What is Meant by an Ecosystem in Balance

The purpose of the Healthy Lakes Initiative is to (1) Maintain aesthetically pleasing lakes that attract a diversity of shorebirds and flowering vegetation, (2) Obtain ecologically stable ecosystems that are sustainable with minimal maintenance and reduction in chemical dependence, and (3) Provides a system that reduces noxious algae and periodic fish kills due to an imbalance in the oxygen and chemical makeup through an Ecosystem Balance Management Plan.

An aquatic ecosystem in balance is one where all trophic levels are interdependent, and the food source pyramid is stable enough to provide reproductive and nursery conditions for all aquatic organisms. When I refer to trophic levels, here is a simplified explanation of the food source pyramid:

1. *First Trophic Level* - zooplankton and insect larvae. While we use herbicides to control algae and invasive plants, these chemicals also directly affect our first trophic level. Reducing the use of herbicides through beneficial plants assimilating the nutrients helps to also protect this trophic level.

2. *Second Trophic Level* - minnows and mosquito fish. A critical food source for bluegills and other sunfish. If we were to stock fish, we would begin with this trophic level.
3. *Third Trophic Level* - bluegills and sunfish. Young tilapia also fall in this category as a food source for bass. In stocking projects, we would add a variety of sunfish species (but no tilapia) once the minnows are established. (note - I like it when a fisherman can tell me they are catching fish from this trophic level.)

4. *Fourth Trophic Level* - Florida subspecies of the Largemouth Bass. As our premier measurement of successful fish population dynamics in our ponds, we hope for a good population of bass.
5. *Top Carnivore Level, or Fifth Trophic Level* - We would like to have an alligator in each pond, which helps us to maintain an ecologically sustainable status. These alligators limit the overpopulation of tilapia and turtles, both of which are primarily vegetarians and have no predator when full-grown except the alligator. Alligators

also provide a mixing of oxygen in the deeper areas minimizing effects from anaerobic conditions.