Creek Stewardship Guide

San Luis Obispo County

UPPER SALINAS-LAS TABLAS
RESOURCE
CONSERVATION DISTRICT

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Acknowledgements

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DREAMING THE SALINAS

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Introduction

Creeks and rivers are natural pathways that carry watershed resources from top to bottom and allow wildlife and agriculture to flourish. During peak storms, these waterways appear powerful and strong as they transport large debris and carve new paths. However, they are fragile and rely upon all the contributing natural conditions in a watershed for their health and longevity.

In both rural and urban areas, a creek is an irreplaceable natural resource. Whether it flows year round or seasonally, your waterway provides a conduit of benefits that sustains all life forms in its reach. People are also part of the natural, living system within every watershed. People are key factors in keeping the waterway and its corridors healthy. You and your creek-side neighbors share this responsibility.

The purpose of this guide is to give rural and urban landowners a sense of their place in the many watersheds found in San Luis Obispo County, to promote practical creek care information and to offer a host of resources to help with the maintenance and preservation of creek-side property. Because most creeks in San Luis Obispo County flow on private property, landowners and local residents play a key role in protecting and improving the health of creeks. This stewardship guide will educate creek-side residents throughout the County on how to responsibly care for their property. It contains realistic guidelines for habitat enhancement and restoration projects, including permitting requirements, and a reference section with sources for project assistance.

View of the Nacimiento River from San Ardo

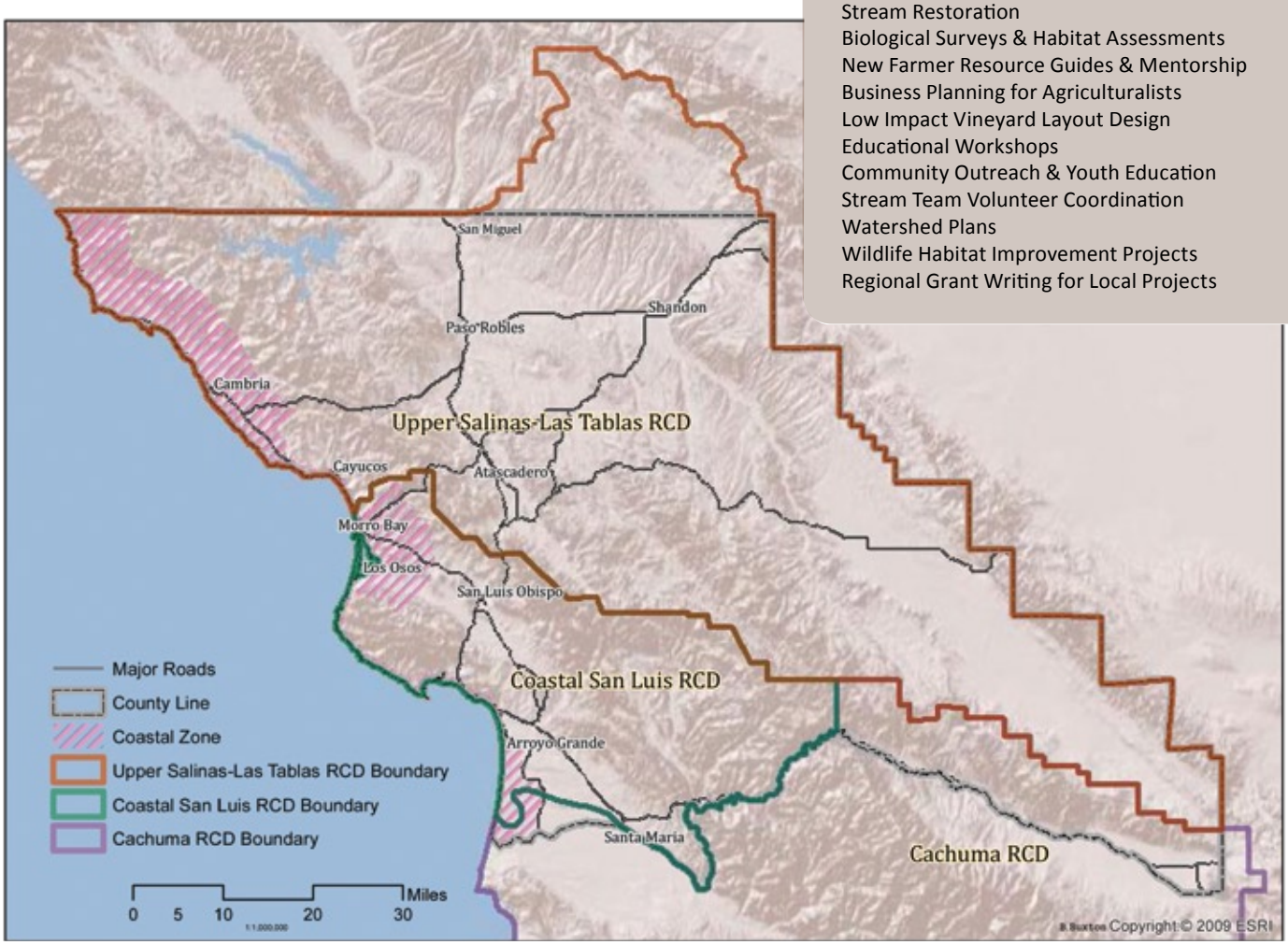
Resource Conservation Districts in San Luis Obispo County

Resource Conservation Districts (RCDs) are legal subdivisions of the State, formed under Division 9 of the Public Resources Code, to provide local leadership in the conservation of our soil, water, and related natural resources. RCDs were originally developed in the 1930's as the local non-regulatory mechanism for delivery of conservation practices for farmers dealing with the Dust Bowl. They have grown considerably in size and scope, existing currently in all fifty states.

There are over 100 RCDs in California, two of which are located in San Luis Obispo County: Upper Salinas-Las Tablas and Coastal San Luis. RCDs provide a broad variety of services to landowners in their respective districts through grants and cooperative agreements with other agencies. By pursuing diverse funding sources, RCDs typically leverage their constituents' tax dollars into hundreds of thousands more for on the ground projects in their districts. For every $1 contributed to an RCD, they can return up to $21 in other funding sources.

SLO COUNTY RCD SERVICES:

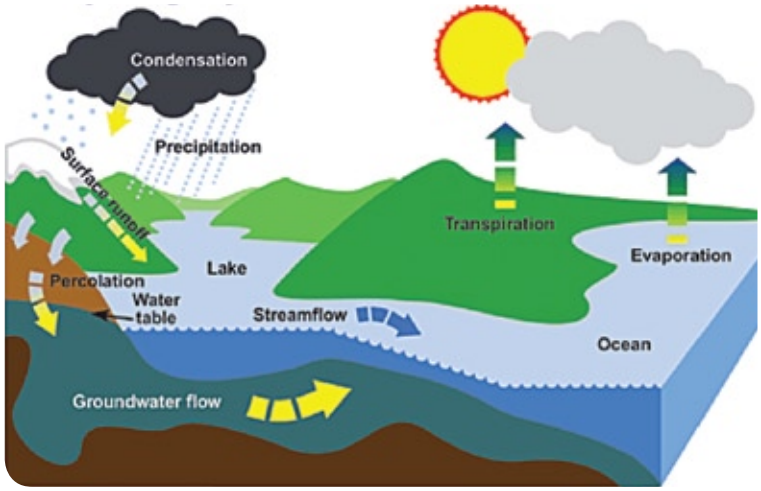
Permit Coordination with Regulatory Agencies
Agricultural Grading Permits
Irrigation Evaluations
Small Acreage Livestock Improvements
Agricultural Engineering
Rangeland Improvement
Stream Restoration
Biological Surveys & Habitat Assessments
New Farmer Resource Guides & Mentorship
Business Planning for Agriculturalists
Low Impact Vineyard Layout Design
Educational Workshops
Community Outreach & Youth Education
Stream Team Volunteer Coordination
Watershed Plans
Wildlife Habitat Improvement Projects
Regional Grant Writing for Local Projects



Service Districts for RCDs in SLO County

Watersheds of San Luis Obispo County

No matter where you live, you live in a watershed. A watershed consists of the land area that drains to a single body of water such as a river, creek, lake, wetland or estuary. Physical boundaries and topography, such as ridgelines, define the movement of water and delineate the watershed. Water within a watershed follows the hydrologic cycle which begins when water falls to the earth in either liquid or solid form. The water is then captured by the soil and is either taken up by vegetation, retained in the soil, or percolates through the soil. The water may enter into springs, creeks, rivers, lakes, groundwater basins or the sea for storage where it can then be returned to the atmosphere by evaporation and start the cycle again. Modifications within a watershed, such as the creation of impervious surfaces or extensive vegetation removal, can interfere with the hydrologic cycle and have a detrimental effect on waterways.



Hydrologic Cycle

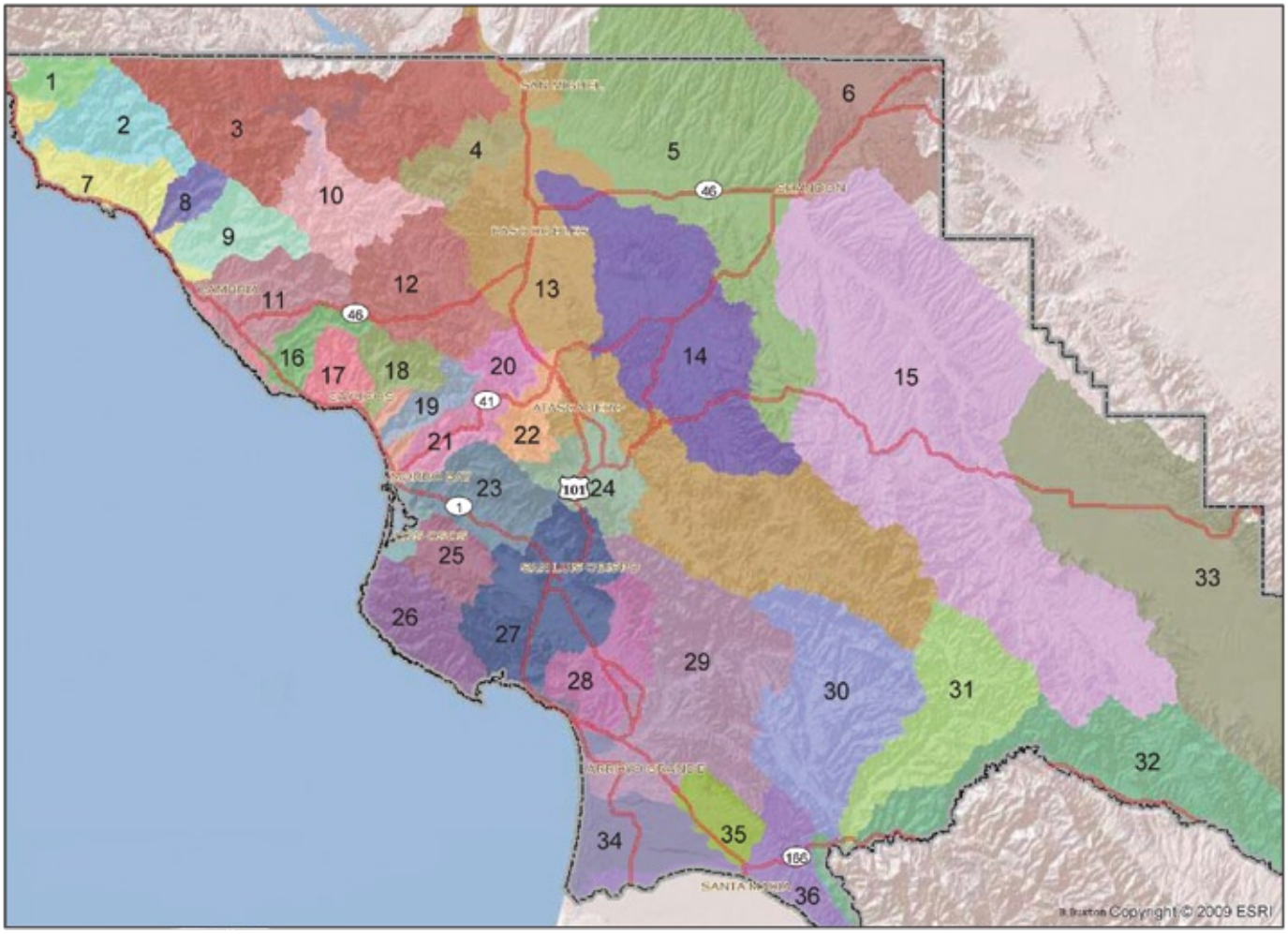
The watersheds in San Luis Obispo County have changed from their natural states due to modern settlement. Oak forests were cleared for development and to create spacious open areas for farming and grazing. Rivers, creeks, and tributaries were confined by levees, dams, and ditches. Culverts and roads blocked fish passage to spawning habitats. As a result, steelhead trout and white bass are now listed as threatened species throughout the County's creeks.

