Jetties

Jetties are man-made structures that are built along coastlines to control the deposition of sediments at the mouths of **stream channels**. By artificially extending the stream channel out from the shore into deeper water, sediments are prevented from being deposited, and so blocking, the mouth of the channel.

As with other man-made structures built along coastlines jetties tend to disrupt the natural equilibrium of **deposition** and **erosion**. A **longshore current** will deposit sediments on the up-current side of the jetty. On the down-current side, the lack of sediments, and reduction in deposition, may result in beach erosion.

The stream channel in this model serves as the entrance to a harbor. The jetties were constructed in order to allow ships to navigate the channel without running aground on the sand banks that would otherwise have formed.

Cardboard requirements: This model requires inches^2 of cardboard.

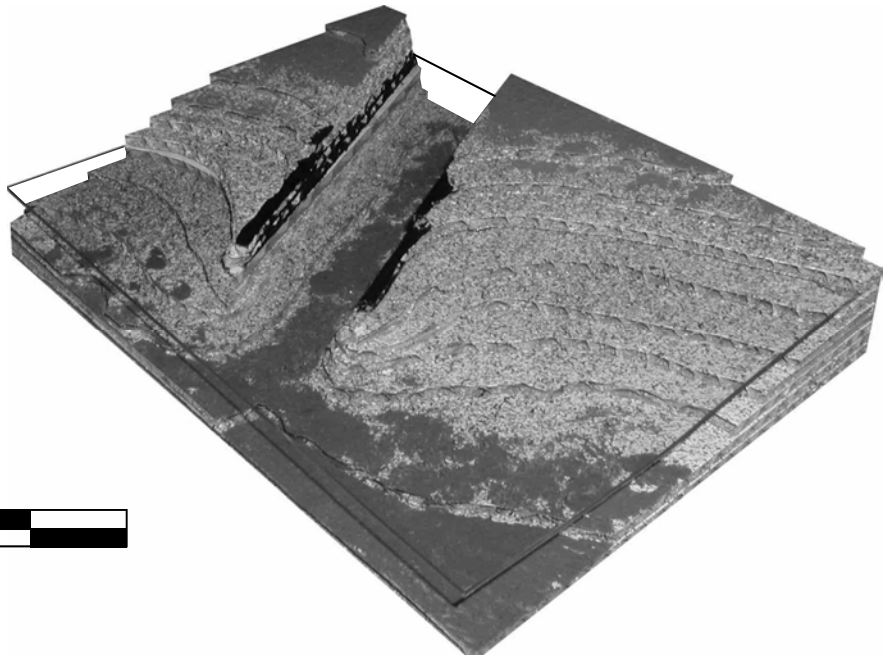
Construction hints: Be careful to cut the pieces accurately as many of the layers are very similar in shape. After building, and painting, the layers below sea level, attach a clear sheet of plastic to simulate the sea surface. Cut this sheet of plastic to the same size as the base layer. Assemble, and paint, the remaining layers and attach them to the top of the clear plastic.

Paint scheme: Paint the layers below sea level shades of blue to indicate that the layers are underwater. Paint the layers immediately above sea level tan to indicate sand. The jetties can be painted gray to indicate rock or concrete. Paint the upper layers green to indicate vegetation.

Questions:

1. It is important for shipping channels to be kept open. What alternatives are there to building jetties?

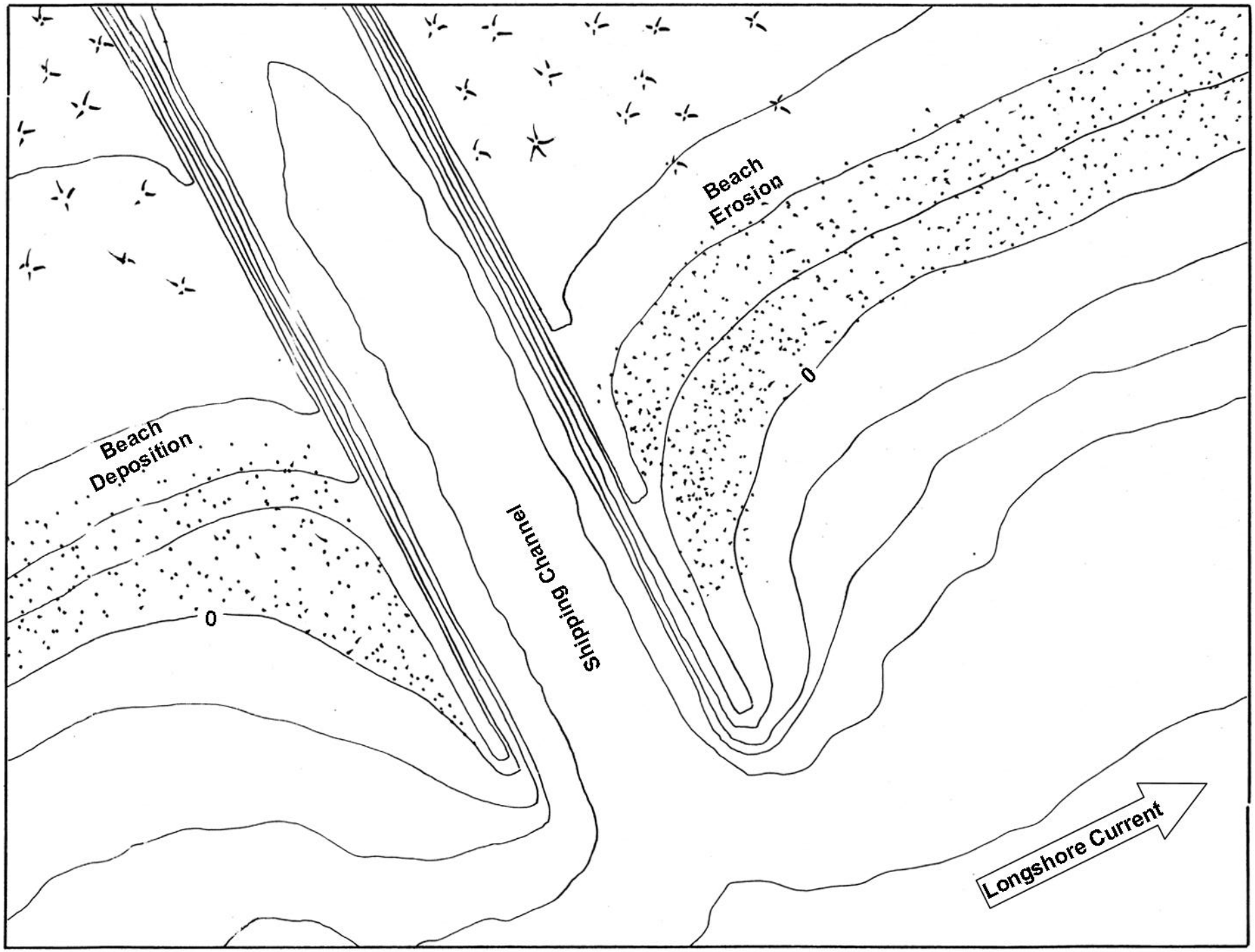
2. What can be done to help alleviate the problem of down-current beach erosion?



Contour Interval: 10’

300m (984’)

Scale 1”=100m (328’)


Beach
Deposition
0
Shipping Channel
Beach
Erosion
0
Longshore Current