Innovative Marina Designs

Lighter

Greener

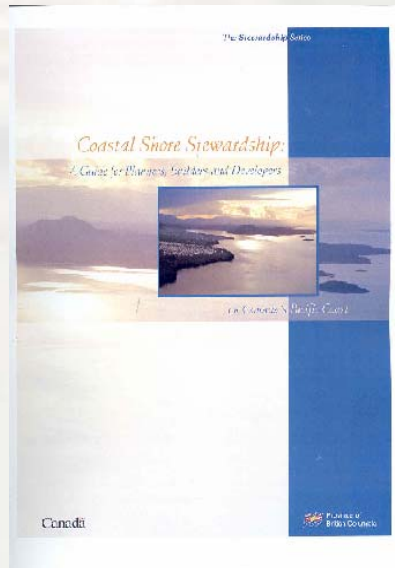Smarter

Cleaner

Brian Emmett, Jack Cox, Shannon Kinsella, Ted Appleton
PCC Harbormasters/Port Managers Spring Conference
April 7, 2005

Green Shore Approaches to Shore Development

Brian Emmett
Archipelago Marine Research Ltd.
Victoria, BC

Coastal Shore Stewardship Guide
and
Green Shores Resources
www.stewardshipcentre.bc.ca

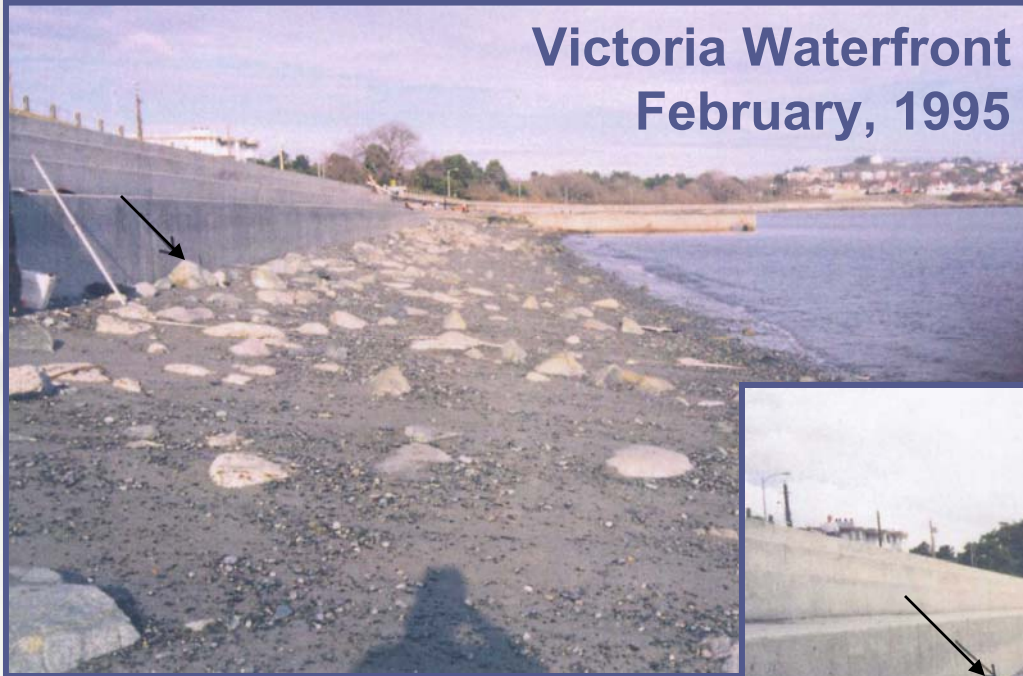# Shores are Dynamic Systems
Large scale changes occur over long time periods