Creeks, however, are resilient. As we learn to understand them better, we are better able to care for them. Many efforts are underway to protect and restore the natural function and resources of the County's major waterways. Resource Conservation Districts, community watershed groups, local governments, and State and Federal agencies are working to reduce erosion and pollutants, improve fish passage and habitat, maintain healthy summer flows for perennial creeks, and establish native riparian vegetation.

Climate

Anyone who has listened to the weather report for San Luis Obispo County knows that it is home to a Mediterranean climate which offers a variety of microclimates. Travelling from the coast to inland areas, temperatures can drop by nearly 30°F in the winter months and can increase by the same margin in the summer months. Annual rainfall throughout the County differs just as drastically. The majority of rainfall occurs in the winter months between November and April. Northwestern areas of the County receive an average of 42 inches of annual precipitation while eastern areas only receive about 10 inches. The variance in temperature and rainfall has a significant impact on the watersheds of the County. The main influence on a waterway's flow is rainfall runoff from its watershed. Some waterways in the arid regions of the County run dry in the summer months while others flow year round. The presence of both perennial and intermittent waterways makes management of these resources closely linked to the climatology of the area and weather patterns.

Unique & Diverse Watersheds & Sub-Watersheds of San Luis Obispo County



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2. *Arroyo de la Cruz*
3. ***Nacimiento River***
4. *San Marcos Creek*
5. ***Estrella River***
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NOTE: *Watersheds highlighted in* ***BOLD*** *are described in the following section.*

Cholame Creek

Cholame Creek is 8.7 miles long and is located in a 237 square mile watershed in the coast ranges of southern Monterey County and northern San Luis Obispo County. Cholame Creek is a tributary of the Estrella River with the confluence of the creek entering the Estrella River at the town of Shandon. The Cholame Creek watershed is in a lightly-populated rural setting, comprised of 85% grazing land, 8% farmland, and 7% undeveloped or forest land. The watershed consists of an alluvial valley and surrounding mountains covered with grassland, chaparral, oak woodland, and sagebrush with minor amounts of cropland. The Cholame Creek watershed has an arid Mediterranean climate with average precipitation between 11 and 17 inches per year.

Estrella River

The Estrella River is 28.5 miles long and is located in a 1,000 square mile watershed in the ranges of southern Monterey County and eastern San Luis Obispo County. The Estrella River is the largest tributary system of the Salinas River. The watershed is in a lightly-populated rural setting, comprised of mainly open space and agriculture. The watershed consists of rolling hills and valleys covered with grassland and oak woodlands. Much of the watershed is arid with rainfall averaging less than 10 inches per year over the majority of the watershed.

Huer Huero Creek

Huer Huero Creek is located in northern San Luis Obispo County. The watershed covers approximately 160 square miles. The Huer Huero Creek headwaters begin in the La Panza Range of the Los Padres National Forest and flow to its confluence with the Salinas River approximately 27 miles to the northwest. Creston is the only urban region in this watershed, with private ranches making up the majority of land ownership.

Nacimiento River

The Nacimiento River originates in the Santa Lucia Mountains south of Cone Peak, which is also within the Ventana Wilderness of the Los Padres National Forest. The river flows southeasterly through the Los Padres National Forest, Fort Hunter Liggett (FHL), the Nacimiento reservoir, Camp Roberts, and numerous private parcels before it reaches its confluence with the Salinas River. The river is 54.2 miles in length, of which 9.5 miles are located within the Los Padres National Forest. With the exception of the upper section including the headwaters, much of the Nacimiento River surface remains dry during the summer. However, year round water can be found in various pools along portions of the river.

The lower basins of the Nacimiento watershed are located in San Luis Obispo County and drain directly to the Nacimiento Reservoir. The lower basins include Las Tablas, Franklin, Town, Dip, Snake, and Kavanaugh creeks. The crest of the Santa Lucia Range forms the southwestern boundary of the Nacimiento River watershed, and the San Antonio River watershed divide bounds it on the northeast.

Upper Salinas River

The Salinas River is the principal river system on the Central Coast of California. It flows northward approximately 170 miles from San Luis Obispo County, through Monterey County and emptying into Monterey Bay near the town of Marina. The Upper Salinas River watershed is the 2,000 square mile portion of the Salinas River watershed upstream of the confluence between the Salinas and Nacimiento Rivers. The watershed is bounded on the west and south by the Santa Lucia Range. The eastern edge of the watershed is bounded by the Temblor Range, which runs parallel to the San Andreas Fault. There are several significant tributaries to the Upper Salinas River including the Estrella River, Nacimiento River and Huer Huero Creek. The Estrella River Watershed is by far the largest tributary watershed to the Upper Salinas River but the Nacimiento River contributes the largest flows. Annual rainfall in the region ranges from 15 inches to over 50 inches. Some reaches of the river, mainly in the western portion of the watershed, are perennial and support most of the fish population in the river. In the more arid regions the river may appear dry part of the year, however there is still a long northward subsurface flow of groundwater.

Nipomo Creek

Nipomo Creek is located in southern San Luis Obispo County. The watershed covers approximately 28.2 square miles. Its headwaters begin in the Temettate Ridge, east of the town of Nipomo and it flows approximately 7.5 miles southeast to its confluence with the Santa Maria River. It is home to a variety of fish including largemouth bass, bluegill, and smallmouth bass.

San Luis Obispo Creek

San Luis Obispo Creek is located in western San Luis Obispo County. The watershed covers approximately 84.8 square miles. Its headwaters begin in the Coast Range of the Los Padres National Forest near Cuesta Pass and flow approximately 13 miles southwest to the ocean at Avila Beach. Stenner Creek, which also carries the drainage of the Brizziolari Creek subwatershed joins San Luis Obispo Creek in downtown San Luis Obispo. These tributaries also begin in the Santa Lucia Range and flow through California Polytechnic State University. The watershed consists of agricultural land and urbanized areas of San Luis Obispo. San Luis Obispo Creek is one of the southernmost habitats for the southern steelhead trout, a Federally listed threatened species. Species of concern along the creeks in this watershed also include the western pond turtle, the California red-legged frog, and the two-striped garter snake. The estuarine waters near Avila Beach are also home to the tidewater goby, a Federally listed endangered fish species.

Santa Maria River

The Santa Maria River is formed at the confluence of the Sisquoc River and Cuyama River, just east of the city of Santa Maria, and flows 24.4 miles to its delta at the Pacific Ocean. The entire river defines the border between northern Santa Barbara County and southern San Luis Obispo County, up to the Sisquoc River, with a major bridge on Highway 101 passing over it. The Santa Maria River Fault is a tectonic fault that roughly corresponds with the course of the river. There are no dams or lakes on the Santa Maria River itself, although Twitchell Reservoir is formed by a dam on the tributary Cuyama River. Twitchell Dam was built by the United States Bureau of Reclamation and provides flood control and groundwater recharge of the aquifer. The Sisquoc River is also free-flowing and a designated National Wild and Scenic Rivers System. During much of the year, the Santa Maria River has very little water, but it can swell greatly during winter storms.

Nacimiento River

Agriculture in San Luis Obispo County Watersheds

Within the United States, California has been at the forefront of agricultural transition, first in the rapid industrialization of agriculture in the post-war period, and now in the push towards sustainability and environmental stewardship. Residents of San Luis Obispo County have repeatedly shown strong support for preserving local family farming traditions, voting to fund agricultural land preservation and frequenting over a dozen popular farmers' markets throughout the County. Over 150 Central Coast vineyards currently participate in the "SIP" certified wine program through the Central Coast Vineyard Team, which indicates "sustainability in practice" production methods. In addition, the State currently serves as the leading producer of organic commodities, a market growing by 15 to 20 percent annually over the last ten years.

Viticulture is one of the largest agricultural industries in the Central Coast and vineyards cover a large portion of land in San Luis Obispo County. As with all agricultural producers, grape growers need to plan and manage vineyards to protect natural resources. Crop cultivation can have impacts by replacing native vegetation, potentially exposing soil to erosion, fragmenting wildlife habitat, and changing the amount of stormwater runoff.

Grazing is also prevalent in San Luis Obispo County. Grazing-based agriculture can be very important in maintaining grasslands, including many native grass and wildflower species, as well as the wildlife they support. It can also create challenges to sustaining healthy creeks and rivers. Managing manure, protecting riparian areas from trampling and excessive browsing, controlling soil compaction and invasive weeds, and even maintaining a network of year-round roads to reach livestock are part of the ongoing efforts towards good agricultural stewardship.

What You Can Do to Help San Luis Obispo's Creeks

The following are basic ingredients for healthy, well-functioning creek habitat:

- Clean water that includes plenty of dissolved oxygen.
- Dense vegetation which filters sunlight, reduces erosive forces, and provides food and cover for both aquatic and terrestrial wildlife species.
- Creekbed texture, such as fallen logs, gravel and cobble, and pools and riffles to enhance aquatic insect and fish reproduction and provide shelter, shade, and protection.
- For perennial creeks, sufficient summer water flow for year round survival of aquatic species and the animals that depend on them for food as well as cool temperatures which are critical for the survival of aquatic species such as steelhead trout.

