

# Marine Processes

## Learning Objective:

-**Predict** how natural factors can shape our coastline

# Learning Outcomes:

- **Recall** erosion processes
- **Explain** how material is transported in *the sea* and *along the beach*
- **Suggest** why deposition might occur on the coast



# Marine and Sub-Aerial Processes



## **Sub – Aerial Processes**

(weathering):

- Rain
- Temperature
- Animals
- Plants

*How is weathering different to erosion?*

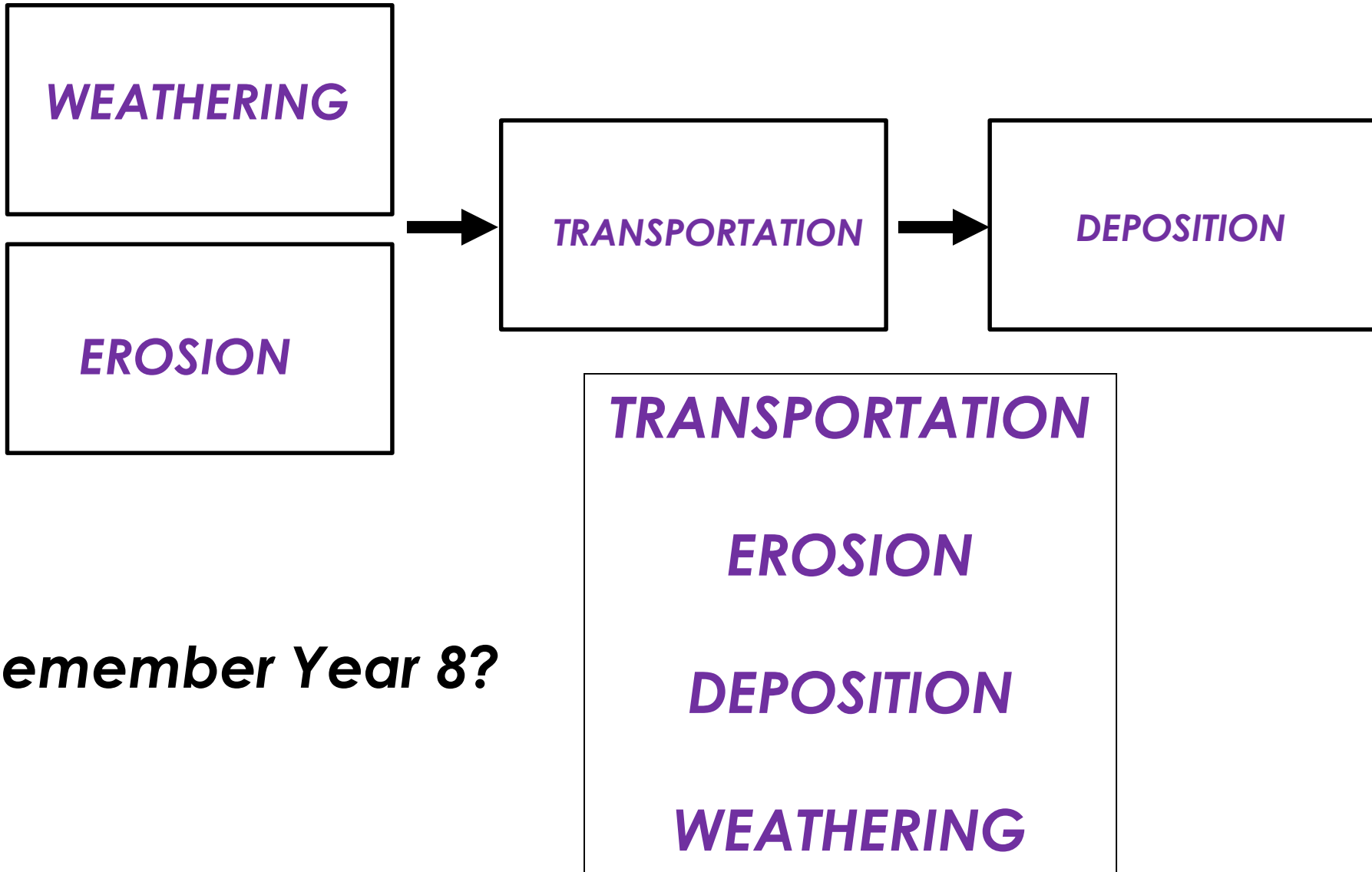


## **Marine Processes:**

(erosion):

