

## Biology 307 – Principles of Ecology

### Part I. Aquatic Ecosystems: Freshwater Ecosystems

#### I. Limnology: Definition

#### II. Lentic Systems

##### A. Physical Characteristics

- 1) Temperature
- 2) Oxygen
- 3) Carbon Dioxide, Alkalinity, and pH

##### B. Structure

- 1) Littoral Zone (Emergents)
- 2) Limnetic Zone (Plankton and Nekton)
- 3) Benthic Zone (Benthos)

##### C. Function

- 1) Inputs, Outputs, and Productivity

##### D. Nutrient Status

- 1) Oligotrophic Systems (Mesotrophic Systems)
- 2) Eutrophic Systems (Hypertrophic Systems)
- 3) Dystrophic Systems
- 4) Marl Systems

#### III. Lotic Systems

##### A. Physical Characteristics

##### B. Structure

- 1) Fast Water vs. Slow Water
- 2) Stream Order (Basin/Watershed)

##### C. Function

- 1) Heterotrophy and the Processing of CPOM and FPOM
- 2) Functional Feeding Groups
- 3) Energy Flow and Nutrient Cycling (Nutrient Spiraling)

##### D. The River Continuum Concept

##### E. Regulated Rivers and Streams

- 1) Flood Pulse Concept

#### IV. Wetlands

##### A. Characteristics

##### B. Types of Wetlands

##### C. Structure

- 1) Physical Aspects of Water and Hydroperiod
- 2) Paludification and Lagg

##### D. Function

## Part II. Aquatic Ecosystems: Saltwater Ecosystems

### I. Physical Features

#### A. Stratification

#### B. Characteristics

1) Temperature, Salinity, Pressure

2) Waves, Tides

### II. The Open Sea

#### A. Structure and Function

### III. Rocky Shores

#### A. Structure and Function

#### B. Tide Pools

### IV. Sandy Shorelines and Mudflats

#### A. Structure and Function

### V. Coral Reefs

#### A. Types

1) Fringing Reefs

2) Barrier Reefs

3) Atolls

#### B. Structure and Function

### VI. Estuaries

#### A. Structure and Function

### VII. Coastal Wetlands

#### A. Tidal Marshes

#### B. Mangrove Swamps