Threats to healthy creek habitats:

- Excessive soil erosion decreases water quality, diminishes fish habitat by filling in pools, reduces insect abundance, smothers fish eggs, and reduces a waterway's ability to carry flood waters. Soil erosion also creates excess sediment in the water which reduces oxygen content.
- Illegal or excessive waterway diversions can reduce flows, thereby lowering the quality and the quantity of habitat for steelhead and other native fish and aquatic organisms.
- Excessive removal of woody material decreases cover habitat for fish and other wildlife and can alter pool development.
- Loss of habitat, which can occur from the removal of native plants or the construction of smooth walls along creekbanks.
- Impervious surfaces such as roofs and roads lessen the amount of water that soaks into the ground for groundwater recharge and can increase flooding and bank erosion problems from increased runoff.
- Bare, unstable creekbank areas with little or no plants contribute to bank erosion and do not provide adequate shade or wildlife cover.
- Excess nutrients from improperly managed manure, fertilizer, or septic systems can cause algae to grow at a high rate. Too much algae can use up oxygen in the water which in turn can cause stress or death to fish.
- Pollutants such as metals, pesticides, medicines, sewage, oil, yard waste, trash, and construction debris can harm fish and wildlife and their habitats. Irrigation runoff, household greywater, and swimming pool or spa water that drain into waterways are also considered to be pollutants.
- Water temperature higher than 60˚F can stress coldwater fish and temperatures over 75˚F can be lethal to salmonids.
- Invasive plants vary the structure and function of the riparian corridor, crowding out native species and providing little habitat or shade.

Sediment build up in the Salinas River

There are a variety of conservation programs available to farm and ranch owners throughout San Luis Obispo County that can assist in the identification of best management practices and restoration activities needed on their properties. Contact your local RCD or refer to the Resources section of this guide for more information.

Prevent & Control Soil Erosion

Soil erosion is a natural process. Sediment brings nutrients and materials to aquatic ecosystems and creates beaches at creek mouths. An important function of all creeks is to transport, sort, and store sediment. However, as vegetation is removed and impervious surfaces such as roofs and roads are added to a watershed, the process of rainfall slowly percolating into the soil (and ultimately into downstream waterways) is impacted or impaired. In watersheds with a large percentage of impervious surfaces, rainfall rushes into waterways in short, heavy bursts of stormwater that intensify flooding and can cause severe creekbank erosion and gullying.

A rill forming at the outlet of a pipe

In addition, disturbed areas such as new construction untended dirt roads and driveways, tilled creekbanks, unprotected vineyard soils, or chronically overgrazed pastures add a steady flow of fine sediment into the waterways. This sediment can be seen in the water after a storm, causing the chocolate milk like characteristic of many local waterways. Too much sediment will fill in the creek bed, reduce flood capacity, and destroy habitat for aquatic species. Erosion control measures can minimize erosion and sedimentation in riparian corridors and upland areas along banks and dirt roads. The best way to minimize excess sediment entering waterways is to prevent soil erosion.

For a list of local professionals certified in erosion and sediment control, visit: ***http://www.cpesc.org/cc-info/us-directory.asp***

Conservation techniques to help prevent soil erosion:

- Protect bare soil surfaces. Native trees, shrubs and grasses, cover crops, or mulch (gravel, sterile straw, wood chips) hold the soil in place and allow water to soak into the soil. During construction, use sterile straw or erosion control fabrics to help protect exposed soils.
- Minimize disturbance of existing plants. If plants are disturbed replant the area with native plants as quickly as possible. Identify and protect natural drainages and steep slopes. Do not obstruct natural flows; allow water to flow in natural drainages or sheet flow over the surface.
- Maintain existing riparian vegetation and undisturbed buffers around natural drainages.
- Avoid concentrating water flows, unless absolutely necessary. Protect water or pipe outlets by using carefully placed rock or other type of energy dissipater.
- Check and fix drainage concerns such as gutters, roads, and driveways after all major storms. Make sure drainage is released onto non-erosive surfaces.
- Avoid dumping debris and yard clippings on the creekbanks. Loose brush and debris can suppress existing bank stabilizing vegetation and contribute to bank instability.
- Build and farm away from the creekbank and floodplain. Development and farming near a creek disturbs soil and vegetation, exposes structures to flooding, and contributes to bank erosion, which can also impact structures and crops.
- When conducting weed abatement/fire control, do not till up to the embankment and, where permissible, do not clear areas down to bare soil. To learn how to properly create defensible space, read CAL FIRE's "Why 100 Feet?" brochure at ***www.fire.ca.gov***.

The following are some commonly used practices to control erosion:

- Mulch to protect bare slopes. Mulches reduce runoff and erosion, conserve moisture, buffer temperature, control weed growth, protect seed, and prevent compaction and crusting. Mulches should be sterile straw, wood chips or shavings, or pine needles. Mulch should be laid down 2-3 inches deep and "tracked in" if using a lightweight material. If layered too thick, seed will not be able to germinate.
- Re-seed with a native plant mix to stabilize banks and control surface erosion. For successful seed application, compacted soils should first be cultivated or loosened. A fertilizer safe for use near waterways can be applied if necessary but is not typically recommended since it tends to promote weed growth and can be a pollution risk to the creek. Seed should then be applied and buried half an inch deep by raking into soil. Seed should be planted in early fall to take advantage of fall rains and soil warmth. Supplemental irrigation may be required until the rains begin.
- Stabilize soils and prevent erosion with bioengineering techniques, including willow walls, brush mattresses, and tree revetments along eroding banks. Avoid using erosion control blankets with plastic mesh since they can be harmful to wildlife.
- Re-grade steep banks to a gentler, less steep slope that is able to support vegetation. The steeper the slope the greater chances for erosion. This work typically requires permits.
- For more details, you can refer to the RCD's Erosion Control Handbook located at: ***http://us-ltrcd.org/wp-content/uploads/2012/04/Erosion-Control-Handbook.pdf.***

Erosion control blankets installed with willow stakes along a disturbed creekbank

Because flowing surface water usually crosses property lines, it is important to work with your neighbors to develop and implement solutions. Correcting erosion problems will benefit you and your neighbors. Even if it is not necessary to work with a neighbor to correct soil erosion, bank protection work can often cause erosion downstream and upstream. Keeping your neighbors informed from the beginning can prevent future conflicts.

Properly Maintain Unsurfaced Roads and Driveways

Erosion from unsurfaced roads and driveways is one of the leading causes of sedimentation, channel instability, and habitat fragmentation. Roads and driveways serve an important function and how we build and use them determines their impact on our watershed. Storm-proofing roads and driveways, using certain roads only during specified seasons, and decommissioning roads can all help reduce the impact. Inspecting your road network and identifying problem areas can help you eliminate the highest priority concerns first. Road upgrades can be expensive, but financial assistance is frequently available.

If you determine that your roads need significant improvements, a road contractor or restoration specialist can help you develop a sediment reduction plan. Be sure to ask your contractor if they have ever attended rural road workshops or worked on road upgrades. Most activities associated with this work will require permits. RCDs are very successful at locating grant funding and implementing rural road improvement projects. They may be able to help you find funding for your project as well as help you implement it. The Erosion Control Handbook (see page 10) can provide more information on road improvement and management and its methods are approved by local regulatory agencies.

Rills forming along an unmaintained dirt road

Remember that a storm-proofed road is not a maintenance-free road. You must still take care of your road regularly and observe any changes that require further reconstruction. However, your maintenance costs will likely drop significantly.

Common practices to reduce road erosion:

- Decommission or relocate existing roads away from the riparian zone whenever possible.
- Weatherproof or harden daily traffic roads. Pave or chip seal before the rainy season to allow toxic compounds in the oils to solidify, degrade, or volatilize from the road surface and not be delivered to waterways.
- Establish a thick cover crop on temporary or seasonal roads by October 15. Depending on traffic, this may require active seeding annually.
- Use mulch during the rainy season in places where cover crops are sparse. Monitor and augment treatments as necessary.
- Blade existing roads in dry weather when possible, but while moisture is still present in soil and aggregate to minimize dust and maximize compaction to prevent road fines from being discharged from the road surface. Do not sidecast the bladed material to areas where the material can enter the creek directly or indirectly as sediment. Sidecast material can indirectly enter the creek when placed in a position where rain or road runoff can later deliver it to a channel that connects with the creek.
- Out-slope roads wherever possible to prevent the concentration of flow within the ditch, to promote even draining of the road surface, and to minimize disruption of the natural sheet flow pattern off the hill slope to the creek.
- If unable to eliminate in-board ditches, crowning the road can remove half the road surface drainage from the ditch. Maintain in-board ditches and line them, if needed, with geotextile fabric or rock.
- Use water bars and rolling dips to break-up slope length, diverting water to well-vegetated areas.
- Remove creek crossings wherever possible.
- Replace culverts or other disruptive creek crossings with single span bridges where possible. Ensure that all creek crossings meet National Marine Fisheries Service and California Department of Fish & Wildlife guidelines for fish passage.
- Design culverts to pass 100-year flow and maintain culverts at the level and gradient of the creekbed.
- Maintain culverts regularly during the rainy season to ensure that they are not plugged with debris.
- In non-fish bearing creeks with “shotgun” culverts, use pipe extenders (e.g., elephant trunks) to bring the discharge down to the level and gradient of the creek.
- Minimize erosion downstream of culverts by using energy dissipaters, such as rock rip-rap, rock filled containers, and other non-erosive materials to slow the flow of water, thus reducing its scouring force on soil. Dissipaters can be placed at the outlets of channels, drains, and culverts. Monitor energy dissipaters to make sure that they do not wash away or shift.

Rock rip-rap placed at the outlet of a culvert

Restore Native Riparian Vegetation

One of the most effective ways to protect the creek is to keep the banks naturally vegetated with native plants. The plants along the banks of a waterway are called riparian plants; they protect water quality by filtering out sediment and other pollutants before they enter the water. Roots reinforce the bank and help protect the banks from eroding.

Other benefits of riparian vegetation:

- Slowing and dissipating the energy of floodwaters.
- Shading and cooling the water during the summer, moderating water temperatures for salmonids and the aquatic creatures they depend on for food.
- Providing food and shelter for wildlife as well as maintaining the natural beauty of the waterway.
- Recycling and storing nutrients from the soil and surface water.

Tips for planting natives:

- Observe nearby vegetation to identify what to plant.
- Visit a native plant nursery to help select species that will thrive on your property and on your bank. Refer to the Resources section for a list of local native plant nurseries.
- Contact a restoration specialist to develop a planting and supplemental irrigation plan if the planting area is large.
- Some native plants are more deer and fire resistant than others; consider this when selecting plants.
- Weed and water your plants for the first 3-5 years to help them become established. Once native plants become established, they can survive without supplemental irrigation.

Keep in mind that although native riparian plants are all suited to the riparian corridor, they each have different growing requirements. Many resources are available to you if further instruction regarding native plants is needed, such as the native plant society ***(http://www.cnps-slo.org/)***, any of the local nurseries listed in the Resources section at the end of this guide, or your local NRCS or RCD. When purchasing plants, it is a good idea to select them using the botanical name since the common name usually refers to more than one species of plant, many of which can damage the riparian corridor. Additionally, be aware if there are many horticultural variations of wild plants, even if you use the botanical name to select your plants. In order to minimize the introduction of plants that may be inappropriate in the riparian corridor, be sure to mention to nursery staff that you are planting in a "wild" area.

Many native plants continue to be used by California Indians for basket weaving and other traditional arts. Vigorous, properly cultivated stands of plants such as dogbane and sedges with long straight rhizomes are becoming increasingly rare. Contact the California Indian Basketweavers Association (CIBA) if you are interested in helping to provide collection sources.

