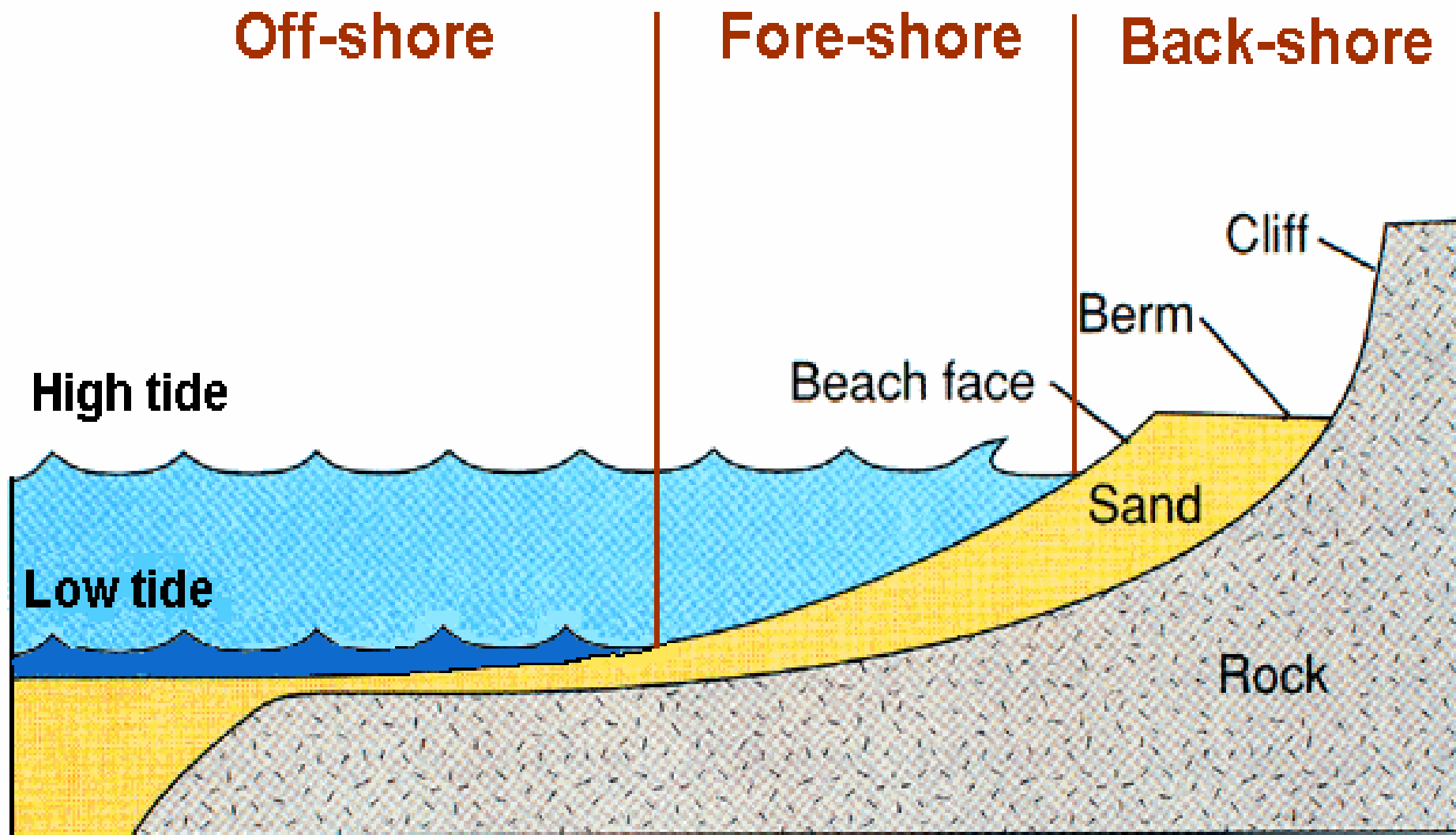


# ***Coasts***

# *Coasts can be*

- *active or passive*
- *erosional or depositional*

# *Parts of a beach*



Beach

Wave touches  
bottom here  
and slows down

Longshore current

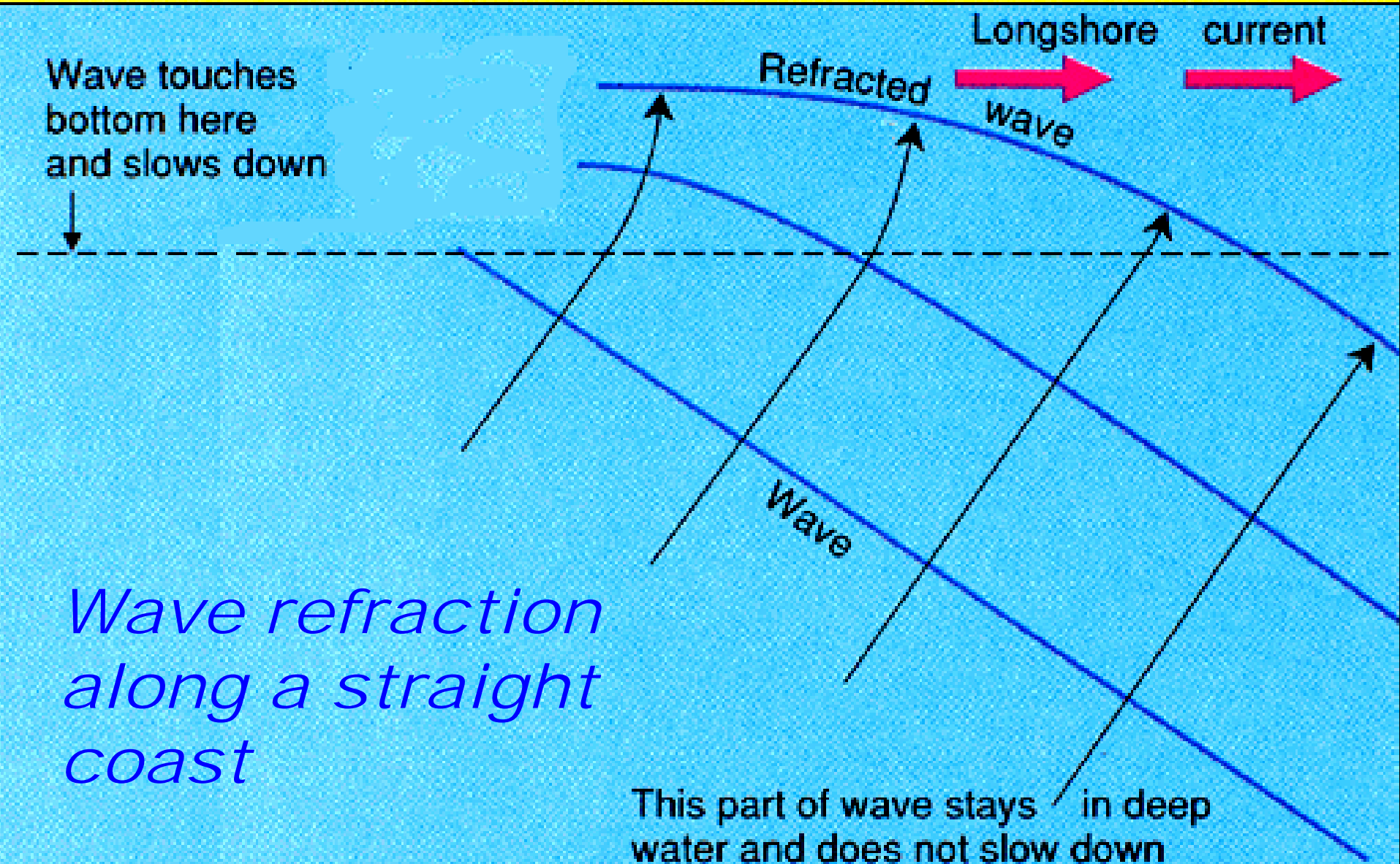
Refracted

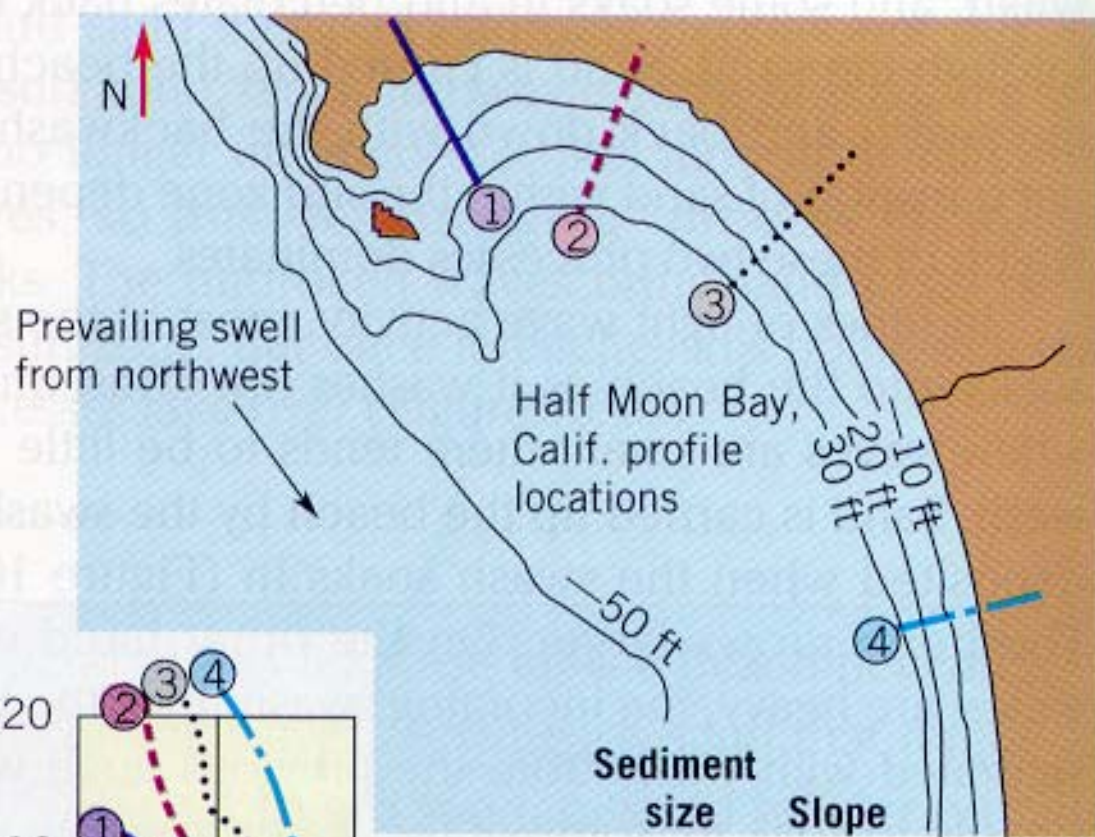
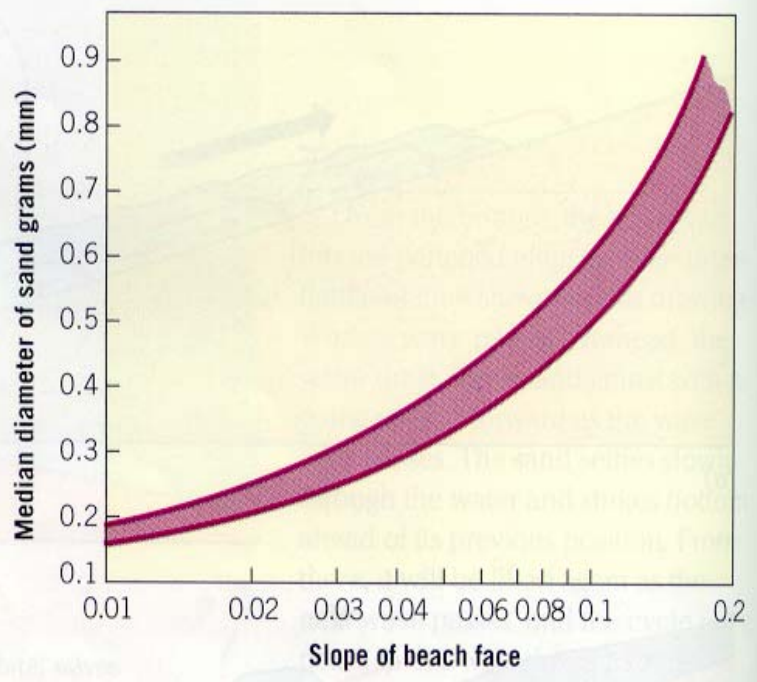
