



EXECUTIVE OFFICER'S REPORT
North Coast Regional Water Quality Control Board
August 2015

Klamath Tracking and Accounting Program – Developing Adaptive Management Capabilities in the North Coast Region

Clayton Creager

The North Coast Regional Water Quality Control Board has undertaken a visioning and reorganization process that in part focuses our efforts through a watershed stewardship framework, which provides structure to the iterative decision making process that defines adaptive management (Figure 1). The approach requires watershed monitoring of both water quality status and trends and the management measures taken to improve water quality conditions. It is the comparison of these two types of information that reduces uncertainty regarding the best use of management resources to restore and protect supporting conditions for beneficial uses.

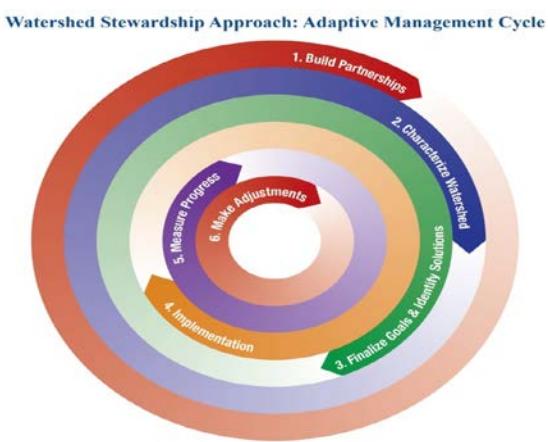


Figure 1. Steps involved in the watershed stewardship approach.

The Klamath Basin Monitoring Program (www.kbmp.net) is designed to fulfill information needs for assessing water quality status and trends. The Klamath Tracking and Accounting Program (KTAP), which is under development, will track management measures. KTAP development is funded in part by Nonpoint Source 319(h) grants administered by the North Coast Regional Water Board to support the efforts of The Willamette Partnership, a nonprofit organization with successful experience developing pollutant trading programs nationwide.

KTAP collects information provided on a voluntary basis on individual water quality improvement projects. It can be used to estimate project benefits (e.g., reductions in nutrient loading to the river and/or water temperature) and predict the cumulative water quality benefit to the river and Upper Klamath Lake from all ongoing projects. The information is made broadly available through a web-based registry and uses a GIS map interface that allows users to view and learn about projects within Klamath sub-basins. KTAP's objectives are to:

- Provide a project-level data source that facilitates basin-wide prioritization of restoration activities and identification of opportunities to more efficiently improve water quality; and
- Communicate collective progress toward water quality goals, building a sense of ownership around the effort and supporting an optimistic and inspired community.

The Willamette Partnership has provided a demonstration of the proposed website using several pilot projects to receive feedback from project participants on content and assessment capabilities. The pilot KTAP demonstration is part of the of the KTAP 2014 Annual Report (Figure 2) and can be accessed at the following address: <http://ktap.willamettepartnership.org/>

In 2015 we are looking forward to improving website capabilities and registering additional existing projects through collaboration with agencies and organizations that sponsor water quality improvement projects throughout the Klamath Basin. This information will then be used to inform our water quality improvement project priorities.

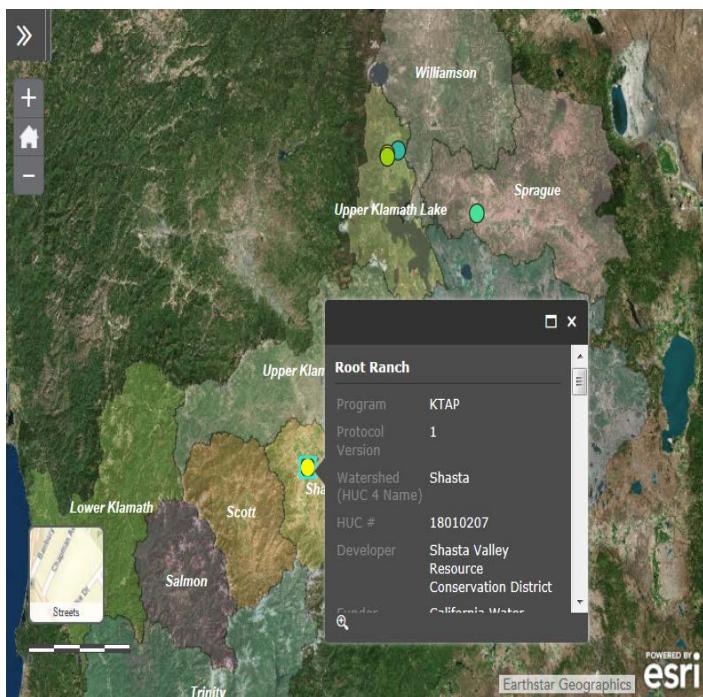


Figure 2. KTAP 2014 Annual Report illustration of web-based water quality improvement project registry (<http://ktap.willamettepartnership.org/>).

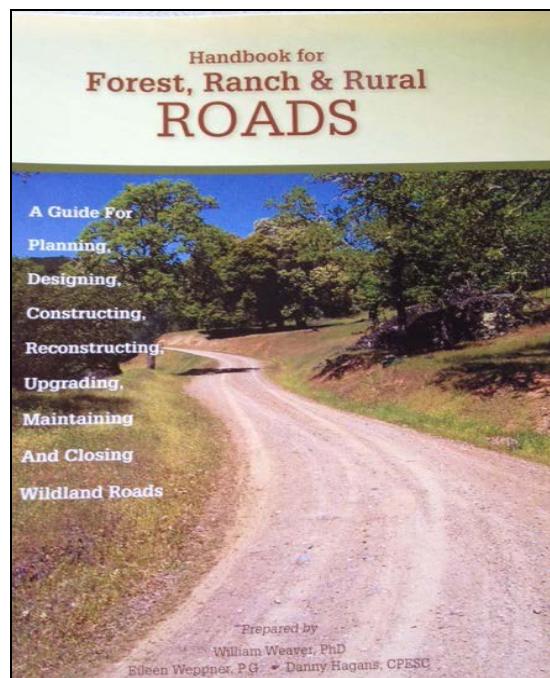
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Grant Helps Update the Roads Handbook *Rebecca Fitzgerald*

A new version of a venerable road handbook is now available. The updated *Handbook for Forest, Ranch & Rural Roads; A guide for Planning, Designing,*

Constructing, Reconstructing, Upgrading, Maintaining And Closing Wildland Roads was prepared by William Weaver, PhD, Eileen Weppner, PG, and Danny Hagans, CPESC, of Pacific Watershed Associates and published in 2014.

Funding for this work was provided as part of a Water Board and U.S. Environmental Protection Agency 319(h) nonpoint source grant (grant #09-664-551) and a California Department of Forestry and Fire Protection grant to the Mendocino County Resource Conservation District.



Roads are a major source, if not *the* major source, of erosion and sedimentation in North Coast watersheds. Sediment total maximum daily loads throughout the region identify the need to reduce sediment discharges from road surfaces, failed stream crossings, road-related landslides, and concentrated drainage. The handbook provides guidelines for addressing and fixing these road problems.

The original 1994 handbook was a foundation for road work throughout the North Coast Region. Science, information, techniques, and technologies have improved over the last twenty years, and the new version reflects the evolution in addressing roads and their impacts on the ecosystem. The

handbook has doubled in size and includes many helpful pictures and illustrations.

Both English and Spanish versions are electronically available on Mendocino County Resource Conservation District's website at <http://mcrcd.org/publications/>.

Many people contributed to the updated handbook, including Water Board Environmental Scientist Bernadette Reed who managed the 319(h) grant, and Water Board Environmental Specialist Jonathan Warmerdam who provided technical advice. Janet Olave, now retired Executive Director of Mendocino County Resource Conservation District, was also instrumental in the completion of the handbook and administering the grant.



Weaver et al. 2014. Figure 21. Road approaches to bridges are often hydrologically connected. This through-cut approach to a temporary bridge drains directly into the stream.



Weaver et al. 2014. Figure 28. Well built, outsloped road displaying minimum cut, smooth free draining surface, and no outside berm. The road contours with the topography and its rolling grade and rolling dips disperse surface runoff.

Grant Improves Riparian Areas along the Shasta River

Michael Lennox

Important reaches of the Shasta River now have 3.8 miles of new riparian fence, 1,650 linear feet of newly planted riparian trees and shrubs with beaver protections, eleven off-stream stockwater systems to keep cattle away from the river and creeks, two water access lanes, and one new stream crossing. These structures were voluntarily installed on eight ranches along reaches of the mainstem Shasta River and tributaries that provide cold water habitat for salmon and steelhead.

