

**Ballona Wetlands Remove Contaminants from Municipal Runoff:**

**An Ecological Sink for *Enterococcus***

Cities are rapidly losing wetlands to urban development. The Ballona Wetlands Ecological Reserve was built in 2003 to help protect the ocean from contaminated municipal runoff. This study investigates whether the wetlands decrease *Enterococcus* concentrations, a leading indicator of water pollution.

Water samples were collected from the Ballona Wetlands inlet and outlet. Each sample was diluted 1:10 with Enterolert media. Quanti-Trays were filled with 100 ml of each sample diluent and a control tray was used. Quanti-Trays were incubated at 41°C for 24 hrs. Using 365nm UV light, the number of wells with fluorescence was recorded. Precalibrated tables were used to quantify *Enterococcus* concentrations.

The results show that the Ballona Wetlands serve to remove *Enterococcus* and can dramatically lower bacterial counts to safe levels. Alterations such as reed trimming for mosquito control impair the ability of the wetlands to remove dangerous bacteria. Other factors, such as temperature and rainfall, show no clear correlation with reducing bacterial concentration.

This research shows that wetlands serve an important role in improving water quality and safety. Climate change makes effective wetlands even more important as severe weather alternately drains and inundates the wetlands. Future studies include quantifying a critical biomass of reeds to help maintain the effectiveness of wetlands and investigating how the wetlands reduce other pollutants, such as heavy metals. I hope my research will help cities realize the importance of protecting wetlands as part of water management strategies.

Learning how to conduct research is an honor. I see first-hand how much hard work, perseverance, and passion it takes to make strides toward progress and higher knowledge. I am fortunate to meet many like minded scientists, volunteers, and teachers whose collaboration is key to success in any research endeavor. And now I am extremely honored to be chosen as a winner of the Marilyn Jorgensen-Reese Award of Excellence. I was delighted to have research findings that may lead to improved future environmental engineering goals. The preservation of nature is key to the health and safety of our own community. I am now inspired and encouraged to further continue on with my project to explore new hypotheses and research goals. I strive to follow the footsteps of Marilyn Reece as a woman pioneer in the field of engineering.