

# TRIBUTARY TRIBUNE

Stories and art by the Members in District C of the Watershed Stewards Program



Year 22 WSP Members and Staff at Orientation in Fortuna, CA Photo Credit: Fortuna CCC



*The Watershed Stewards Program's (WSP) mission is to conserve, restore, and enhance anadromous watersheds for future generations by linking education with high quality scientific practices.*

*A program of the California Conservation Corps, WSP is one of the most productive programs for future employment in natural resources. WSP is administered by California Volunteers and sponsored by the Corporation for National and Community Service.*



## About the Watershed Stewards Program

For the past 22 years, the Watershed Stewards Program (WSP) has been engaged in comprehensive, community-based watershed restoration and education throughout coastal California. WSP was created in 1994 by California Department of Fish and Wildlife (CDFW) biologists, educators, and the California Conservation Corps to fill critical gaps in scientific data collection, in-stream restoration, and watershed education. In collaboration with landowners, tribal communities, teachers, community members, nonprofit organizations, and government agencies, WSP works to revitalize watersheds that contain endangered and threatened salmonid species (Chinook salmon, Coho salmon, and Steelhead trout) by using state-of-the-art data collection and watershed restoration techniques. WSP also engages Members in education, outreach, and volunteer recruitment efforts to increase the capacity of partner organizations. WSP currently has Members working from the Oregon border to the Santa Monica Mountains.

### District C Members



**Madison Sanders-Curry**  
WSP - San Luis Obispo



**Melissa Orozco and  
Brendan Martin**  
San Francisco Bay Regional  
Water Quality Control  
Board



**Daniel Hossfeld  
and Elizabeth Ruiz**  
Marin Municipal Water  
District



**Brianna Walsh  
and Jason Held**  
Pt. Reyes National  
Seashore



**Jenna Dohman  
and Troy  
Cameron**  
California Sea Grant



**Emily McClintock  
and Nick Cusick**  
North Coast Regional  
Water Quality Control  
Board



**Jennifer Fields and  
Lindsey Hutchison**  
Acterra: Action for a  
Healthy Planet

The Tributary Tribune showcases the adventures, insights, and art of Members of the Watershed Stewards Program. For 22 years, WSP has been serving communities throughout California's coastal watersheds. This issue features stories and art by Members from District C, which encompasses WSP sites from Santa Rosa to Palo Alto.

## A Piece of Mt. Tam

By: Daniel Hossfeld

Placed at the Marin Municipal Water District

After constructing a frame for Marin Municipal Water District's PIT tag antenna, a scrap piece of old growth Mt. Tam redwood was repurposed...



milled, drilled, sanded, fitted with fixings...



and burned with an image of my watershed - now someone else please write some music for this thing!



*A slide guitar sits in your lap and is played with a metal bar resonating over the strings, instead of fingers pressing into fretboards. It has been described as "melodic", "haunting", or "that sound like a dying whale".*

## Photos from Point Reyes National Seashore

By: Jason Held

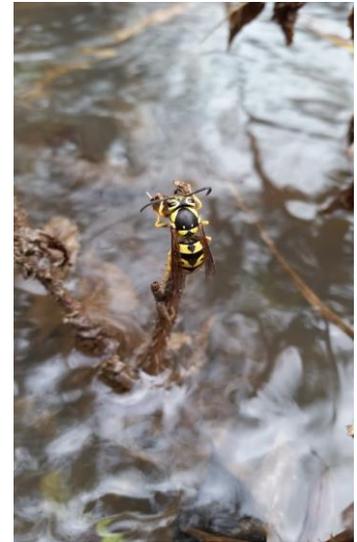
Placed at Pt. Reyes National Seashore

The past seven months with Point Reyes National Seashore have put me in some pretty amazing places, and have allowed me to seize so many incredible opportunities within this wonderful park.

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Who knows what this Banana Slug was trying to accomplish, but I have a soft spot for Mollusks so I threw him in here.



Western Yellow Jackets sometimes like to hide out in the PIT tag tuning boxes.



Neither Brianna, my site partner, nor myself came into this job with any PIT tag experience, and maintaining our antennae turned out to be one of the most consistent realities of our job.



Katie Wallitner, a hydrologic technician with the Seashore, takes in the beauty of the stormy skies while stormwater sampling.

