**LEWISBURG AREA SCHOOL DISTRICT**

**LESSON PLAN**

**Teacher Name: \_\_\_\_\_Van Wagner\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_AP Enviro**

**Topic: \_\_\_Shad Date of Lesson: \_\_Class #68**

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| **LESSON ESSENTIAL QUESTION**: | **Big Idea:**  How do living things interact in positive and negative outcomes?  **Essential Question:**  In what ways to humans interfere with animals in the wild? |
| **STANDARD / LEARNING TARGET:** | **Core standards addressed with this lesson:**  **7.4.9.A:**  Compare and contrast the effect of the physical systems on people across **regions** of the United States.  **7.4.9.B:**  Compare and contrast the effect of people on the physical region across **regions** of the United States.  **7.4.12.A:** Analyze the global effects of changes in the physical systems.  **7.4.12.B:** Analyze the global effects of human activity on the physical systems.  **S11.D.1.3.3:** Explain factors (e.g., nutrient loading, turbidity, rate of flow, rate of deposition, biological diversity) that affect water quality and flow through a water system.  **4.8.10.C.** Analyze how human activities may cause changes in an ecosystem.  \* Analyze and evaluate changes in the environment that are the result of human activities.  \* Compare and contrast the environmental effects of different industrial strategies (e.g., energy generation, transportation, logging, mining, agriculture). |
| **ACTIVATING STRATEGIES**:  (Anticipatory Set) | Bell Ringer: Bell Ringer. Can you name any migratory fish that spend at least part of their life in the Susquehanna?  Shad  And  American Eels |
| **KEY VOCABULARY**: | Hydrologic, volume, velocity, consumption. |
| **RESOURCES:** | Teacher slide show, demonstration, and lecture. |
| **TEACHING STRATEGIES**: | Anadromous fish-  A fish that lives in salt water and migrates upstream into fresh water to spawn. (Shad and Salmon)  Catadromous fish-  A fish that lives in freshwater and migrates downstream to salt water to spawn. (Eel)  Shad camera clip from Conowingo Dam  Show  <http://www.fish.state.pa.us/shad_susq.htm>  Students will then Complete “Shad Lab”  Show shad cam from James River in VA as student work  <http://www.dgif.state.va.us/fishing/shadcam/>  or  <http://www.dgif.virginia.gov/fishing/shadcam/pop.asp?pop=3>  <http://www.youtube.com/watch?v=rPO0bDsUeVc> |
| **EXTENDED THINKING ACTIVITY / ASSIGNMENT:** | Chapter 16 questions |
| **SUMMARIZATION/ CLOSURE:** | Exit bell Ringer- What can be done to further restore Shad populations in the Susquehanna River? (List as many ideas as you can)  Silt |