Deltaport East Causeway Intertidal Habitat Enhancement

Saltmarshes, Mother Nature and Coastal Engineering

RESTORATION FOR RESILIENCE: ECOLOGICAL RESTORATION IN THE 21ST CENTURY

SER-WC 2018 Conference

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Outline

Donor Area
Reference Site
Salt Marsh Enhancment Areas
N
1
2
4
5
6
7
8
9
Deltaport Way
Roberts Bank Rd
Port Metro Vancouver-Deltaport
27 B Ave
Tsawwassen Dr
48 St
17
Tsawwassen Springs Golf Course
Brandrith Park
12 Ave
10 A Ave
8 A Ave
Pacific Dr
Ferry Cswy
0.85 0.425 0 0.85 1.7 2.55 3.4
Kilometers

Project Background

Project Background

New Habitat Along the Deltaport Way East Causeway will Support Biodiversity at Roberts Bank

Port Metro Vancouver (PMV) will begin creating new fish and wildlife habitat along the east causeway portion of Deltaport Way in mid-June 2009. Roberts Bank is recognized as an important ecological area. Through the East Causeway Habitat Compensation Project, PMV will help support the biodiversity and environmental sustainability of the area.

The East Causeway Habitat Compensation Project will transform the land beside the Deltaport Way east causeway into diverse marine and wildlife habitat through the creation of barrier islands, rip rap slopes, salt marsh, upland vegetation areas, and gravel and cobble beaches. The project is expected to be complete by early 2011.

Artist's concept of the East Causeway Habitat Compensation Project.

Project Background

Purpose

The purpose of this project is to enhance intertidal and shoreline habitat functions by establishing appropriate upland and intertidal vegetation and to identify optimal techniques for salt marsh restoration in similar environments.

Local Natural Analogs

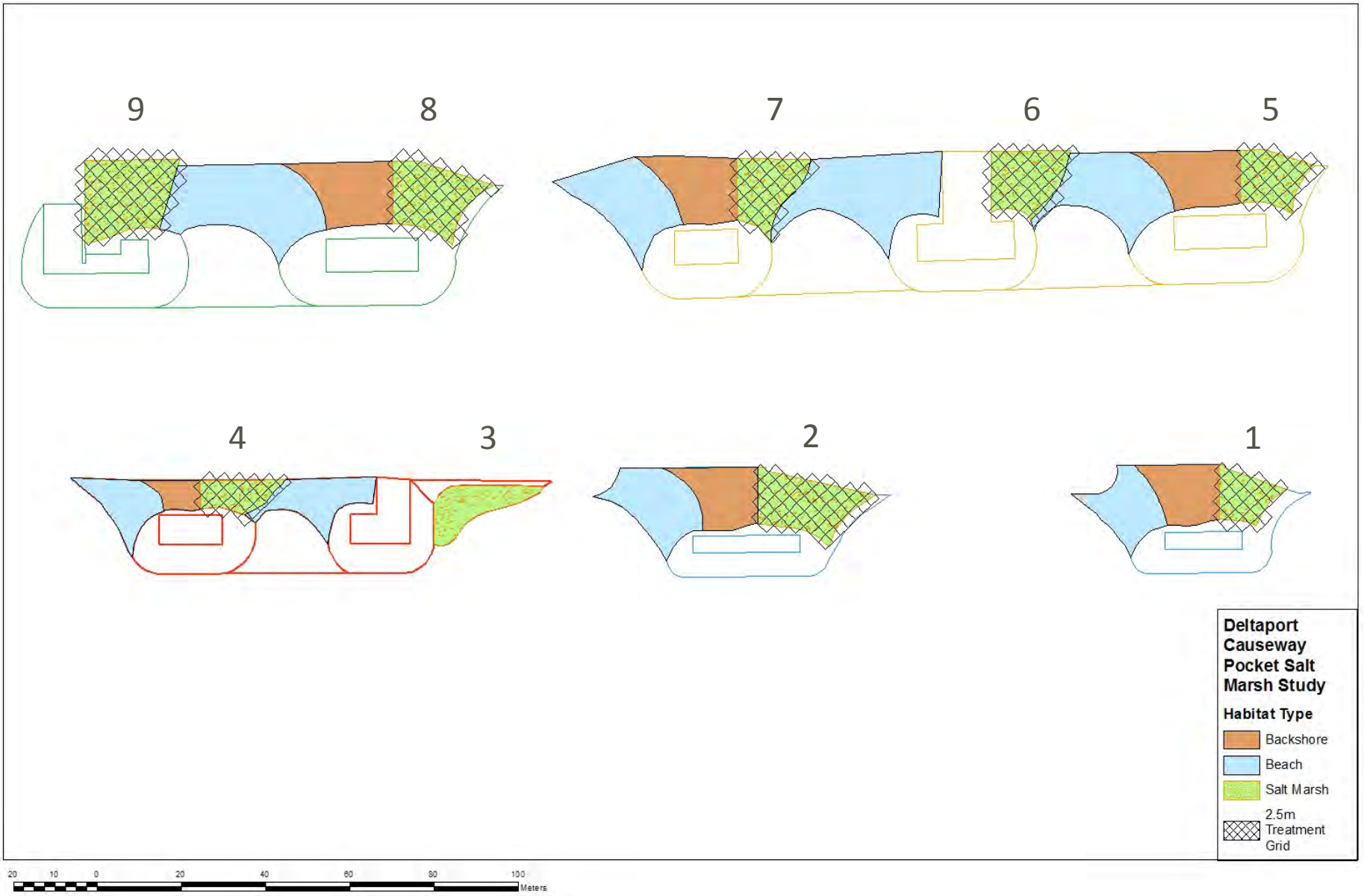
(i.e., established stable beaches subjected to similar wave climate)

