

Azevedo Bioreactor

Description

The Azevedo bioreactor treats runoff from 10 acres of strawberry fields on the Azevedo Ranch adjacent to Elkhorn Slough. Irrigation and storm water runoff from the strawberry fields travels down farm roads and into a sediment basin where heavier sand particles settle out. Water is actively pumped into the bioreactor inlet from a floating pump powered by a solar panel and battery pack. The pump turns off when the water level falls below a threshold depth. The bioreactor is a pond-lined basin filled with woodchips purchased at the local waste disposal facility, with care to insure a low percentage of eucalyptus. Water levels are controlled by a level control box at the outlet of the bioreactor. Cleaned outlet water is gravity fed into a ditch that carries it to a tidally influenced pond on Elkhorn Slough Foundation property. From the pond it is conveyed by a culvert under railroad tracks and into Elkhorn Slough.

PROJECT CONSTRUCTION



The bioreactor treats agricultural runoff through the action of denitrifying microbes that convert nitrate to nitrogen gas. Microbes live on the woodchip and pond liner surfaces and their growth is stimulated by the carbon contained in the woodchips. The woodchips are anticipated to last for 10-15 years, before requiring replacement.

The bioreactor is designed to treat up to 4300 gallons per day with a hydraulic retention time of 25 hours. The dimensions are 50 ft (L) by 8 ft (W) by 4 ft (D).

Nutrient Treatment

Inlet nitrate as N concentration measures varied between 1 to 11 mg/L. Nitrate removal in the new bioreactor has not yet been assessed, but is expected to be 90%.

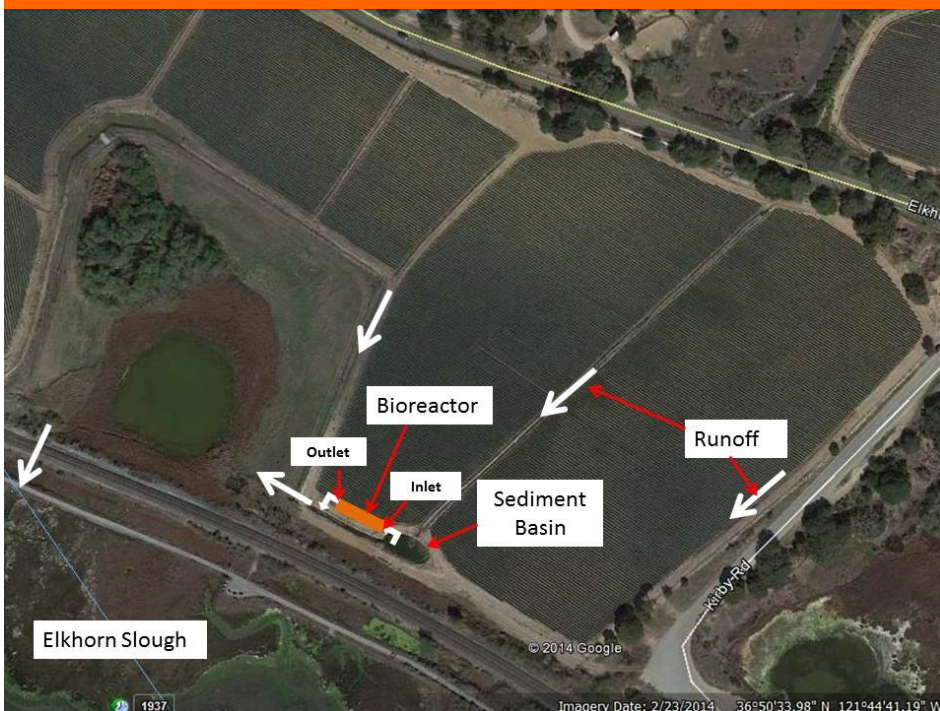
Demonstration Site

The Azevedo bioreactor is a demonstration site for researchers, agricultural professionals and growers interested in nutrient and pesticide removal by bioreactors.

Partnerships & Funding

The Ag Land Trust of Monterey County owns the Azevedo Ranch. They provided the land and paid for materials and construction. The RCD of Monterey County provided the technical design. Stockman's Energy designed the inlet pumping system. The technical design of the project was funded by SWRCB Proposition 84 grant # 12-414-553. Matching funds were provided from NRCS and UCCE.

PROJECT LOCATION



Project Cost: \$32,000



FOR MORE INFORMATION

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