

OCN 201 Bio Lecture 9 Trophic Interactions

I. **Some Ecological Concepts**

- A. Ecology: The study of the interactions of organisms with each other and their environment
- B. Ecosystem: All of the organisms in a community AND their environment
- C. Habitat: The place in the environment where an organism lives
- D. Niche: The ecological function of an organism in a community
- E. Population: All of the individuals of one species that occupy the same range
- F. Community: All of the populations of different species in an area that interact with one another
- G. Food Chain: A series of different species of organisms at different trophic levels in an arrangement such that each species feeds only on organisms one trophic level below and serves as food only for the next level above.
- H. Food Web: The complex feeding arrangements among all the organisms in a community that takes into account that organisms may feed on more than one type of prey and on more than one trophic level.

II. **Trophic Levels in a Food Chain**

- A. Primary Producers:
- B. Primary Consumers:
- C. Secondary Consumers:
- D. Tertiary Consumers:

III. **Trophic Efficiency**

- A. The transfer of biomass from one organism to another is inefficient. WHY?
- B. Biomass transfer efficiency is typically:
- C. For example: If copepods eats _____grams of phytoplankton, they will only produce _____grams of new copepods. What happens to the rest?
 - 1.
 - 2.
- D. This trophic inefficiency results in a:

IV. Food Webs

A. Feeding Modes in the Food Web

1. Primary Producers (Autotrophs):
2. Consumers (Heterotrophs):
 - a. Grazers:
 - b. Predators:
 - c. Omnivores:
 - d. Scavengers:
 - e. Decomposers:
 - f. Symbionts:

B. Trophic Cascades

V. Symbioses – prolonged interaction between individuals of two different species where at least one benefits

A. Three types

1. Parasitism:
2. Commensalism :
3. Mutualism:

B. Very common in the marine environment

Examples: