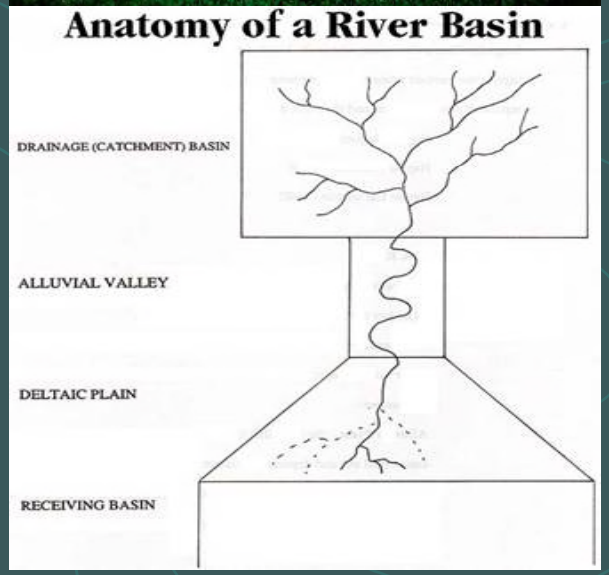
River Systems and Flooding



EOSC 105 – Natural Disasters

Ray Rector: Instructor

Today's Lab Activities

1) Discussion of Last Week's Topo Map Lab
2) Finish Topographic Map Profiling
3) Focus on River Systems
    - Stream Drainages
    - Types of River Channels
    - Stream Gradients and Profiles
    - Flooding
4) River Stream Table Modelling
5) Preparation for Next Week's Structure Lab

Purpose of Today's Lab

1) Become familiar with the fundamentals of river systems and fluvial landforms

2) Model stream flow with stream table.

Learning Outcomes

When you are finished today, you should be

1) familiar the concepts of stream anatomy, drainage systems, stream gradient, stream-flow characteristics, and floods and river management.

2) able to identify fluvial landforms – natural and man-made

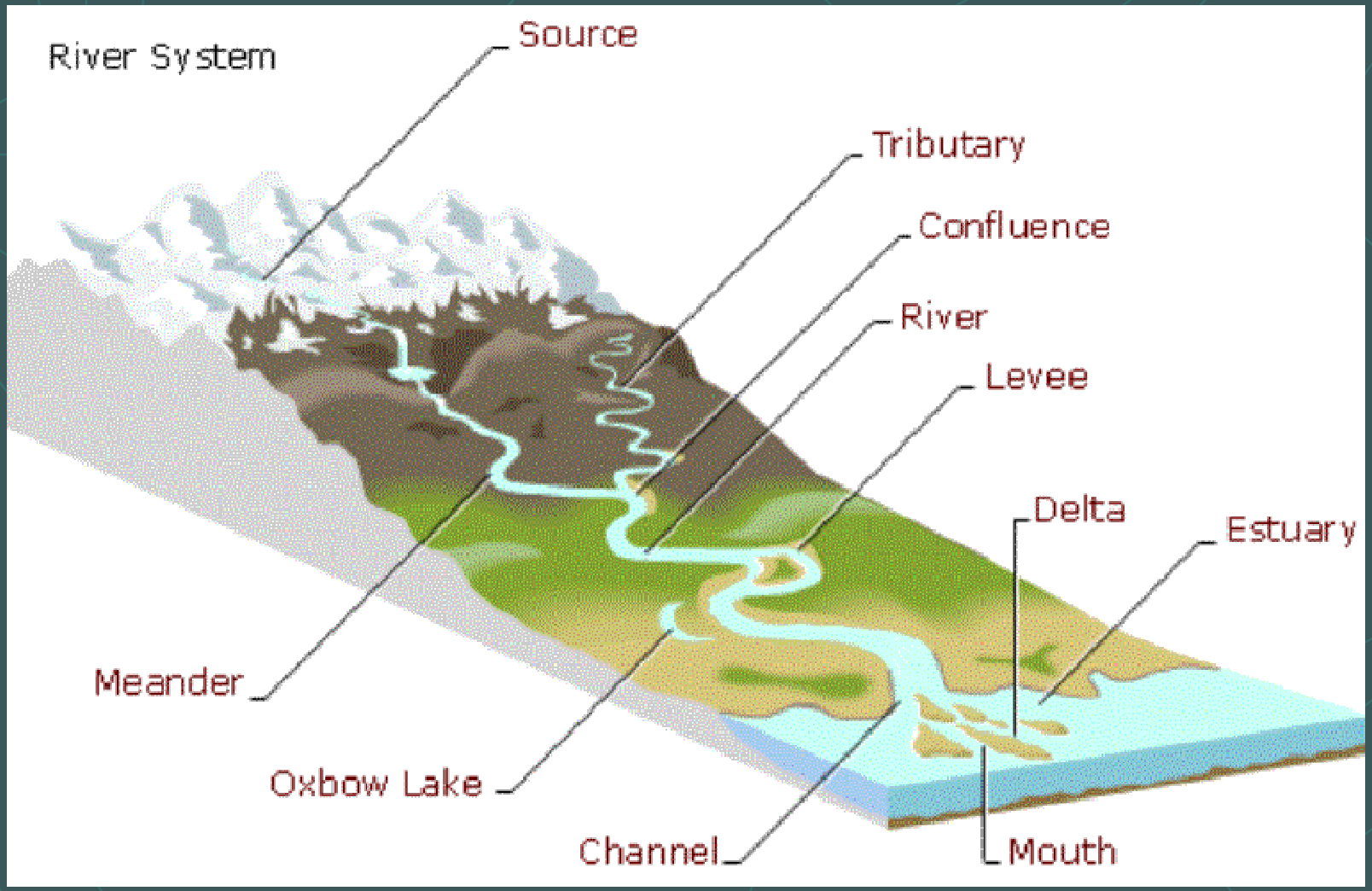
3) able to successfully measure stream flow

4) Correctly assess human-related impacts on urban stream systems

River Systems and Floods

- Types of River Channelization
- The Drainage Basin System
- Drainage Basin Patterns
- Fluvial Processes and Landscapes
- Streamflow Characteristics
- Floods and River Management