Rose Spit, Graham Island

Change Occurs Seasonally

Victoria Waterfront
February, 1995
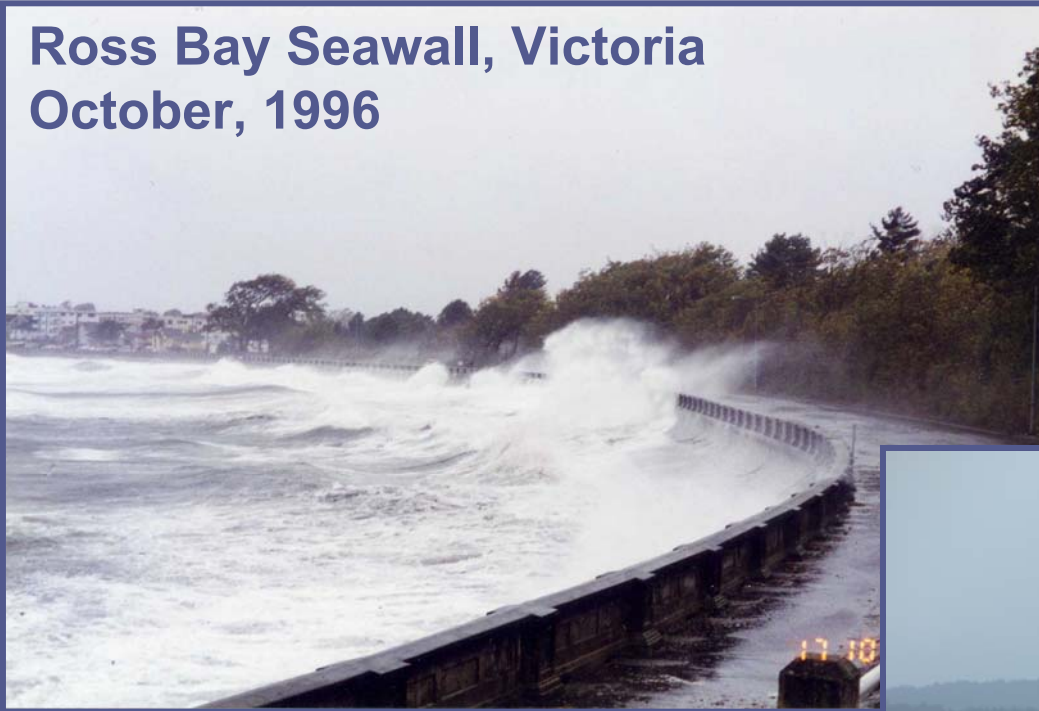
Victoria Waterfront
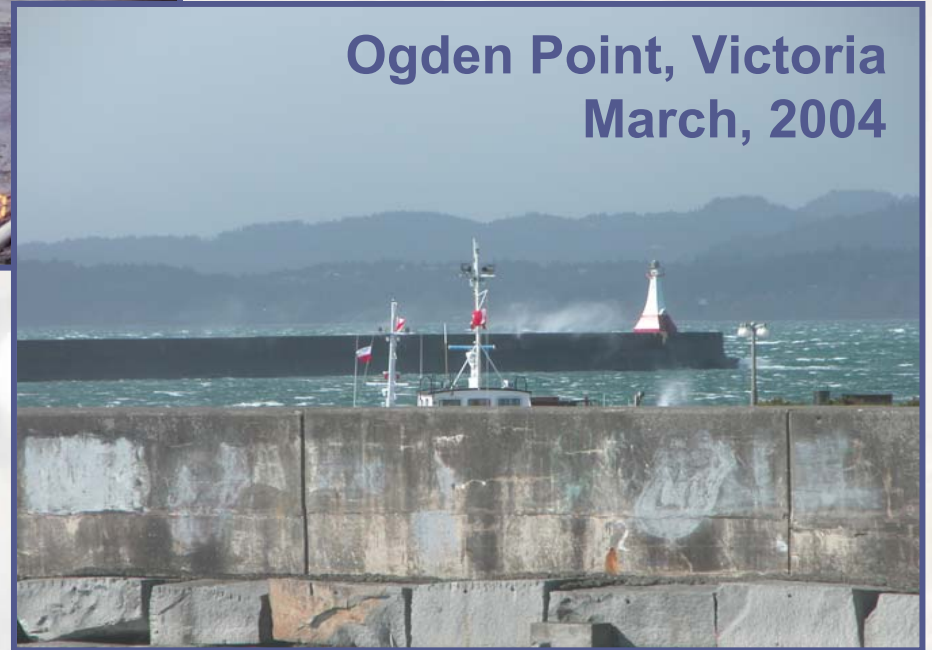June, 1995

