for research to boost conservation efforts

Why conserve the leatherback turtle?

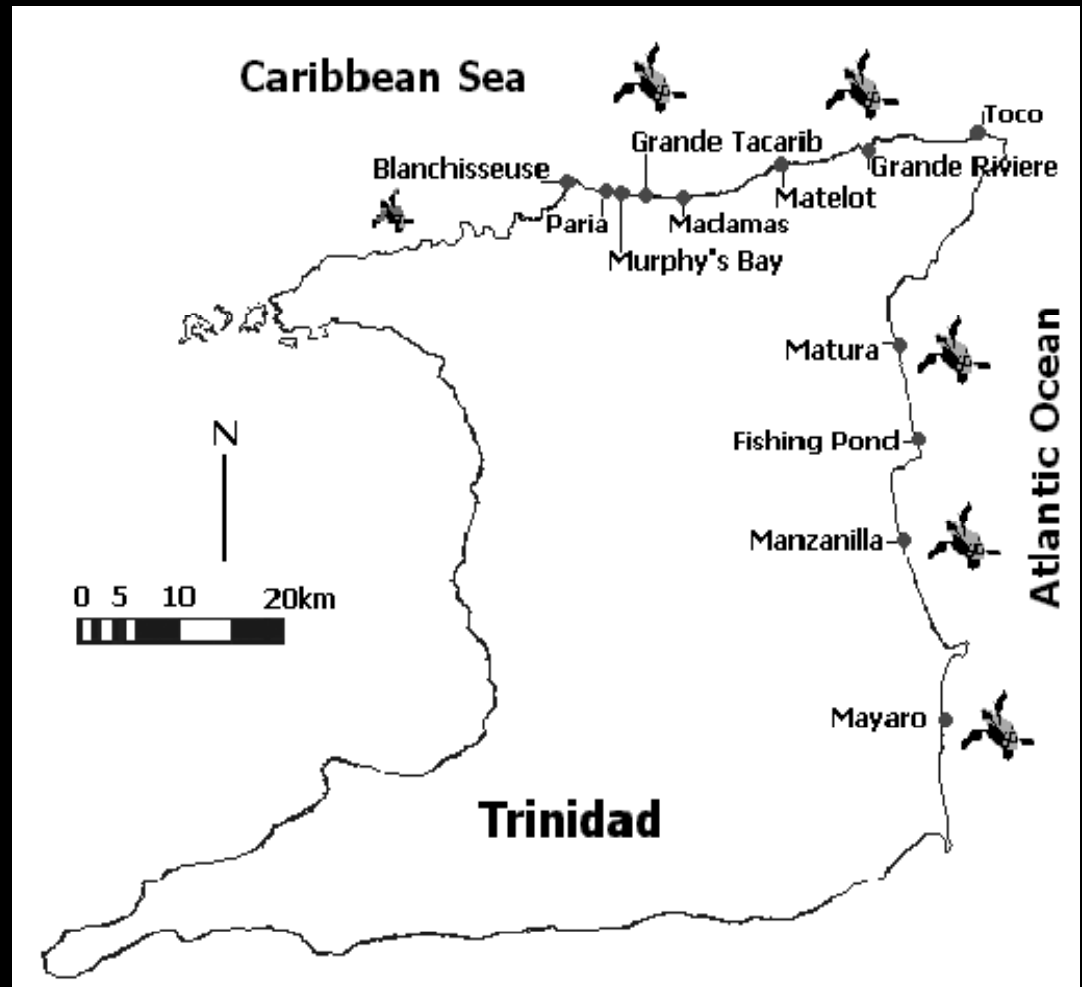
- Largest of all marine turtles and is the only living species in the genus *Dermochelys*
- Ecosystem role - natural predator of jellyfish
- Economic importance

Beach and River Dynamics

- Beaches and river mouths display seasonal changes
- Changes are related to differences in weather patterns
- Seasonal beach changes are expected to affect turtle nests through loss of nests