Overview of a River System



A Drainage Basin

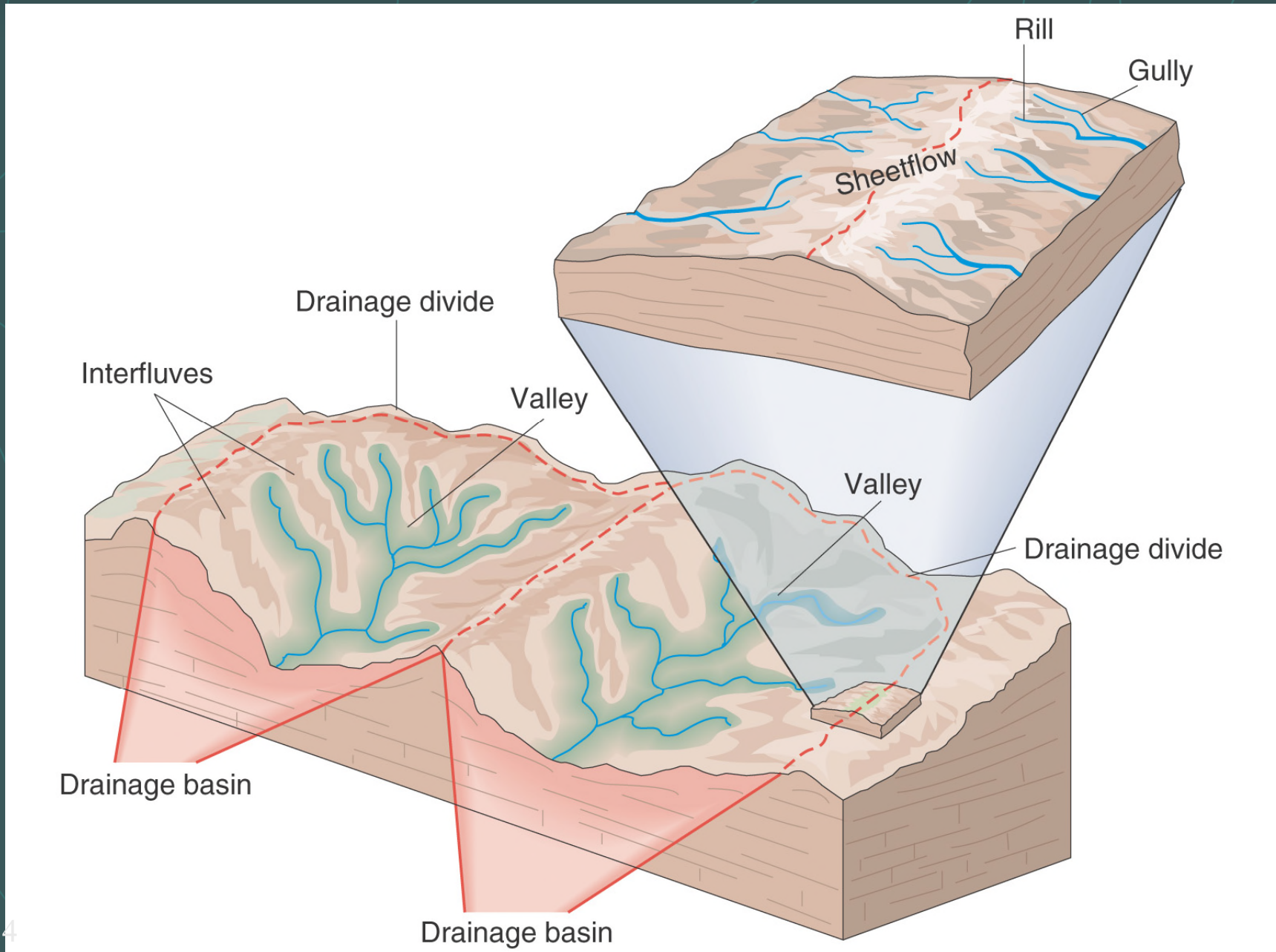


Figure 11.4

Drainage Patterns

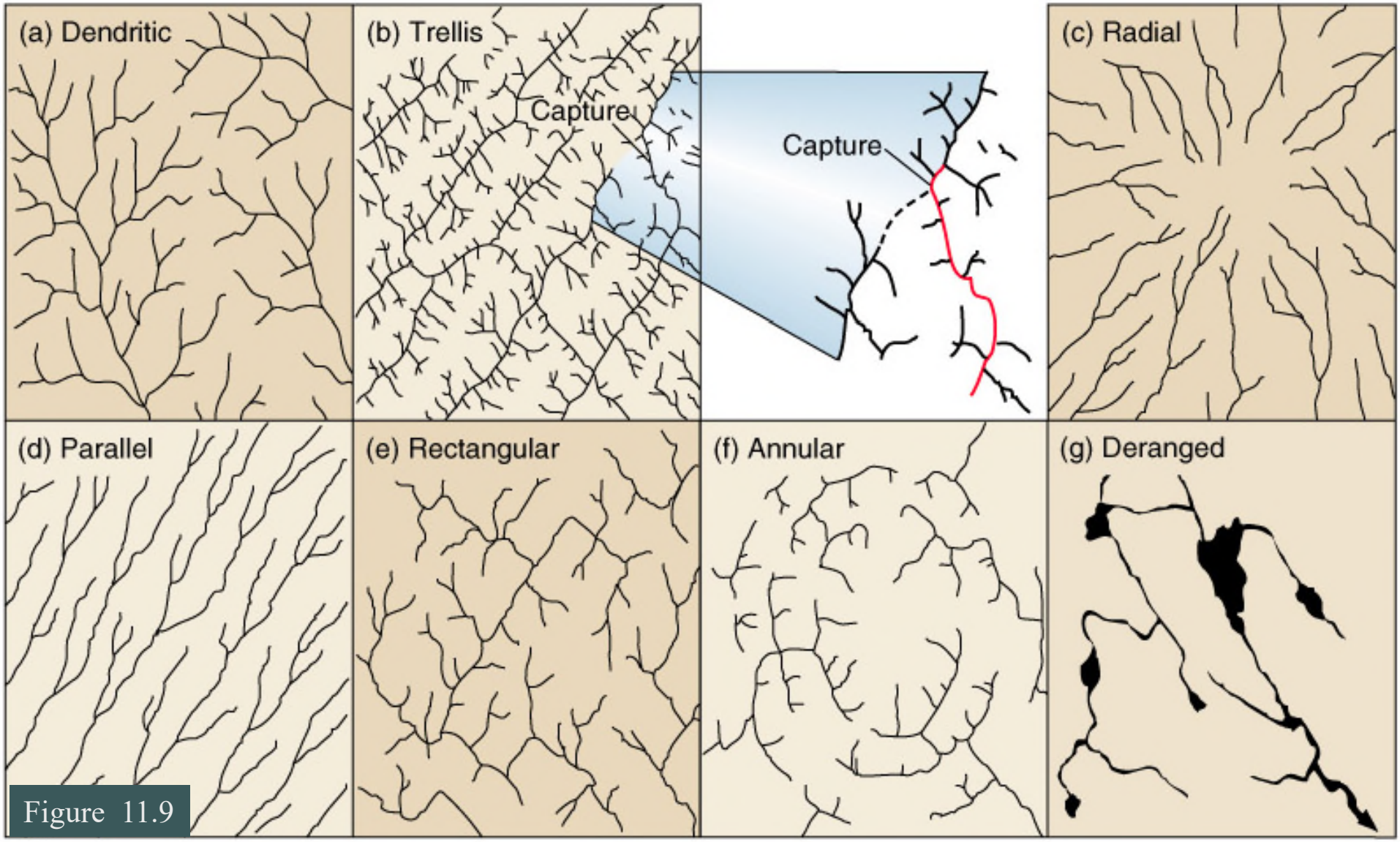


Figure 11.9

