

APES OBJECTIVES

FriRel: CHAPTER 14 Objectives - WATER POLLUTION

KEY OBJECTIVES: The main objective of this chapter is for students to understand the different substances that pollute our water resources and various ways we clean wastewater.

41. Wastewater from Humans & Livestock

- Discuss the three major problems caused by wastewater pollution.
- Explain the modern technologies used to treat wastewater.
- Distinguish between *pollution prevention* and *pollution cleanup*. Evaluate the effectiveness of these two approaches in decreasing pollution.
- Draw an oxygen sag curve to illustrate what happens to dissolved oxygen levels in streams below points where degradable oxygen-demanding wastes are added.
- Compare problems of lake water pollution to those of stream pollution.
- Describe what is happening to the quality of coastal waters and how coastal waters can be protected. State one ecological principle illustrated by the Chesapeake Bay case study.

42. Heavy Metals & Other Chemicals

- Explain the sources of heavy metals & their effect on organisms.
- Discuss the sources & effects of acid deposition & acid mine drainage.
- Explain how synthetic organic compounds can affect aquatic organisms.
- Describe the difference between eutrophication and cultural eutrophication. How can cultural eutrophication be prevented or cleaned up?

43. Oil Pollution

- Identify the major sources of oil pollution.
- Explain some of the current methods to remediate oil pollution.

44. Nonchemical Water Pollution

- Identify the major sources of solid waste pollution.
- Explain the harmful effects of sediment pollution.
- Discuss the sources & consequences of thermal pollution.
- Understand the causes of noise pollution.???

45. Water Pollution Laws

- Explain how the Clean Water Act protects against water pollution.
- Discuss the goals of the Safe Drinking Water Act. Discuss how public drinking water is purified and how the U.S.
- Understand how water pollution legislation is changing in developing countries.

VOCABULARY TERMS

• water pollution	• algal bloom	• sludge
• point sources	• pathogens	• manure lagoons
• nonpoint sources	• indicator species	• acid deposition

<ul style="list-style-type: none"> • wastewater 	<ul style="list-style-type: none"> • fecal coliform bacteria 	<ul style="list-style-type: none"> • PCBs (polychlorinated biphenyls)
<ul style="list-style-type: none"> • oxygen-demanding waste 	<ul style="list-style-type: none"> • septic system 	<ul style="list-style-type: none"> • PBDEs (polybrominated diphenyl ethers)
<ul style="list-style-type: none"> • biochemical oxygen demand (BOD) 	<ul style="list-style-type: none"> • septic tank 	<ul style="list-style-type: none"> • thermal pollution
<ul style="list-style-type: none"> • eutrophication 	<ul style="list-style-type: none"> • persistent, nonpersistent, and nondegradable pollutants 	<ul style="list-style-type: none"> • thermal shock
<ul style="list-style-type: none"> • cultural eutrophication 	<ul style="list-style-type: none"> • leach field 	<ul style="list-style-type: none"> • maximum contaminant levels (MCL)