Shoreline Protection

Slope failure - stability (gravity).
Soil erosion – wave action, wind action, running water.

NOTE: Different specific locations require different specific shoreline protection techniques and solutions. There is no one solution! This is extremely important to understand.

The impact of natural shoreline processes are important and are currently increasing with flooding, wind action, and human activity due to land use and vegetation removal. May become even greater due to climate and other environmental changes.

Landslides

NOTE: Only a qualified person (P. Eng., or P. Geo.) can properly design a plan to prevent soil erosion. Although there is a cost to this, it may significantly outweigh the cost should erosion occur. Soil types can change within an area and make a very significant difference.

It can result in Canadian federal Department of Fisheries & Oceans (DFO) concerns, landowner disputes, detrimental to shoreline stability.

Options

No action – low cost solution - no dwellings are directly threatened.

Relocation of endangered structures – if it is less expensive. If there is concern about placing protection.

Armour the shoreline – if there is no other solution – cost effective method. (lifespan of protection and keeping the beach area)

Heavy protection

- Rock revetment
- Seawalls (retaining walls, concrete retaining wall or sheet piling)

Light protection

- Gabion walls
- Rock fill structure
- Protect the lower bank with riprap (Not with N or NW winds)
- Bulkheads (wooden or metal)
- Bioengineering
- Soil bags (traditional, super sandbags, bags filled with sandbags)
- Slope flattening – a bluff slope may be flattened – should be planted

Soft solutions
Breakwater techniques

- Geo tubes
- Sand grabber (beach relocation)
- Wave attenuation

Gradation