Change Occurs Episodically

Shore Protection

**Ross Bay Seawall, Victoria
October, 1996**

**Ogden Point, Victoria
March, 2004**

Shore Access

Aesthetic/Cultural Values

Cumulative Impacts
Hardening Shores

Bulkheading
- none
- 1-33%
- 33-66%
- >66%
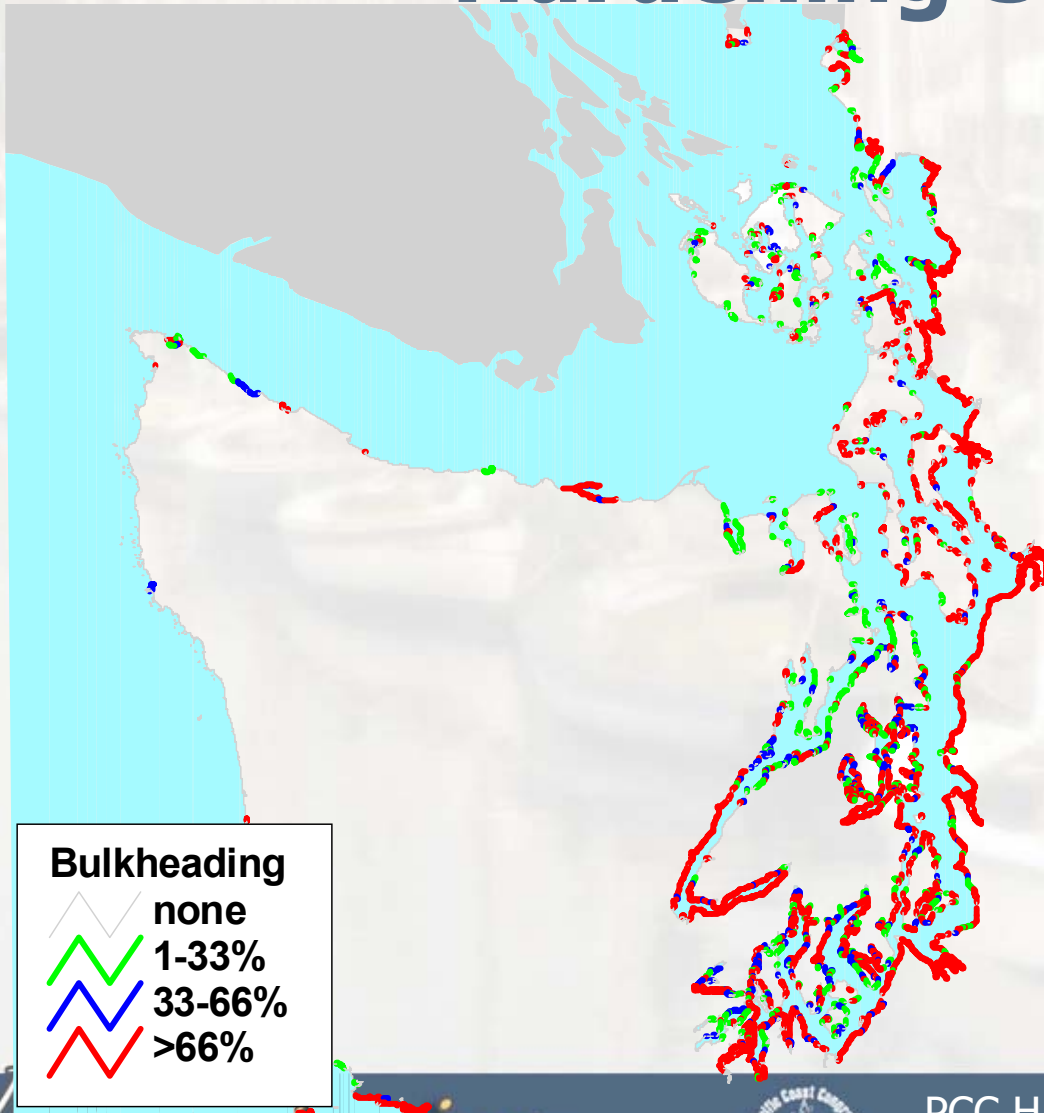
Victoria Waterfront Seawall
Toe Erosion on Hardened Shores