Use of Natural Analog Sites

Iona Beach

Habitat Enhancement : Limitations

1. ensuring adequate shoreline protection against storms;
2. limiting habitat enhancement works to narrow band between the causeway and the existing toe of rip rap to minimize impact to adjacent mudflat;
3. protecting created habitat from physical processes occurring in the inter-causeway area, including storm events and sea level rise;
4. preventing fines and growing medium from washing down shore;
5. using plugs from donor site without causing undue harm to existing ecosystem;
6. creating conditions that allow tidal wash to cycle out of saltmarshes to avoid excessive debris and wrack accumulation;
7. limited growing medium material available; and
8. Work to take place during fisheries window.


9
8
7
6
5
4
3
2
1
Deltaport Causeway Pocket Salt Marsh Study
Habitat Type
Backshore
Beach
Salt Marsh
2.5m Treatment Grid
20 10 0 20 40 60 80 100
Meters

Salt Marsh 1 & 2

Salt Marsh 4 and 3

Salt Marsh 7,6,5

Salt Marsh 9 & 8

Salt Marsh 9

Habitat Enhancement : Planting

Measuring the Results

Challenges

1	2	3	4	5
• frequency of deposition • amount of wrack deposited • duration of cover	• Texture • Depth • Water retention • Movement due to wave action?	• Backshore • High, mid and low saltmarsh	• Drainage • Crescent shape washout pattern • beach berm or crest elevations during storms	• Adaptive management

Measuring the Results

Learnings so far

1 Monitor wrack and woody debris	2 Monitor growing medium	3 Monitor plant establishment	4 What can we change to improve?	5 How will we do it in the future?
• Storms have deposited wrack and debris in the least protected marsh areas	• Finer textured soil with some silt and clay seems to have best resisted wave scour	• Invasive plants on backshore due to imported medium and wind inputs • Cluster plantings seem to best resisted wave scour	• Drainage • Crescent shape washout pattern • beach berm or crest elevations during storms • Install temporary booms	• Adaptive management

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THANK YOU
Questions?