

INVESTIGATION 14 – WATER DIVERSIONS

Purpose

To research the internet and other sources to analyze the effects of water diversions on surrounding ecosystems and human communities.

To compare and contrast the problems and successes of various water diversions and describe possible remediations.

Introduction

Humans have been diverting water for irrigation, flood control, and a constant drinking supply for thousands of years. When populations were small, the diversions were small. Over the last 150 years, human populations have grown rapidly and our technical abilities have vastly improved. These two changes worldwide have led to many large-scale projects that have altered the environment of sizable regions. This investigation focuses on three major water diversions: the Salton Sea, Aral Sea, and the Colorado River.

Cite all sources!

PART 1 – THE SALTON SEA

- 1) Describe the location of the Salton Sea. What is the climate and geography of the area?
- 2) How did the Salton Sea form? Explain what role humans played.
- 3) What is the present condition of this body of water? How has it changed over the last 30+ years? Why?
- 4) Describe several ways the Salton Sea has altered the ecosystem of the region. Explain the stability of that ecosystem. How is it changing over time?
- 5) List and explain three environmental and three economic reasons why the Salton Sea is important.
- 6) What steps have been taken (and are being taken) to remediate the Salton Sea? What are the chances of success? Explain.
- 7) Discuss the similarities and differences between the Salton Sea and **Lake Chad** in sub-Saharan Africa. (Use information from #8.)
- 8) Where is Lake Chad located? What is its importance? How has it changed? Why has it changed?

PART 2 – THE ARAL SEA

- 9) Which former Soviet republics border the Aral Sea?
- 10) Which rivers mainly supply the Aral Sea?
- 11) What government agency is responsible for the Aral Sea and its plight?
- 12) Why was the water supply to the Aral Sea diverted?
- 13) What resources did the Aral Sea supply to the local inhabitants?
- 14) Describe three environmental effects of the fading of this sea,
- 15) Describe three economic impacts in the region because of water diversion.
- 16) How is the situation of the Salton Sea similar to the Aral Sea? How is it different?
- 17) How would you describe this region today, other than a “sea”?

- 18) Explain five health effects on people related to the vanishing Aral Sea.
- 19) How can the Aral Sea be realistically rehabilitated?
- 20) Compare the situation in **Mono Lake** in California with that of the Aral Sea.
- 21) How did the Mono Lake problem arise?
- 22) Describe three ways the problems of Mono Lake are similar to those of the Aral Sea.
- 23) Discuss three ways the problems of Mono Lake are different from those of the Aral Sea.
- 24) Summarize the proposals and actions to remediate Mono Lake.

PART 3 – THE COLORADO RIVER

- 25) Compare water diversion influences on the Colorado River with those on the Salton Sea and the Aral Sea.
- 26) Describe three ways that diversion influences on the Colorado River are different from the Salton Sea and the Aral Sea.
- 27) What is a tributary?

Find a map of the Colorado River Basin.

- 28) Where is the source of the Colorado River?
- 29) What are some of the main tributaries and their sources?
- 30) What is the most important origin of water in the Colorado River?
- 31) Who decides where the water in the river system goes?
- 32) What is a watershed?
- 33) How is the Colorado River resource divided between the various states in the watershed and beyond?
- 34) How do the individual states use the water?
- 35) Describe some of the conflicts that arise over water use. How are they usually resolved?
- 36) How are the conflicts between public and private use managed?
- 37) Serious differences with Mexico exist concerning the amount of water the Mexicans receive from the river. Explain why this problem exists and what can be done to work out this dispute between the countries.
- 38) The **Tigris and Euphrates Rivers** cross international boundaries in their path to the Persian Gulf. Why is this problem potentially greater than the one that exists on the Colorado River?
- 39) Compare the problem of water diversions on the **Yangtze River** in China with those of the Colorado River.
- 40) The Three Gorges Dam on the **Yangtze River** in China is very controversial. Why was this dam built?
- 41) Describe how this dam differs from dams on the Colorado River, such as the **Glen Canyon Dam** or the **Hoover Dam**, with respect to the following: disruption of human life, environmental impact, archaeology, local culture, and natural beauty.