Location of Study

- Grande Riviere beach – North Coast
- Matura beach – East Coast



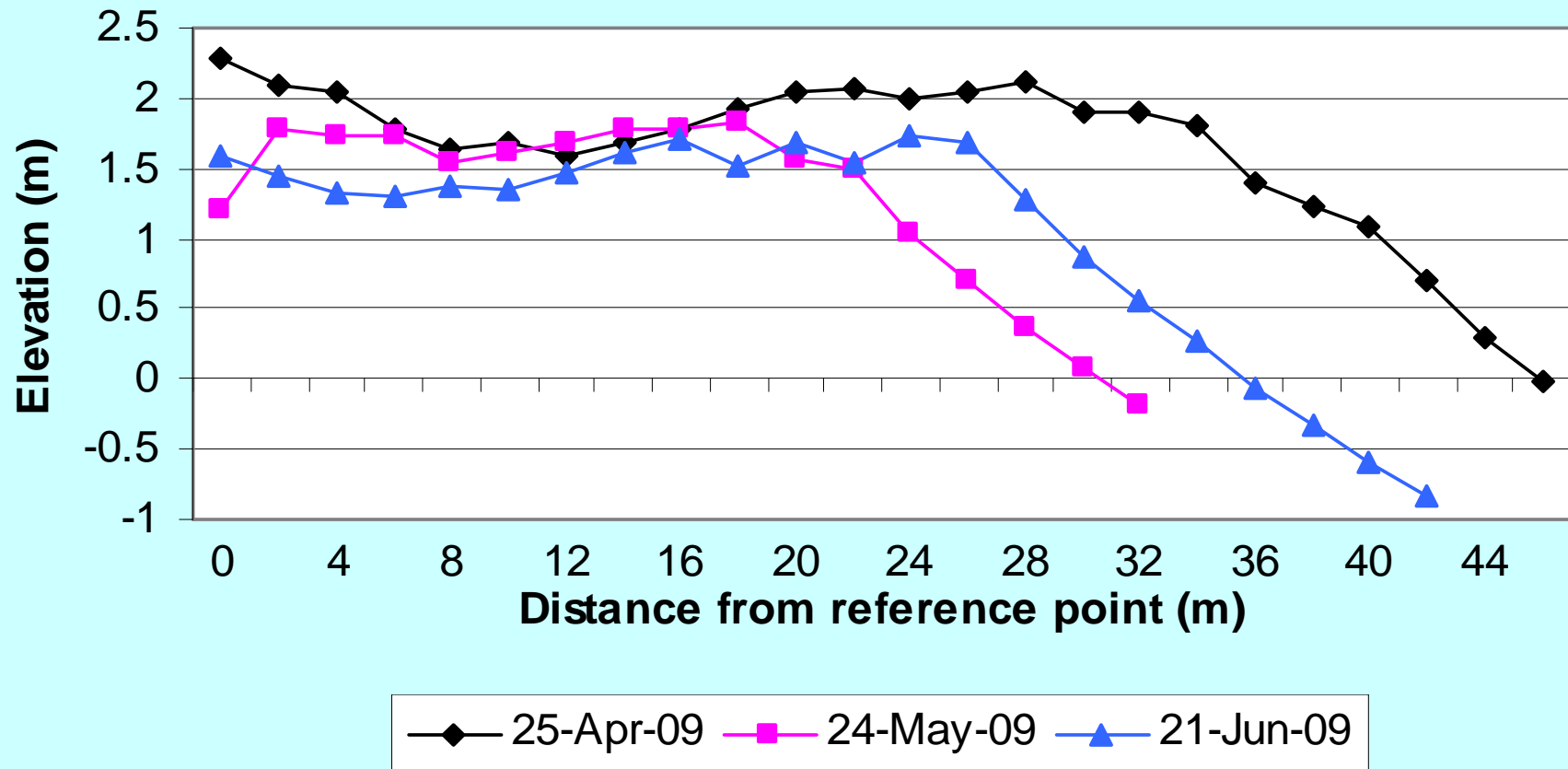
Methodology

- Beach topography surveys
- Location of nests using Global Positioning System coordinates
- Data collected will facilitate the creation of maps and Digital Terrain Models to illustrate changes in beach morphology as well as identify stable zones for nesting

