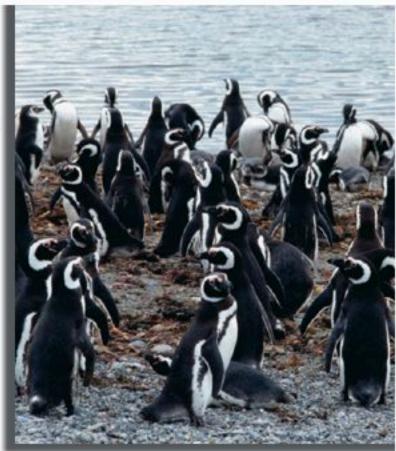


POPULATIONS: CHARACTERISTICS AND ISSUES



Populations are collections of organisms of the same species. This group of Magellanic penguins constitutes a population with certain characteristics that may differ somewhat from the characteristics of penguin groups that inhabit other parts of South America.

CHAPTER OUTLINE

Population Characteristics

Natality-Birthrate

Mortality-Death Rate

Population Growth Rate

Sex Ratio Age Distribution

Population Density and Spatial Distribution

Summary of Factors that Influence Population Growth Rates

A Population Growth Curve

Factors that Limit Population Size

Extrinsic and Intrinsic Limiting Factors

Density-Dependent and Density-Independent Limiting Factors

Categories of Limiting Factors

Availability of Raw Materials

Availability of Energy Accumulation of Waste Products

Interactions Among Organisms

Carrying Capacity

Reproductive Strategies and Population Fluctuations

K-Strategists and r-Strategists

Population Cycles

Human Population Growth

Human Population Characteristics and Implications

Economic Development

Measuring the Environmental Impact of a Population

The Ecological Footprint Concept

Factors that Influence Human Population Growth

Biological Factors

Social Factors

Economic Factors

Political Factors

Population Growth Rates and Standard of Living

Hunger, Food Production, and Environmental Degradation

Environmental Impacts of Food Production

The Human Energy Pyramid

Economics and Politics of Hunger

Solving the Problem

The Demographic Transition Concept

The Demographic Transition Model

Applying the Model

The U.S. Population Picture

What Does the Future Hold?

Available Raw Materials

Available Energy Waste Disposal Interaction with Other Organisms Social Factors Influence Human Population Ultimate Size Limitation

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GOING GREEN

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OBJECTIVES

After reading this chapter, you should be able to:

- · Understand that birthrate and death rate are both important in determining the population growth rate.
- · Define the following characteristics of a population: natality, mortality, sex ratio, age distribution, biotic potential, and spatial distribution.
- · Explain the significance of biotic potential to the rate of population growth.
- · Describe the lag, exponential growth, deceleration, and stable equilibrium phases of a population growth curve. Explain why each of these stages occurs.
- Describe how limiting factors determine the carrying capacity for a population.
- · List the four categories of limiting factors.
- · Recognize that humans are subject to the same forces of environmental resistance as are other organisms.
- Understand the implications of overreproduction.
- Explain how human population growth is influenced by social, theological, philosophical, and political thinking.
- · Explain why the age distribution and the status and role of women affect population growth projections.
- Recognize that countries in the more-developed world are experiencing an increase in the average age of their populations.
- · Recognize that most countries of the world have a rapidly growing population.
- Describe the implications of the demographic transition concept.
- · Recognize that rapid population growth and poverty are linked.