wave

Wave

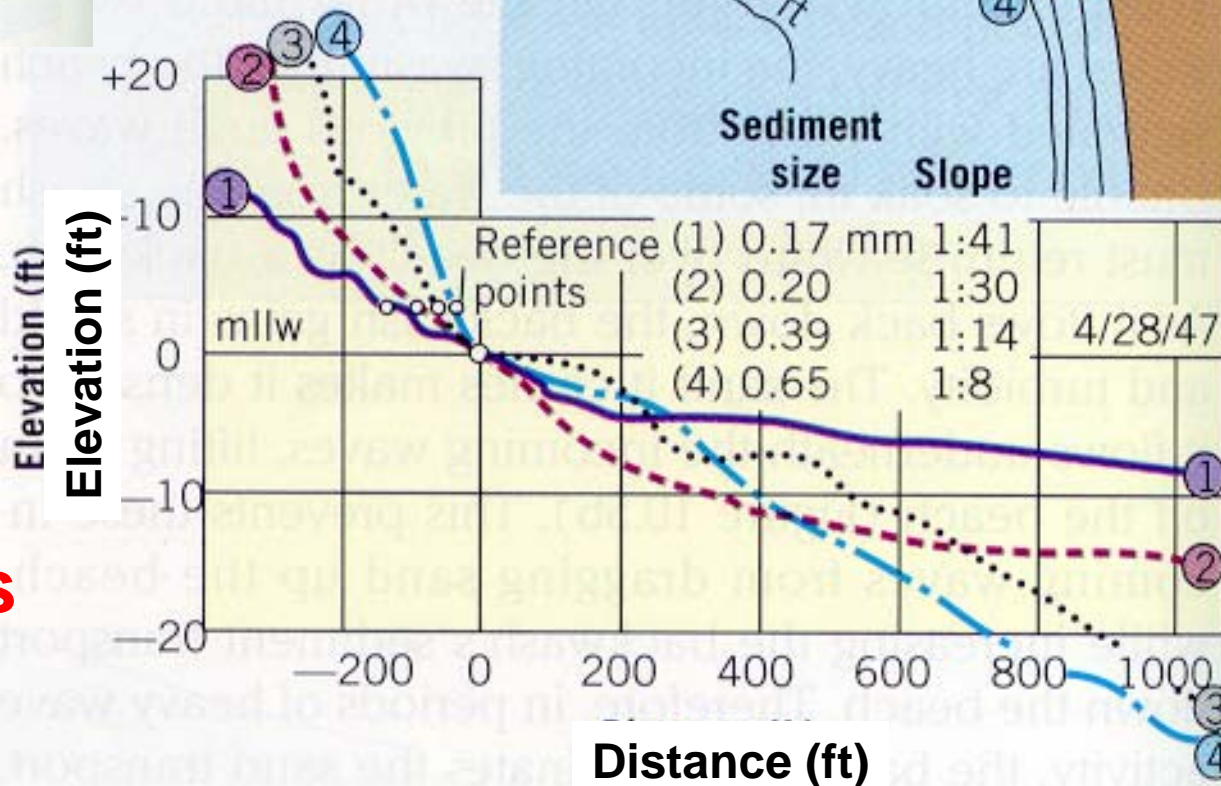
*Wave refraction  
along a straight  
coast*

This part of wave stays in deep  
water and does not slow down

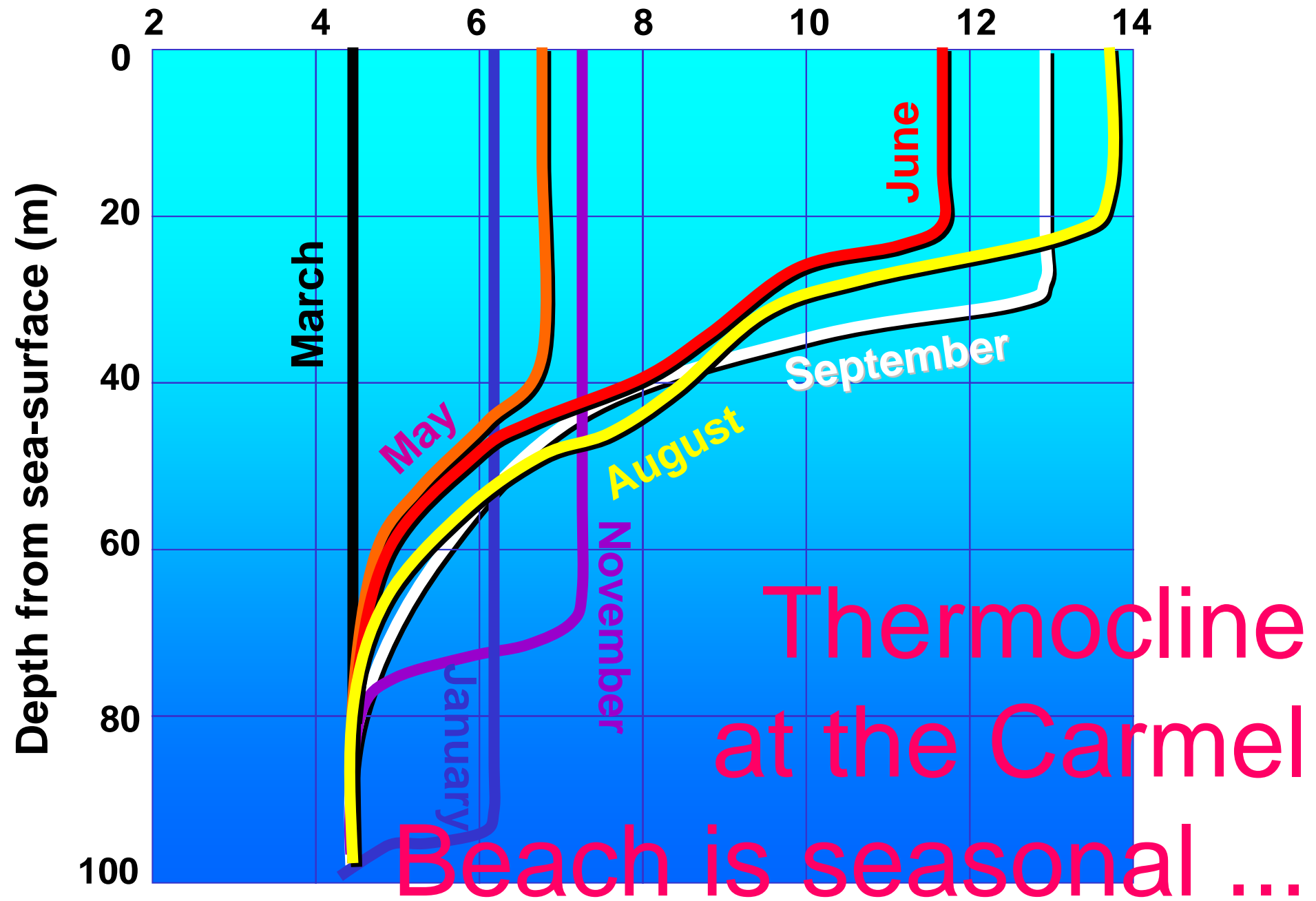




**The gentler the beach slope, the finer the beach sediments tend to be, as can be seen from these profiles of the Half Moon Bay, California.**