Preliminary Results

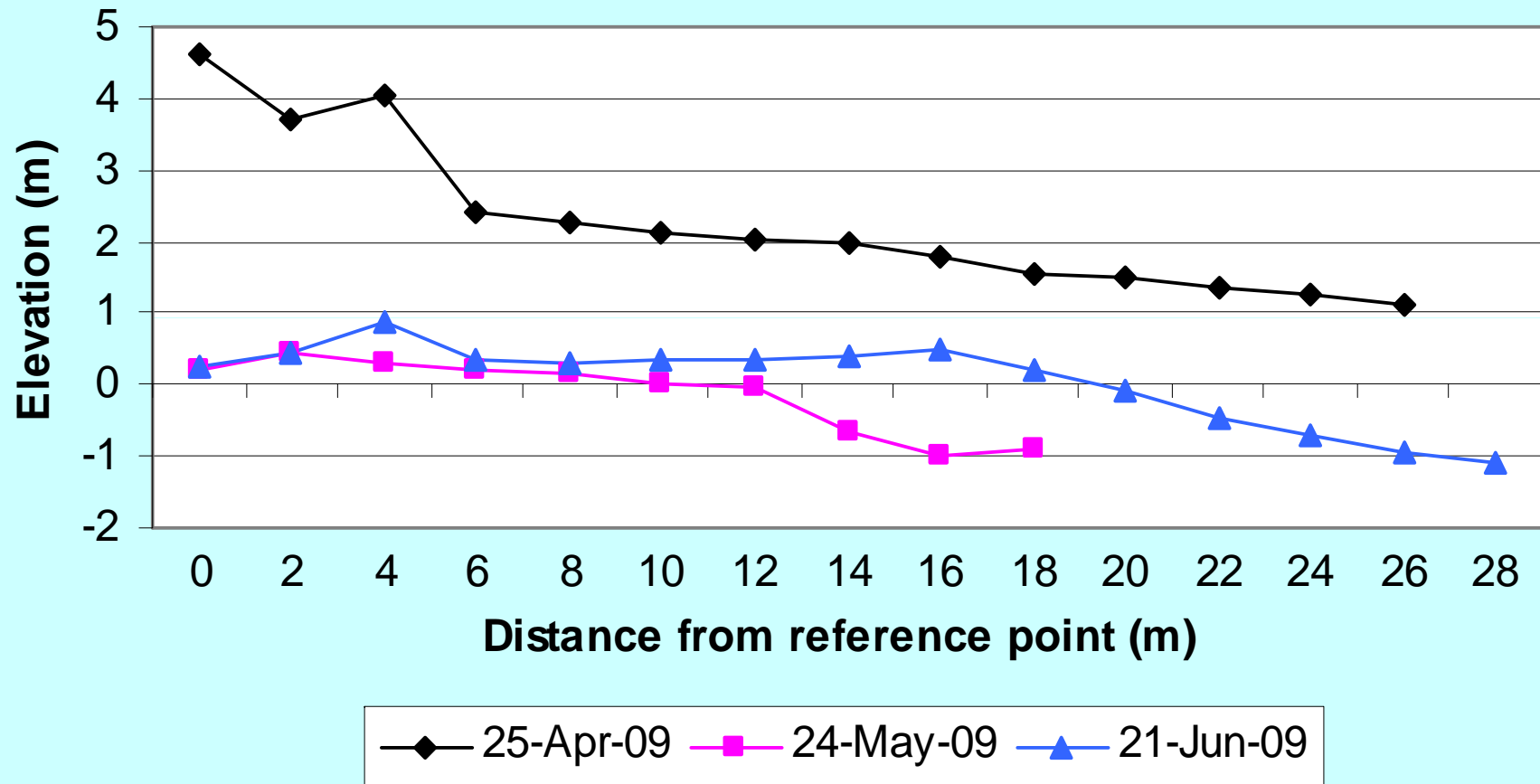
- Beach profiles display changes in terms of erosion and accretion
- Observed nest loss by wave action and river erosion