- Corrasion
- Attrition
- Solution
- Hydraulic Action

# The coastal system...



Corrasion/abrasion



Attrition



C.A.S.H

Solution



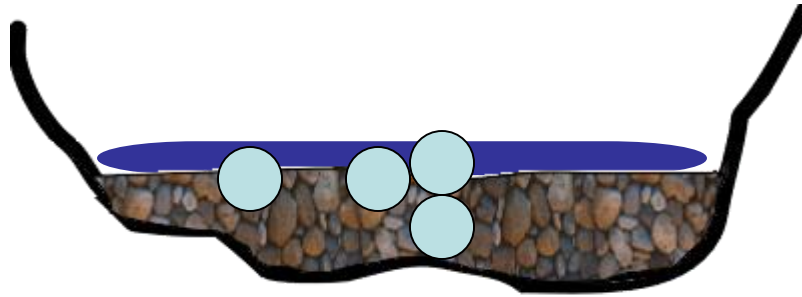
Hydraulic action



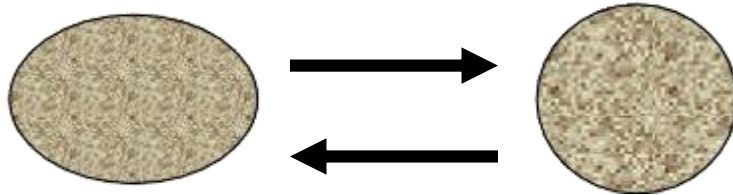
How might this coastline change?



# Processes of coastal erosion.....CASH



Corrasion



Attrition



Solution



Hydraulic action

# Processes of marine erosion

## **Corrasion**

This is the process in storm conditions when sand and pebbles are hurled at the cliff face – sand blasting.

## **Attrition**

Material (sand and pebbles) carried by the sea collide into each other. They are smoothed and broken down into smaller particles.

## **Solution**

This is the chemical action of sea water. The acids in the sea water are corrosive and can slowly dissolve chalk and limestone.

## **Hydraulic Action**

The constant force of waves crashing on the shore. When waves crash against the cliffs they force air into cracks in the rock. The air is trapped, and pressure builds up. As the waves move back, pressure is released and the trapped air expands. Small explosions take place and weaken the rock, blasting fragments away.



