

- (d) Measurement of mass movement of Quaternary gravel deposits, and
- (e) Assessment of human impacts due to trail usage.

Research completed as of December 2009 includes:

- (a) Identification and measurement of attitudes of bedding planes, jointing, and faulting of two sites at Pigeon Cove (western MPER) and Mistaken Point (central MPER)
- (b) Repetitive measurements to bluff line, to record bluff erosion
- (c) Repetitive measurements of wave characteristics and dynamics

The goal is to provide mapping and analysis that will contribute to effective management of coastal erosion issues at MPER.

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### Coastal erosion at Mistaken Point Ecological Reserve, Newfoundland, Canada

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The project location is at Mistaken Point Ecological Reserve (MPER), on the southeastern shores of the Avalon Peninsula. Research began in March, 2009. The purpose of the project is to analyze coastal erosion affecting the integrity of this coastline, as well as to create a comprehensive map exhibiting these processes. The assessment includes analysis of processes and causes of erosion, measurement of the rates of erosion, and evaluation of the roles of climate variation and climate change. MPER encompasses 5.7 km<sup>2</sup> of coastline extending from the town of Portugal Cove South to Cape Race. MPER is deemed globally significant in that it represents a portion of the Ediacaran Fossil Record (565 Ma) exhibiting some of the first complex multi-cellular organisms on Earth.

The stratigraphic section contained within MPER is ~2.5 km thick, exposed as rock platforms and cliffs along an indented and morphologically variable coastline 24 km in length. As many as 100 fossil-bearing horizons are present within the Reserve. Under the Province's Wilderness and Ecological Reserves Act, MPER is protected as an internationally significant Precambrian fossil zone. In March 2004, the Reserve was added to the official Canadian Tentative List as a potential World Heritage site. Aside from field observations, and photographs of individual fossil sites within the last 10–30 years, there has been no quantitative data acquired with respect to the erosion issues at MPER. In response to this knowledge gap, the following research has been initiated:

- (a) Measurement of coastline of MPER
- (b) Assessment of current processes and rates of erosion
- (c) Analysis of jointing, bedding, and faulting patterns which condition coastal erosion