Chapter 8 Reading Questions

Case Study
1. Explain why southern sea otters are referred to as a keystone species.

Population Dynamics and Carrying Capacity
2. How are most populations distributed and why? List the four reasons.
3. Distinguish between immigration and emigration.
4. Write the the formula for determining population change.
5. Age structure: What two age categories would be dominant in a fast growing population?
6. Give an example of how biotic potential and environmental resistance might determine the carrying capacity of a population.

Exponential and Logistic Population Growth
7. Describe what happens when exponential growth becomes logistic growth.
8. What happens to a population (such as the reindeer on St. Paul) when it exceeds carrying capacity?
9. Using examples, contrast density-dependent and density-independent limiting factors.
10. Explain why biotic factors that regulate population growth tend to be density-dependent and abiotic factors that regulate population growth tend to be density-independent.
11. Describe the four general patterns of variation in population size.
12. Explain the difference between top-down population control and bottom-up population control. Use the hare and lynx example for each.
13. What animal kills or injures more people in the United states each year than any other? List two ways that they impact human health.
14. Fill in the chart for r-selected and K-selected species' reproductive patterns.

Characteristic	r-Selected Species	K-selected species
stable or unstable environment		
size of adults		
number of offspring		
parental care		
reproductive age		
survival of offspring		
niche type		
ability to compete		
early or late in succession		
stable population size?		
population growth rate (r)		

15. Why are invasive species likely to be extreme r-selected species and most endangered species likely to be extreme k-selected species?
16. Describe the three general types of survivorship curves found in nature.
17. Based on your obituary data you gathered for the Survivorship Curves Lab, Predict which survivorship curve your data will make when graphed. Give a hypothesis as to why.
18. List a few genetic issues that might arise when a species such as the southern sea otter or california condor experiences a population bottleneck (re-grows from an unusually small number).