Grande Riviere - Profile 2



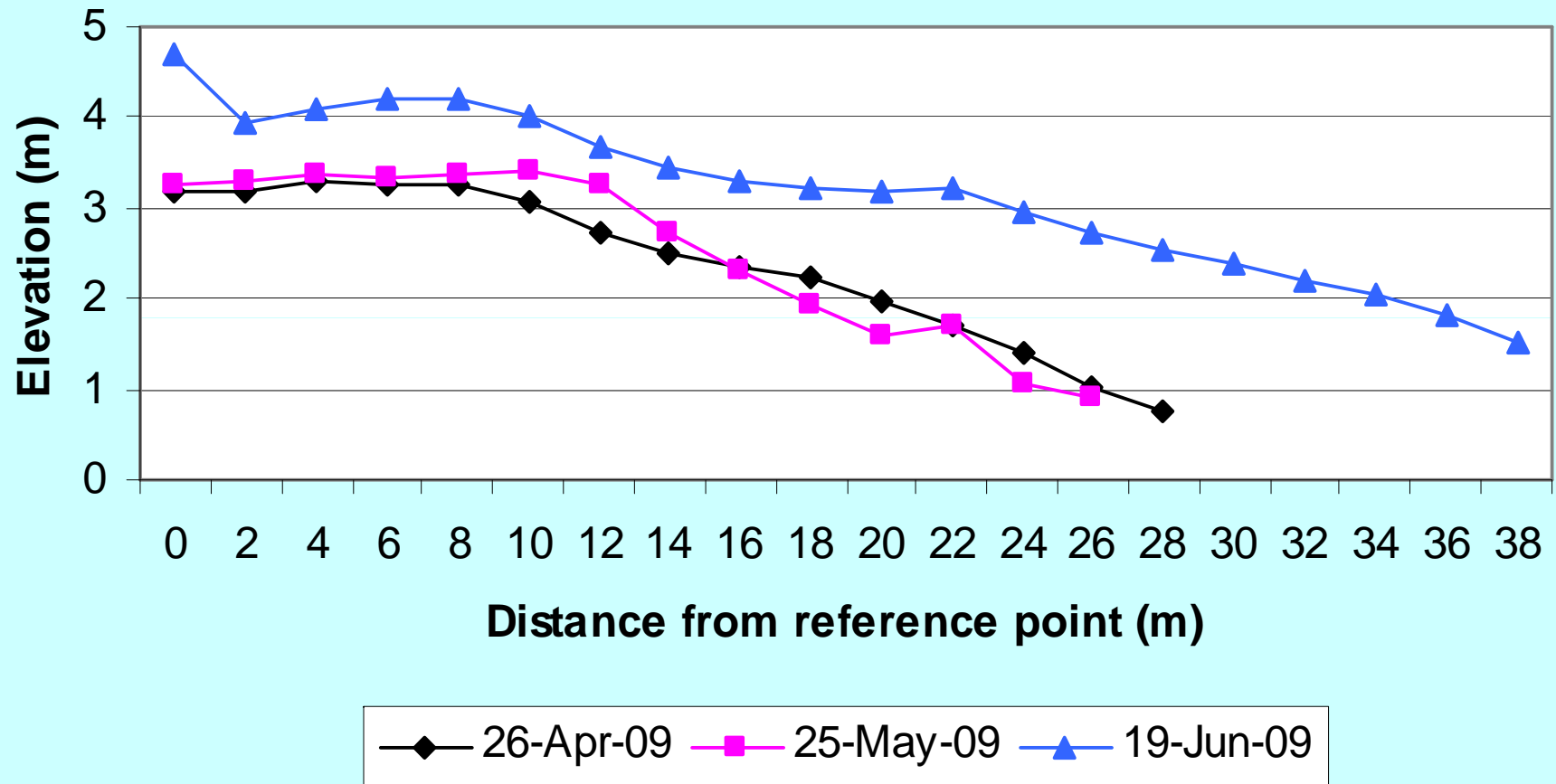
2 metres of sediment lost at the 32 metre point along the profile between April and May