# Corrasion

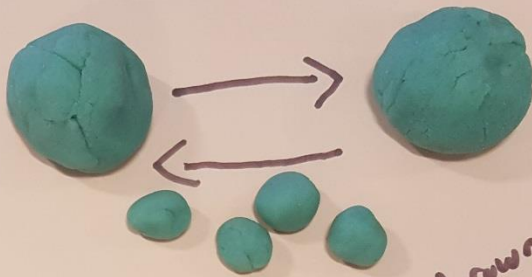
Flung at cliff



Crack — gets bigger over time

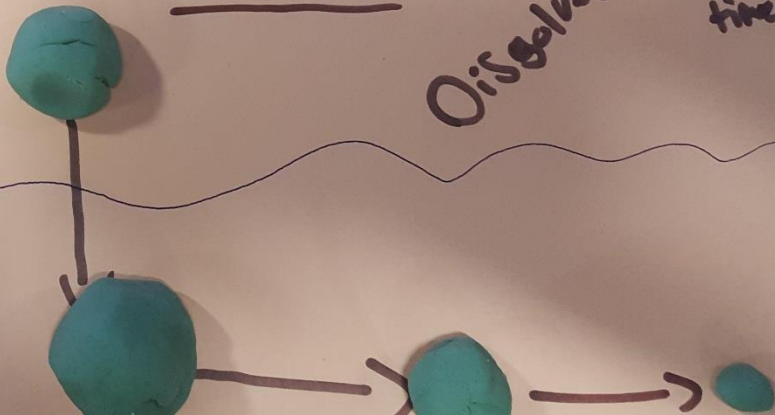
Waves hitting crack

# Attrition

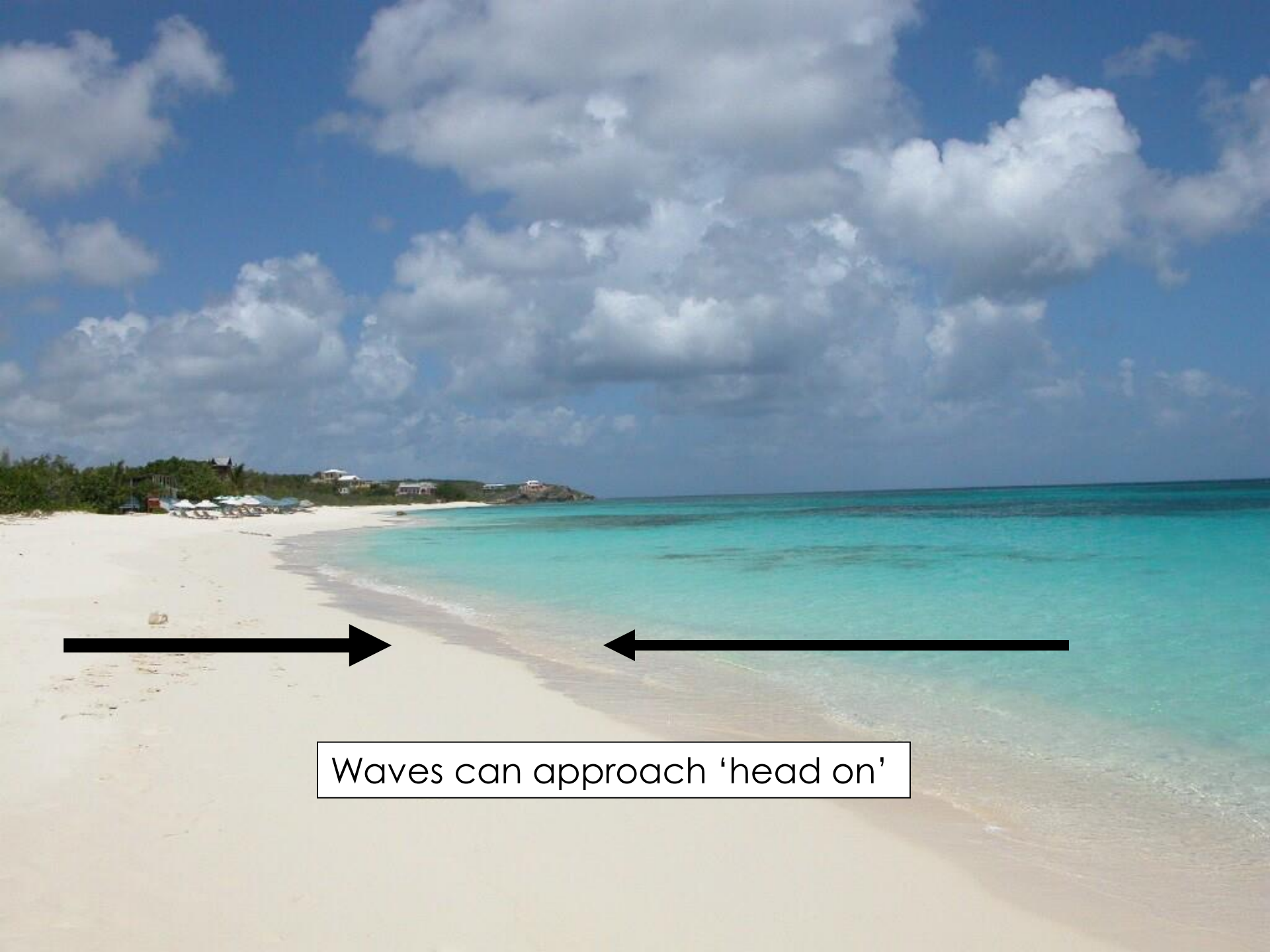


Thrown together to make smaller ones

# Solution



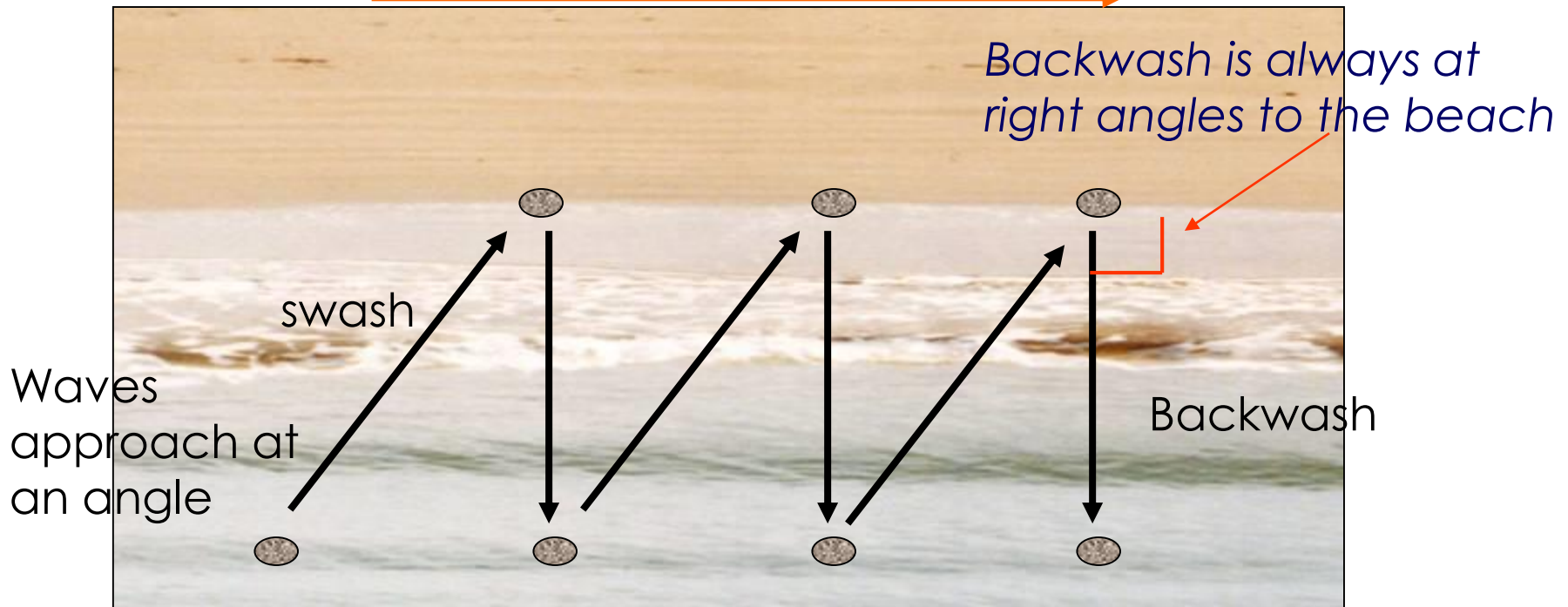
Dissolves over time



Waves can approach 'head on'

# Draw an annotated diagram to explain the process of longshore drift.

Direction of longshore drift



This movement of sediment along the coastline is called **longshore drift**. The **prevailing wind** can make waves approach the shoreline at an angle. If this happens, sediment is moved up the beach at an angle as **swash**. As the water runs back down the beach, the **backwash** drags material down