Planting native vegetation on a creekbank along Salinas River trail

Remove Exotic Species

Exotic plant species are those not native to San Luis Obispo County watersheds. Many are invasive and spread rapidly, choking out beneficial natives. Exotics generally offer little or no habitat value to wildlife and little erosion protection. The best way to remove exotic species is by hand, followed by replacing them immediately with native vegetation to prevent soil erosion. If the amount of exotic material is too thick or too much to remove by hand, other forms of removal can include mechanical removal, tarping, or grazing. To determine what methods will work best for you, contact the UC Cooperative Extension office, Agricultural Commissioner's office, or your local RCD listed in the Resources section. Removal of invasive species from the riparian corridor may require a permit.

Once invasive plants are removed, monitoring and maintenance are required. Invasive species will reappear even after they seem to be successfully removed since seeds may remain viable in the soil for several years. Monitor your re-vegetated sites regularly and remove any invasive seedlings as they are quick to re-establish themselves.

San Luis Obispo County Weed Management Area (WMA)

In recognition of the problems that invasive weeds can cause, and the coordinated effort that is required to effectively control them, the WMA was formed. The purpose of the WMA is to identify and map SLO County's worst weed pests, implement projects designed to prevent, eradicate, or manage these invasive plants, and educate local residents about this issue.

Enhance Instream Habitat

Fallen logs, tree stumps and branches provide cover, food, and shelter for fish and other aquatic animals, most notably young salmon and steelhead trout. As a natural component of a well-functioning waterway system in our region, woody debris plays an important role in creating the diversity of habitats needed to support fish and other aquatic species. Pools form downstream of logs, branches provide shade as well as perches for birds and the insects that feed most aquatic creatures, and large pieces or clusters of woody material trap sediment and spawning gravels. Unless there is a flooding or safety issue, woody debris should be left in place.

Example of excessive woody material in a creek

Avoid Creating Fish Passage Barriers

A fish passage barrier is an obstacle that prevents or inhibits the natural migration of salmon, steelhead, and other native fish. These barriers typically include culverts, dams, weirs, and floodgates. Barriers also include natural features such as waterfalls and logjams. Improper placement of structures, such as culverts, can cause water velocities to be too high and water depths to be insufficient. These barriers can also cause behavior changes in fish. Barriers can have a significant impact on native fish by restricting migration during spawning. As fish congregate at barriers, overcrowding increases the likelihood of stress, injury, and predation. Barriers also lead to the underutilization of the habitat isolated by the barriers. Removal of fish passage barriers will allow fish and other aquatic creatures to fully utilize the creek and swim freely throughout the watershed. Removal of barriers requires permits. Before removing a fish passage barrier, contact the California Department of Fish and Wildlife or your local RCD for technical assistance.

A series of culverts in Morro Creek

Conserve Water

In order to keep flows high enough to support life in our creeks, especially during the summer months, refrain from using excessive amounts of water. During the summer months, when water levels get low, fish habitat is threatened and additional water diversions only add to the problem. Excessive water use decreases underground flows, which are critical for summer pools.

The following are ways in which water diversion can be minimized:

- Use water efficiently and conserve where possible.
- Use low volume pumps and pump to storage tanks.
- Pump at night when natural flows are higher and evaporative losses are lower.
- When possible, use wells instead of directly pumping from the creek.

Control Stormwater Runoff

Rain water either soaks into the soil or flows through ditches, underground pipes, and other drainage ways directly into a waterway. Stormwater runoff can pick up soil, manure, pet waste, chemicals, and garbage and carry it directly into waterways. Stormwater that flows off land without soaking into the ground reduces groundwater recharge and increases flows beyond the normal capacity of waterways. The higher flows can cause erosion of the channel bed and banks as well as flooding problems downstream.

Flooding after a rain event in Templeton

Ways to minimize runoff:

- Direct all gutters or downspouts to areas where the water can soak into the ground instead of running directly to storm drains.
- Minimize paved or other impervious areas. Driveways, walkways, and patios increase the amount of water that flows into rivers, creeks, ditches, and storm drains. Instead of concrete, use wooden decks, brick or stone paths, gravel, permeable pavement, paving stones, or concrete blocks so that water can permeate through spaces and soak into the ground.
- Keep concentrated flows of water and pipe discharges from flowing directly to the waterway or onto banks. Divert water away from riparian areas and onto flatter ground so as not to destabilize banks and contribute sediment to the channel.
- Keep native plants on banks. Roots of riparian plants will help stabilize the banks.
- For more information about what you can do to prevent stormwater pollution contact the Stormwater Department in the City you live in or the San Luis Obispo County Flood Control – Stormwater Division of Public Works. Links to the County and local City stormwater websites can be found at ***www.stopdirtywater.org.***

Maintain Septic Systems

Homes in rural areas of San Luis Obispo County and in some urban areas rely on septic systems to dispose of human waste. Many older homesteads rely upon inadequate, outdated, and/or failing septic systems. Human waste leaking from faulty septic systems is a significant source of water pollution. If you live by a creek and use a septic system, make sure it is functioning efficiently. For more information, see the Homeowner's Guide to On-Site Sewage Disposal Systems available through the County of San Luis Obispo's Planning and Building Department ***(http://www.slocounty.ca.gov/Assets/PW/stormwater/homeowner_guide _long.pdf).***

Responsibly Manage Landscaping and Water Use

How you manage your home landscape has a dramatic effect on the health of the watershed, especially for those with property adjacent to the creek.

Tips for managing landscaping and water use:

- Compost leaves, grass clippings, and other organic waste away from waterways. Although leaves and organic waste are biodegradable, adding them to a waterway depletes oxygen in the water, can add excess nutrients to the creek, and can stress or kill fish and aquatic life.
- Avoid or minimize the use of fertilizers and pesticides (including insecticides and herbicides). Do not use prior to or during an expected rain event or on windy days. Follow the label directions as excessive amounts of some nutrients are toxic to aquatic life.
- Properly irrigate lawns and gardens. Over-watering adds excess water, fertilizers, pesticides, and soil to ditches and storm drains and is also a common cause of bank erosion.
- Consider reducing lawn size or replacing a lawn with native plants that will require little water and no fertilizers to maintain. Local municipalities, nurseries, and water agencies offer incentives and planting suggestions to help manage landscape water use.
- Do not hose down paved surfaces, like driveways. Use a broom instead and put debris in a trash can.
- Wash vehicles and equipment in a grassy or gravel area where soapy water can filter into the soil or use a car wash facility that recycles water. Soap, even biodegradable, can harm fish and other aquatic life.
- Do not wash animals or livestock with pesticide shampoos where the water will runoff directly to a creek or storm drain.

Dispose of Household Waste Responsibly

How you dispose of your household waste also has a dramatic effect on the health of the creek, no matter how far away from it you live. Even in small amounts, hazardous materials such as paint, motor oil, fuel, solvents, pool chemicals, batteries, and many cleaners will contaminate a waterway and harm fish and wildlife. It's illegal to dispose of or dump hazardous materials on roadways or into storm drains or ditches.

Old cars and other trash dumped into the creek

Remember to:

- Take all hazardous items (paint, solvent, fuel, oil, pesticides, cleaners, etc.) to a household hazardous waste collection event. Drop off locations are offered in several areas of San Luis Obispo County through the Integrated Waste Management Authority ***(http://www.iwma.com/householdhaz/dropoff.html)*** or drop off batteries or paint at certain retail stores.
- Properly dispose of water drained from pools and spas and filter backwash water. Chlorine and algaecides used in pools and spas are toxic to plants and aquatic life. If you are connected to a municipal sewer system call the local sewer department regarding the proper disposal of the water. Many cities prefer that pools be drained to the sewer. If you have a septic tank, drain the pool to landscaping or the lawn. (Note: Do not drain salt water pools to the sewer without permission from the local agency.) If a pool must be drained to the storm drain system contact the storm water department of the City you live in or the County to ask what the regulations are and if a permit is needed. Use pool covers whenever possible to avoid water loss through evaporation.

Attract Wildlife

The creekbanks and riparian habitats have been home to wildlife long before property lines and backyards were established. Riparian habitats create corridors through which birds and other animals move and allow fish and wildlife to cross their ranges and into different habitat types. With conversion of riparian habitats to other land use, animals are being pushed out of the riparian landscape. Riparian landowners have a unique opportunity to ensure native wildlife species continue to have a place they can call home.

Practices to protect wildlife:

- Protect and enhance the riparian vegetation on your property.
- Unless there is a safety or flooding issue, leave your standing dead trees (snags) and dead limbs in place. Snags and dead limbs are important resources for cavity-nesting and roosting species, such as ducks, woodpeckers, chestnut-backed chickadees, bats, and other small mammals.
- If you must remove a tree or a snag, do this work during the non-nesting season for birds (generally outside of the period between March 1st and August 1st).
- Avoid clearing dense native understory vegetation to create open park-like areas (except as needed for fire safety). Understory vegetation provides foraging sites and concealment of ground nests.
- Direct security lighting away from the riparian corridor to minimize disturbances to roosting and nocturnal wildlife, such as bats and owls.
- Avoid planting invasive, non-native plant species in your riparian area.
- Do not release or encourage non-native wildlife, such as bullfrogs and exotic fish into the creek.
- To protect native birds and other wildlife, do not leave food outdoors that can attract feral animals to your property.

California Red Legged Frog

Manage Domestic Livestock

Wild horses might roam up to twenty-five miles a day for food, water, and shelter. Their continual movement disperses manure and urine and allows for re-growth of vegetation. With domestic horses, owners provide food and safe shelter. Consequently these practices can unintentionally damage delicate surface and ground water supplies and have detrimental effects on our local water and land resources. Nutrients, pathogens, and sediments from livestock facilities are pollutants of concern in watersheds throughout California. Proper management of manure and drainage can lessen these pollutants.

Best management practices to consider:

- House manure in manure bunkers which are covered and have an impervious floor.
- Install cross fencing to allow for rotational grazing of an area. This will allow pastures to be more evenly grazed with less trampling, allow needed time for plant rest and re-growth, and reduce unnecessary soil compaction from hoof action.
- Install exclusionary fencing along drainage ways to limit access to waterways and reduce compaction. The direct deposit of manure into water can harm aquatic life and trampling physically breaks down banks and destroys vegetative cover, which can increase sedimentation. Periodic grazing can be used in some cases to manage riparian vegetation.
- Install gutters and downspouts to maintain roof runoff on existing and planned structures to prevent drainage issues and excessive runoff and to prevent clean runoff from entering confined livestock/horse keeping areas.
- Protect your pasture's soil and vegetative cover through proper pasture management to prevent bare areas from forming and reduce soil compaction. Porous soil improves plant vigor by allowing the infiltration of water, air, and nutrients. Hoof impact and machinery operation on water-saturated land compacts soil particles and causes loss of porosity. Allow grass time for re-growth and maintain pasture productivity by controlling the number of horses and the amount of time they spend on a pasture. During the growing season, graze grass to a height of 3-4 inches and allow re-growth to 6-8 inches before returning horses to the pasture. Manage grazing so that a cover of dry residual vegetation protects soil from the first rains.
- Use a wash rack to prevent wash water from draining directly into waterways. Use in combination with other best management practices, like a vegetated swale, to filter potential contaminants prior to entering into a waterway. Minimize chemical use from horse grooming products, detergents, disinfectants, herbicides, and pesticides. If possible use an "environmentally friendly" product.
- Designate a sacrifice area where animals are concentrated and no plant growth is expected. Horses typically are confined in stalls/paddocks during wet weather and will remain confined until the ground has dried. A single horse can be housed in a 12' by 24' paddock. Grading a 2 percent slope from a three-sided shelter to an absorption pit improves drainage.