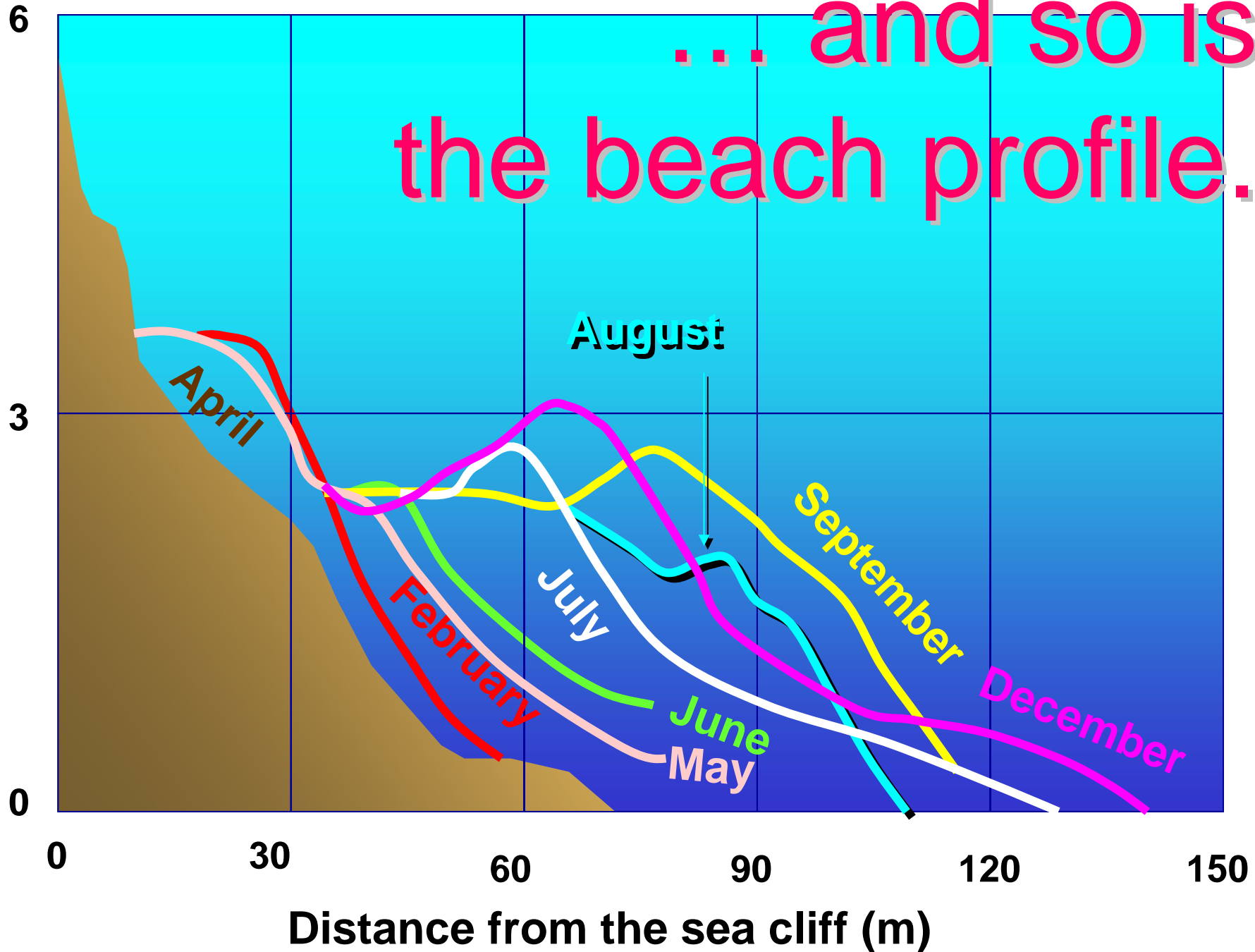


# Seawater temperature (°C)

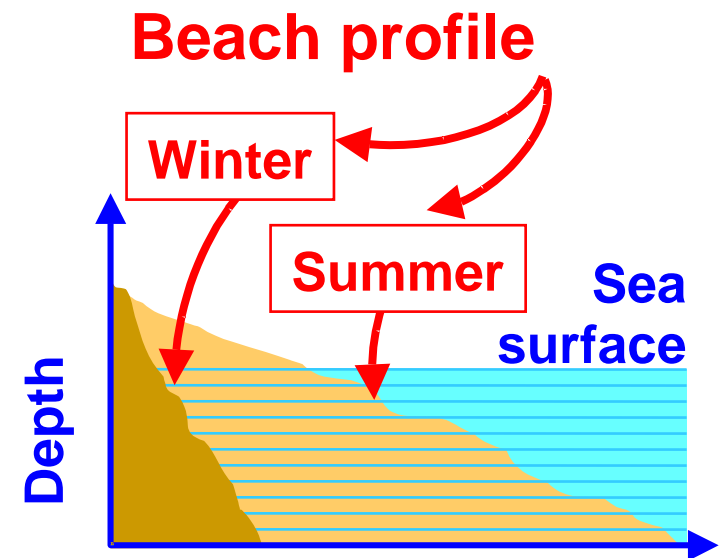
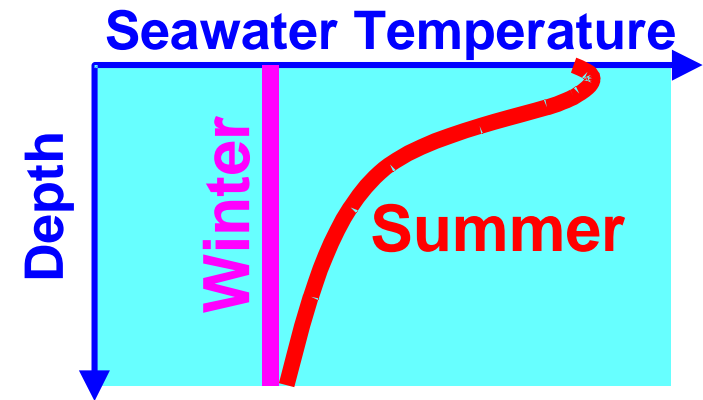


Height above mean low water (m)

... and so is  
the beach profile.