Stream Longitudinal Profile

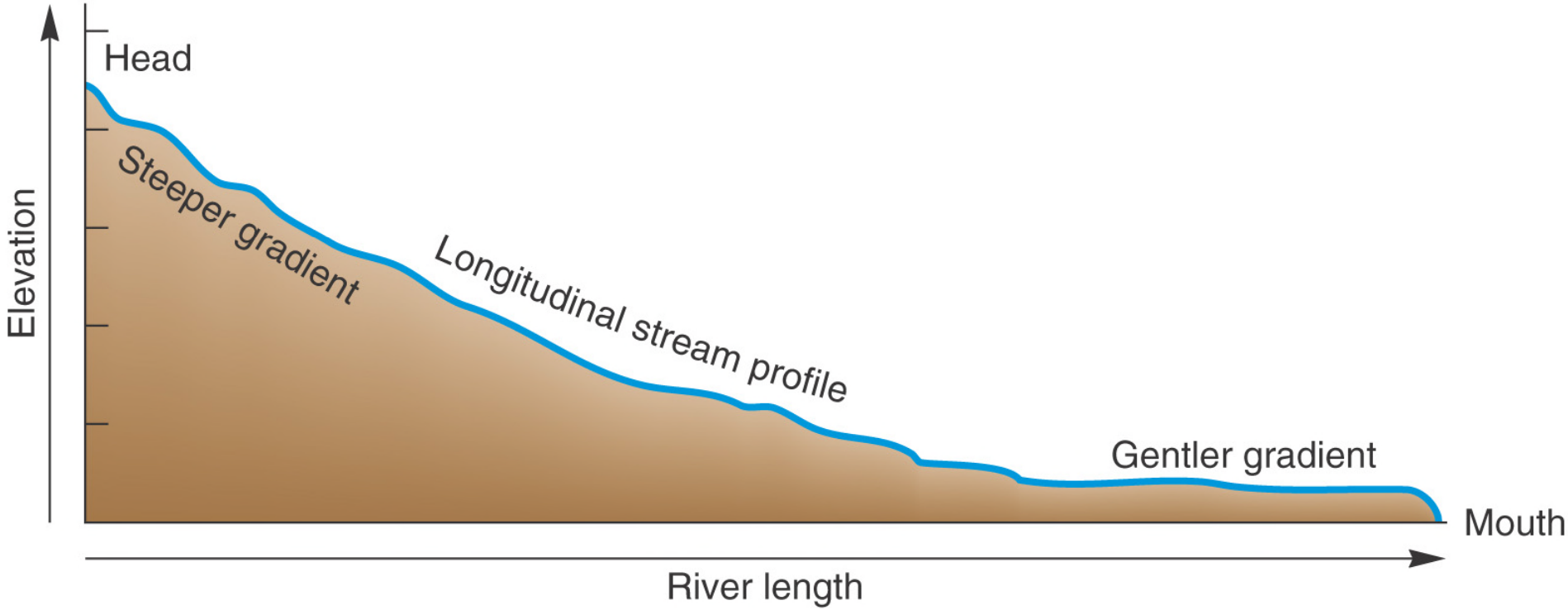


Figure 11.17

Base Levels

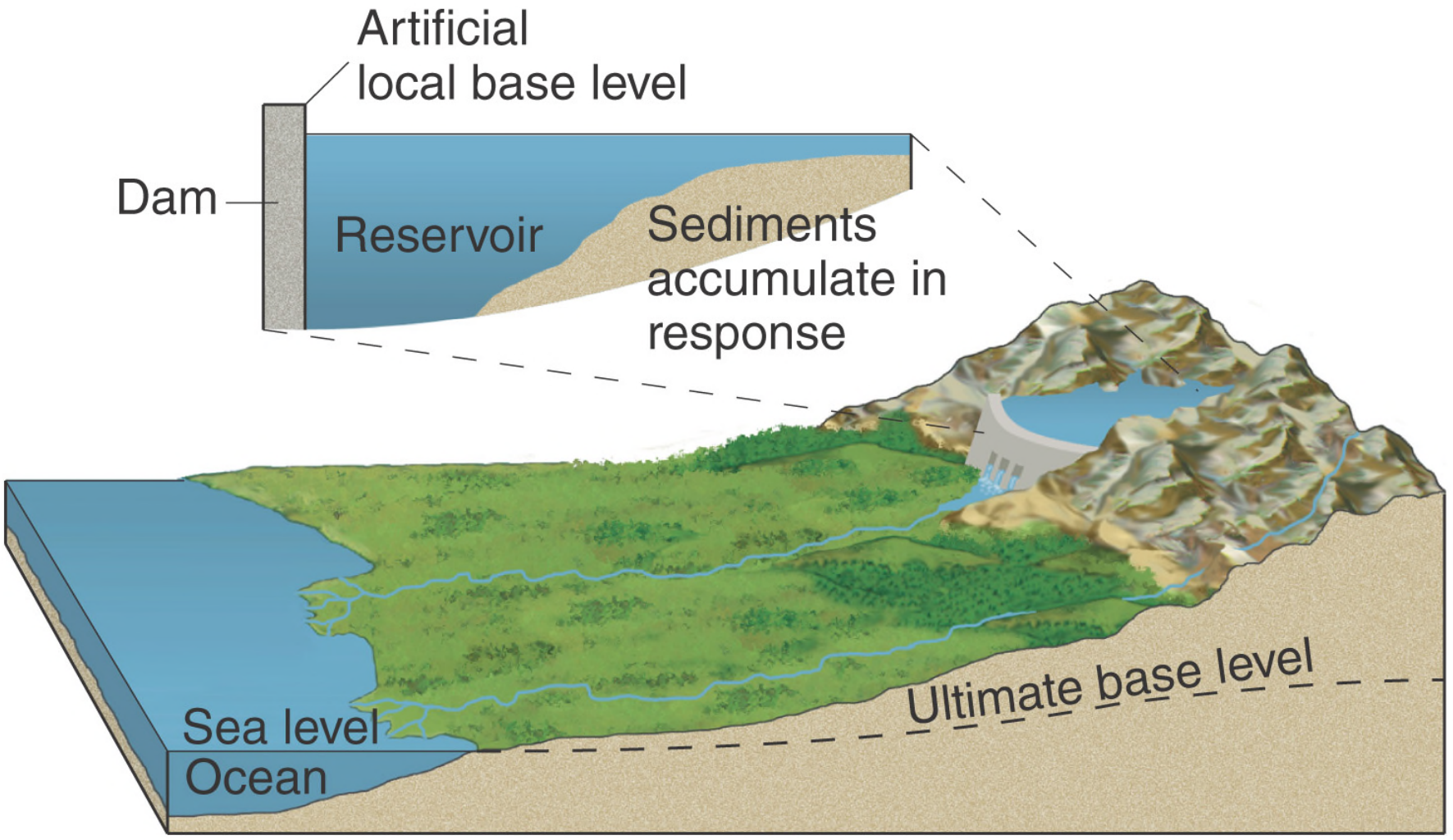
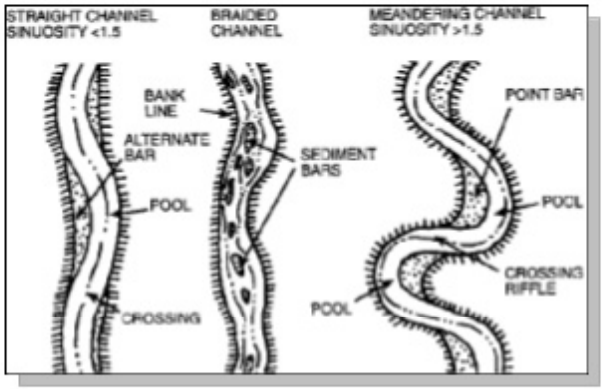