Horses grazing near Foothill

Steps for Successful Restoration Projects

Should you decide to implement any of the previous restoration practices on your property, the following steps will help you through the process from start to finish.

Site Assessment

Gather and organize information on your project site and current conditions. This will be helpful when talking to agencies or restoration specialists. Maps are an excellent tool for recording physical features and problem areas, especially topographic maps and aerial photos. If you don't already have a property map, such as one prepared by a surveyor, parcel maps can be obtained from County planning agencies or online at ***http://assessor.slocounty.ca.gov/pisa/***. Walk your property with the aerial photo, parcel map, or topographic map in hand and customize it by labeling features such as property boundaries, waterways, roads, stands of trees, and any other notable features. Use a pencil when labeling your maps so mistakes can be erased. Also, make multiple copies of your base maps before drawing on them or walking with them on your property, as they can easily get ruined. It is also recommended to keep a written record of things you notice on your property and make sure you date all of your maps and entries. Sites of special interest or concern on your property can be easily monitored by photographing them from the same vantage point at regular intervals over a period of time. To do this, establish the area you want to monitor. Label the area being photographed on one of your maps and the spot where you take the photo. Mark your shooting location and direction with a stake or pile of rocks to make sure you photograph the site from the same vantage point every time.

Planning and Design

Project assessment and planning takes the information you have obtained about your property and turns it into a clear program for improvements.

The following steps may help:

- Make a list of all the improvements you would like to make on your land.
- Prioritize them, identifying the most important projects. By prioritizing, you won't lose sight of the bigger issues that could take significant time, money, and planning to address.
- Call your local RCD or a restoration specialist and discuss the best way to proceed with designing and completing your plans for improvement.
- You may need to obtain professional surveys of your project site or have other professional services rendered on your property before the design process can begin.

Permitting

The "Permitting Guide" section on page 23 describes the types of permits needed for common restoration projects. Remember to get started early as acquiring permits may take up to a year or more for complex projects. State and Federal agencies should be notified early in the planning process so that their comments and recommendations can be incorporated into your design. This can substantially speed up the time they need to review and approve your completed permit application.

Implementation

Some restoration projects are small enough to do yourself, but in many cases you will need to hire a qualified, licensed contractor who specializes in environmental restoration work. Your local RCD or a restoration specialist can provide you with a list of contractors for you to consider.

Construction of restoration projects in or near creeks usually takes place between mid-July and mid-October to avoid impacts to sensitive animals and take advantage of the low flows. If a permit is required, the conditions of the permit often include construction timing constraints. Remember to keep your neighbors and all involved parties informed of the construction timeline. If communication is good between all parties, then the construction process will be smoother.

You may be able to gather a group of volunteers to perform the work. Individuals, businesses, and organizations are often willing and excited to volunteer their time for a project that benefits the community. When soliciting for volunteers, get the word out!

Some promotional strategies:

- Create and distribute flyers. There are many places in the community that have community bulletin boards, from local gyms to libraries and coffee shops. Ask if they would post a flyer in their business. Remember to always ask permission to post a flyer!
- Run ads in local news media. Local newspapers might be willing to run free ads for the event, or ask local organizations that have newsletters, e-newsletters, or community event calendars.
- Create Public Service Announcements for local radio stations and news stations. They will often do free promotions of local events.
- Contact professional and youth organizations. Many local organizations promote volunteering and want to be involved in community events. Some examples are: Rotary Clubs, Elks Lodges, 4-H clubs, Boy Scouts, Girl Scouts, etc. Many of these clubs have newsletters or websites that they might be willing to promote the event on as well.
- Make sure that all promotions provide contact information. It's important that volunteers can contact someone to ask questions or get more information.

Maintenance and Monitoring

Once your restoration project is in place, the tasks of project maintenance and monitoring begin. Many restoration projects are composed of living materials within living systems so they need routine maintenance for a period of time to become firmly established. The maintenance period is just as important as the construction period and can be equally as costly. Some agencies require a certain level of money or effort for maintenance as a condition of a permit or grant assistance. Monitoring a project to ensure there are no failures after construction is equally important to overall success. The longer a problem goes unnoticed, the more difficult (and expensive) it is to fix. A monitoring report can be a collection of photographs from fixed points over a regular time period (don't forget to take 'before' shots!) or a series of consistent, documented observations. The key to recording monitoring information is regularity and consistency.

Examples of common maintenance practices:

- Irrigating and weeding areas that have been re-vegetated.
- Checking culverts during the first storms and cleaning out any debris.
- Checking repaired erosion areas after the first storms to ensure stability.
- Routine maintenance of roads.

Technical Assistance and Funding

Your local RCD and NRCS may be able to provide both technical and funding assistance when you plan your project. These agencies also offer workshops and educational materials on roads, rangeland management, erosion control, and other resource concerns. Contact your local RCD or NRCS office for a schedule of upcoming workshops. Funding sources for restoration projects include local, State, and Federal agencies, as well as private foundations. If eligible for a grant, your local RCD or restoration specialist can help you through the application process. NRCS can help agricultural landowners apply for many Federal cost share programs. Grants are sometimes looked upon more favorably if they are applied for by more than one landowner—for instance, multiple landowners in association with a local watershed group or RCD. When working with a group, you can combine resources, get volunteer labor, and share ideas. When funders review grant proposals, they often factor in how many people are involved and how much of the watershed will be restored.

Additional tips:

- Plan ahead. Grants can take up to a year to obtain.
- Develop clear, achievable objectives for the project.
- Most grants require "matching funds" so be prepared to contribute to the cost of the project in labor, materials, and/or cash. Each grant source will have its own cost share requirements.

Fundraising

If you need additional funds for your project you may be able to raise money by reaching out to the community. In doing this, it is important to show how your project will benefit the community as a whole. The following are steps for a successful fundraising approach.

Establish a Committee

Gather a group of individuals who see the importance of this project and are willing to give their time to make it successful. This doesn't have to be a large committee; a small group of dedicated people often works best. As a planning committee, create a "To-Do List" and set completion dates for each item. It is important to outline the goals of the planning committee and what needs to be accomplished, including how much money needs to be raised to fulfill project objectives.

Brainstorm Potential Fundraising Ideas

This should be a fun exercise to encourage creativity. Once the brainstorming exercise is complete, gather all ideas and begin to look at ones that could be accomplished. To narrow down ideas, while keeping the group unified, it is valuable to:

- List all ideas on a large poster board and give each participant 6 colored sticker dots;
- Have participants place their stickers on their favorite 6 ideas that came out of the brainstorming process. You will begin to see a pattern of which ideas the group would like to take forward by majority vote;
- Now you can begin to divide the tasks that support those shared goals!

Simple brainstorming exercise: Appoint a note-taker and set a timer for 30 seconds. During this time everyone shout out as many ideas as they can. No criticism! Encourage every suggestion, even the seemingly crazy ones. Repeat this exercise until it seems all ideas have been exhausted. For a more reserved group, have everyone write their ideas down individually the first few rounds, then open up for group brainstorming.

Pool your Resources

Use personal connections with community members and/or businesses that would be willing to support the project either financially or through donations. Make a list of personal contacts that each planning member will contact.

Ask for Support

When asking for support it's important that businesses and individuals see the value in their support. If you are asking members of the community, explain to them how this project will benefit the community by improving the health of watersheds and building relationships. Be specific! If you are asking a local business, offer to advertise their support on promotional materials.

Letters are a valuable way of communicating, however, sending out a mass letter requesting donations is time consuming and expensive. Write a letter that could be handed to individuals or companies when you ask for their support in person. Also, have extra copies of the letter and encourage other supporters to distribute them.

Cash, donated items and skill all have value. When fundraising, it's important not to focus strictly on cash donations. Many businesses and individuals are willing to donate time, expertise, and supplies, for example:

- A local printing company might donate copies for flyers, letters, thank-yous, etc.
- Local restaurants might donate refreshments or lunch, a donut shop might provide coffee and donuts, a pizza parlor might donate lunch.
- Graphic designers might be willing to create promotional materials.
- Other businesses and individuals might be willing to purchase or provide materials, even if they're not willing to give cash.

Remember: if you never ask, the answer will always be no.

Keep Records!

It is very important to keep detailed records of all donations received, including cash, items, and skill. A simple spreadsheet or word document that lists donors and donations will suffice. Share your success story later and don't forget to include the donors that made it possible. Note: Grantors will often be more apt to give a grant to a lively community that has succeeded in previous projects and these collaborative details will impress them.

Permitting Guide

Many restoration projects require permits from County, State, and Federal agencies. A permit is an agreement between you and a regulatory agency stating you will follow certain guidelines when implementing your project. As a landowner, you may find you need to apply for multiple permits. Projects that require permits can include road restoration, bank repair, changing the use of or adding fill to a wetland, diversion or storing of surface water, etc. Permitting can be time consuming and may take up to a year to complete. The information in this section describes common permits required for restoration projects and common land management practices. Remember, if you get stuck or feel overwhelmed, you can always call one of the listed agencies on the contacts page or your local RCD for assistance.

Environmental Agency and Law Background

Permits stem from mandates established by both legislative action or statute and regulatory agencies, which ensure that land use practices and construction projects do not have adverse impacts on the environment.

Regulatory Agencies

Federal	***Acronym***
United States Army Corp of Engineers	USACE
National Oceanographic and Atmospheric Administration	NOAA
National Marine Fisheries Service	NMFS
United States Fish and Wildlife Service	USFWS
State	***Acronym***
California Department of Fish and Wildlife	CDFW (previously CDFG)
State Water Resources Control Board	SWRCB
Office of Planning and Research	OPR
California Coastal Commission	CCC
Regional	***Acronym***
Regional Water Quality Control Board	RWQCB
Local	***Acronym***
Incorporated Cities (Arroyo Grande, Atascadero, Grover Beach, Morro Bay, Paso Robles, Pismo Beach, San Luis Obispo)	N/A
San Luis Obispo County	SLO County

Environmental Law Summaries

The Clean Water Act (CWA) of 1972 protects the surface waters of the United States under Federal jurisdiction for water quality purposes. The CWA is regulated by the U.S. Army Corps of Engineers (USACE). They provide requirements for project compliance for any potential damage to waterbodies, such as dredging or filling, as defined by the law.

USACE protects waters that are:

- "Waters of the United States", or water under the jurisdiction of the government, including lakes, estuaries, streams, wetlands, and coastal waters.
- Any navigable waters, or water that promotes interstate or foreign commerce.
- Waters with a significant nexus, or connection to "Waters of the United States" or navigable waters. This includes subsurface or ground water connections to Waters of the U.S.