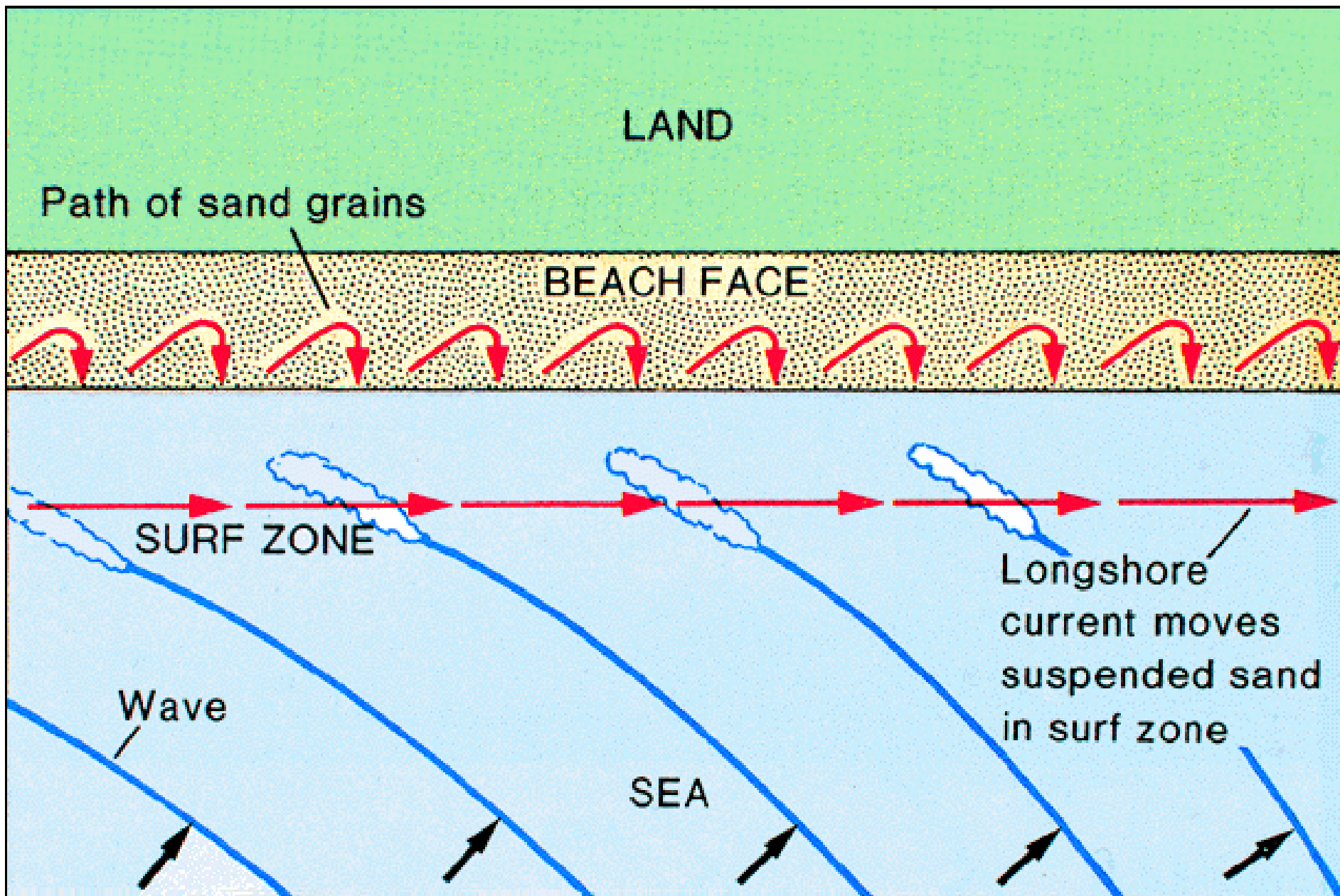








# *Longshore current and littoral drift*



1940

1963

N

X

X

These two pictures of Sandy Beach (shown by cross here), New Jersey, were taken in 1940 (left) and 1963 (right). Can we infer from these that