Grande Riviere - Profile 7



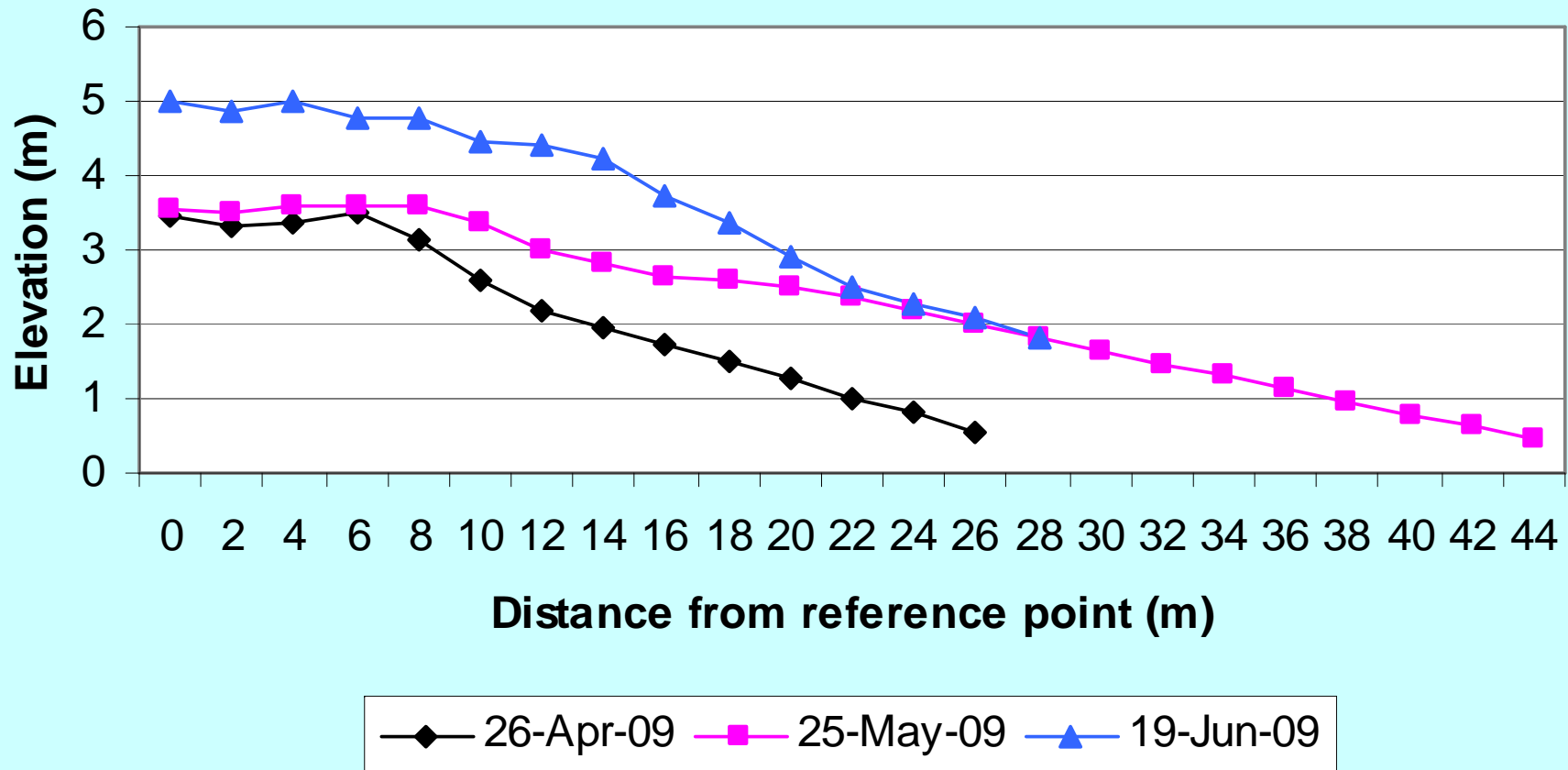
Over 4 metres in sediment lost on the backbeach between April and May