The Clean Water Act was derived from the Rivers and Harbor Appropriation Act of 1899, which was the first law to protect navigable waters of the US.

The Porter-Cologne Water Quality Control Act of 1969 is a State law that implements the Federal regulations of the CWA for the protection of water quality through permitting programs regulated by Regional Water Quality Control Boards.

California Environmental Quality Act (CEQA) of 1969 is a broad environmental law that establishes procedures and policy for discretionary projects in the state of California. CEQA is primarily used for public disclosure in exposing environmental effects, and when significant, mitigation and alternatives to reduce or avoid environmental damage. CEQA is implemented on a project by project basis, and the applicability of CEQA and the appropriate level of review is determined by project location, scope, and specific project details. The overall CEQA process for a single project is regulated by a designated lead agency, typically a local, State, or Federal agency with jurisdiction over the project.

Permitting and Compliance

Tips to obtaining permits:

- Start early! As soon as you identify the need to obtain regulatory permits, begin gathering information and materials you will need to complete the applications. Some of these permits can take several months to process so time is of the essence.
- Develop your project description. This is the primary driver in what type of permits you will need and will be the basis for determining potential environmental impacts. You will avoid delays and frustration if you have a solid project description from the beginning. The description often describes equipment to be used, access routes, staging areas, disposal areas, quantities and types of materials to be used, duration of work, and time of year the project will occur. The agencies can "reset" the clock for processing your permit if you submit incomplete information.
- Contact the regulatory agencies to assist you in determining which permits you need and the information needed prior to submitting your applications.
- Get help. If you have a complex project or are unclear about the process, contact the RCD or other professional organization for assistance. The County of San Luis Obispo maintains a list of pre-qualified environmental consultants that can help you navigate the permitting process. For a list of environmental consultants, please refer to the Resources section of this guide. It is common to call several of the companies to ask questions about your project and to get cost estimates for permitting assistance. Other professional organizations also help permit projects, including engineering firms.
- Double check your applications. When you are ready to submit your applications, read carefully through them to ensure you've addressed all the necessary items. It's best to not leave any items blank; rather, note that the items are not applicable (N/A). Some agencies request copies of the applications or permits from other agencies so ensure you have included the necessary materials. Make sure you keep copies of everything you send to the agencies.

Getting Help from your Local RCD or NRCS Office

Your local RCD and NRCS can help you through the permitting process through technical assistance and permit coordination.

The following is helpful information to have on hand before calling for technical assistance:

- Name and contact information.
- Property address, assessor's parcel number (APN), or written directions to your property.
- Are you an agricultural producer? What type of production?
- Do you harvest timber?
- Map and/or aerial photos of your property showing the project location.
- Soils information, if available, on the project site.
- Any monitoring information, such as photos.
- Your questions.
- Your goals.

The "Big Four" Permits

With projects involving work within a creek, there are four common permits that are typically required. These permit applications must be completed in a timely manner and submitted to the correct regulatory agency. Permit coordination for these permits may be available through your local RCD to help streamline the permitting process (see "Permit Coordination" page 30). The following chart shows an overview of the "Big Four" permits.

Overview of the "Big Four" Permits:

LAW:	Clean Water Act		Fish and Game Code	California Environmental Quality Act (CEQA)
REGULATING DOCUMENT:	Section 404, Dredge and Fill	Section 401, Water Quality	1600 Streambed Alteration Permit	CEQA Compliance
REGULATORY AGENCY:	Army Corps of Engineers	Regional Water Quality Control Board	California Department of Fish and Wildlife	Lead Agency (typically County)

General Permitting Process

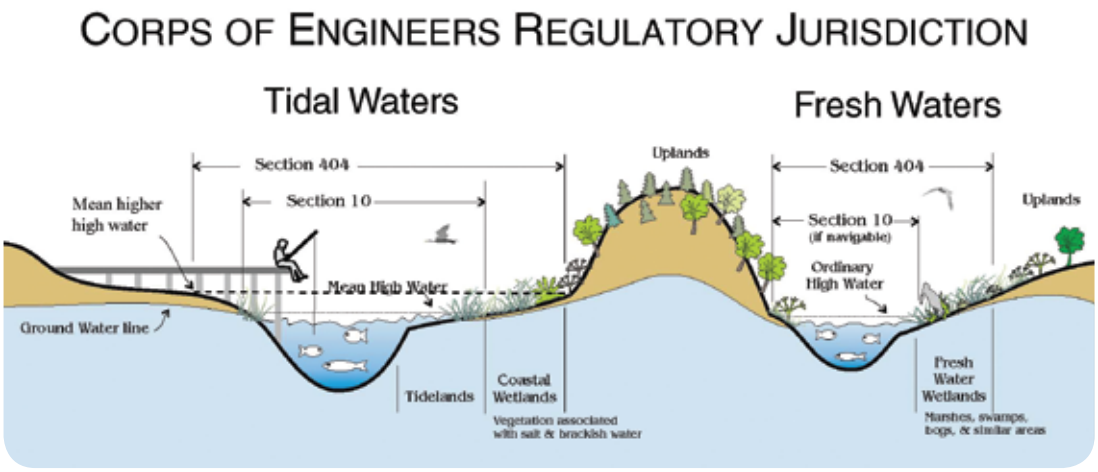
There is a general permitting process that can be applied to all permits. (Note: If the permitting process seems overwhelming to you, consult with your local RCD or any of the listed resources for assistance.)

Steps to receive approval for a permit:

- Consult with an agency before filing the permit. It is often helpful for the project applicant to contact the regulatory agency that regulates the resources or area in which your project will be completed. An initial on-site meeting may be set-up to discuss the pre-application process and to verify that the permit applies to the proposed project.
- Conduct an environmental review. Many times the first step in preparing a permit application is to have the agency or private environmental consultant conduct a biological review to assess the potential impacts of the project, particularly potential impacts to sensitive species. An archaeological consultation should also be conducted to determine if there could be any impacts to cultural resources. For a list of consultants refer to the Resources section at the end of this guide.
- Complete any pre-application requirements. Some regulatory agencies require receipts or letters of concurrence from other agencies before completing the permit application. This may be determined during the consultation meeting with the agency.
- Fill out the application. The application usually includes applicant information, project purpose, project description, and project location. Note: there are specific required application components, deadlines, and fees required for each of the "Big Four" permits. These areas will be discussed in the following sections.

US Army Corp of Engineers - 404 Permit

The 404 permit is required if your project includes dredging, filling, removing, and/or replacing materials in waters of the U.S., which are under the Federal jurisdiction of USACE. For creek areas, this mean that USACE has jurisdiction of the area beneath the "ordinary high water mark" as shown below:



There are three types of permits that an applicant can receive under Section 404 of the Clean Water Act administered by USACE:

Regional General Permit (RGP) – RGPs are pre-written permits that cover a small category of projects within a specific region and are mostly maintenance-related and have little to no environmental impacts. If a similar project has been done in your region, you may be able to use a RGP. Coordination with other agencies such as RWQCB, USFWS, and NMFS is often required for sensitive species consultation and water quality pre-approval purposes.

Processing Time: RGPs typically require 1 month or less to process after submitted. (Newly proposed project categories for RGPs may take 6 months to 1 year).

Fee: RGPs do not require an application fee.

Nationwide Permit (NWP) – NWPs are the most common permit for creek restoration projects. NWPs are also pre-written for project categories but are on a nationwide level and include a larger variety of projects. Project types include road crossings, bank stabilization, structure repairs, flood control maintenance, and wetland restoration. Projects must result in permanent impacts less than 0.5 acres to USACE jurisdiction otherwise they will require an Individual Permit (IP).

Processing Time: NWPs typically require 3 to 4 months to process after submitted. This may include the time for USACE to consult with other agencies.

Fee: NWPs do not require an application fee.

Individual Permits (IP) – When projects significantly impact more than 0.5 acres of jurisdictional waters, USACE requires an IP as well as public review of the proposed project. Project types are generally large development projects.

Processing Time: IPs typically take 6 to 12 months including public review.

Fee: IPs requires $0-100 dollars per project.

Regional Water Quality Control Board - 401 Certification

The 401 Certification, administered by the Regional Water Quality Control Board, is required when loose materials from development activities may affect the quality of a waterbody or wetland, or when a 404 Permit is required.

The 401 Application can be completed online or by hand. The application must include applicant information, project purpose, project description, location information, latitude/longitude boundary points, temporary, permanent, and cumulative impacts to Waters of the U.S., mitigation strategies, other required permits, and CEQA or National Environmental Policy Act (NEPA) compliance. NEPA compliance is not discussed in this guide, however, it is required when a project needs approval by a Federal agency as opposed to a local or State agency.

Processing Time: After the online application is submitted, the review process typically takes from 3 to 4 months.

Fee: The online application requires a fee, which is calculated based upon project conditions.

CDFW - 1600 Streambed Alteration Agreement

The Streambed Alteration Agreement (SAA), administered by the California Department of Fish and Wildlife (CDFW), is required when a stream or waterbody is altered, changed, damaged, or disturbed in some way, including disturbance to the adjacent riparian vegetation system. Some damaging actions include obstructing or diverting the natural flow of water, extracting material from riparian areas, and disposing of waste into the riparian area. CDFW asserts jurisdiction over State water bodies and watercourses that exhibit a defined bed and bank. The upward limit of CDFW jurisdiction is generally the top of the bank, which often extends farther outward than does USACE jurisdiction.

The Streambed Alteration Agreement requires two forms to be completed: the Notification of Lake or Streambed Alteration and the Project Questionnaire. These two forms are available online and require applicant information, project description, location information, identified waterbodies and tributaries, biological impacts (from biological review consultation), other required permits, and CEQA compliance.

Processing Time: After the two SAA forms are submitted, the review process typically takes 3 to 4 months, if CEQA compliance is already completed. Once an agreement is received, the applicant has 30 days to review it and provide corrections.

Fee: The online application requires a fee, which can be paid online during the application submittal.

For emergency situations, CDFW requires notification 14 days prior to the following activities: Immediate emergency actions to protect life, property, repair public services facilities, and emergency public highway projects in one year. CDFW requires notification to minimize biological resources impact through coordination prior to project actions.

