

MEMORANDUM

TO: KRISTEN REDECSKY

FROM: ENGR 115 STUDENT

SUBJECT: THE ARCATA WASTEWATER TRAIN-CONSTRUCTED WETLAND

DATE: DECEMBER 5, 2013

Purpose

The purpose of this memorandum is to offer a review from my experience visiting the Arcata Wastewater Treatment facility, as well as the Marsh and Wildlife Sanctuary. The facility includes various beneficial uses, such as bringing back wetlands, raise fish on wastewater to restore urban fisheries, and for recreation, economic and cultural benefits.

Discussion

The trip to the Arcata Wastewater facility gave us an inside look at what goes on in each process of the treatment train. The process of Wastewater Treatment begins in the Headworks, where waste and solid matter are separated in order to sanitarly proceed onto the next step. The next system the liquid waste goes into is the Primary Clarifier, using both clarification and physical-chemical treatment equipment, depending on the components in the wastewater. From the Primary Clarifier, the waste goes into the Anaerobic Digestion Co-generator that uses combined heat and power to biodegrade material in the absence of oxygen by anaerobic bacteria. Another route the liquid waste takes is going to the Oxidations Ponds after going through the Primary Clarifier. The Oxidation Ponds are used for simple secondary treatment where heterotrophic bacteria work to degrade organic matter in the sewage, which results in production of cellular material and minerals. Because of this, the growth of algae in the oxidation ponds flourishes. Sometimes because of the excessive growth of the algae, the oxidized products need to be periodically removed and thus they go into the Treatment Wetlands.

The Treatment Wetlands act as biological filters designed to filter and treat waterborne pollutants. In the Treatment Wetlands both aerobic and anaerobic biological processes can neutralize and capture big amounts of the dissolved nutrients and toxic pollutants from the water. This process results in the discharge of clean water. Wetlands capture heavy metals, chemicals and sediment and provide helpful processes to water bodies. After the liquid has exited the wetlands, it is chlorinated and then de-chlorinated and put back into the enhanced wetlands another time. Then it is again chlorinated and de-chlorinated and discharged into the Humboldt Bay as safe clean water.

Conclusion

Visiting the Arcata Wastewater Treatment plant was definitely a learning experience that I enjoyed. Prior to the field trip I did not know that the wetlands had little islands in them that provide habitat for migrating birds. These birds also play a crucial role in the removal of excess algae.