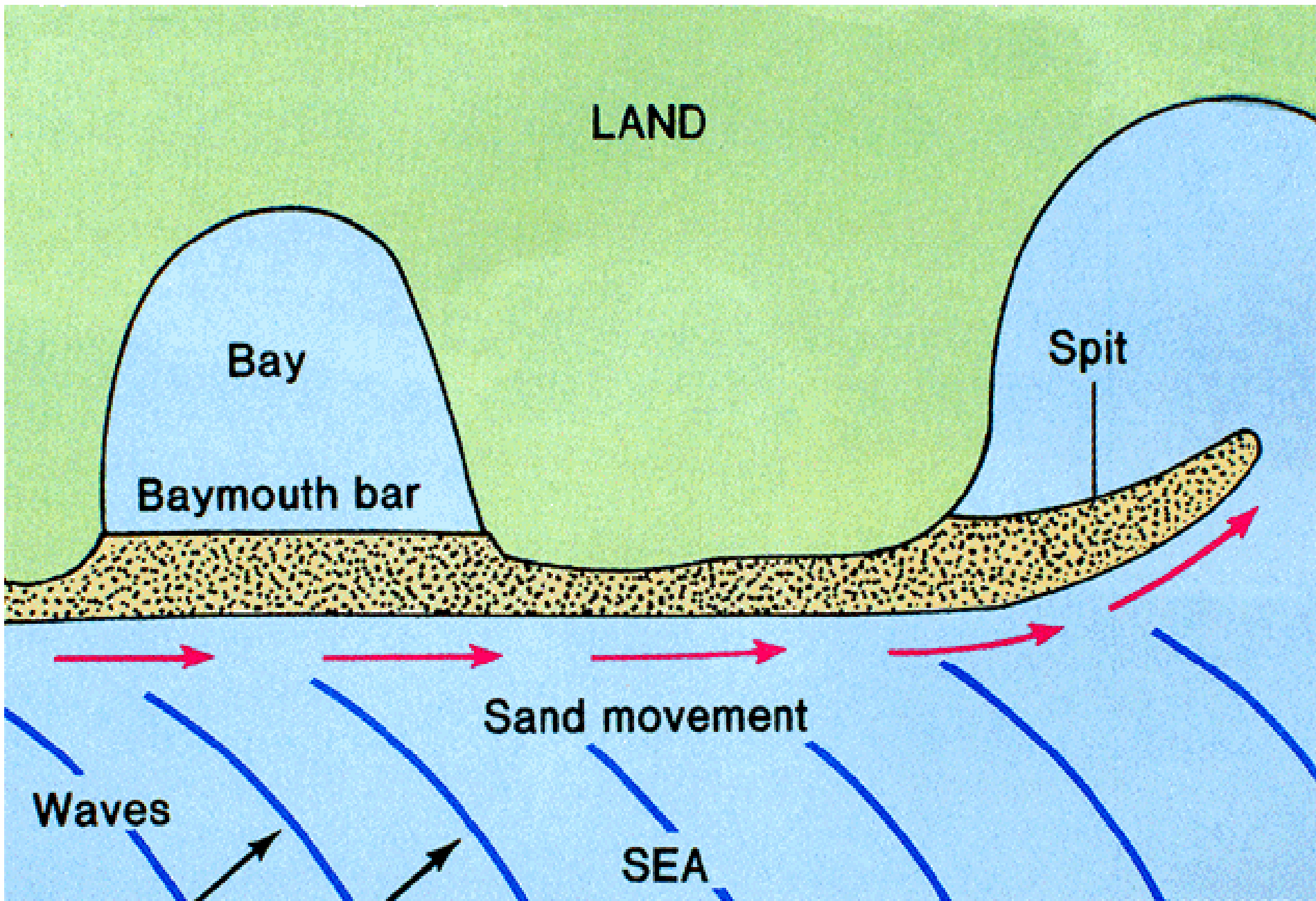


**These two pictures are of the same beach at Barnes Bay, Anguilla. The one on the left was taken in 1994 ....**

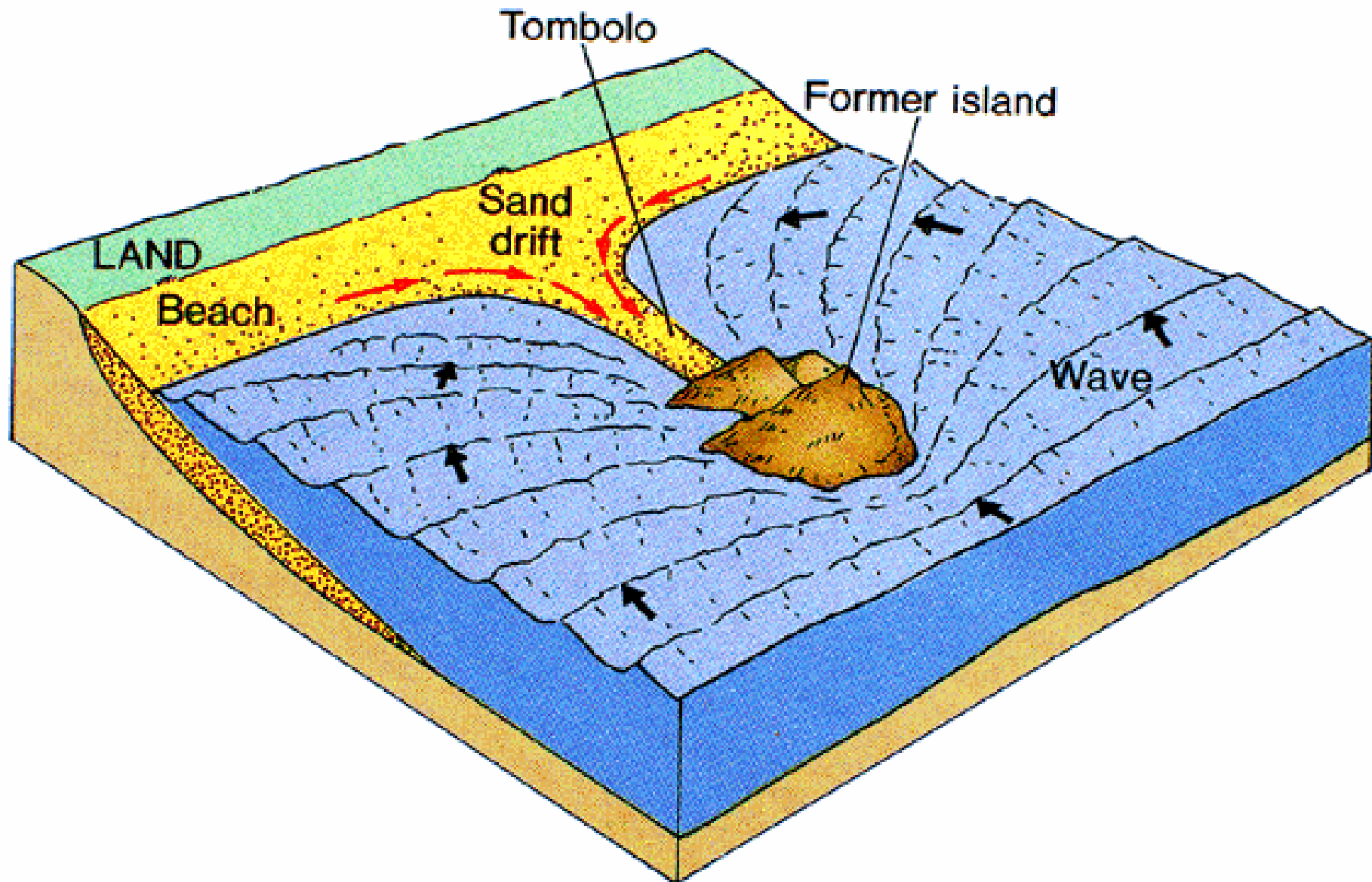


**... and the one on the right was taken sometime in 1995.**

# *How baymouth bars and spits form*

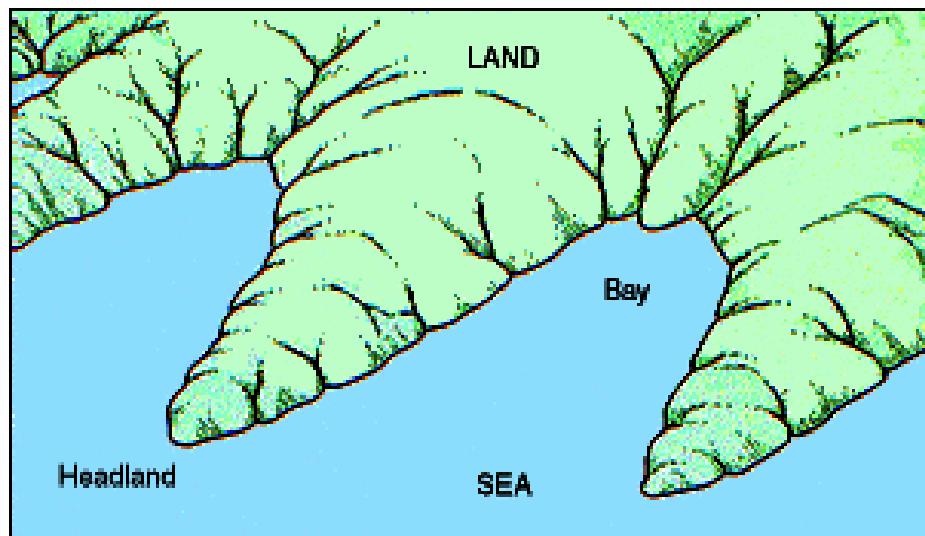


