

THE ORIGIN OF SPITS, BARS, AND RELATED STRUCTURES

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ABSTRACT

A spit is a ridge or embankment of sediment attached to the land at one end, with the other terminating in open water. It is younger than the land to which it is attached. The body of the spit extends from the land outward for some distance above the water.

A bar is a completed or extended spit which encloses, or nearly encloses, a portion of the water body into which it extends. It may be attached only at one end, or it may be the result of two spits building from opposite directions. If such a bar extends across a bay it is called a bay-bar. If it departs from a relatively straight shoreline and then swings back, it is called a looped bar.

That portion of a spit or a bar which rises above the water is built by material brought from the shore outward along the beach ridge by the swash and backwash. If the waves come from any other direction, either perpendicular to the axis of the spit or bar or from the direction of its distal end, the structure is shortened and sometimes broadened.

The same waves that cause spit and bar formation are also effective in building hooks. This is because refraction of waves around the end of the spit causes the beach drifting process to act across the end of it. Thus the presence of a secondary current across the end of a spit at right angles to its axis is not at all necessary to the formation of a hook although if present it might aid in the process. Whether the spit is extended along its axis or curved to form a hook depends on the relation between the rate of transportation of sediment in the swash and backwash and the depth of water at the end of the spit.

Looped bars are merely hooked spits in which the hook has been extended to reach the shore. Thus in the building of looped bars and in some forms of cusped forelands it is not necessary to assume the presence of currents or eddies flowing in opposite directions. (American Philosophical Society project.)