Funds for this work were granted to the Shasta Valley Resources Conservation District. The Water Board and U.S. Environmental Protection Agency contributed \$321,545 via a 319(h) nonpoint source grant (grant #11-099-551), landowners contributed over \$32,000, the Natural Resources Conservation Service contributed \$23,458, and the U.S. Fish and Wildlife Service contributed \$6,000.

This project is part of ongoing stewardship efforts in the watershed, which are highlighting the interdependence of river health and agricultural viability. The Shasta River Total Maximum Daily Loads identify livestock impacts as a source of low dissolved oxygen and high water temperatures in the watershed. Livestock hoof and grazing impacts directly affect the stream banks and riparian and emergent vegetation. This reduces stream shading and leads to higher water temperatures and increased sedimentation. This grant project focused on fencing the key remaining unprotected riparian portions of the Shasta River and included riparian tree planting to accelerate the recovery of stream shade and enhance riparian vegetation.

Not only do projects funded through this grant improve water quality, they also provide an example to other ranchers. Through outreach and education, the Resource Conservation District can point to these projects as successes for both water quality and ranch production.

Part of this work occurred on the Root Ranch and served as a pilot project for the Klamath Tracking

and Accounting Program, or KTAP, as described in the previous article.

This project lasted between January 2012 and August 2014. It included outreach to landowners; a community-involved prioritization of projects based on benefits to cold water reaches, monitoring, and an initial study and mitigated negative declaration in accordance with the California Environmental Quality Act.

Riparian vegetation is expected to grow in the years ahead, as demonstrated by the photos taken from other riparian restoration sites in the Shasta River Watershed. Riparian monitoring studies have shown that beavers are often the biggest challenge to the survival and long-term establishment of the tallest, shade-providing trees. Local experts in the Riparian Work Group are studying beaver impacts and other limiting factors to riparian vegetation development. Additionally, Regional Water Board staff is assisting with grazing plans and noxious weed control options in riparian areas.



This shows a section of riparian fencing that was completed in 2014, as part of Grant 11-099-551. This fencing is used for improving riparian areas along the Shasta River to prevent livestock grazing impacts to stream banks, riparian and emergent vegetation. Photo by Shasta Valley Resource Conservation District.



This shows a completed riparian restoration site *without* native tree planting that was fenced in 2001. Photo by Shasta Valley Resource Conservation District.



This shows another completed riparian restoration site planted *with* native trees that was fenced in 1994. Photo by Shasta Valley Resource Conservation District.

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Klamath River Conditions & Fish Kill Response Training *Katharine Carter*

Klamath River Conditions

With California facing the fourth year of a record-breaking drought, the Klamath Fish Health Assessment Team (KFHAT) has been holding weekly teleconferences since May to share information about the latest water quality and fishery conditions in the Basin.

Current fish health conditions are reported on the Klamath Basin Monitoring Program's webpage at kbmp.net.

To date, juvenile salmonid outmigration is largely complete and adult salmonids started to enter the Klamath River in July. The predicted adult fall chinook run size is 119,800 returning adults. While this is below average, KFHAT remains vigilant as the 2014 actual run size turned out to be twice what was predicted (predicted: 92,808; actual: 182,792).

River flows throughout the basin are below the 25th percentile and in some cases are nearing the minimum on record. Temperatures in both the mainstem Klamath River and tributaries have consistently been stressfully high for fish (over 21°C/69.8°F), with daily minimum temperatures also remaining in the stressful range on many occasions.

The low flows and high water temperatures result in conditions which allow for disease proliferation. Two diseases of concern, *Ceratonova Shasta* and *Parvicapsula minibicornis*, have been detected in over 80% of the juvenile fish tested in the mainstem Klamath River this year. It is unknown how many juveniles may have perished this year due to disease as dead juveniles are very difficult to detect in such a large river system. No disease information is available for adults as they are just beginning to enter the river in earnest.



Photo: Mouth of the Klamath River May 2, 2015. Photo by Sara Borok, CDFW

The California Fish and Game Commission recently adopted emergency regulations that grant the California Department of Fish and Wildlife (CDFW) authority to temporarily close fisheries experiencing degraded environmental conditions that may affect fish populations. Waters of the state may be closed to fishing if one or more of the following conditions are met:

- Water temperatures in occupied habitat exceed 70°F for over eight hours a day for three consecutive days.
- Dissolved oxygen levels in occupied habitat drop below 5 mg/L for any period of time over three consecutive days.
- Fish passage is impeded or blocked due to low flow for fish species that rely on migration as part of a life history trait.
- Water levels for ponds, lakes and reservoirs drop below 10% of their capacity.
- Adult breeding population levels are estimated to be below 500 individuals.

