**Environmental Science**

**Water/Aquatics**

 **Objectives**

**Key Topics:**

1. Understand the importance of water to humans, wildlife, plants, and geomorphology.

 Understand the importance of water quality related to the health of all components of

 The ecosystem.

2. Understand the basic hydrologic cycle including surface and ground water characterization. Identify how area hydrology is affected by geological characteristics.

3. Understand what a watershed is and why watershed management is an important tool

 for addressing water quality. Learn how to determine watershed boundaries. Learn

 what factors contribute to successful watershed planning and management.

4. Learn the different types of aquatic and wetland ecosystems and their characteristic

 determining components.

5. Learn to identify aquatic invertebrates common to Utah and learn their ecology. Also

 understand the use of aquatic macro invertebrates in predicting and monitoring

 water quality.

6. Learn to identify fish species common to Utah and learn their ecology.

7. Learn major human impacts on water quality and develop an understanding of management practices which can reduce or eliminate adverse impacts on the water resource. Learn to identify major sources of point and non-point source pollution.

 Learn the major impacts of impaired water quality on humans and wildlife.

 **Learning Objectives: Water Quality**

1. Know the 3 main parameters used to determine wetlands.

- Hydrology

- Soils

- Vegetation/Aquatic life

2. Be able toidentify the various functions and values of a wetlands.

3. Be able to identify a Riparian Zone and give it’s functions and values.

4. Be able to identify aquatic macro invertebrates and fish species which may indicate high/low water quality and the special adaptations these species may have for those environments.

5. Learn basic measurement methods for indicators of water quality and how to apply

 the data.

6. Explain basic hydrology and the importance watershedsand be able to do a

 watershed delineation.

7. Be able to describe the steps in primary, secondary and tertiary sewage treatment.

8. Be able to discuss the pros and cons of Dams on rivers in the U.S.