Matura - Profile 1



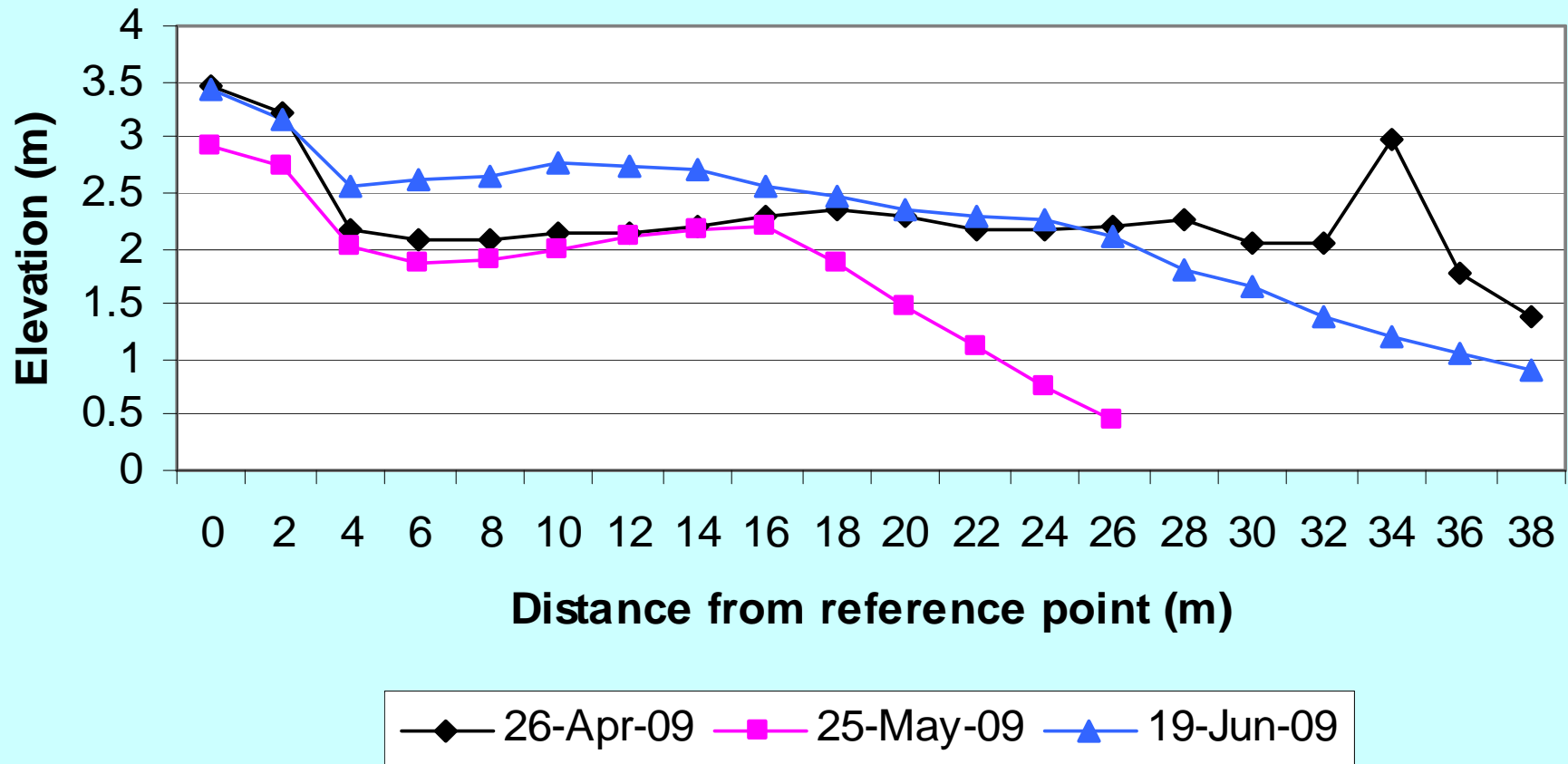
Accretion occurring from May to June

Matura - Profile 4



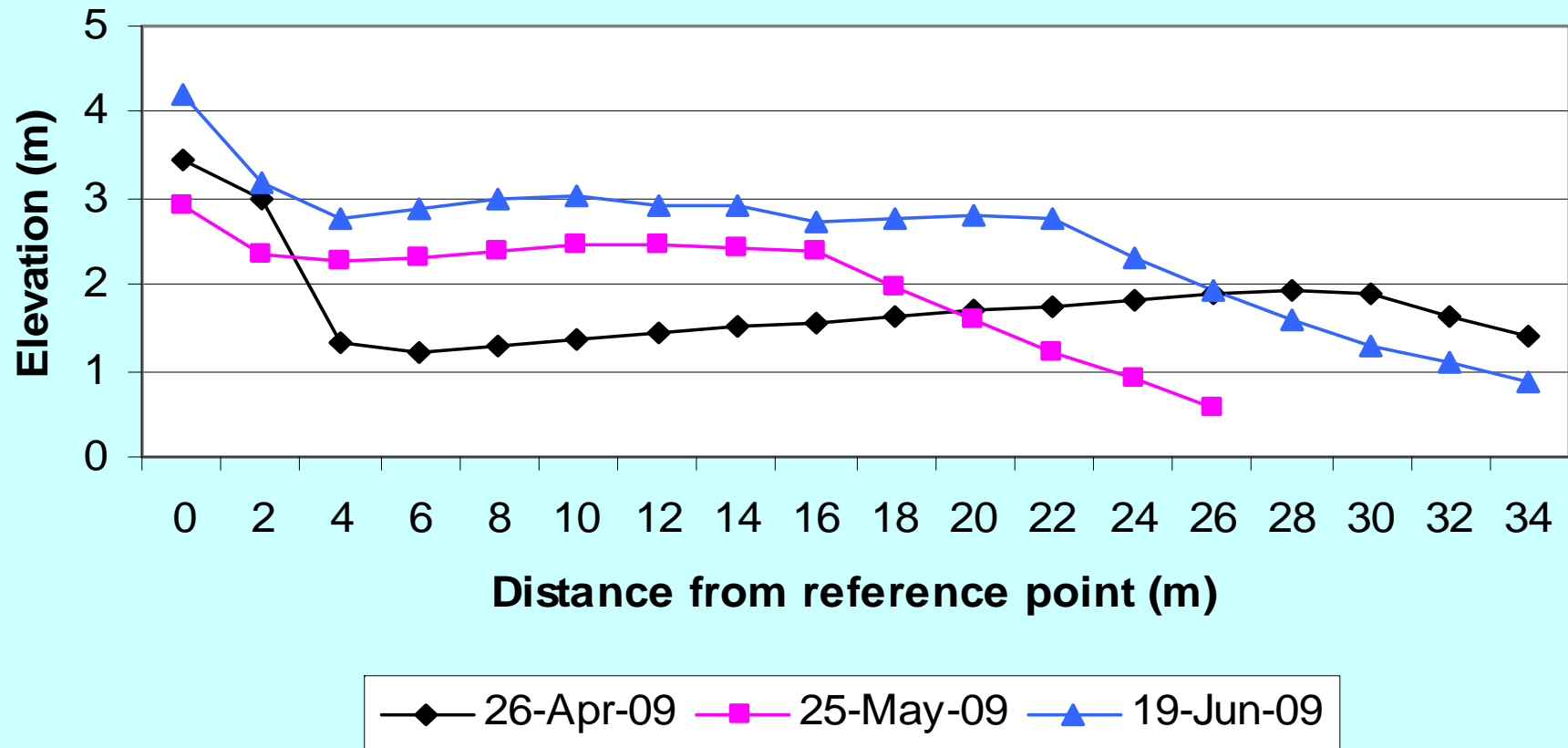
Steady accretion throughout the months with a steepening of the beach profile between May and June

Matura - Profile 5



At the 26 metre mark as much as 2 metres of sediment lost between April and May. Accretion between May and June has almost restored the sediment

Matura - Profile 6



Constant accretion but lengths and steepness of profiles vary throughout the months

Erosion of nests

- Erosion of nest at the Ferdinand River in Grande Riviere



Erosion of nests

- Erosion of nest by wave action at Matura



Possible Implications of Climate Change

- Climate change may exacerbate the threat of natural beach erosion through an increase in the intensity and frequency of storm events
- Sea-level rise may reduce the available beach area utilized for nesting as well as increase the area of beach inundated
- Increased precipitation may lead to increased river discharge and subsequently erosive power

THANK YOU

