**APES Chapter 20: Water Pollution**

**Note Taking Focus Questions**

**Directions:** Use the Cornell Method of note taking as you answer the questions below. Your notes must be **hand written** to receive credit for them. Within your notes, use the title for each subsection of notes which is *in italics and underlined.*

**Section 20-1**

*Sources of Water Pollution*

1. Define the term water pollution.

2. Describe the difference between point and nonpoint source pollution, list some example, explain how successful efforts to control them have been.

3. Describe the 3 leading causes of water pollution: include source and types of pollutants.

*Harmful Effects of Water Pollutants*

4. Use Table 20-1 to summarize the major types of water pollution – their sources, examples of them and their effects.

**Section 20-2**

*Streams Can Cleanse Themselves*

1. Describe how streams can clean themselves and what types of pollutants it works upon.

2. Explain what factors will limit a stream’s ability to clean itself.

*Stream Pollution in MDCs*

3. What has been done to increase water quality in MDCs?

4. What still causes occasional fish kills and drinking water contamination?

*Stream Pollution in LDCs*

5. Why is there so much water pollution in LDCs?

*Pollution in Lakes and Reservoirs*

6. Why are lakes less effective at diluting pollutants than streams, and what types of pollutants are they vulnerable too?

*Eutrophication*

7. Define eutrophication, what causes it, and what are the consequences of it?

8. List some ways to reduce eutrophication.

*Gulf of Mexico Case Study*

9. What causes the annual dead zone in the Gulf of Mexico?

10. Where does the lowest level of D.O. occur, and what factors make it worse?

**Section 20-3**

*Pollution Problems Affecting Groundwater*

1. What are the common pollutants found in groundwater?

2. What is a new threat to groundwater, and where could the contaminants come from?

*Groundwater Pollution is Difficult to Clean Up*

3. Explain 4 reasons why groundwater pollution is difficult to clean up.

*Groundwater Pollution – A Serious Threat*

4. Describe the groundwater threats in China and in the U.S.

*Preventing Groundwater Pollution & Cleaning Up Groundwater Pollution*

5. Use Figure 20-13 to list ways to prevent groundwater pollution and cleanup groundwater pollution.

*Preventing Pollution is the Best Solution*

6. Why is prevention the only effective and affordable way to deal with groundwater pollution?

*Case Study: Arsenic in Drinking Water*

7. How does arsenic enter the water, and what are considered to be unsafe levels?

8. What is a possible solution to this problem?

*Ways to Purify Drinking Water*

9. Describe some ways to purify water – including both high-tech and low-tech methods.

*Case Study: Is Bottled Water a Good Option?*

10. Is bottled water a good option? Why or why not?

11. List some problems associated with the plastic bottles that the water comes in.

*Using Laws to Protect Drinking Water*

12. What does the U.S. Safe Drinking Water Act of 1974 say?

13. How could the law be strengthened?

**Section 20-4**

*Ocean Water Pollution Problems*

1. What percentage of marine pollution originates on land, and what habits bear the brunt of that pollution?

*Types of Ocean Pollutants*

2. What are the main types of pollutants found in the ocean, and what effects do they have?

*Case Study: Ocean Garbage Patches*

3. Where are the patches found, and where does the garbage come from?

4. Why are the patches a problem?

*Ocean Pollution From Oil*

5. Where does the oil come from?

6. What are the impacts of the oil pollution on aquatic life? economic impacts?

7. What methods of cleaning up oil are available?

8. How can this type of pollution be prevented?

*Case Study: BP Deepwater Horizon Oil-Rig Spill*

9. Summarize what happened to cause the accident, the impacts of spilled oil, and steps taken to try to prevent another such accident.

**Section 20-5** *Dealing with Water Pollution*

*Reducing Ocean Water Pollution*

1. Use figure 20-21 to summarize how to prevent the ocean pollution.

2. List the ways of *Reducing Surface Nonpoint Pollution*

*Case Study; U.S. Experience with Reducing Point-Source Pollution*

3. How do the Clean Water Act and the Water Quality Act help to regulate pollution?

4. How does the discharge trading policy work?

5. How has U.S. water quality improved since 1972? How could it still be improved?

6. Some would like to see the Clean Water Act strengthened and some would like to see it weakened. Give a few arguments of each side.

*Sewage Treatment Reduces Water Pollution*

7. How do septic tanks work? What should septic tank owners **not** use to help maintain their tanks?

8. What is involved in Primary Treatment in *Sewage Treatment Plants*? What wastes does it remove?

9. What is involved in secondary treatment? What wastes does it remove?

10. What is involved in tertiary treatment? What wastes does it remove?

11. How else it the water treated before it is released?

12. How does having storm water runoff and the sewage system using the same network of pipes cause problems?

13. What are some additional ways that are suggested for dealing with human wastes? (Include what is discussed in the Science Focus 20.2)