Where KFHAT has information reflecting that a fishery closure is appropriate, this information will be shared with CDFW and their Commission, as appropriate.

Response Plan Training

The continued drought and the on-going stressful conditions for salmonids in the Klamath River and its tributaries makes it imperative that the KFHAT be ready to collect fish and water quality data in the event of a fish kill. On June 2, 2015, staff of the Regional Water Board, CDFW, Karuk Tribe, and U.S. Fish and Wildlife Service conducted the KFHAT Fish Kill Response Plan Training at the Oak Bottom Campground on the Salmon River (a tributary to the Klamath River). Over forty people attended the training including staff from the above entities plus representatives of the Yurok Tribe, U.S. Bureau of Reclamation, Quartz Valley Indian Reservation, and the Salmon River Restoration Council, among others.

Participants learned the basic skills that will be necessary when responding to a fish kill, including water sample collection, how to use monitoring

equipment, counting adult and juvenile fish, and collecting samples from diseased fish for laboratory analysis. Additionally, the group reviewed the *Klamath River Basin Fish Kill Response Plan*, which describes the responsibilities, process, and procedures that agencies, tribes, watershed groups, and other organizations will follow when responding to an adult or juvenile fish kill in the Klamath River Basin.



KFHAT training, Oak Bottom Campground on the Salmon River. Photo by Jes Burns, OPB/EarthFix

The training was intended to provide a basic knowledge of water quality and fisheries data collection protocols to enable members of KFHAT to participate in a coordinated monitoring response under the supervision of experienced water quality or fisheries professionals. While we hope we do not need to put these monitoring practices into place, we are prepared to respond should it be necessary.

Russian River Watershed Association's Environmental Column - January 2014 - Pick Up after Your Pet.

There are 78 million dogs in the U.S. today. They eat and then each eliminates almost a pound of poop every day. The resulting 3.6 billion pounds of dog poop produced in a year can fill 800 football fields, one foot deep! This is no small nuisance. Sonoma County's forty-three thousand dogs produce over thirty-two thousand pounds daily. Cleaning up your pet's waste helps keep our pets, the environment, and each other healthy.

Pet waste in public areas is unsightly, unsanitary and unsafe. Even pet waste left in your yard is hazardous to people, animals and the environment. Pets, children who play outside and adults who garden are most at risk for infection from some of the bacteria and parasites found in pet waste. Diseases or parasites that can be transmitted from pet waste to humans include:

- **Campylobacteriosis**- A bacterial infection carried by dogs and cats that frequently causes diarrhea in humans.
- **Cryptosporidium**- A protozoan parasite carried by dogs, cats, mice, calves and many other mammals. Common symptoms include diarrhea, stomach cramps, nausea and dehydration. May be fatal to people with depressed immune systems.
- **Toxocariasis**- Roundworms usually transmitted from dogs to humans, often without noticeable symptoms, but may cause vision loss, a rash, fever, or cough.

Hookworms, fecal coliform bacteria, *Giardiasis*, *Salmonella*, *Brucellosis*, *Yersinia enterocolitica*, and *Leptospirosis* are other examples of bacteria or parasites that are associated with pet waste. These inflict a wide variety of symptoms and can survive in the soil from several days to months or as long as 4 plus years for the roundworm *Toxocariasis*. Flies, insects, or balls and toys that come into contact with the waste can spread the organisms to new hosts – other pets and people.



Photo: Anne Bolick from the USFWS CA/NV Fish Health Center discusses how to preserve dead juvenile salmonids for later disease analysis. Photo by Bryan McFadin, NCRWQCB.

Pet waste can be washed by rainfall into storm drains and nearby creeks and rivers. Storm drains do not connect to treatment facilities, so untreated animal feces end up in creeks and rivers, causing significant water pollution. Decaying pet waste consumes oxygen and sometimes releases ammonia. Low oxygen levels and ammonia can damage the health of fish and other aquatic life. Pet waste also contains nutrients that promote weed and algae growth. The resulting cloudy and green water makes swimming and recreation unappealing or even unhealthy.

Common Misconceptions:

No need to pick it up. It will eventually just go away.

