



# Calvert County Environmental Commission

## Calvert Cliffs Characteristics

### 1. How old are the Calvert Cliffs?

The Calvert Cliffs are not millions of years old, but are modern, being constantly maintained and modified by erosion. They began to form roughly 5,000 years ago, as rising sea levels widened the Chesapeake Bay, causing the shoreline to advance west to a gradual escarpment, what was left of the earlier ancient Calvert Cliffs when sea levels began to fall at the end of an earlier interglacial warm period—around 120,000 years ago. In some places the modern shoreline has not yet advanced far enough to reoccupy that ancient shoreline, notably northwest from Chesapeake Beach.

### 2. Where are the Calvert Cliffs located, how long are they, how high and how steep?

The present cliffs extend from just south of Chesapeake Beach to about Drum Point, about 30 miles. Well north of North Beach, a short section of cliffs reappears, the Fairhaven Cliffs. The present Calvert cliffs are generally 50 to 100 feet high and typically have slopes of around 40 to 60 or more degrees.

### 3. What are the erosion rates of the Calvert Cliffs?

Where the cliffs have been eroding naturally, the rates of shoreline retreat are generally a few to 10 inches per year in the middle and northern cliffs; but along the southern cliffs, the rates may be up to more than one or two feet per year. In a few areas (Cove Point spit and Flag Ponds), sand is accumulating along the shoreline, causing the shoreline to grow outwards.

To read more on this subject see the report: [Chesapeake Bay Cliff Erosion in Calvert County](#).

### 4. How many types of creatures have been found in the Calvert Cliffs?

More than 600 different species have been identified, including foraminifera, diatoms, mollusks, arthropods, birds, fish, amphibians, reptiles, and mammals. Some of the fossils are remains of land animals which inhabited the nearby coastal plain.

### 5. Why are there so many fossil shark teeth compared to other kinds of teeth?

Sharks produce many teeth during their lifetimes. New teeth form below the older teeth and rotate upward, so a single shark may produce many hundreds if not thousands of teeth in its lifetime.

### 6. How deep was the Atlantic Ocean when those sharks and whales, whose fossil remains we find today, swam into what is now Calvert County?

Our region was intermittently an embayment of the Atlantic Ocean, and water was never deep, varying from a few feet to perhaps 100-200 feet.

### 7. Can fossils be found elsewhere in the county?

The same strata (layers) of sediment exposed in the Calvert Cliffs are present under nearly all of Calvert County. Fossils may be found in steep ravines which cut into these layers. However, our acid soil (low pH) means that shells are generally dissolved before any layers are exposed by erosion in ravines.

8. Why does the endangered tiger beetle need eroding cliffs to survive?

There are two species of tiger beetles of concern along the Calvert Cliffs. The Northeastern Beach Tiger Beetle depends on undisturbed beach habitat and has declined sharply since the late 1980s. The Puritan Tiger Beetle is Federally-Threatened, with only three remaining populations and one along some parts of the Calvert Cliffs. This species burrows into moderately-compacted fine to medium sand and lays its eggs. This critical habitat for the Puritan Tiger Beetle generally occurs near the top of the Calvert Cliffs.