

Geologic Site of the Month
January, 1998

WWII Rockets Removed from Beach at Reid State Park



43° 46' 56.34" N, 69° 43' 18.23" W

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Introduction

We now return to the beaches of [Reid State Park](#). This web page is a follow-up to the "[Shells on the Beach](#)" web page which has further information and pictures. During World War II aviators practiced aiming test rockets at a barge anchored next to [Mile Beach](#) (See the [Bureau of Parks and Lands website](#) for a location map of Maine State parks). Rocket motors and warheads landed on the beach and were worked down into the beach by waves. During periods of extreme beach erosion, such as in the 1978 blizzard, pieces of metal ordnance were reworked deeper into the beach. Today, debris is buried a few feet below the average winter beach profile.



Beach Profiles

Geologists Steve Dickson and Robert Johnston (Figure 1) of the Maine Geological Survey recorded beach elevations through the summer and fall of 1997. Beach profiles were made out to wading depth. Profiles were used to monitor the amount of sand burying the ordnance as a measure of safety for park visitors and to plan a cleanup effort for the fall.



Photo by Maine Geological Survey

Figure 1. Robert Johnston doing beach profiling at Reid State Park.



Beach Profiles

As fall storm waves eroded the summer beach, sand on the beach shifted offshore and resulted in a lower beach profile (Figure 2).

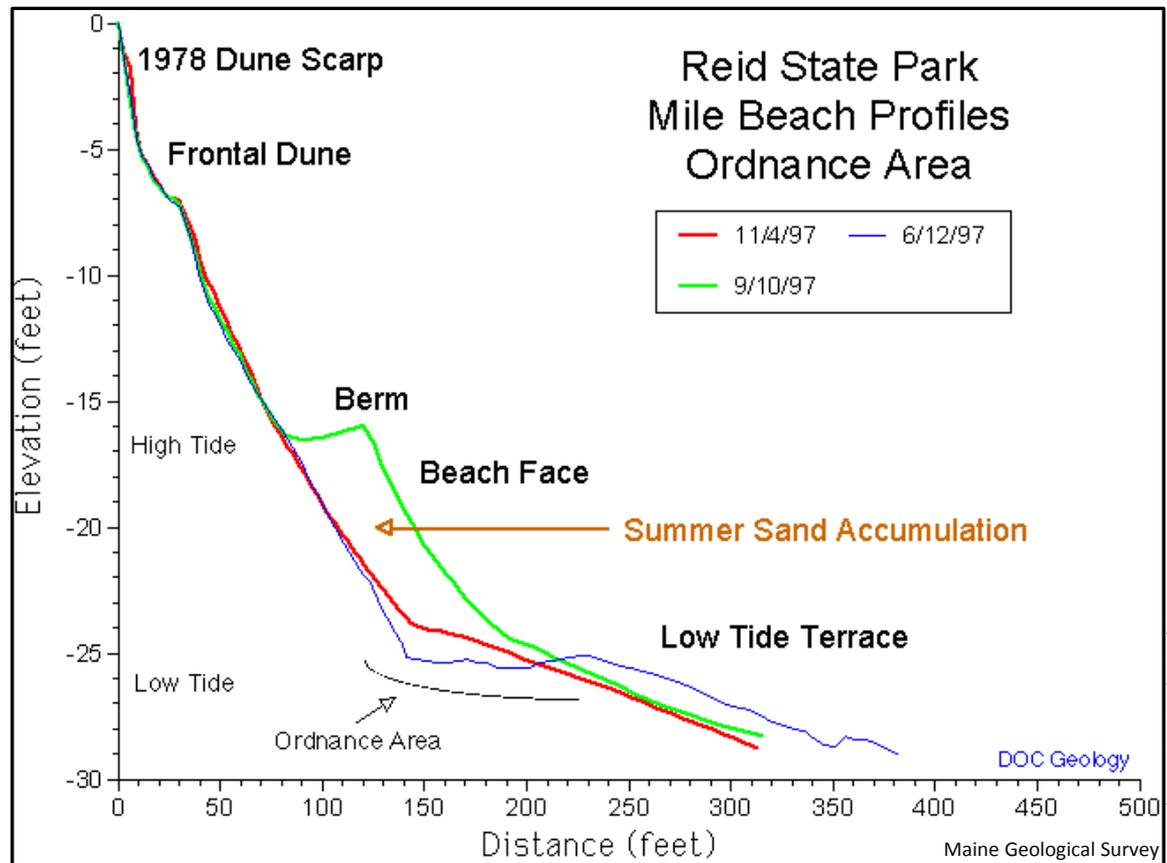


Figure by Maine Geological Survey

Figure 2. Beach profiles for Mile Beach showing summer sand accumulation.



