

SHORE DEPOSITS
OF LAKE BONNEVILLE

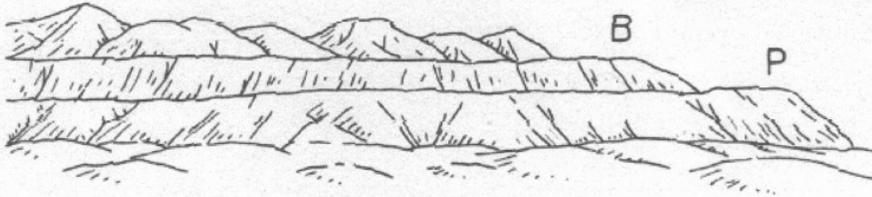


Figure 16.32 Beach deposits of Lake Bonneville at the south end of Salt Lake Valley. The highest beach (B), the Bonneville shoreline, is about 300 feet higher than the Provo shoreline (P) and nearly a thousand feet higher than Great Salt Lake.

CB Hunt, *Physiographic Provinces of North America*

FIELD GUIDE TO SHORELINES... how to “collect” shorelines in the field.

Genevieve Atwood, UVU, 2011

SHAPE: Virtually horizontal.

- They follow the same elevation contour around hillslopes and into drainages.
- They represent a significant water level... such as sea level, or the outlet of a lake, or a long time that a lake has stabilized.
- Often they consist of two slopes: (1) a steeper slope where waves run-up the shore, and (2) a nearly-flat surface where the waves break across a beach and spread sediments across a flat surface.

MATERIALS: Sediments (or cut into bedrock).

- Well-sorted, because of wave action, for example, sandy beaches.
- Well-rounded, because of wave action, for example, cobble beaches.
- Size of sediments depends on wave energy and the source of sediments.
- Sediments come from: (1) along shore; (2) off shore; (3) rivers.

PROCESSES: (a) Tectonic setting; (b) Effects of erosion / deposition.

- Formed by waves and by currents... and, rarely, by tsunamis.
- Waves create erosional stretches and depositional stretches.
- Streams form deltas where they carry sediments into “quiet” water such as along shorelines of lakes or oceans.

WHAT TO LOOK FOR:

- Active shores, meaning an existing shoreline: look for the interface between the land and water.
- Depositional features = beaches, lagoons, deltas, spits, bars.
- Erosional features = sea cliffs, pocket beaches, sea arches.

CHECK LIST... **shoreline features to collect** during a lifetime.

This may require going to Hawaii, Bermuda, Norway, Great Salt Lake, Bear Lake... or Utah Lake. All these features can be found, high and dry, somewhere along the exposed shores of Lake Bonneville, the Ice Age lake that once occupied low parts of valleys of Utah County, Salt Lake County and much of northwestern Utah into Idaho and Nevada. All the depositional features probably can be found around Utah Lake.

*** means "look for these from UVU today."

Find three of these and collect a prize from me, while they last.

Note: Look for active shore features... and of Lake Bonneville.

Erosional landforms associated with shorelines

Battleground along the shore where erosion is winning. These features are being taken out by erosion.

Cliff

Rocky headland

Erosion along a beach (beach recession)

Wave-cut platform

Sea cave

Sea arch

Sea stack (looks like a haystack)

Pocket beaches (small, steep, very curved)

Depositional landforms associated with shorelines

Battleground being won by deposition. Depositional processes that are making these features bigger.

***Beach

***Beach ridge

Bar

Spit

***Delta

Lagoon

Barrier beaches

Barrier island

(Sand dunes along the shore)

***Paleo-shoreline (evidence of former shoreline)

Landforms associated with tectonic environments or climate change.

Raised terraces due to faulting.

Continental shelves

Fjord.

Drowned Valley.