Toe of Seawall, 1996

Cumulative Impacts
Disruption of Coastal Processes

Cumulative Impacts
Loss of Shore Vegetation

Riparian "Overhang"
- None
- <33%
- 34-66%
- >66%

Seattle

Bremerton

Tacoma

Olympia

10 0 10 20 30 40 50 Kilometers
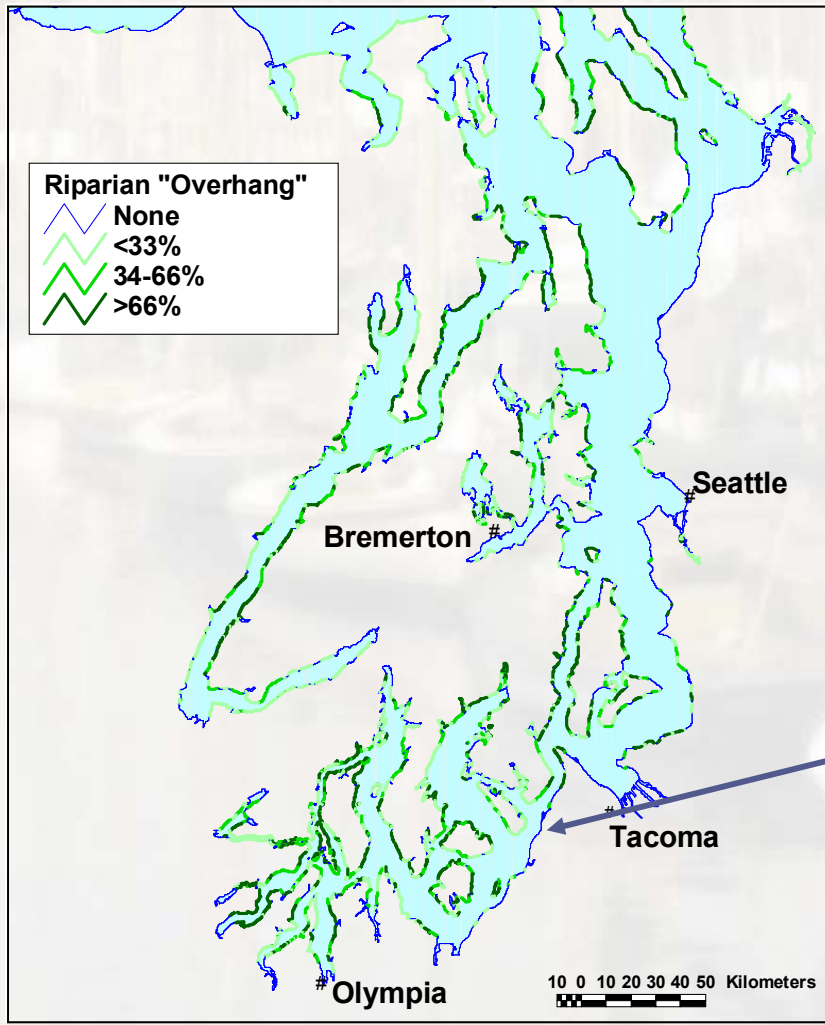
"Working with Shores"

- Understanding Process and Function
- Integrating Design Processes (engineering which works with shores)
- Working effectively in a multi-jurisdiction environment
- Continuous learning

It is not about what you cannot do, rather what you can do differently

Different Shores, Different Concerns

Green Shores Concept

Green Shore Principles
Sustainable Approaches to Coastal Design

Principle 1. Preserve or restore connectivity

Principle 2. Preserve or restore ecological function

Principle 3. Minimize pollutants to the marine environment

Principle 4. Minimize or reverse cumulative impacts to shores

Green Shores – Pilot Projects

Two Objectives:

A. Provide Case Study Examples of *Green Shores* Design

B. Evaluate the Potential for a *Green Shores* Assessment/Certification Program

Three Sites:

Selkirk St, Gorge Waterway – residential property, restoration of shore features

Sidney: waterfront development, fill and shore protection

Comox: private properties owners concern about erosion control

The First Harbour Project?

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