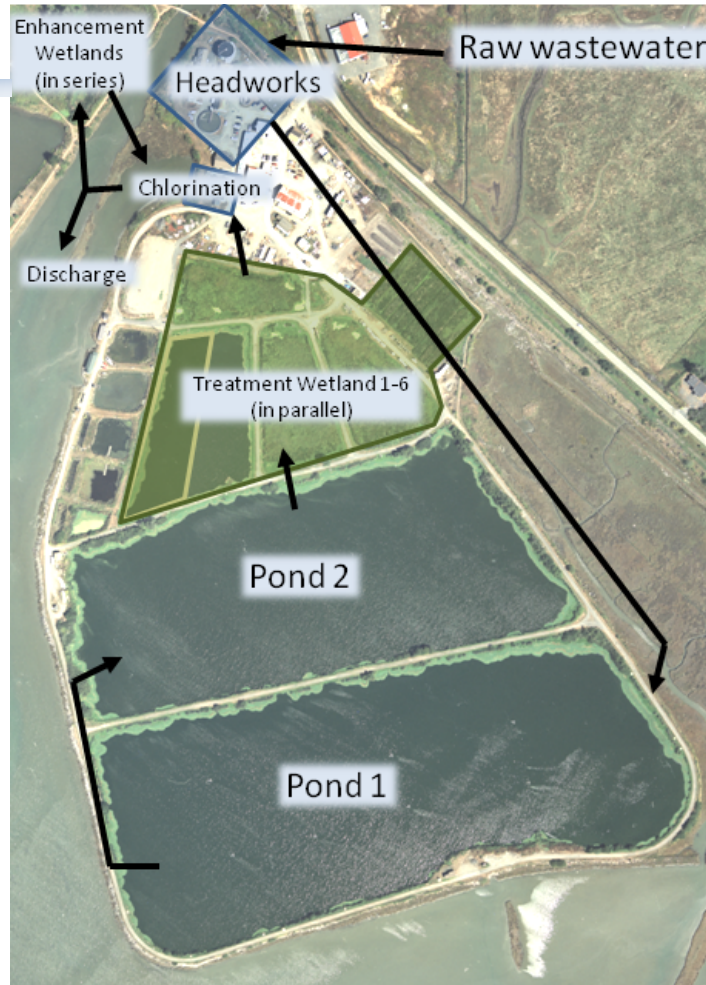
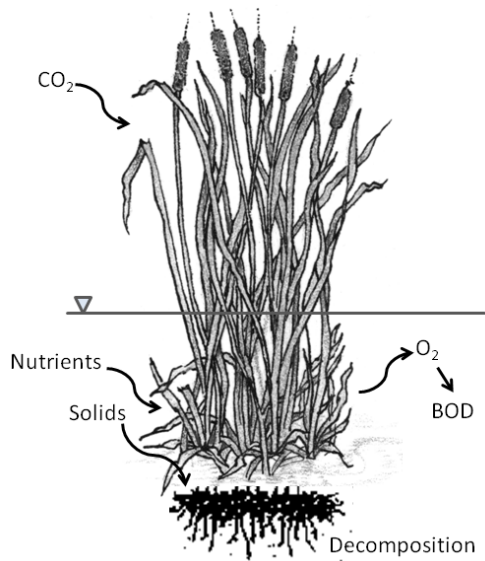


Interesting Facts

Population of Arcata	~17,700
Design Flow	2.3 MGD
Initial system-oxidation ponds	1952
Upgrade with wetlands	1985
Average Annual Removal (lbs)	
BOD, TSS (each)	1 million
Ammonia	80 thousand
Total footprint of natural system	90 acres
Ponds	46 acres
Treatment wetlands	12 acres
Enhancement wetlands	32 acres