# *Formation of a tombolo*

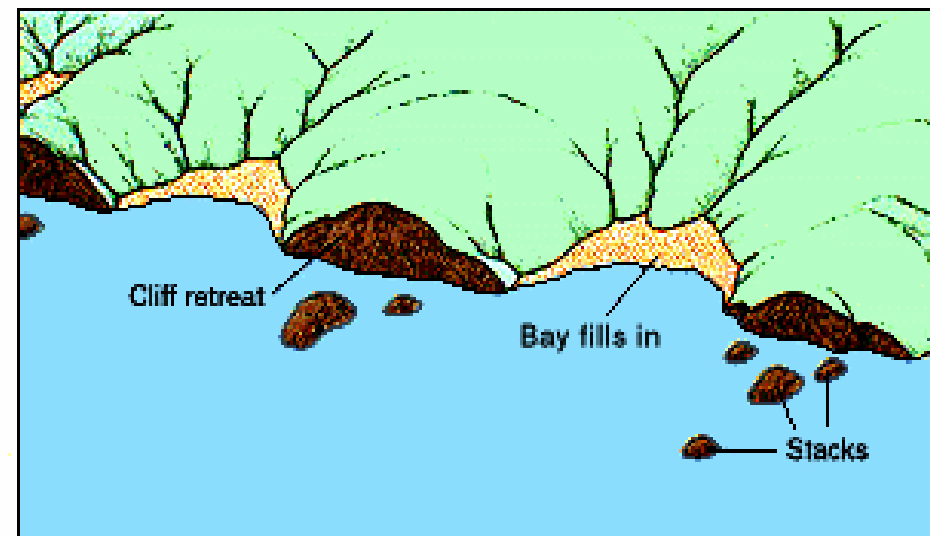




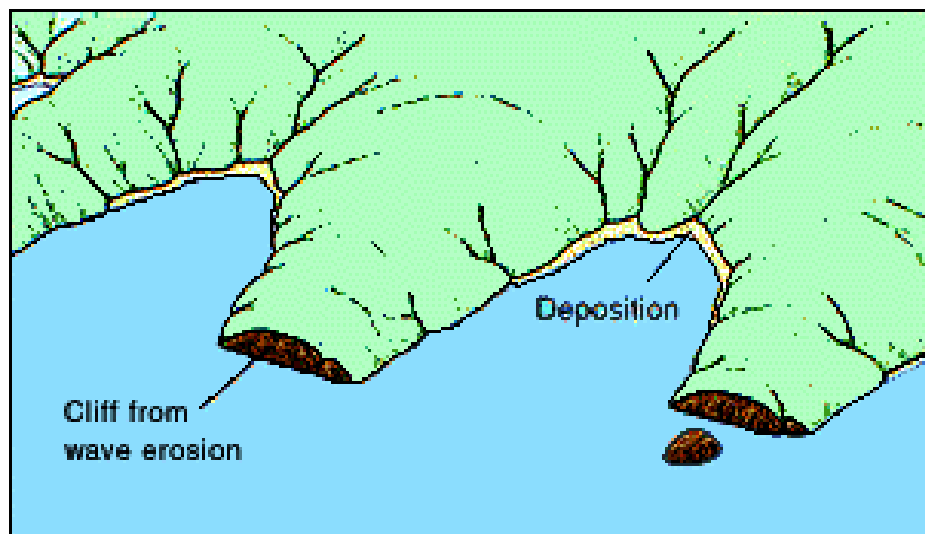
# *Coastal straightening by wave-erosion*



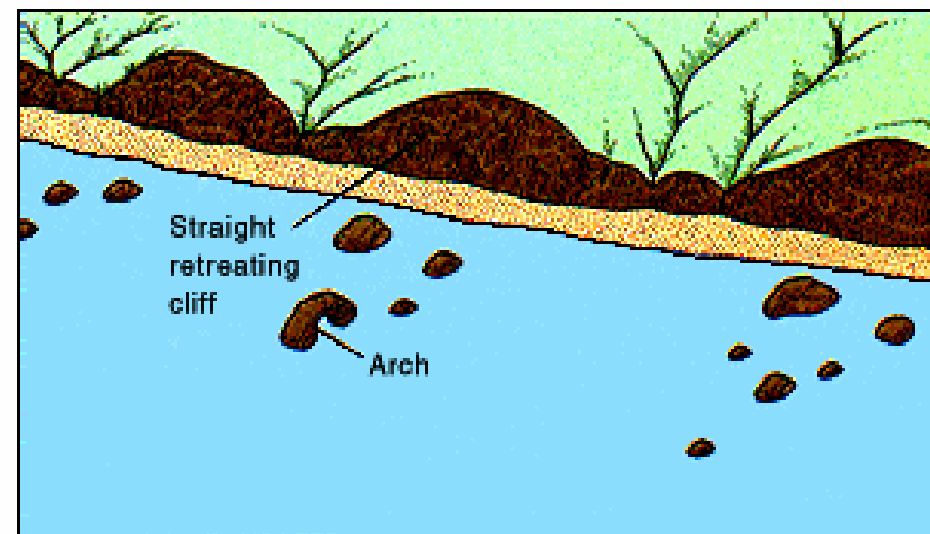
A



C

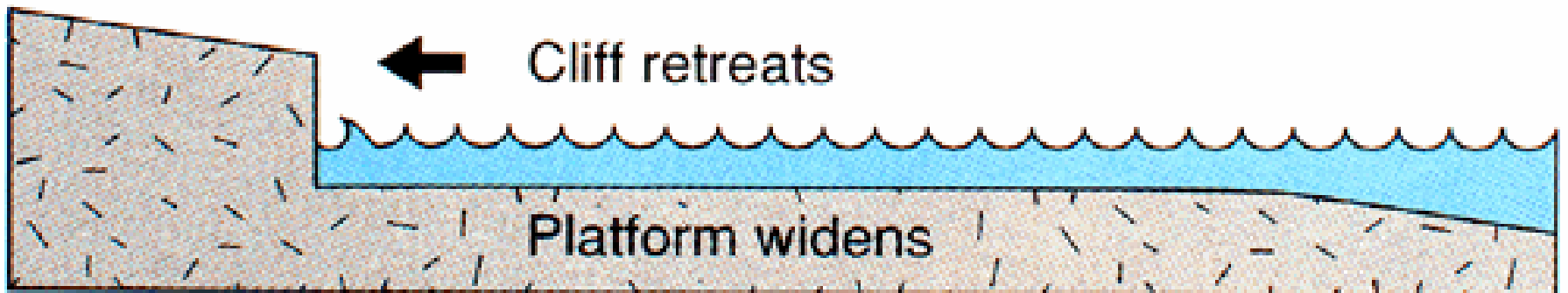
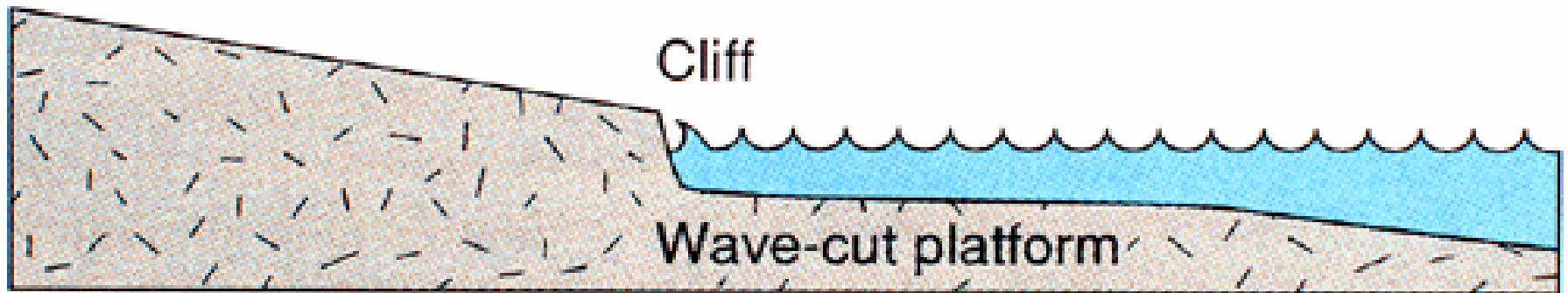
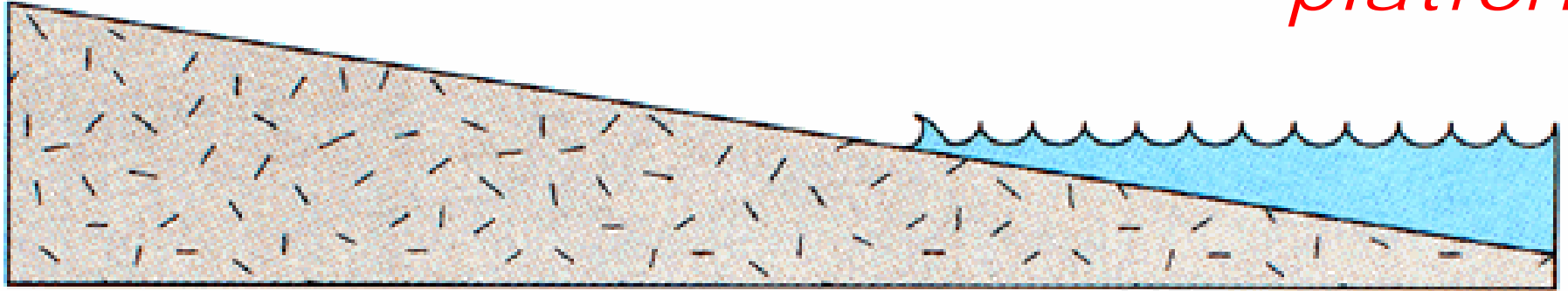


