



Your Local Partner in Conservation & Agriculture

The Coastal San Luis Resource Conservation District is committed to protecting and enhancing natural resources through education, restoration and collaboration with stakeholders.

SUMMER 2018

Construction Now Complete on the Climate Ready Rangeland Project



Upcoming Events

July 27, noon
Board of Directors Meeting
UCCE Auditorium, SLO

August 24, noon
Board of Directors Meeting
UCCE Auditorium, SLO

[2016-2017 Annual Report](#)
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The headcuts were addressed with engineer-designed rock structures.

The Coastal San Luis Resource Conservation District (CSLRCD) has successfully completed the final construction component of the Climate Ready Rangeland Project. The work entailed channel stabilization measures along an unnamed tributary in San Luis Obispo County.

Construction on this project began mid-June and finished within a week, with lasting impacts for years to come. The project centered around a tributary that flows under Turri Road and into Warden Creek, which then meanders into Los Osos Creek and finally into the Morro Bay Estuary. With flowing water through the tributary, an excess of sediment is brought into the Estuary, as a result of unstable, eroding features in the tributary, called headcuts. Several headcuts were identified through the tributary for repair in order to slow the

rate of sediment being brought downstream. If left untreated, headcuts can continue to erode upstream allowing for increased bank destabilization, negatively impacting the rangeland and watershed.

Through State Coastal Conservancy funds, CSLRCD worked with the ranch owners to implement riparian enhancement practices to benefit both their ranch activities and the watershed. The objective of the project is to buffer against climate change impacts while maintaining the viability of the rangeland in the face of reduced water supply and greater weather variability.

The headcuts were addressed with engineer-designed rock structures (photos above) along with constructing a wetland/floodplain bench to allow for flow attenuation and sediment-laden runoff to settle prior to entering mainstem Warden Creek. Native vegetation is also being incorporated throughout the project footprint, resulting in an area of approximately 3,000 feet of enhanced vegetation along the tributary. Native seed and willow stakes (photo below) were planted during construction and revegetation efforts will continue into the fall when rain is expected to support germination and survival of the plantings.

Over time, the project will result in reduced erosion, sediment capture, increased water infiltration and augmented riparian vegetation. The project also was designed to reduce flood impacts and improve wildlife habitat. CSLRCD staff looks forward to see the first significant rain come through the tributary and to monitor how the headcut repairs and riparian enhancement meet the Climate Ready Rangeland project objectives.



Native seed and willow stakes were planted during construction.

2016-2017 Annual Report



Your Partner in Local Conservation & Agriculture
Coastal San Luis Resource Conservation District



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Learn More About CSLRCD
at www.coastalcrcd.org

Highlights & Results for the Blackberry Bioreactor Project

Commodity Crop Production on a De-Nitrifying Bioreactor System

CA Dept. of Food & Agriculture SCB Grant, Implemented by CSLRCD

What Is a De-Nitrifying Bioreactor?

Biological tool for water quality improvement

- A subsurface trench filled with a carbon source that hosts bacteria working to break down nitrates through denitrification.
- Water enters the bioreactor and is impounded until nitrates are reduced then discharged from the system.
- Nitrates are respired as nitrogen gas, harmless in this concentration.

What Are the Advantages?

Improved water quality

- Tool to reduce nitrates on-farm
- Scalable technology
- Small footprint and minimal infrastructure required
- Effective method of removing Nitrates from creeks, lakes and groundwater
- When planted with a crop, the system provides a source of irrigation water and nitrogen otherwise lost as runoff.



How Does Planting on a Bioreactor Work?

A bioreactor system provides a unique opportunity for commodity crop production. Water entering the bioreactor is essentially reused to irrigate the crop, and nutrients that would otherwise be lost to runoff are used by the crop before being treated by the bioreactor.

One hundred blackberry plants were planted in the bioreactor on the shore of Little Oso Flaco Lake in October 2016. Those plants are thriving and producing berries that are nutritionally comparable to locally grown organic blackberries. No inputs are required. Water high in nitrates is pumped into the bioreactor, where the plants use the water and residual nutrients..

Outcomes

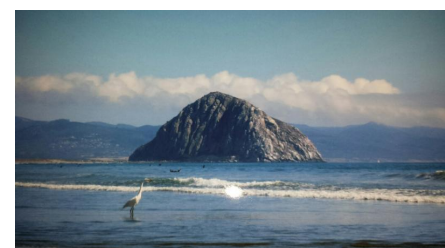
Criteria	Outcome
Water Quality, Soil Moisture	As expected: consistent trends following seasonal fluctuations.
Plant Vigor	Strong growth in the initial growing season, 100% survival rate.
Fruit Quality	Weight and yield lower than anticipated, result of predation, sun and wind damage.
Nitrate Removal	Highly effective. 75 lbs. removed, 750,000 gallons of water treated, levels consistently below drinking water standard levels of 10 ppm.

Please contact us for more information: call (805) 772-4391 or email hrichard@coastalrccd.org.

Welcome to New CSLRCD Team Member!

Engineer Joe Murphy

Joe Murphy is committed to the work of restoring a healthy relationship between humans and their environment, and he is excited to use his skills to serve that vision through the RCD. He has experience in grading and drainage, stormwater management, small-scale restoration, ecological agriculture and construction management.



Staff

In his time away from the RCD, Murphy works as a handyman, co-manages a program in Applied Ecology at Cal Poly, and tends a small homestead with his partner. He has a Bachelor's degree in Civil Engineering from Cal Poly, and is a licensed Professional Engineer.



Jackie Crabb
District Manager

Larissa Clarke
Conservation Program Manager

Hallie Richard
Conservation Project Manager

Jen Nix
Grants & Development Coordinator

William Arkfeld
District Engineer

Joe Murphy
District Engineer

Micaela Mellein
Environmental Resource Specialist

Seamus Land
Restoration Coordinator

Mark Skinner
Restoration Specialist II

Katrina Henderson
Restoration Specialist I

Shelly Rachels
Bookkeeper

Della Barrett
Board Secretary



Conservation Clip List is a weekly collection of articles distributed by NACD (National Association of Conservation Districts). This link discusses CDFG's Healthy Soils Program in all 10 California RCD regions:
<http://www.nacdn.net/2017/06/15/california-rlds-cdfas-healthy-soils-program-leading-way-climate-smart-ag/>

RCD Services

Call us today at [\(805\) 772-4391](tel:8057724391) for help with all of the following:

- Irrigation Evaluations
- Engineer Design
- Alternative Agricultural Grading Review (ARP)
- Erosion & Stormwater Control
- Conservation Easements
- Conservation Planning
- Permit Coordination
- Watershed & Habitat Restoration



Round hay bales near Turri Road