Figure 11.3

Types of River Channels

Channel types



(a) Straight channel

(b) Braided channel

(c) Meander channel

Figure 11.4

Streamflow Characteristics

- Stream Erosion
- Stream Transport
- Flow and Channel Characteristics
- Stream Gradient
- Nickpoints
- Stream Deposition

Three Primary River Processes

RIVER PROCESSES:

Three river processes:

2. Transportation
3. Deposition
4. Erosion

Fluvial Transport

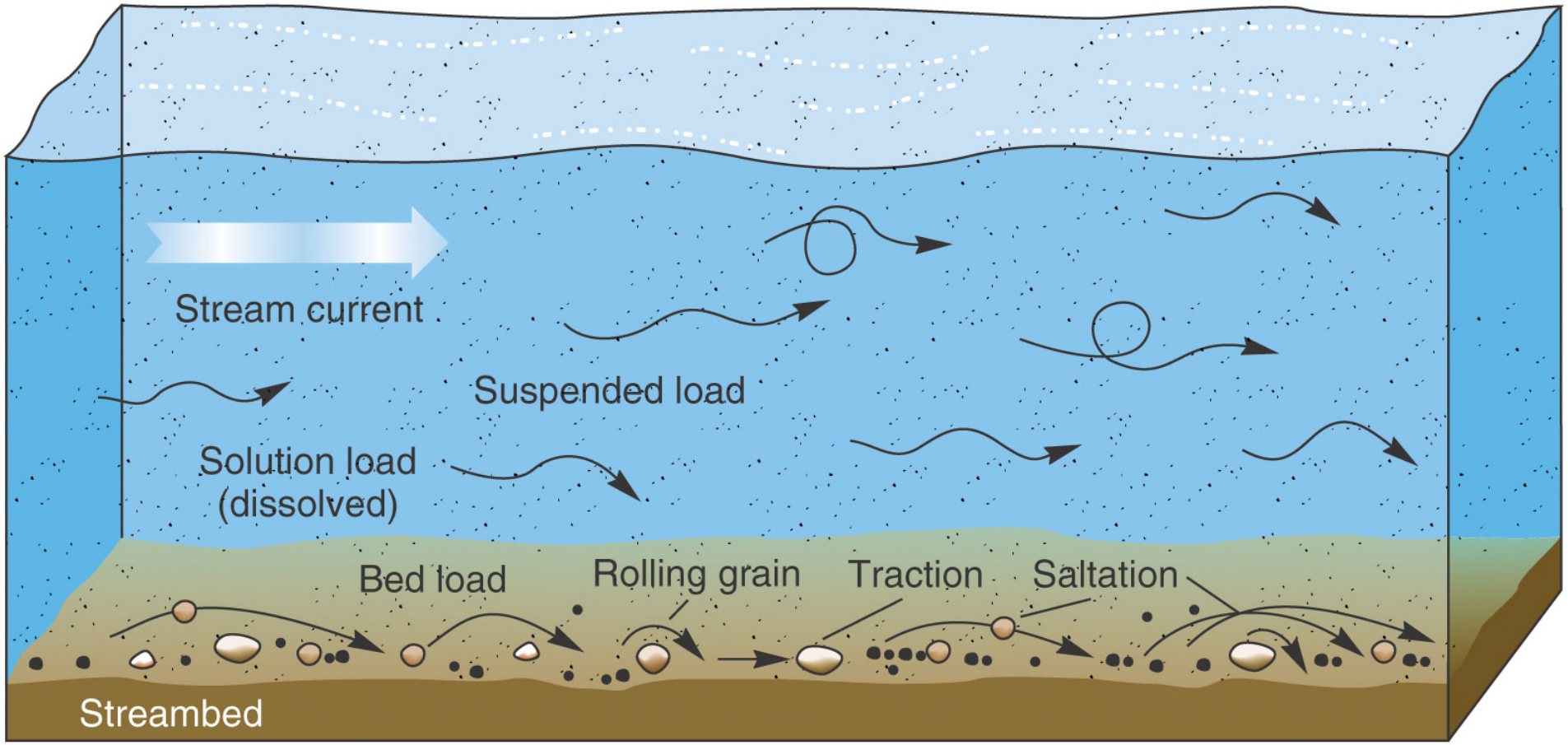


Figure 11.12

Stream Channel Flood Response