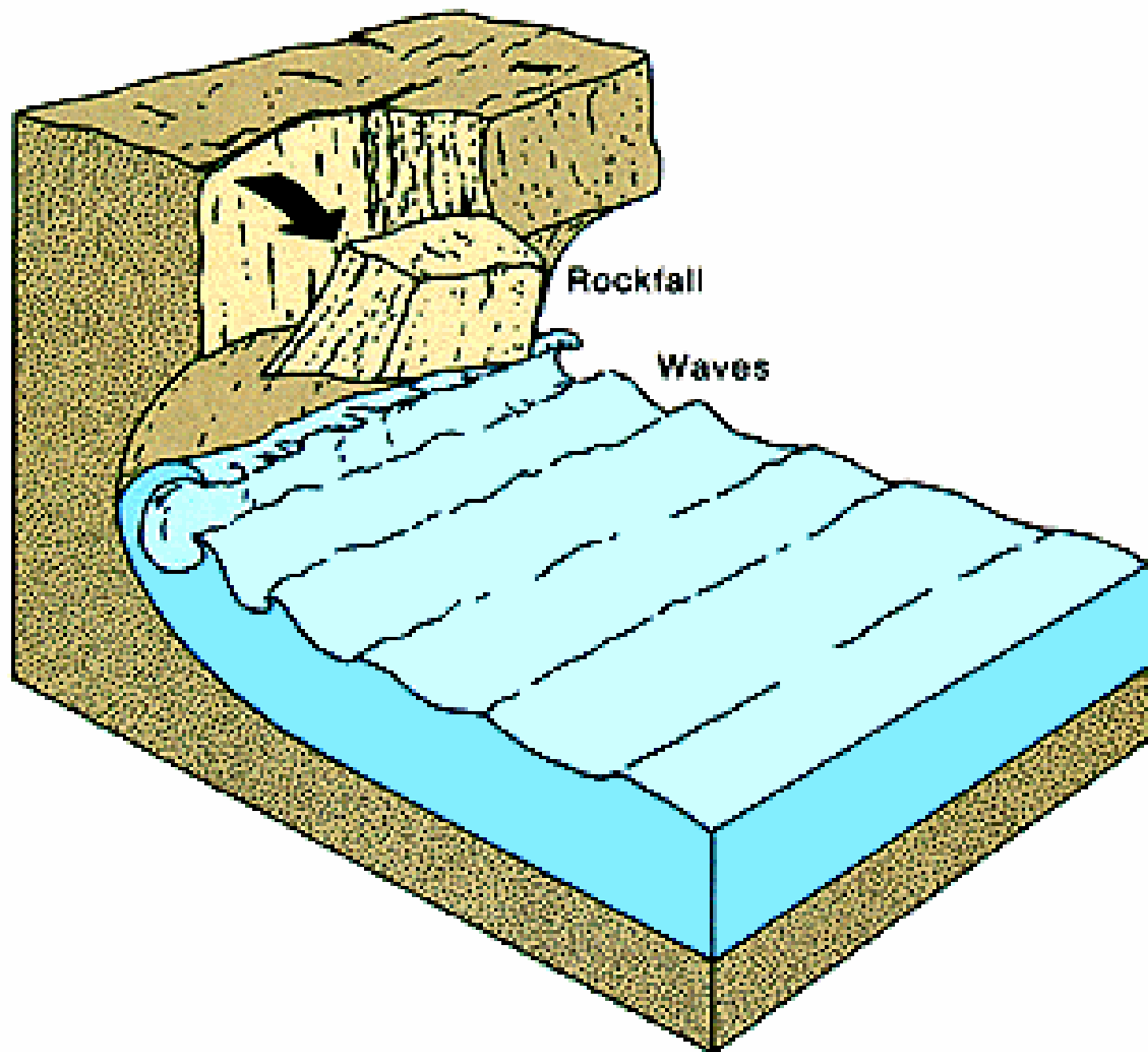
B

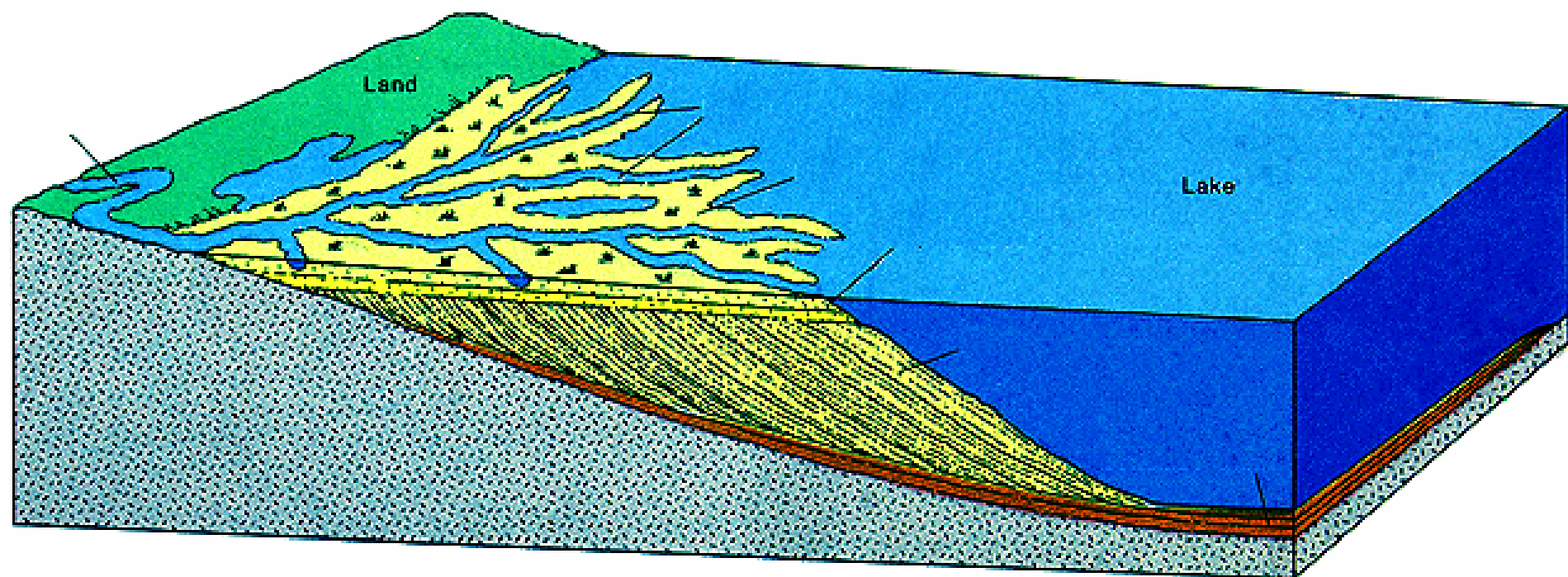


D

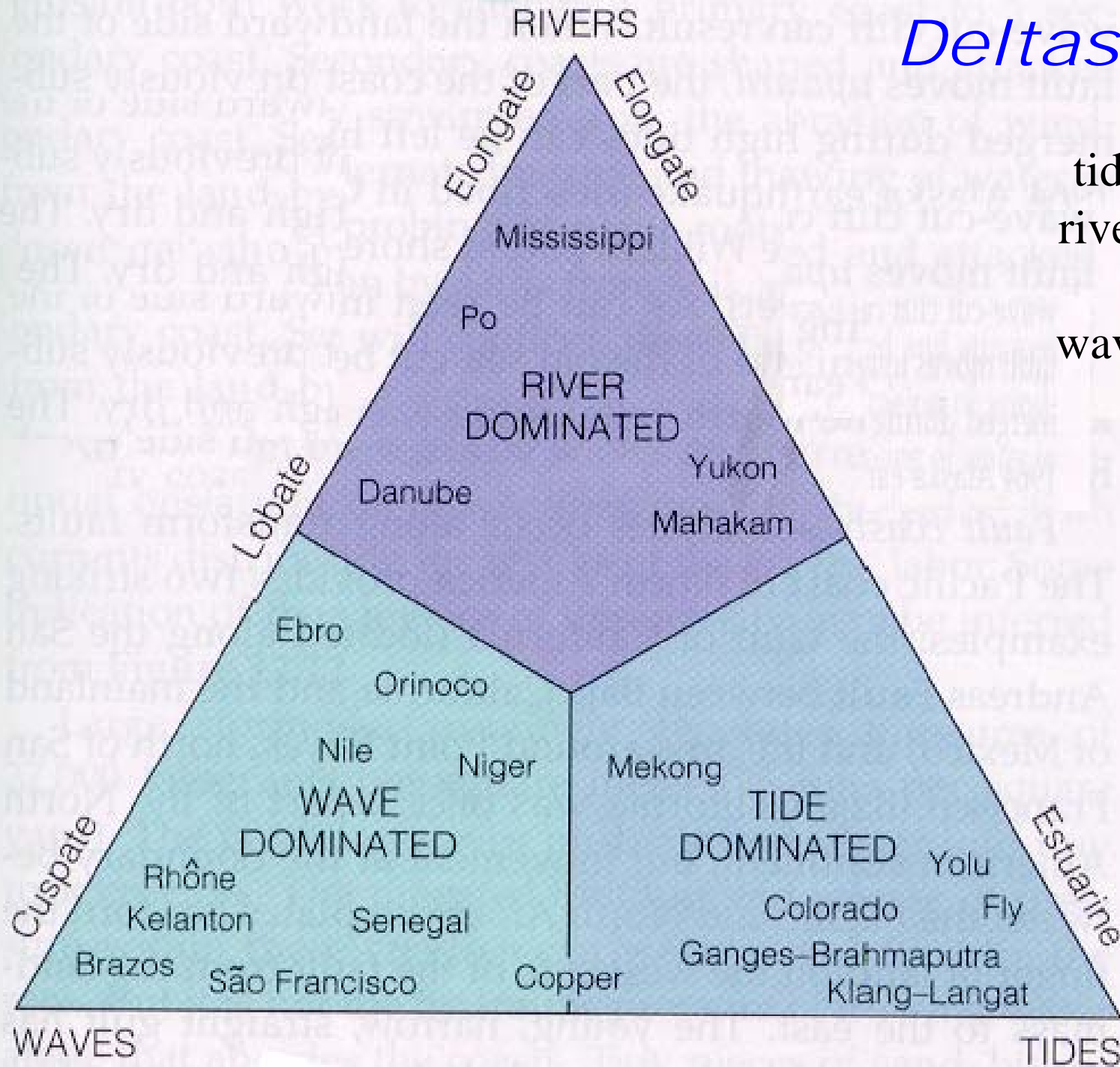
# *The development of a wave-cut platform*





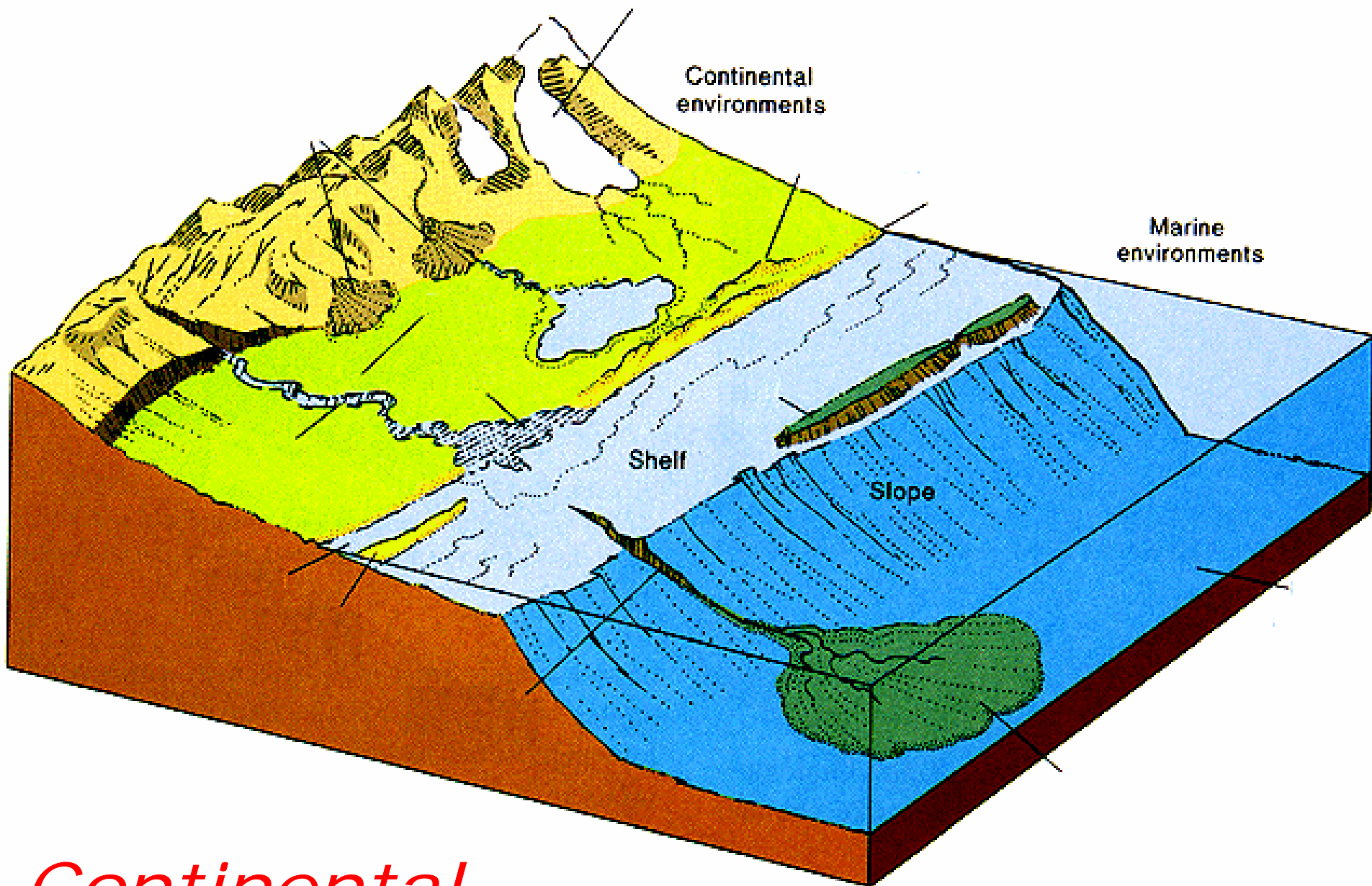


# *Deltas can be*



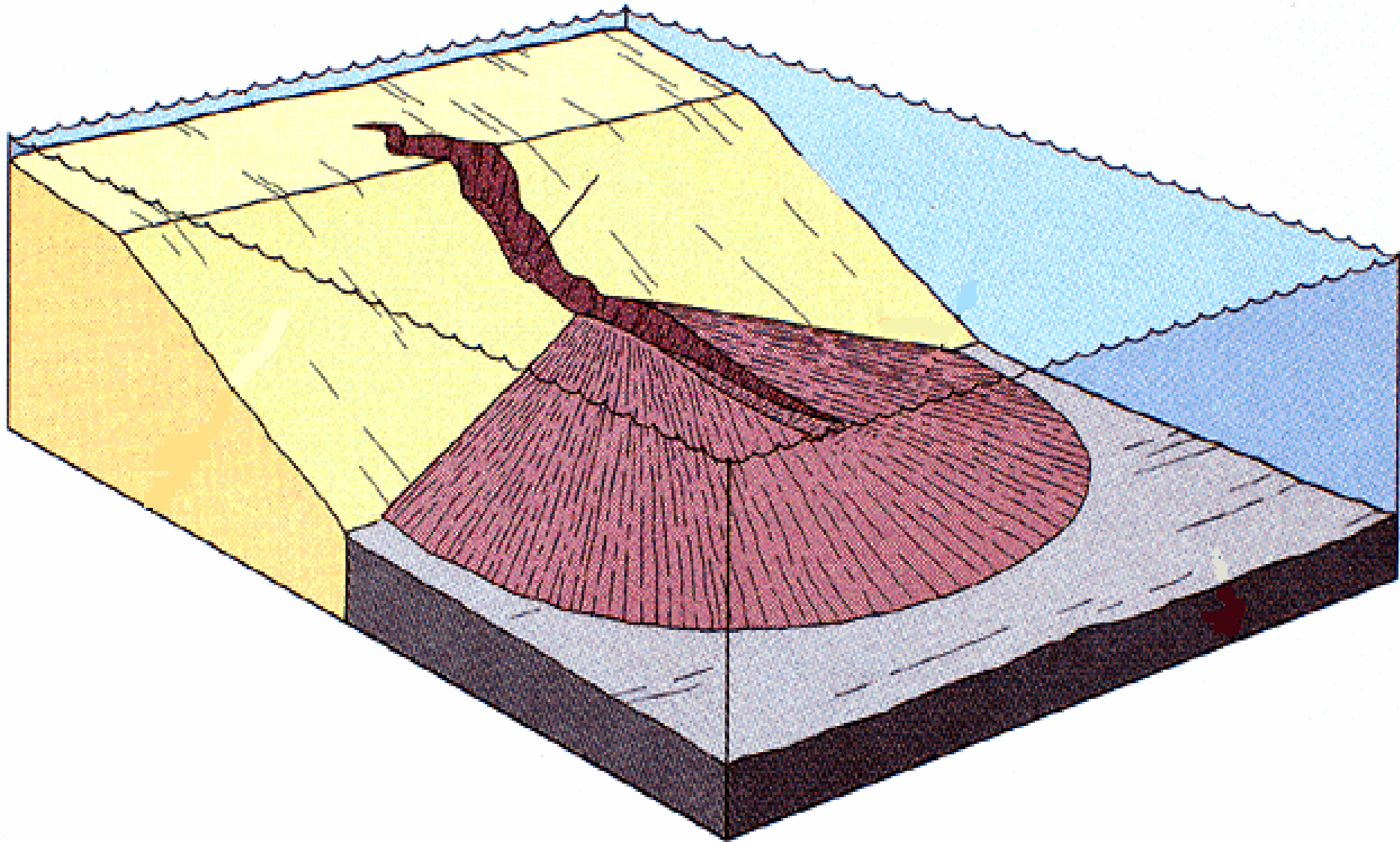
1. tide-dominated,  
river dominated,  
and  
wave-dominated