the **steepest gradient**, due to gravity. This is generally at **right angles** to the shoreline. Over time the sediment moves in a **zig-zag** fashion down the coast. If the material is carried some distance it will become smaller and more rounded.



# Study the photograph



What evidence is there of longshore drift?

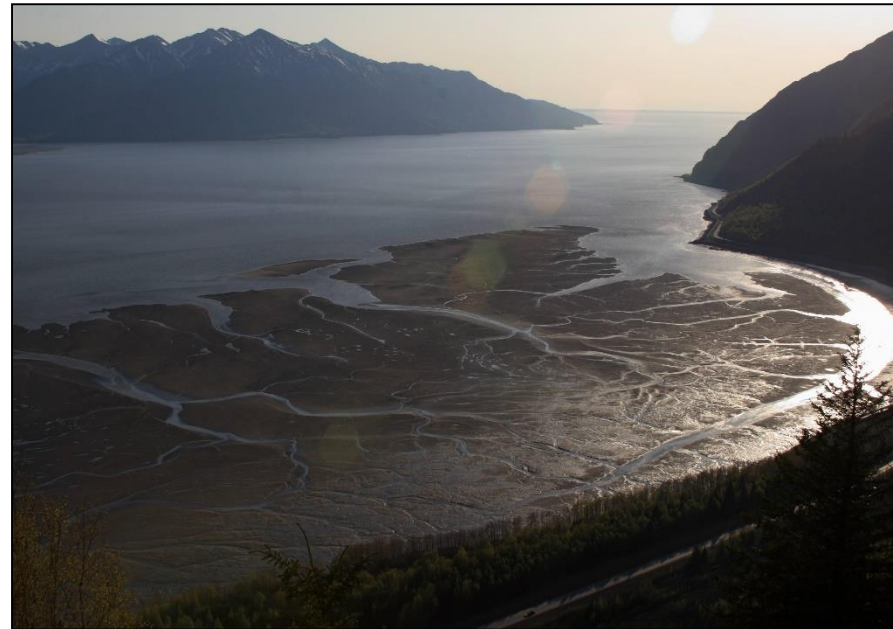
Which direction is it moving?



Beaches, salt marshes  
and mudflats

Why does **deposition**  
occur in these areas?

*...flow, energy, refraction?*





What evidence can you see of **coastal processes** operating along this coastline? (6 marks)



Talk about ***weathering***, ***erosion***, ***mass movement*** and ***longshore drift***. If you discuss **2** of these well you can get 3 marks for each.