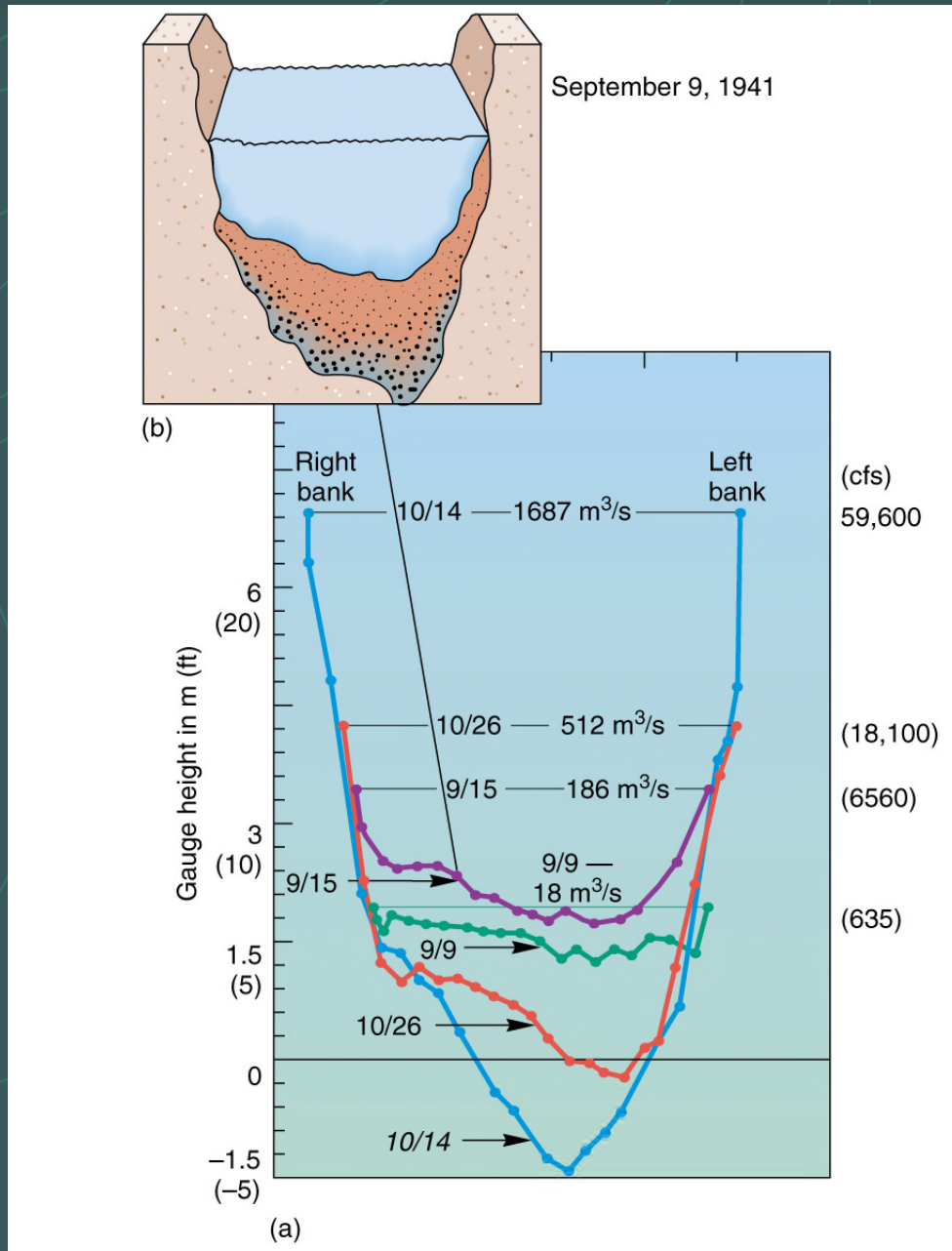


Figure 11.10

River System Features

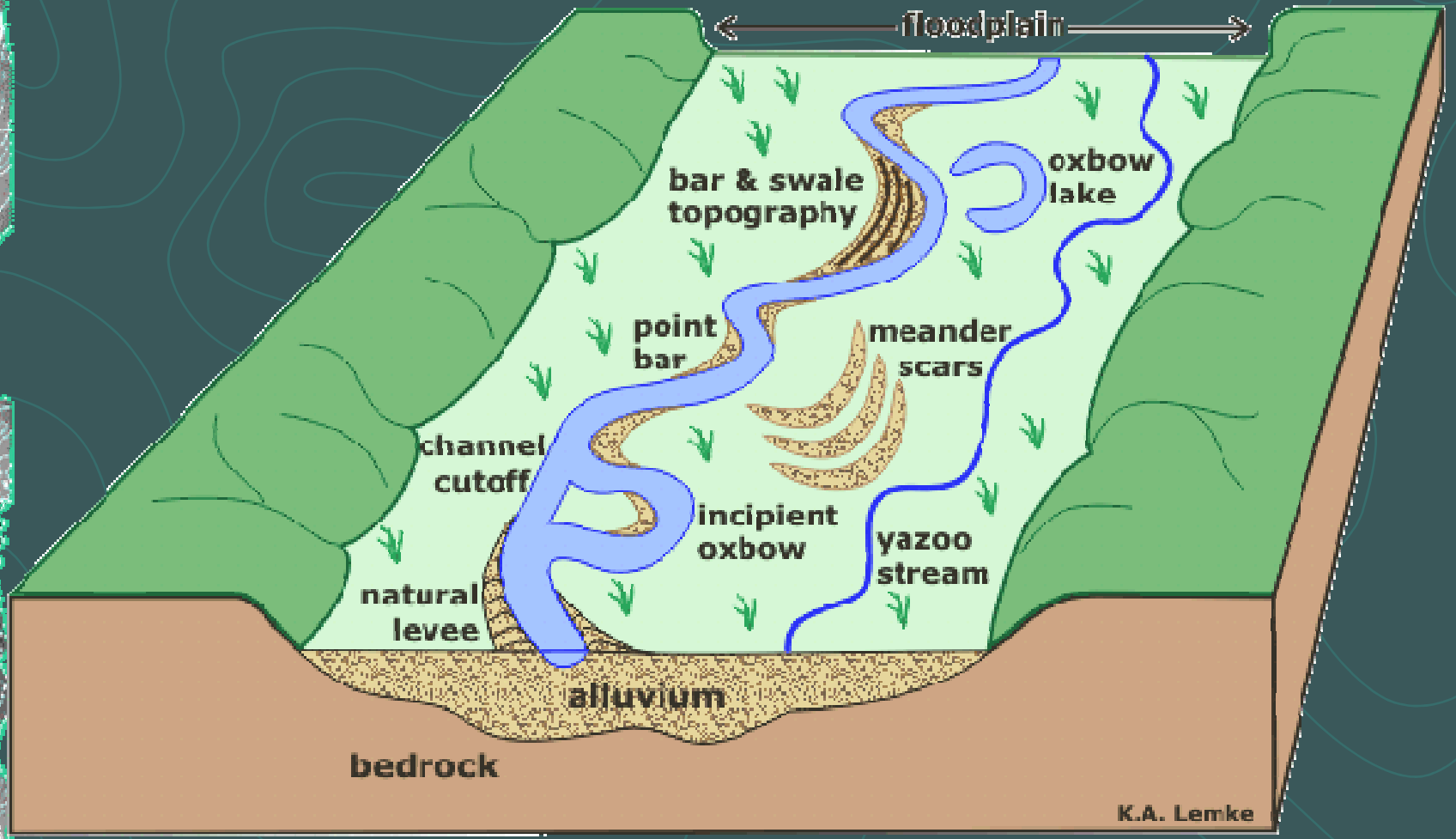


Figure 11.21

Floodplain Features

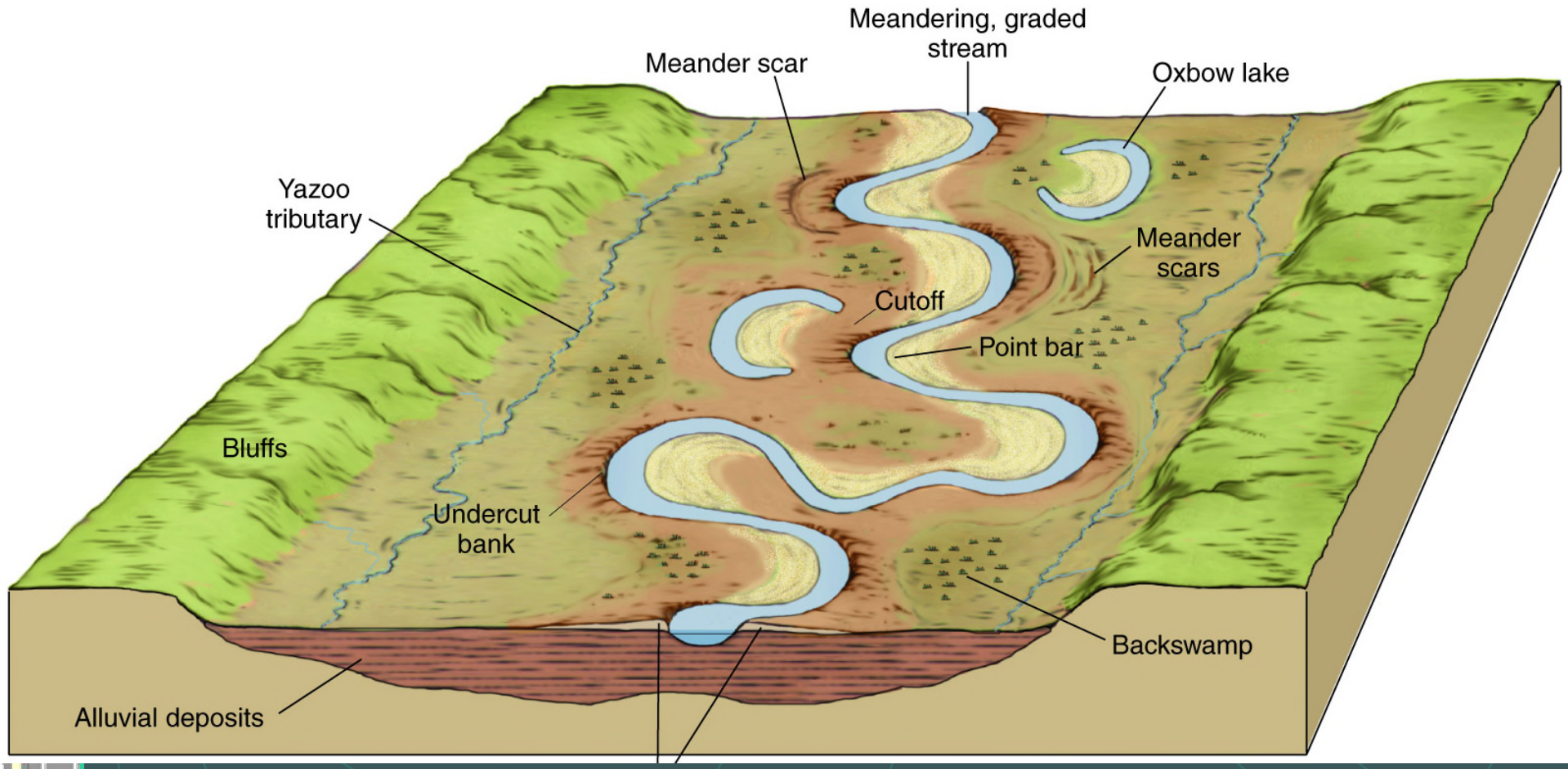
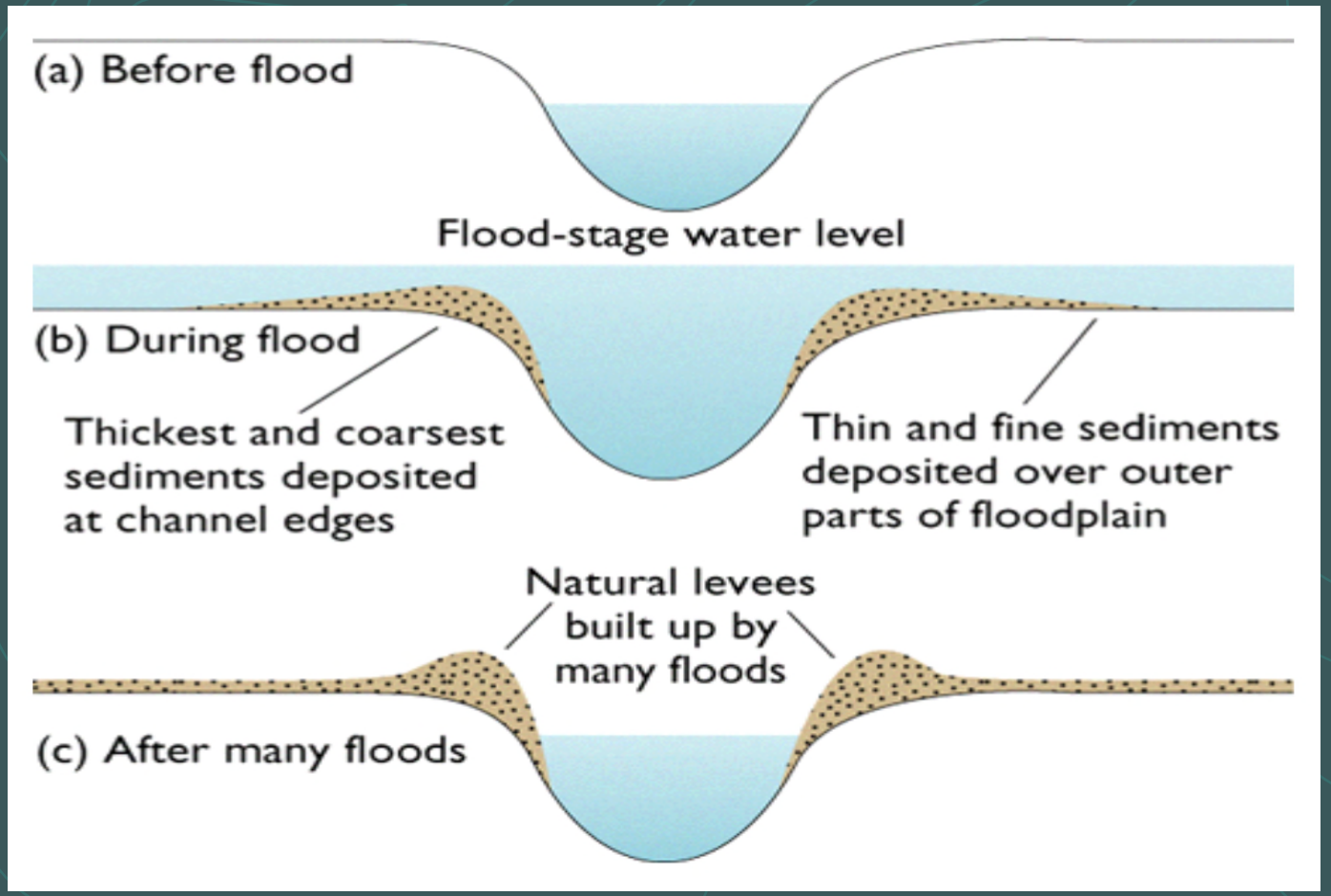


