



PROJECT DESCRIPTION

Coldwater Consulting Ltd. was contracted by the PEI Department of Transportation and Infrastructure Renewal to undertake an assessment of erosion of the shoreline along the sand spit that forms the western approach to Souris, PEI, and to develop a strategy for addressing the existing erosion problems along this shore in particular as they affect the parking lot at the eastern end of the beach. An important aspect of the project was to ensure that any design alternatives proposed to protect existing park infrastructure from erosion should also improve the touristic, aesthetic and recreational features of the beach.

DESIGN APPROACH

After a detailed site investigation, Coldwater undertook a number of tasks to investigate the present conditions, including bathymetry, meteorological and oceanographic data collection, analysis of aerial photography to estimate erosion rates from 1935 to present, development of a geomorphologic framework to describe the relative influence of waves, tides, surges and human influences on shoreline response, and development of a conceptual sediment budget for the area. This work provided Coldwater with sufficient information develop a wave transformation model for the bay to examine effects of water levels, offshore waves, refraction, diffraction and shoaling on nearshore wave conditions. The output from this model was used in shoreline evolution model to investigate preliminary conceptual alternatives for consideration (sediment management techniques, armour stone and vertical wall structures, etc.).

The study recommended a solution with three key components:

1. a low-elevation seawall along the edge of the existing shore;
2. offshore reef structures, which will act as small breakwaters to reduce wave action along the shore, and;
3. beach fill behind the reef structures to enhance beach formation and to limit any downdrift effects.

Following consultation with provincial and municipal personnel, the proposed design incorporates a seawall constructed from Redi-Rock – a textured and coloured pre-cast concrete block, while the offshore reefs will be constructed of Island sandstone.

CLIENT

PEI Dept. of Transportation and
Infrastructure Renewal

LOCATION

Souris, PEI

DATE

2011-2012