Ordnance Cleanup

A summer accumulation of sand, in the form of a 40-foot wide berm, disappeared in October and created conditions ideal for cleanup of the WWII debris. The resulting "winter" beach profile left little sand over the ordnance and allowed cleanup crews easier detection with metal detectors and digging with shovels (Figure 3).



Figure 3. (Left) Metal detectors on the beach. (Right) Digging for ordnance with shovels.

Ordnance Cleanup

The cleanup effort by [Human Factors Applications, Inc.](#) for the [U.S. Army Corps of Engineers](#) and the State of Maine began on November 24 and ended on December 10, 1997. During the ordnance removal Reid State Park was closed to visitors because demolition with explosives occurred on the beach at the excavation area, following Army policy.

The cleanup process removed 72 pieces from the beach. Most common were 44 rocket motors, metal pipes from 3.5 to 4.5 inches in diameter and a few feet long.



Ordnance Cleanup

Twenty-eight larger 5 inch warheads (shells) were removed from the beach (Figure 4). No live ordnance was found and there were only traces of rocket propellant detected. Between last winter and the end of the cleanup operation over 200 pieces were removed from Mile Beach.



Figure 4. Warheads removed from beach.

Results of the Cleanup

Several interesting results came from the beach surveys as shown in the beach profiles (Figure 5) and in photos of the beach (Figure 6). Comparison of beach profiles from June through December 1997 (not all shown in the graph) indicated that the cleanup effort occurred during a period with the least amount of sand on the beach in that time period. A week after the completion of the work (December 16), the low tide terrace had gained a large volume of sand which would have buried the ordnance under as much as two more feet of sand. It is apparent that the cleanup effort occurred at an optimal time.

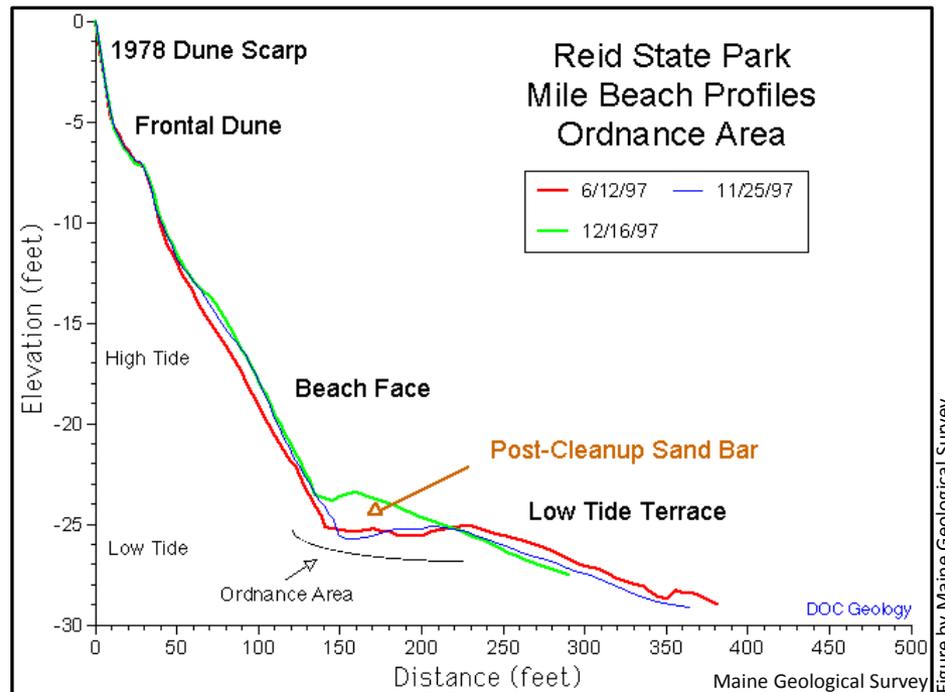


Figure 5. Graph of beach profiles for Mile Beach showing the effect of cleanup.



Results of the Cleanup

- The profile variability seen on the beach face is natural and due to beach cusp formation, movement, and degradation. Beach cusps are curves in the beach elevation that form parallel to the water line and shift with different kinds of surf.
- The surveys did not detect any permanent alteration of the beach profiles or damage to the beach from the ordnance removal process.
- The berm that forms in summer buries ordnance several feet further below sand and helps protect summer park users from any remaining sharp metal rocket fragments.



Figure 6. View of the beach after cleanup.

Maine State Agencies participating in the cleanup

[Department of Conservation](#)

[Department of Environmental Protection](#)

