Predators and Food Webs

I. Direct vs. Indirect Effects

II. Keystone predators

III. What controls food webs?
Direct vs. Indirect Effects

Direct effect - a change in the phenotype or abundance of a species mediated by an interaction with another species.

Indirect effect - a change in the phenotype or abundance of a species caused by a species it does not interact with directly.
Keystone Predators

A *keystone species* is one whose impact on its community or ecosystem is disproportionately large relative to its abundance.

What controls food webs?

**Top down control** - food webs are controlled by the negative impacts of predators on prey (demand driven).

**Bottom up control** - food webs are controlled by the availability of prey for predators (supply driven).
Why is the world green?

Where have all the fish gone?
[Source: Estes et al. 1998,
Science 282: 473-476]