

Ecosystems

- Part 1 -

Habitable Planet Unit 4
 CIS Environmental Studies
 PLHS Site
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Ecology

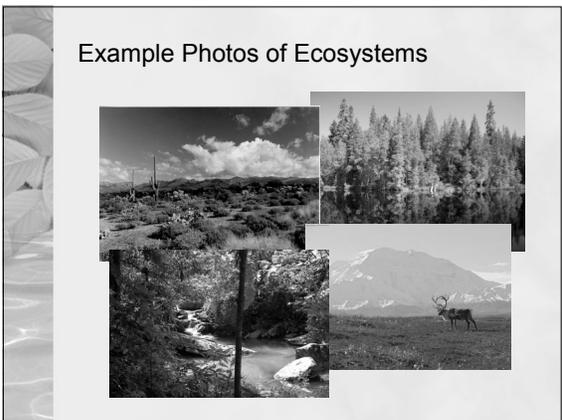
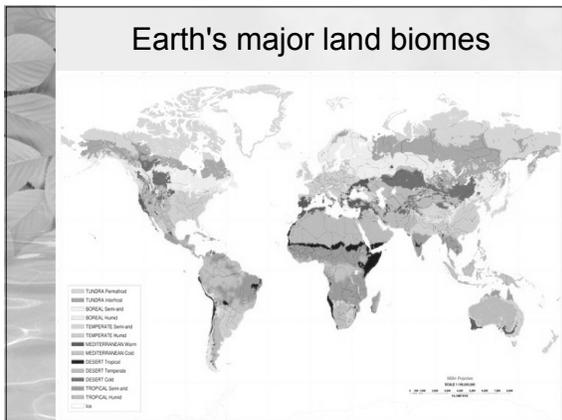
- * The scientific study of relationships in the natural world.
 - * Between organisms and their physical environments (physiological ecology)
 - * Between organisms of the same species (population ecology)
 - * Between organisms of different species (community ecology)
 - * Between organisms and matter and energy flow through biological systems (ecosystem ecology)

Impact of Geography on Ecosystems

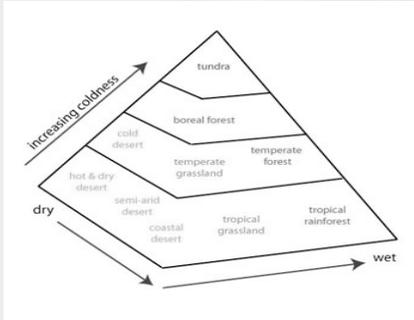
- * Sets basic physical conditions for the organisms that inhabit a given area
 - * Global circulation patterns
 - * Climate zones
- * Most important factors:
 - * Temperature ranges
 - * Moisture availability
 - * Light
 - * Nutrient availability

Biomes

- * Broad areas characterized by a distinctive climate, soil type, and biological community
- * Represent consistent sets of conditions for life
- * Support similar kinds of organisms wherever they exist
- * Land biomes are typically named for their characteristic types of vegetation



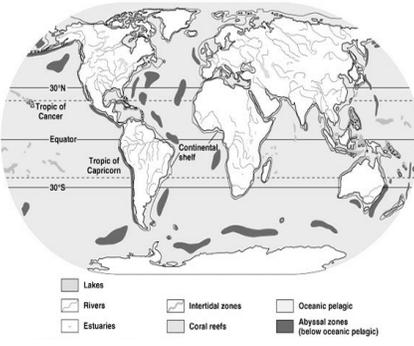
Comparisons based on average temperature ranges and rainfall



Aquatic biomes

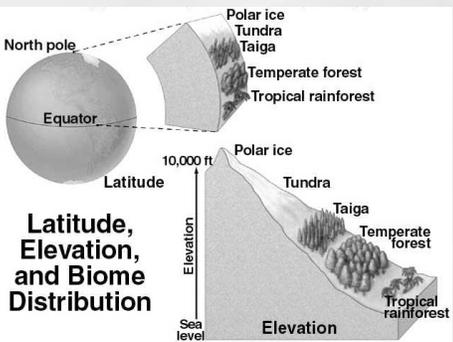
- * Cover 3/4 of the Earth's surface
- * Marine: coral reefs, estuaries, open ocean, abyssal zones, etc.
- * Freshwater: rivers, lakes, wetlands, etc.
- * Change daily or seasonally
 - * eg. intertidal zone, seasonal pools
- * Stratified into layers

Earth's marine and freshwater biomes

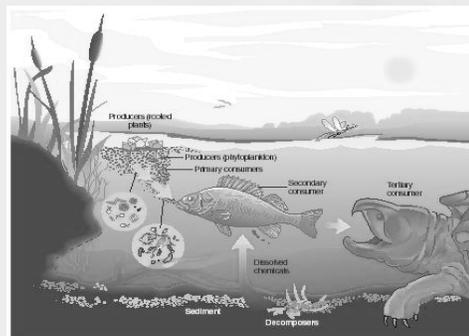


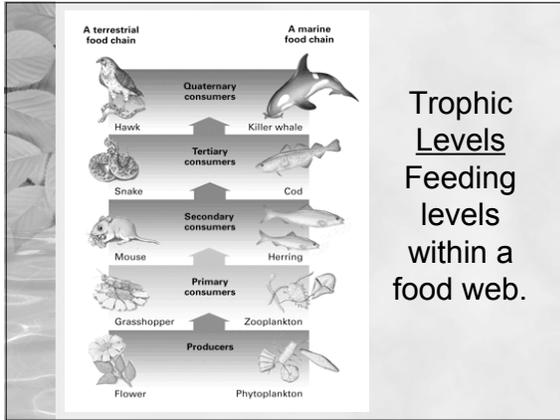
Biodiversity in Biomes

- * Species are not uniformly spread among Earth's biomes
- * Species richness: An approach to assessing biodiversity involving population distribution studies.
- * Species richness increases from the poles to the tropics in both land and aquatic biomes



Energy Flow Through Ecosystems





- ### Trophic levels (Continued)
- * I. **Primary producers:** Organisms that photosynthesize food
 - Plants, Algae, Some Bacteria
 - * II. **Primary Consumers:** Animals that feed on producers (*Herbivores*)
 - Zooplankton, Ungulates, Rodents, etc.
 - * III. **Secondary Consumers:** Animals that eat herbivores (*Predators*)
 - Hyena, Snake, Sunfish, etc.
 - * IV+. **Tertiary Consumers, etc:** Predators that may prey on other predators
 - Dominant Carnivore - *Top Predator*