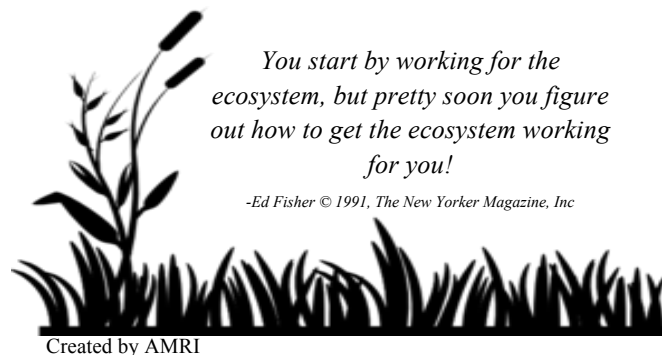
- The Arcata Marsh and Wildlife Sanctuary provides many ancillary benefits that are enjoyed by the community.
- AWTF safely discharges treated water to Humboldt Bay, where nutrients are provide a benefit for oyster production.
- The discharge permit includes the following beneficial uses: wetland habitat, wetland research and environmental education.



Arcata Wastewater Treatment Facility



Sustainable Wastewater Treatment:





Wastewater Treatment Process

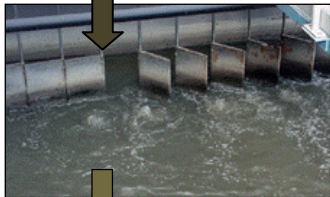


Conventional Headworks System

Wastewater enters the AWTF from the collection system with a biochemical oxygen demand (BOD) between 200 and 400 mg/L and total suspended solids of around 250 mg/L (TSS). Water takes less than a day to flow through the headworks.



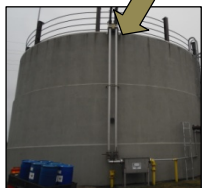
Bar screens: remove large solids such as rags, sticks, toilet paper, and garbage to protect downstream



Grit chamber: removes sand, gravel, and dirt before the solids get to the digester



Clarifier: removes organic material to be sent to the digesters for further processing



Solids: to digesters for processing

Water: to oxidation ponds for further treatment

Natural Treatment System

The natural treatment system is a sustainable treatment method that improves the water quality while providing habitat for waterfowl and recreational opportunities for community members.

Oxidation Ponds

Forty acres of open water (8-10 ft deep) allow approximately a month for solids to settle and harmful bacteria to breakdown by exposure to UV rays from sunlight. Algae grow and uptake nutrients including nitrogen, removing these from the water column.

Treatment Wetlands

Six treatment wetlands (~10 acres total, 2-4 ft deep) provide between one and three days of treatment, acting as a progressive clarifier. By blocking the sunlight, some of the algae from the ponds die, settle, and decompose. Break down of organic material, such as plant matter, also occurs in the anaerobic environment, which at times can put some solids and oxygen demand back into the water.

Enhancement Wetlands

Thirty acres of enhancement wetlands, (~4 ft deep) provide between 5 and 10 additional days of treatment. A combination of open water and vegetative cover results in aerobic and anaerobic zones, making the wetlands ideal for biological reactions to remove nutrients, further break down decomposing material and enhance the water quality. The enhancement wetlands are what most people think of as the Arcata Marsh and visit to observe wildlife and birds.

Class A Bio-Solids

The sludge removed from the clarifier is approximately 4-6% solids and is pumped into an anaerobic digester to decompose for around one month. Methane produced in the process is used to heat the digesters (the excess is burned off), water removed during settling is returned to the start of the system, and solids are moved to a second digester for further decomposition. Sludge pumped out of the second digester, 6-8% solids, is sent to a drying bed. After several months of drying, the solids are composted in an aerated static pile to produce Class A biosolids that are used as a soil additive in the city parks.



Disinfection

AWTF currently uses chlorine gas to disinfect their wastewater before discharging to Humboldt Bay. The City is planning to switch to a UV disinfection system to avoid disinfection by-products and occupational hazards associated with gaseous chlorine.