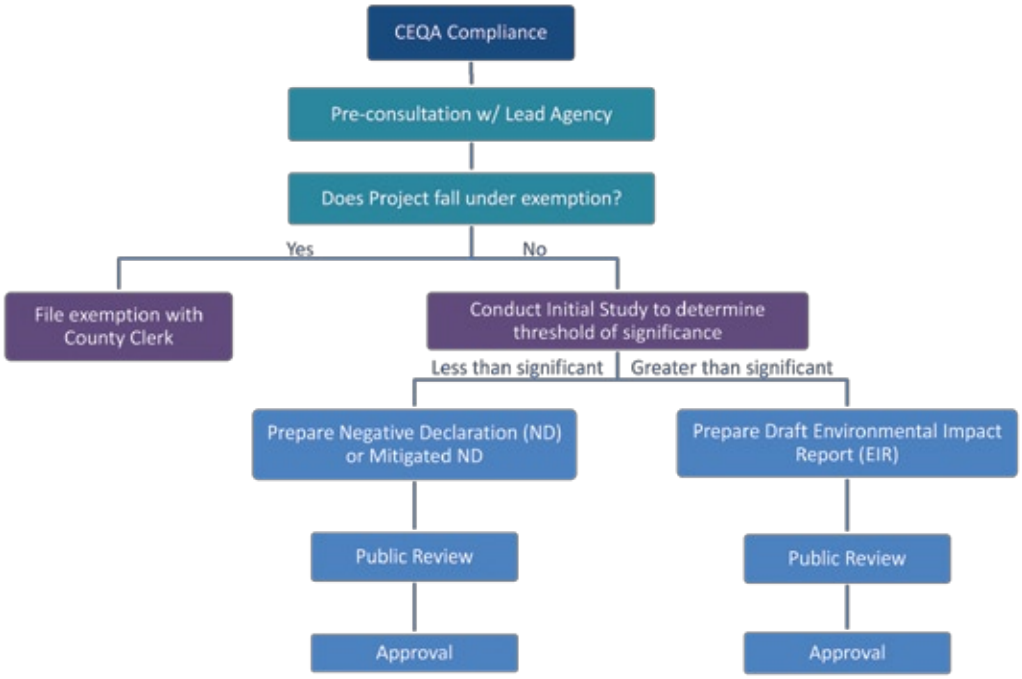
CEQA Compliance

CEQA compliance is required when a project requires a discretionary permit from a local or State agency and includes an activity which may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment. Discretionary permits are those in which a public agency has the authority to approve or disapprove the issuance of a permit. CEQA compliance is carried out by the public agency reviewing the project, known as the lead agency. The lead agency follows the project action to the end of the review process, even if other permits and/or agreements are required. The CEQA process is unique, requiring documentation throughout each phase.

The first step of CEQA review is to determine if the project can fall under a Categorical Exemption (CE). If so, the lead agency will file a Notice of Exemption at the County Clerk's office. If the project does not fall under a CE, an Initial Study (IS) must be completed to determine the impacts the project will have on the environment. The IS is similar to a biological review that is required in determining the threshold of significance related to environment concerns and the baseline conditions of the current site. Based on the IS, a Negative Declaration (ND), Mitigated Negative Declaration (MND), or Environmental Impact Report (EIR) will be prepared. The ND is a statement from the lead agency announcing that the project will not create negative impacts to the current environment and, therefore the project can continue. The MND is a similar document, except that mitigation measures must be incorporated into the project to reduce impacts to a level of insignificance. Lastly, an EIR is required when the project impacts are not easily mitigatable and, therefore requires a document with project alternatives and mitigation measures that the lead agency approves.

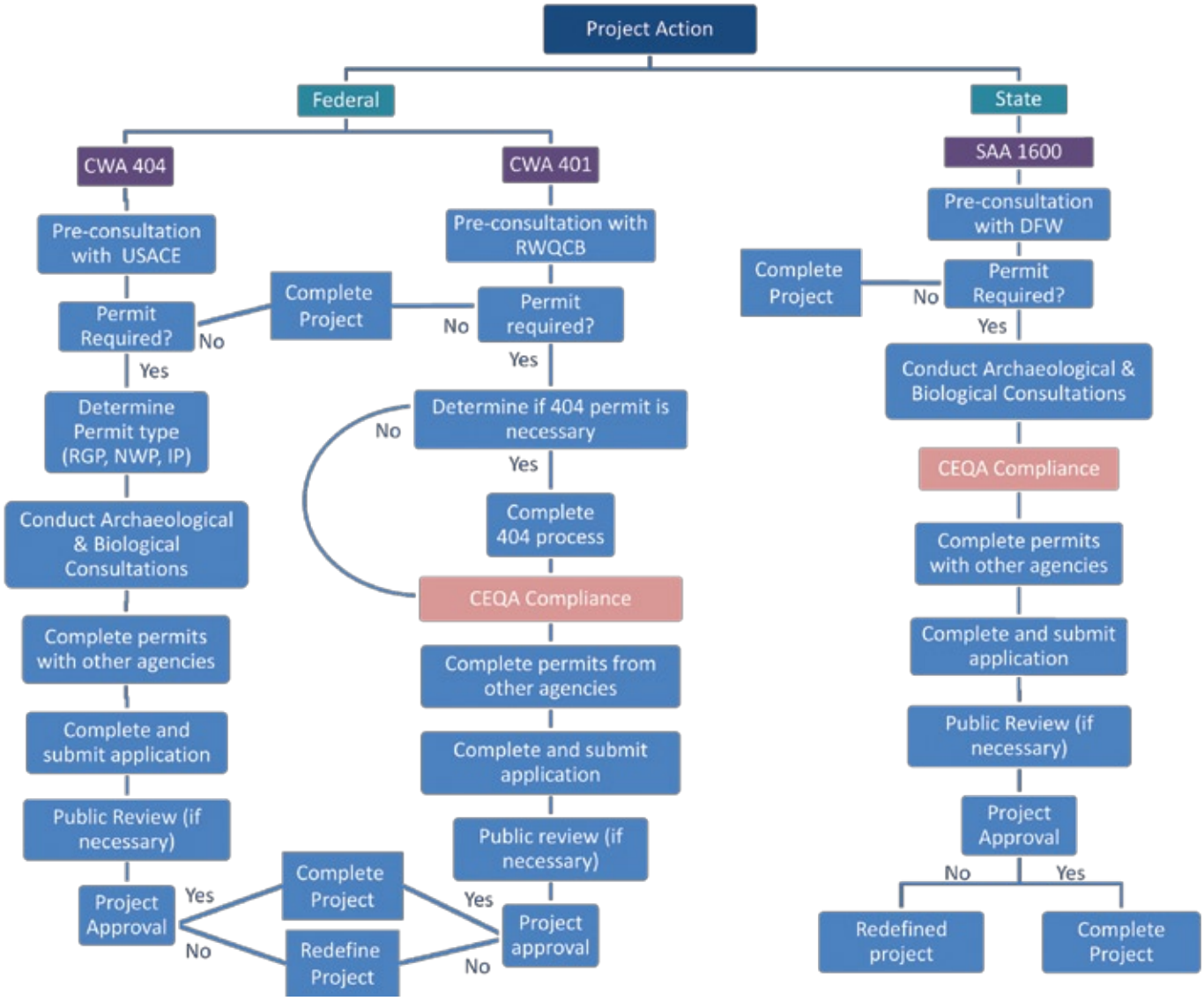
Processing Time: The ND or MND can take up to 180 days from the date that the project application is deemed complete by the lead agency. An EIR can take up to 365 days for review by the lead agency once an application is deemed complete.

Fee: A fee is required per project. Fees vary depending on the specific project details and whether other agency review is required.



Overview Flowchart

The following flowchart shows the compliance processes of the Section 404 Permit, Section 401 Permit, and Streambed Alteration Agreement (SAA) 1600. Often times, when a Section 404 permit is required from the USACE, a Section 401 permit is also required from the RWQCB, and a SAA 1600 permit from CDFW. CEQA compliance may also be necessary when determining the scope of review of the project.



Permit Coordination

Your Resource Conservation District can assist with permit coordination through the Partners in Restoration (PIR) program, designed to streamline the permitting process for restoration and conservation projects. Through partnerships with regulatory agencies, the PIR program has developed programmatic permits that have been secured up front and simplify the long, arduous application process required by each agency. Programmatic permits under PIR include a Streambed Alteration Agreement from the CA Department of Fish and Wildlife, a 401 Certification from the Regional Water Quality Control Board, and a Grading Permit from SLO County Planning and Building. Give your RCD plenty of notice if you wish to use this route for your project.

Projects eligible for PIR must fall under one of the following NRCS Conservation Practices:

- Channel stabilization including measures used to stabilize the bed or bottom of a channel. This practice applies to creek channels undergoing damaging aggradation (excessive sediment in channel) or degradation (excessive erosion) that cannot be reasonably controlled by debris removal and vegetation management.
- Grade stabilization structure, which is a structure used to control the grade and prevent head cutting in natural or artificial channels. This practices applies where the concentration and flow of water is great enough to require structures to stabilize the grade in channels or to control gully erosion.
- Creek habitat improvement and management including maintaining, improving, or restoring the physical, chemical, and biological functions of a creek. This practice applies to creeks where habitat deficiencies limit survival, growth, reproduction, and/or diversity of aquatic species in relation to the potential of a creek.
- Creekbank protection including treatments used to stabilize and protect banks of a creek or channel. This practice is used to prevent loss of vegetation, soil, and land where creekbanks are eroding, to reduce the offsite or downstream effects of sediment resulting from bank erosion, and to improve or enhance the creek corridor for fish and wildlife.
- Structures for water control including structures in an irrigation, drainage, or other water management system, including creeks and gullies, that convey water, control the direction or rate of flow, or maintain a desired surface elevation. Structures that may be installed under this practice include pipe drop inlets, pump boxes, culverts, and fish screens.
- Creek crossing which is defined as a stable area or structure on agricultural lands constructed across a creek to provide access for people, livestock, equipment, or vehicles. This practice is used to improve water quality by reducing sediment, nutrient, organic and inorganic inputs to the creeks, creekbank and bed erosion, and to provide access to another land unit.
- Debris removal and vegetation management including removing snags, drifts, or other obstructions from a channel. This practice applies to channels where removal of debris, fallen trees, and other obstructions is needed to restore flow capacity and prevent detrimental bank erosion or structural failure.
- Critical area planting is defined as establishing permanent vegetation on erodible and/or degraded areas. This practice is used to stabilize the soil, reduce damage from sediment and runoff to downstream areas, and improve wildlife habitat and visual resources.
- Restoration and management of declining habitats which is defined as restoring and conserving rare or declining native plant communities and associated wildlife species. This practice is used to restore land or aquatic habitats degraded by human activity, provide habitat for rare and declining wildlife species by restoring and conserving native plant communities, and increase native plant community diversity and management of unique or declining native habitats.

For more information on permit coordination, visit:
http://us-ltrcd.org/services/technical-assistance/partners-in-restoration/.

Additional Permits

Aside from the four permits typically required for creek projects, there may be other permits that are necessary in order to allow the project to continue. Compliance with these permits should also follow the steps of the general permit process.

Please see the following table for additional regulations and permits that may also be required:

	Agency	*Permit*	*Trigger*
Federal	U.S. Army Corps of Engineers	Section 10 Consultation	Any work or structures that affect U.S. waters
	U.S. Fish and Wildlife Service; NOAA Fisheries (formerly National Marine Fisheries Service)	Section 10 Incidental Take Permit	Activities that will result in the "take" of listed threatened or endangered species*. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. A Habitat Conservation Plan must accompany an application for an Incidental Take permit. *For a list of threatened and endangered species in SLO County refer to: ***http://www.fws.gov/endangered***
		Section 7 Consultation	Actions that may affect a listed endangered or threatened species*. *For a list of threatened and endangered species in SLO County refer to: ***http://www.fws.gov/endangered***
State	CA Department of Fish and Wildlife	Section 10 Construction Permit	Any action taking place in the bed, bank, or channel of any stream.
	California Coastal Commission	Coastal Zone Development Permit	Projects within the Coastal Zone. Area Plan standards may also apply.
	State Water Resources Control Board	General Construction Permit	Projects that disturb one or more acres of soil or projects that disturb less than one acre but are part of a larger common plan of development that in total disturb one or more acres.
Local	San Luis Obispo County Planning & Building Department	Grading Permit	Projects that involve greater than 50 cubic yards (CY) of grading; greater than 20 CY of grading for work in a watercourse; or greater than 1 acre of vegetation removal.
	Central Coast Regional Water Quality Control Board	National Pollution Discharge Elimination System	Point sources (discrete conveyances such as pipes or man-made ditches) that discharge pollutants into waters of the United States.
		Waste Discharge Requirements	Activities involving discharges such as those to land, groundwater, or from diffused sources.

