

1. Describe the causes and consequences of eutrophication in the Everglades.  
(10)

2. If large fish are added to a shallow pond, macrophytes may take over in a few years, why? (8)



5. Why is it important to stop eutrophication processes before O<sub>2</sub> becomes completely depleted in the hypolimnion, and what steps may work to reverse eutrophication once such anoxia has begun? (10)

6. Describe three general ways aquatic organisms have adapted to predation pressure, and give a specific example of each. (6)

7. What is the relationship between food concentration and filtering rate and the relationship between food size and filtering rate, for organisms that filter microbial particles for food? (10, two graphs would be good here)

8. Why do many *Daphnia* populations exhibit diel vertical migration, and what additional benefit of being down during the day may *Daphnia* receive from such behavior in Pottawatomie State Lake II? (6)

9. Describe nutrient spiraling and factors that alter spiral length. (10)

10. Diagram a modern sewage treatment plant. (10)

11. Match the blanks with the letters, one best letter for each, use each letter only once (18)

Term	Letter
_____ mutualism	a. deep groundwater
_____ disturbance	b. succession
_____ flood-pulse	c. maximum P/R at intermediate stream order
_____ salmonid refuge	d. riparian connectivity
_____ keystone species	e. nutrient remineralization ratios
_____ lowest ecosystem productivity	f. successful sediment dredging
_____ River Continuum Concept	g. Nostoc- midge
_____ fruit eating fishes	h. magnetotaxis
_____ indirect interactions	i. aerated eutrophic hypolimnion
_____ competition	j. interspecific interactions mediated by one or more other species
_____ stoichiometry	k. C:N:P
_____ Redfield ratio	l. relative ecosystem production
_____ trophic state	m. disproportionately large impact on community or ecosystem
_____ Lake Tahoe	n. ultra-oligotrophic become oligotrophic
_____ Lake Washington	o. complementary anaerobic metabolism
_____ Lake Trummen	p. Amazon flood plain
_____ bacteria moving downward	q. sewage diverted to Puget Sound
_____ syntrophy	r. exploitative or interference