Even though the solids may dissolve, pathogens and other contaminants can be washed into the nearest storm drain or waterway. The pathogens will stay for months to years and can make you and your children sick

It's more natural to leave it there. Wild animals have been here for years.

No watershed is naturally prepared to accommodate the amount of waste produced by domesticated dogs. For example the number of wolves which would naturally inhabit an area the size of Clark County, Washington would be around 70 - compare that to the 110,000 dogs living there now!

I can bury it or put it in my compost bin.

Under no circumstances should you put pet waste in your compost or bury it where food will be grown. Never place pet waste in your yard waste bin. Details on composting for ornamental plants are provided below.

What can we do with Doggie Doo?

- Pick up pet waste from your yard and put it in the trash. Place dog waste in a carefully tied bag to avoid spillage during trash collection. Carry disposable bags while walking your dog to pick up the waste.
- Flush it down the toilet if trash is not available. To avoid plumbing problems, never use a so-called "flushable bag" and don't flush any yard debris with it.

- Bury pet waste in your yard, at least 6-10 inches deep in areas away from where food is grown. Cover it with soil to let it decompose slowly. Bury the waste in several different locations. This may not be practical in small yards.
- Another option is composting which removes waste without disposing of it as trash keeping the poop out of the landfill. Composting dog waste turns something that is potentially dangerous to public health and water quality into a useful soil enrichment that can be used on ornamental plants. However, due to odor and health issues, composting dog waste must be managed at a high enough temperature. Using this process takes careful consideration.

There are two ways that dog waste can be composted, and the product can only be used on non-edible ornamental plants. The better method is above ground in a typical household plastic compost bin mixing sawdust with the poop. The second more difficult option is an underground septic tank style composter. This style of composter uses bacteria to break down the waste. There are commercial options available, but there are also inexpensive do-it-yourself options. It is important to keep in mind that underground options are not suited for soils that drain too quickly or too slowly.

Additional information on this subject:

<http://www.the-compost-gardener.com/composting-pet-waste.html#axzz246Ram089>

Instructions on how to check your soil's drainage:
<http://www.the-compost-gardener.com/doggie-dooley.html>

Examples of composters you can purchase:

http://www.thedogdaily.com/happy/seasonal_happy/recycle_dog_waste/index.html#axzz246NPEMCa

Pick up after your pets - it's the neighborly thing to do and the right thing to do - for your pets, for other people, and for the environment

*This article was authored by Forest Frasier of the City of Santa Rosa, on behalf of RRWA.
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Enforcement Report for August 2015 Executive Officer's Report

Diana Henriouille

Date Issued	Discharger	Action Type	Violation Type	Status as of July 9, 2015
4/3/15	Becki J. Rodriguez and Mario T. Apostolov	NOV	Non-compliance with 13267 and CAO order	Ongoing

Comments: On April 3, 2015, the Assistant Executive Officer (AEO) issued a Notice of Violation (NOV) to Becki J. Rodriguez and Mario T. Apostolov for failure to submit a final restoration plan by the December 31, 2013 deadline specified in 13267/Cleanup and Abatement Order R1-2013-0064. The dischargers submitted an incomplete plan in August 2014. The NOV includes comments on the workplan. On May 1, 2015, the Discharger's consultant confirmed receipt of the NOV and indicated that they would submit responses to the NOV in a timely manner. This matter is ongoing.

Date Issued	Discharger	Action Type	Violation Type	Status as of July 9, 2015
6/11/15	Caltrans	NOV	Unauthorized Discharge	Ongoing

Comments: On June 11, 2015, the AEO issued an NOV to Caltrans for a discharge of construction debris and wet concrete associated with a viaduct collapse on its Willits Bypass project into Haehl Creek on January 22, 2015. The material remained in the stream until January 29, 2015, and affected downstream pH.

Date Issued	Discharger	Action Type	Violation Type	Status as of July 9, 2015
6/12/15	Caltrans	13267	Unauthorized Discharge	Ongoing

Comments: On June 12, 2015, the AEO issued 13267 Investigative Order R1-2015-0042 to Caltrans related to the discharge of construction debris and wet concrete to Haehl Creek that occurred on January 22, 2015. The Order requires Caltrans to submit a technical report by July 1, 2015, estimating the volume and type of construction debris that entered the Haehl Creek channel as a result of the viaduct collapse. Caltrans has submitted the report as required. This matter is ongoing.