Figure 11.21

Floods and River Management

- Floods and Floodplains
- Streamflow Measurement



Streamflow Measurement

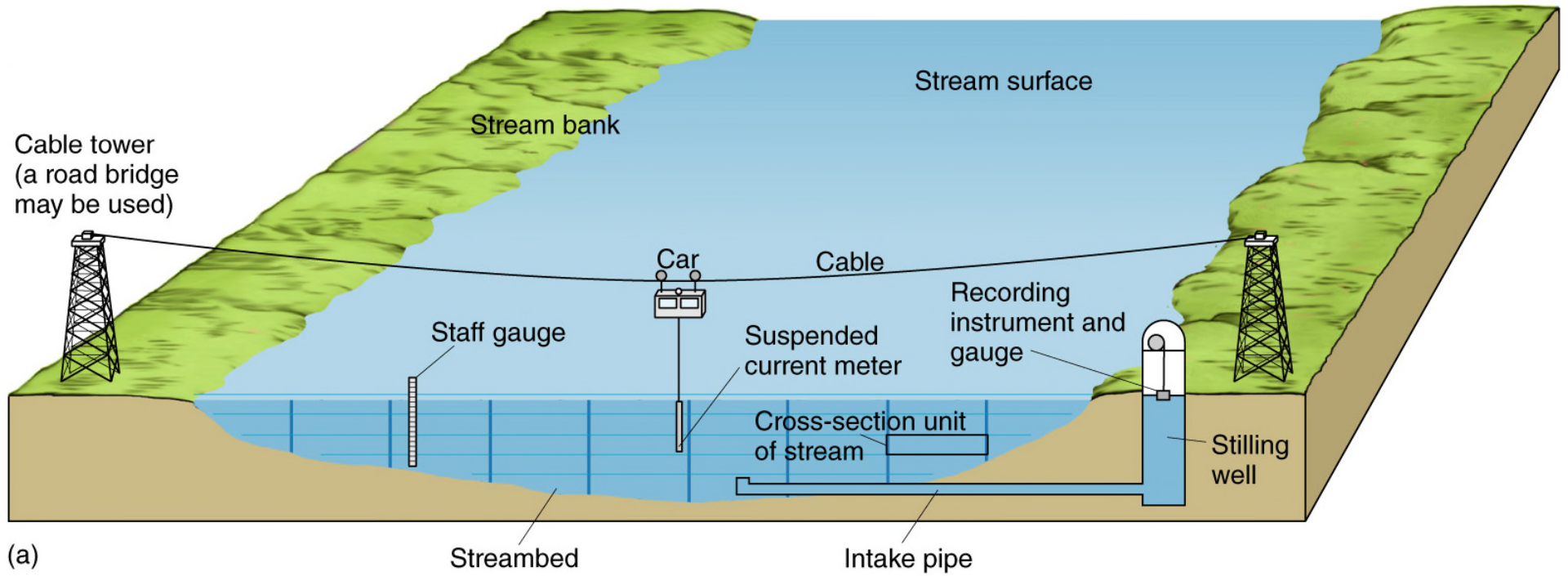
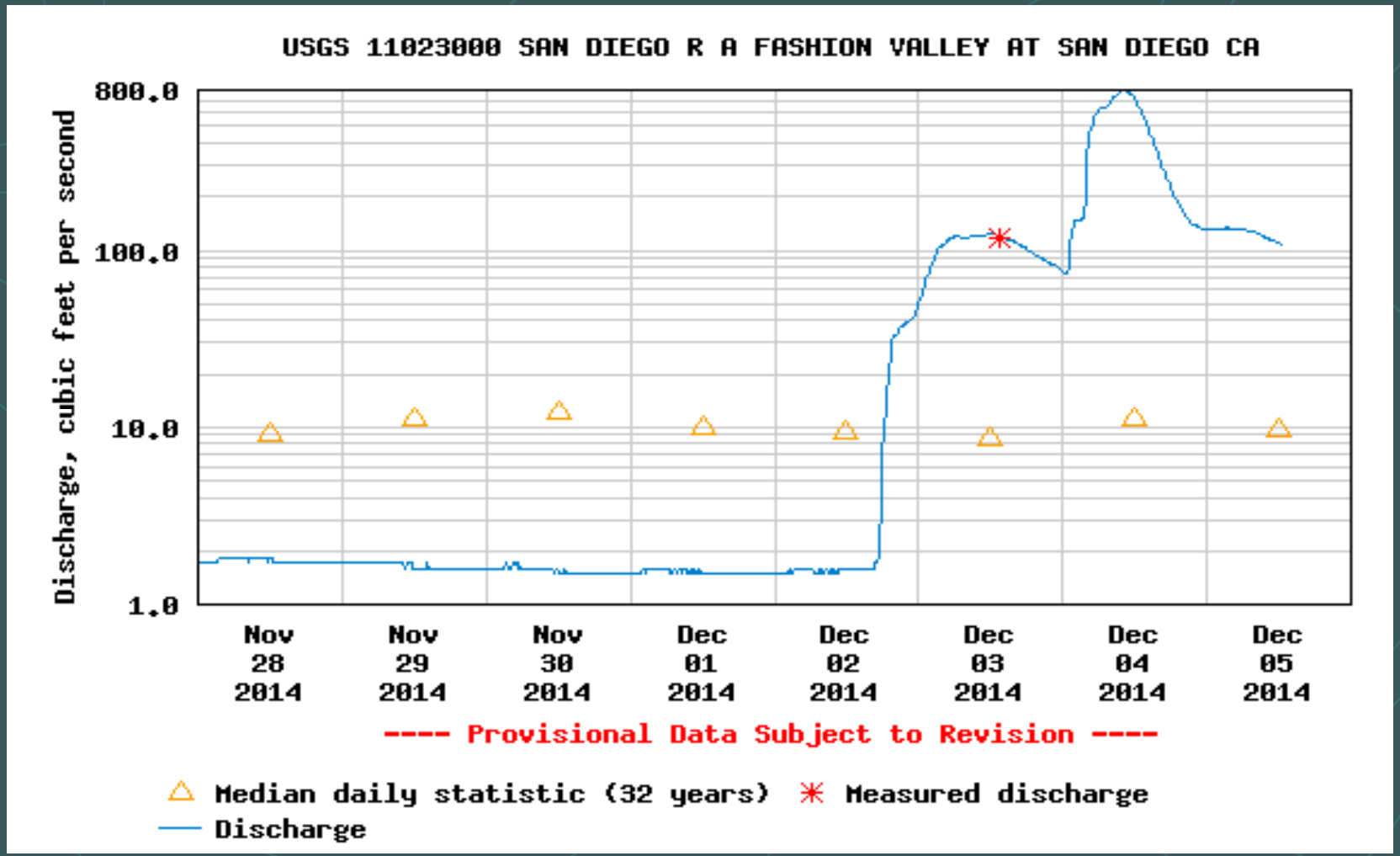
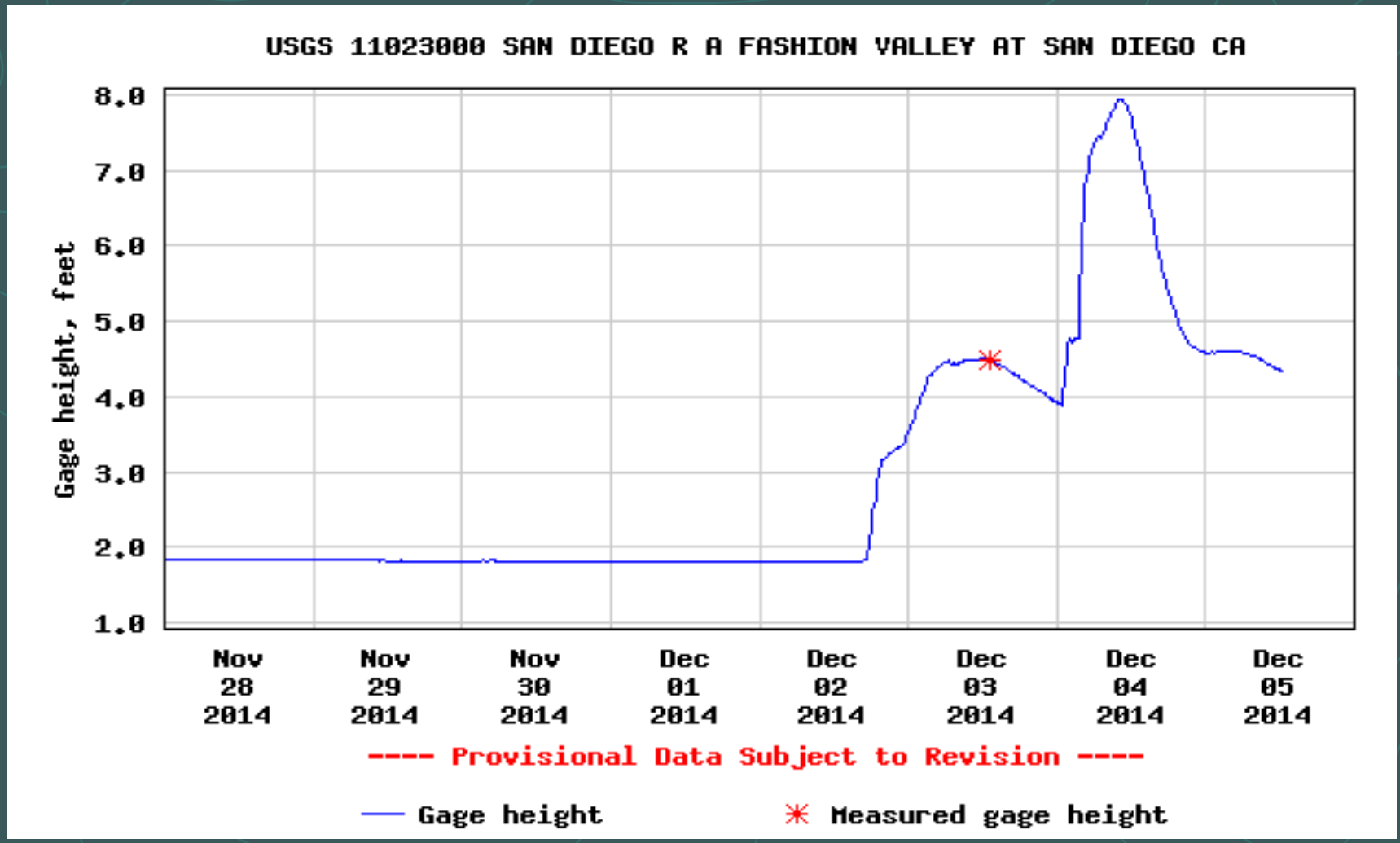