NOTE: If you live in an incorporated City, contact your City (listed on the Contact Sheet in the next section) to determine if additional permits are needed.

Contact Sheet

Listed below contains contact information for regulatory agency offices that have jurisdiction in San Luis Obispo County:

Organization	*Address*	*Website*	*Phone*
County of San Luis Obispo	1055 Monterey Street San Luis Obispo, CA 93408	www.slocounty.ca.gov	(805) 781-5000
City of Arroyo Grande	300 East Branch St. Arroyo Grande, CA 93420	www.arroyogrande.org	(805) 473-5400
City of Atascadero	6907 El Camino Real Atascadero, CA 93442	www.atascadero.org	(805) 461-5000
City of Grover Beach	154 S. Eighth Street, Grover Beach, CA 93433	www.grover.org	(805) 473-4520
City of Morro Bay	595 Harbor St. Morro Bay, CA 93442	www.morro-bay.ca.us	(805) 772-6200
City of Paso Robles	1000 Spring Street, Paso Robles, CA 93446	www.prcity.com	(805)237-3970
City of Pismo Beach	760 Mattie Road Pismo Beach, CA 93449	www.pismobeach.org	(805) 773-4657
City of San Luis Obispo	990 Palm Street San Luis Obispo, CA 93401	www.slocity.org	(805) 781-7100
CA Coastal Commission	45 Fremont St, Ste 2000 San Francisco, CA 94105	www.coastal.ca.gov	(415) 904-5260
CA Department of Fish and Wildlife; Region 4	1234 E. Shaw Avenue, Fresno, CA 93710	www.dfg.ca.gov/ regions/4/	(559) 234-4005
Central Coast Regional Water Quality Control Board; Region 3	895 Aerovista Pl, Ste 101 San Luis Obispo, CA 93401	www.swrcb.ca.gov/ rwqcb3/index.htm	(805) 549-3147
U.S. Army Corps of Engineers	P.O. Box 532711 Los Angeles, CA 90053	www.spl.usace.army. mil/cms/index.php	(213) 452-3908
U.S. Army Corps of Engineers	1455 Market Street San Francisco, CA 94103	http://www.spn.usace. army.mil/index.html	(415) 503-6800
US Fish and Wildlife Service (Ventura)	2493 Portola Road, Ste B Ventura CA. 93003	www.fws.gov/ventura/	(805) 644-1766
US fish and Wildlife Service (Sacramento)	800 Cottage Way Sacramento, CA 95825	http://www.fws. gov/sacramento/	(916) 414-6600
Natural Resource Conservation Service	65 S. Main St, Ste 106 Templeton, CA 93465	http://www.nrcs. usda.gov/	(805) 434-0396 x 4
Upper Salinas-Las Tablas Resource Conservation District	65 S. Main St, Ste 107 Templeton, CA 93465	www.us-ltrcd.org	(805) 434-0396 x 5
Coastal San Luis Resource Conservation District	645 Main Street, #F Morro Bay, CA 93422	www.coastalrcd.org	(805) 771-9835

For more information, please visit: ***http://www.steelheadrecovery.org/jurisdictions.html.***

Project Examples in San Luis Obispo County

Below are examples of some projects commonly seen throughout SLO County. The examples demonstrate areas of concern that may arise on a project and what permits are needed for the work to be completed.

Bank Stabilization

Example 1: Bank Stabilization

The most common creek alteration in San Luis Obispo County is bank stabilization, which is necessary in preventing erosion during high storm flows. Stabilization techniques include constructing groins to divert water flow, installing rip-rap, and replanting banks with native vegetation.

Proposed Project: Re-contouring a creekbank and channel, installing stabilization materials and native plants, and dewatering of potential steelhead pool.
Jurisdictional Agencies: USACE and CDFW; not in Coastal Zone.
Biological Resources: Steelhead trout and California red-legged frog.
Permits: Section 404 Permit, Section 401 Permit, SAA 1600, CEQA Compliance. This type of project may use PIR's programmatic permits for the Section 401 Permit, SAA 1600, and CEQA compliance.

Example 2: Sediment Removal

When upstream erosion causes deposition of materials that reduce flow capacity, sediment may need to be excavated to the original grade in order to avoid flooding. Often times, wetland vegetation and sensitive species habitat has developed in these infrequently maintained systems.

Proposed Project: Removing sedimentation build up and restoring original grade of creekbank beneath bridge.
Jurisdictional Agencies: USACE and CDFW; City of San Luis Obispo, County of San Luis Obispo, San Luis Obispo County Flood Control and Water Conservation District; not in Coastal Zone.
Biological Resources: California red-legged frog, steelhead trout, Coast range newt, white-tailed kite, Southern pacific pond turtle, Western yellow-billed cuckoo, monarch butterfly.
Permits: Section 404 Permit, Section 401 Permit, SAA 1600, CEQA Compliance. This type of project may use PIR's programmatic permits for the Section 401 Permit, SAA 1600 and CEQA compliance.

Example 3: Vegetation Maintenance

Similar to habitat restoration, vegetation maintenance activities protect native wetland species from being replaced by invasive, non-native species. Vegetation maintenance can include installation, modification, or removal of existing vegetation.

Proposed Project: Removing non-native species from the perimeter of the pond, and replanting with native species.
Jurisdictional Agencies: USACE and CDFW; City of San Luis Obispo, County of San Luis Obispo, San Luis Obispo Flood Control District; not in Coastal Zone.
Biological Resources: pond turtle, site inspections, no sensitive species.
Permits: Streambed Alteration Agreement 1600 or PIR's programmatic permit for SAA 1600.

Example of site that requires vegetation maintenance

Resources

San Luis Obispo County Watershed Directory

Flood Watch	SLO County Public Works	(805) 781-5252
Road Closures	Cal Trans	(800) 427-7623
Wildlife Crimes	CA Department of Fish & Wildlife	(888) 334-2258
Non-Emergency Crimes	SLO County Sheriff	(805) 781-4550
Wildlife Rescue	Fawn Rescue	www.fawnrescue.org
Wildlife Injury	www.pacificwildlifecare.org Injured Animals Hotline: (805) 543-9453	
Bird Rescue Center	www.birdrescuecenter.org	
Threats from Wildlife	CA Department of Fish & Wildlife	(559) 243-4005 x 151
Storm Water Illegal Discharge	Emergencies	9-1-1
	SLO County Public Works	(805) 781 - 5252
	City of Arroyo Grande	(805) 473-5400
	City of Atascadero	(805) 461-5000
	City of Grover Beach	(805) 473-4520
	City of Morro Bay	(805) 772-6200
	City of Paso Robles	(805) 237-3970
	City of Pismo Beach	(805) 773-4657
	City of San Luis Obispo	(805) 781-7100
Downed Trees in Creeks	CA Department of Fish & Wildlife	(559) 243-4005 x 151
Non -Regulatory Agencies		
Upper Salinas-Las Tablas RCD		(805) 434-0396 x 5
Coastal San Luis RCD		(805) 772-4391
Farm Services Agency		(805) 434-0396 x 2
Natural Resource Conservation District		(805) 434-0396 x 4
UC-Cooperative Extension		(805) 434-4106
Central Coast Salmon Enhancement		(805) 473-8221
The Land Conservancy of SLO		(805) 544-9096
Morro Bay National Estuary Program		(805) 772-3834
Environmental Consultants/Biologists		
For a list of County approved biologists (listed by species concern) visit: http://www.slocounty.ca.gov/planning/environmental/List_of_Qualified_Consultants.htm		
Archaeologists		
For a list of County approved archaeologists visit: http://www.slocounty.ca.gov/planning/environmental/List_of_Qualified_Consultants.htm		
Local Native Plant Nurseries		
Growing Grounds		(805) 543-6071
Las Pilitas Nursery		(805) 438-5992
One Cool Earth		(760) 382-5164
San Luis Creek Nursery		(805) 528-1811

Glossary

Banks: The side slopes of a creek or channel between which the flow of water is normally confined

Bed: The bottom of a creek or channel bounded by banks

Channel: The low-flow part of the bed, where water flows over some duration of the year (can be the entire bed or a portion of the bed)

Coastal Zone: The Coastal Zone is an identified boundary a measured distance from the ocean shoreline, where within this boundary, specific regulatory review is required

Discharge: Release of pollutants into waters of the United States, including the placement, fill, or substantial re-disturbance of soils, sediment, or other fill, as defined by the Clean Water Act

Discretionary Projects: Projects permitted through the CEQA process that require the exercise of judgment by a regulatory agency

Endangered Species: Species (plant or animal) that are in danger of extinction throughout all or a significant portion in a range

Ephemeral Creek: A creek that flows for only a short time during and after rainfall

Habitat: The area or environment where a plant, animal, or ecological community lives

Intermittent Creek: A creek that flows seasonally and when groundwater provides water for stream flow

Mean High Water Mark: Average high tides over a defined period

Mitigation: Feasible actions to offset or reduce the impacts of a project

Obligate: Requiring a specific environment to grow, specifically in wet areas

Ordinary High Water Mark: Identifiable natural line visible on the bank of a creek that show the upper limit or typical creek flow or water level

Perennial Creek: A creek that flows continuously for all or most of the year

Threatened Species: Any species (plant or animal) which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range

Upland: Any area that does not identify as a creek, wetland, or riparian habitat

Watershed: A geographic area of land that drains water to a common destination

Wetland Delineation: The process of defining the boundaries of a particular wetland area

Commonly Used Acronyms

Acronym	*Meaning*
ARB	Air Resources Board
BMPs	Best Management Practices
CCA	California Coastal Act
CCC	California Coastal Commission
CE	Categorical Exemption
CEQA	California Environmental Quality Act
CWA	Clean Water Act
CDFW	CA Department of Fish and Wildlife (formerly CDFG - CA Department of Fish and Game)
DWR	CA Department of Water Resources
EIR	Environmental Impact Report
HCP	Habitat Conservation Plan
IP	Individual Permit
LCP	Local Coastal Program
LCP	Local Coastal Plan
MND	Mitigated Negative Declaration
ND	Negative Declaration
NOAA	National Oceanic and Atmospheric Administration (formerly NMFS - National Marine Fisheries Service)
NRCS	National Resource Conservation Service
NWP	Nationwide Permit
PIR	Partners in Restoration
RCD	Resource Conservation District
RGP	Regional General Permit
RWQCB	Regional Water Quality Control Board
TDML	Total Daily Maximum Load
SAA	Stream Alteration Agreement
SWRCB	State Water Resources Control Board
USACE	US Army Corp of Engineers
USFWS	US Fish and Wildlife Service

UPPER SALINAS-LAS TABLAS

RESOURCE

CONSERVATION DISTRICT