Rock Point Natural Area: Geologic Wonders

Geologists from around the world travel to Rock Point to marvel at its geologic features. The Natural Area is home to one of the most visible and dramatic exposures of a thrust fault in Eastern North America.

In addition to this amazing natural attraction, the peninsula's rocky shoreline provides geologists and tourists with easy access to enormous boulders, unique limestone cliffs, and a rare sand beach and dune complex.

Champlain Thrust Fault at Rock Point

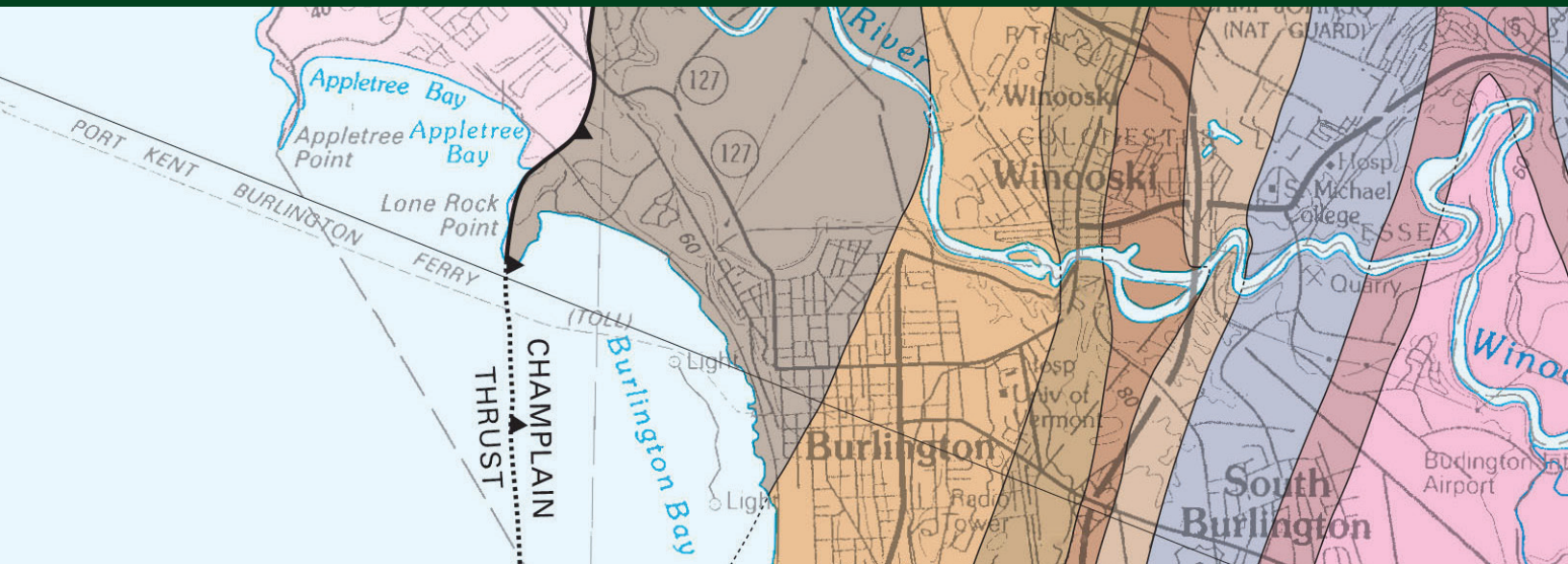
The Champlain Thrust Fault

This world-renowned thrust fault exposure consists of two types of bedrock—the sand-colored Dunham Dolomite on top and the dark grey Iberville Shale below. Geologists estimate that the bottom layer (Shale) was formed around 460 million years ago during the Ordovician Period, while the top layer (Dolomite) was formed earlier—between 500 and 540 million years ago during the Cambrian Period.

This inversion of layers, with the older rock formation on top, was caused by an ancient mountain building event known as the Taconic Orogeny. During this time, tectonic forces pushed the landmasses currently underlying New Hampshire and Maine into present-day Vermont, creating the Green Mountains. High pressures cracked and buckled the bedrock during this violent event, thrusting the older Dunham Dolomite up and over the Iberville Shale layer.

In addition to this uncommon layering, the Champlain Thrust Fault at Rock Point is unique in that it is exposed at eye-level. Thrust faults exist around the world, but many are buried underground or are found in inaccessible regions. Rock Point provides a rare, up-close and accessible view of this unique geologic phenomenon.

Champlain Thrust Fault | Limestone Cliffs | Massive Boulders | Rare Sand Beach



Dunham Dolomite

The calcuim-rich top layer supports the extensive Limestone Bluff Cedar-Pine Forest that rims the Rock Point Peninsula. Formed at the bottom of an ancient shallow sea from decomposing coral and shells of aquatic organisms, exposures of this unique formation abound along the Rock Point shore, providing a perfect outdoor classroom for budding geologists.

Erosion at Work: The Boulders, Beaches, and Sand Dunes of Rock Point

The erosional effects of water, climate, lake currents and wind are clearly evident at Rock Point. Geologists can study house-sized boulders cleaved from the rock face by freeze-thaw processes and gravity, as well as a rare Lake Champlain beach and sand dune complex just around the corner.

Natural sand beaches are rare along Lake Champlain, requiring a specific combination of geography, prevailing currents, and source of sediment. With the mouth of the Winooksi River just to the north and a major current break formed by the Rock Point Peninsula, the sand beach here is one of the finest examples on the entire Lake. Just inland from the beach lies a series of low dunes that harbor an array of rare plants species, including Champlain Beach Grass. In fact, the sand dune between Rock Point and North Beach may be one of the best remaining sand dunes on Lake Champlain.

Champlain Beach Grass © New York Natural Heritage Program
Photographer: Stephen M. Young