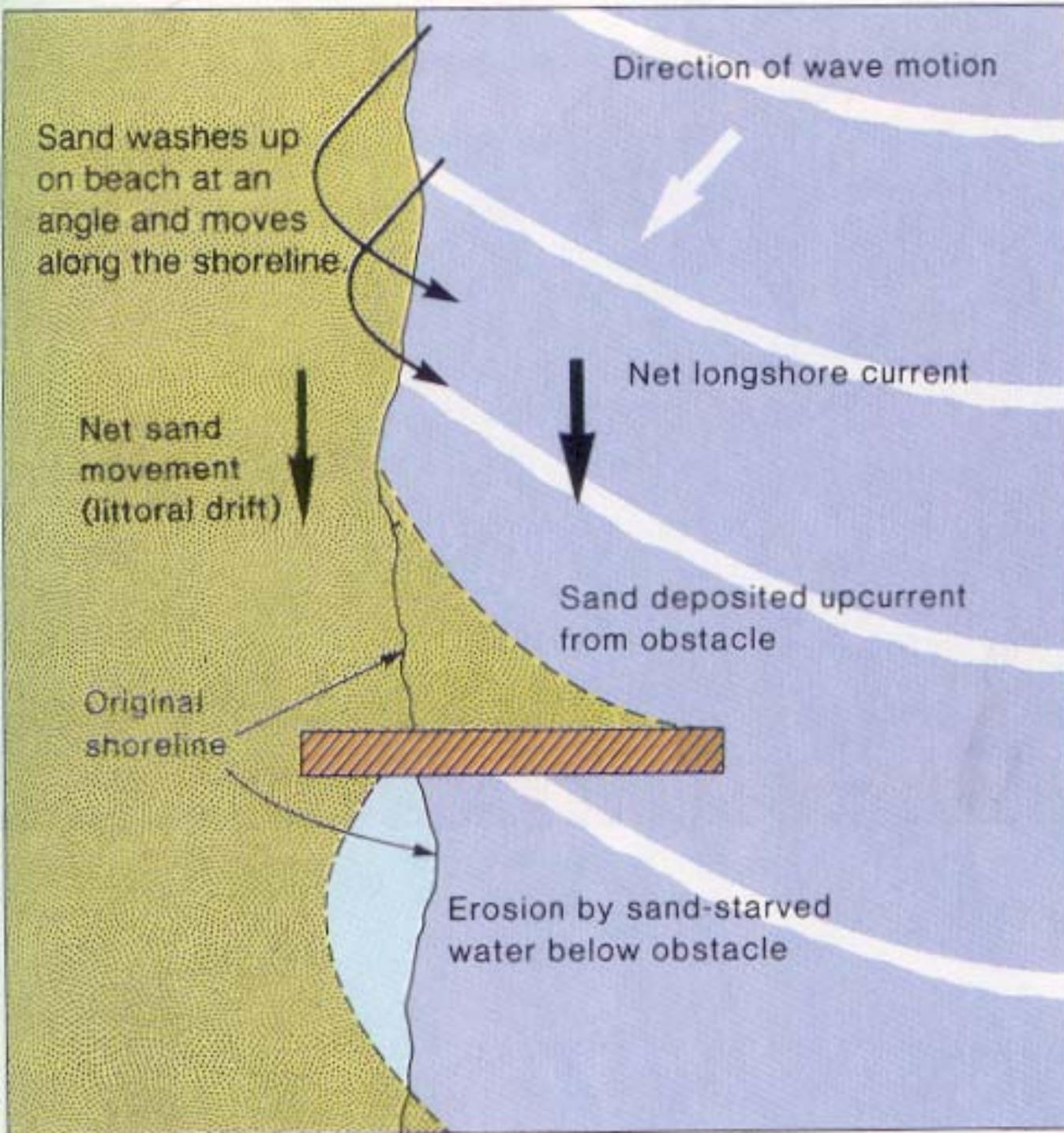
*Continental shelf, slope, and submarine canyon*

*A submarine canyon is a collapsed river channel*



## How construction modifies the shoreline:

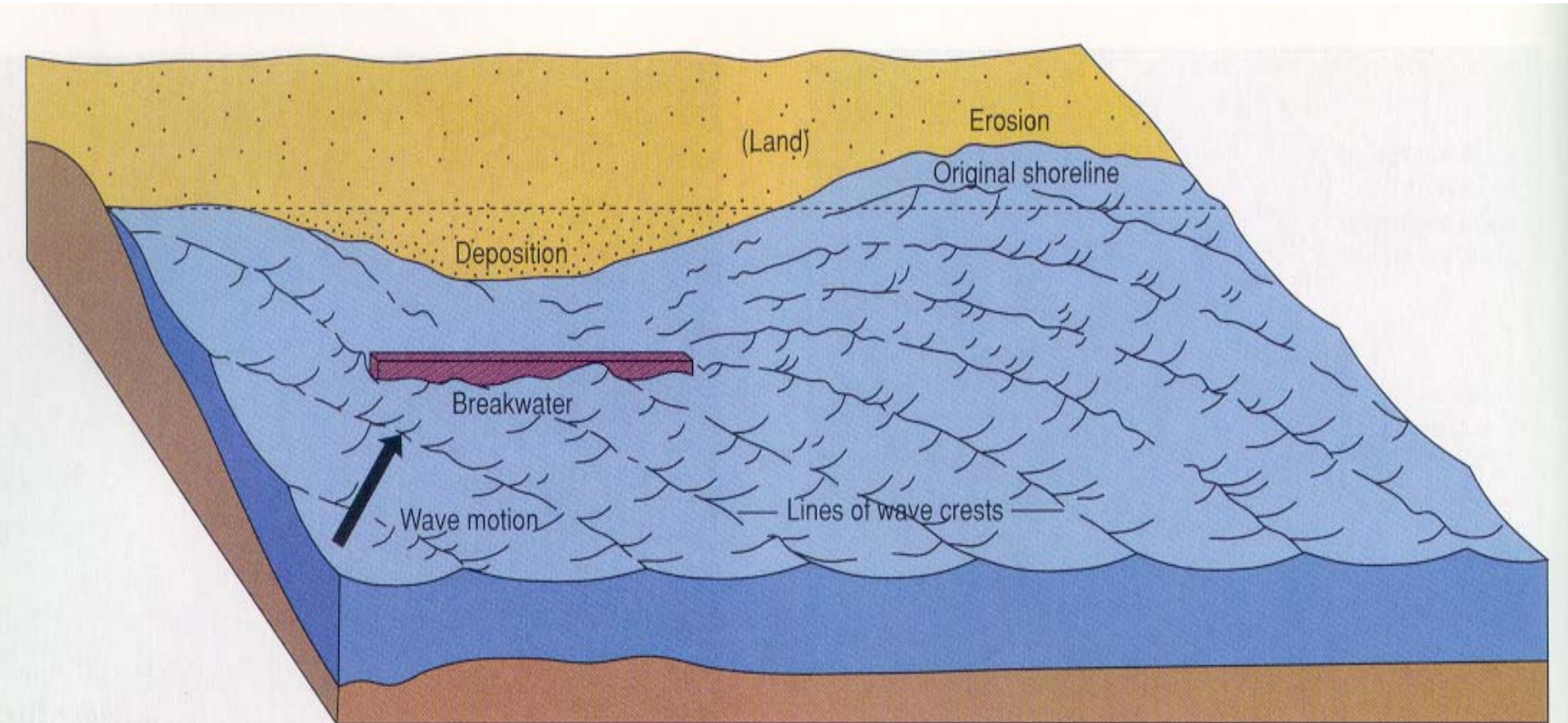
- The constructing a groin or a pier, i.e., a structure perpendicular to the shoreline





# How construction modifies the shoreline:

- Constructing a breakwater wall means sand pile-up right behind the breakwater wall and erosion downstream





*Santa Barbara Harbor*



