Chapter 17

Introduction:

Stream- any channelized body of running water.

Channel- An elongate depression or trough

- Earth is the only planet in the Solar System that currently holds flowing streams

Draining the Land:

Where water comes from-

- Rainfall fills a stream
- When it overflows, an outlet is formed
- This then becomes part of a stream which flows to oceans etc.

Downcutting- Process of eroding or digging into substrate

- Depends on: Velocity of flow, strength of the substrate, and the amount of vegetation cover.

Drainage Network- Interconnecting streams

Discharge and Turbulence:

Discharge- The amount of water a stream carries

- Different streams have different average discharges
    - But this is difficult to calculate

Thalweg- Deepest part of a channel.

The Work of Running Water:

How does a stream erode?

- Scouring- loose fragments of sediment
- Breaking and Lifting
- Abrasion- grinding the walls of the stream
- Dissolution- running water dissolves soluble minerals

Streams transport loads by-

- Dissolved Load- Dissolved soluble minerals
- Suspended Load- Tiny grains that swilr along with the water and never touch the bed
- Bed Load- Large particles that bounce up and down off the bed

How Do Streams Change Along Their Length?:

- Streams progressively deepen their channels by downcutting. But the lowest elevation a stream can go is the base level.

The Evolution of Drainage

- Over time, landscape changes and leads to the drainage of rivers causing them to become erased.

Stream Piracy- Erosion caused a stream to intersect another

Superposed Streams- Streams that have a preexisting geographic layout

Antecedent Streams- Existed before the range uplifted

Raging Waters

- A flood occurs when the volume of water flowing down a stream exceeds the volume og the stream channel

  Flash Flood- When stream water overflows too quickly for anyone to react and escape

- The largest floods occurred during the Ice-Age. They were referred to as megafloods.

Floodways- Areas that are more likely to be flooded.

Rivers: A Vanishing Resource?:

Rivers are disappearing due to-

- Pollution
- Dam Construction
- Overuse of Water
- The effects of Urbanization and Agriculture on discharge

Chapter 18 Outline

1. Water covers 70.8% of Earth's surface
2. Land along the coast
    a. Where 60% of the population lives in the world
3. Cartographers divide the ocean into parts with different volumes and boundaries
    a. Northern Hemisphere contains 81% of the continental crust
    b. Clear images of ocean floor→bathymetry
        i. Variation in depth, based on sonar measurements and satellite
    c. Continental Shelves
        i. Shallow portion of ocean <500m
        ii. Past the shelf, abyssal plain
            1. 4-4.5km down
        iii. Passive continental margins
            1. Margins that are not plate boundaries
            2. Occurs after plates break in two and rifting stops occurring
        iv. South America, Active continental shelf
            1. Plate boundary with many earthquakes
            2. Convergent plate boundary at Pacific side of S.A.
    d. Submarine Canyons→Narrow deep boundaries
        i. Dissect Continental shelves and slopes
        ii. Some at mouths/offshore of major rivers
        iii. Erosion of submarine canyons result from turbidity currents, avalanches of sediment
    e. Faulting causes distinct features
        i. Strike slip-fracture zones
        ii. Transform-link segments of a ridge
        iii. Subduction-deep trough, trench, bordering volcanic arc
        iv. Divergent plate boundary-Mid ocean ridge
4. Pelagic sediment covers basalt of oceanic crust
    a. Plankton shells and clay
        i. Accumulates on old parts, further away from MOR
5. High points around hot-spots, if they protrude to surface→Oceanic islands
    a. Island normally submerges due to erosion and slumping
        i. Forms sea mount
        ii. If it submerges after being overgrown by a reef and has a flat top, will form a Guyot