Figure 11.27

San Diego River - Discharge



San Diego River – Gauge Height



Urban Flooding

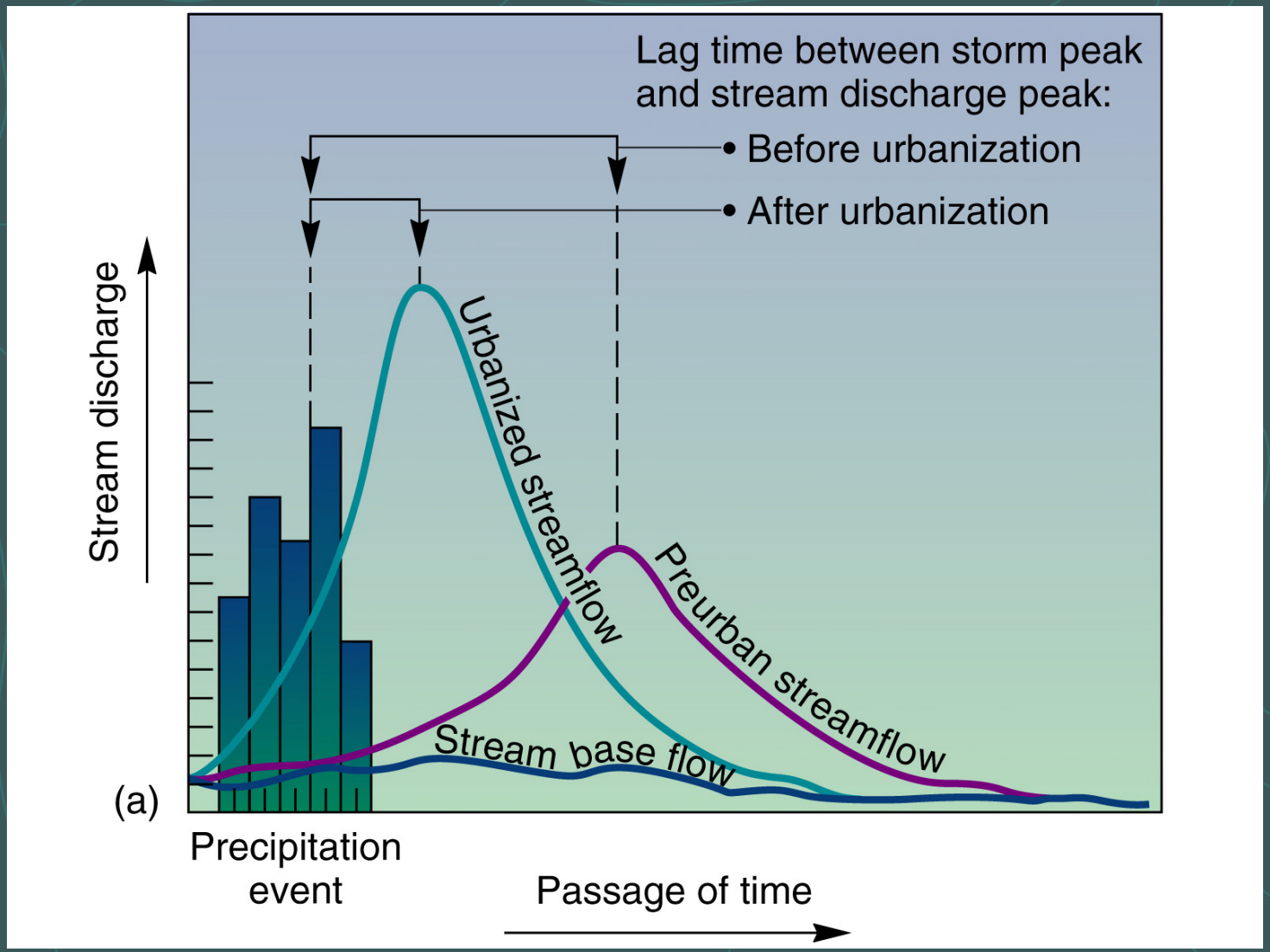


Figure 11.28

Stream Table Activity

Head's-Up for Next Week's Lab

Exam II

Preparation

1) Online Study Guide on Prof's website.
2) Study lab worksheets
3) Study materials reserved in library