## Ivy Isn't for Everyone

By: Lindsey Hutchison

Placed at Acterra: Action for a Healthy Planet



Native California cucumber, Algerian ivy, and Cape ivy

Ivy is no friend of mine, I want to pull it every single time

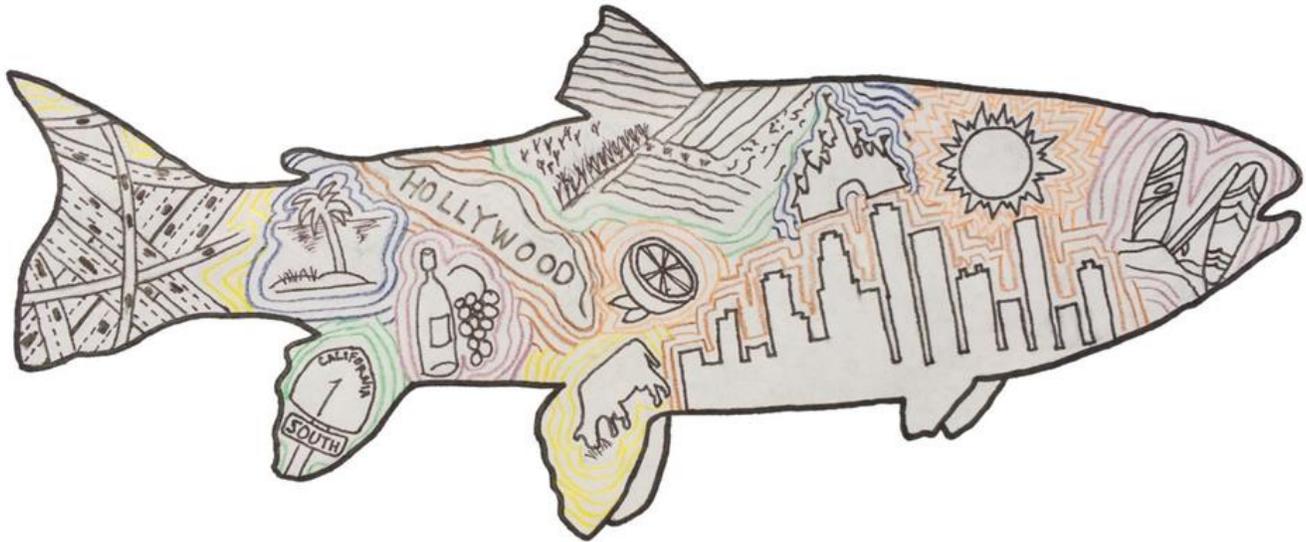


Site Partner, Jennifer Fields, with Cape ivy

## Southern California Steelhead: Facing it All

By: Madison Sanders-Curry

Team Leader at the WSP Office - San Luis Obispo



Of all that Southern California represents, one of the last to come to mind is the mighty Steelhead Trout. Against all odds, the steelhead fight to survive in the historic creeks their ancestors called home. They continually strive to adapt to these unnatural conditions and ever changing lands.

## Interview with Ann Riley – A Pioneer in Urban Stream Restoration

By: Brendan Martin

Placed at the San Francisco Regional Water Quality Control Board

### What inspired you to get into urban stream restoration?

In the early 80s I worked for the CA Department for Water Resources and conducted a “pilot” urban stream restoration project. At that time, urban stream restoration was little more than removing trash and shopping carts from streambeds, and I saw the need to also re-vegetate the streams. I felt there were too many flood control projects that were to put streams in concrete. I knew we could solve erosion and flooding issues using a more natural method. With “restoration rather than hardcore engineering”.

At that point, I became involved in controversial single purpose flood projects. I believe the best way to stop something that’s bad, is to offer a better alternative. A lot of the communities where flooding occurs are poor, and richer communities are more protected. So I ended up spending a lot of my career working with disadvantaged communities. It is kind of counter intuitive, but a lot of innovations in river management have occurred in disadvantaged communities.



Riley instructing students on how to install willow fascines for green storm water catchment systems.

Photo Credit: Madison Sanders-Curry

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Riley (second row from in left in front row) is pictured here with the Wildcat Creek watershed council which was formed to solve difficult flood problems and evolved to a 30-year watershed restoration effort. *Photo Credit: Wildcat Creek Watershed Council*

### **What have been your most inspiring/rewarding experiences?**

The most important case I've ever been involved with was with the Wildcat Creek restoration in Richmond. Not only did I become attached to the people, but the Army Corps of Engineers adopted our innovative stream channel and flood restoration plan and it became a national model. My most rewarding experience has been being involved with models that inspire other cities to enact similar projects. "I'm a big believer in pilot projects that take risks, and help convince other entities to take risks as well."

### **What do you see as the advantages and disadvantages of working in urban environments?**

I love working with bombed-out, impossible environments, and then turning them into something. It's fun to take an underground culvert and turn it into a real creek. As a matter of fact, the worse a site is, the more I'm attracted to it!

The challenge in restoring urban areas is providing enough floodplain, and this can result in land-use conflicts and a need to work with developers or unsupportive landowners. It's important to create incentives, such as California State's grant programs that purchase land to relocate buildings. I think the reason we got traction here in California was because we were able to get our state legislature to set up these grant programs.

### **Check out Ann L. Riley's new book, "Restoring Neighborhood Streams" to learn more!**

## **A Sense of Place**

By: Emily McClintock

Placed at the North Coast Regional Water Quality Control Board

The Watershed Stewards Program (WSP) is building stronger communities. With the combination of teaching K-8 students and coordinating a local restoration event, WSP Members are promoting community vitality and creating a sense of place within local environments. A sense of place can motivate citizens to become active community members and enact change because our places are important to us. *Places* teach us about the world and how we fit in; *places* make us, us, they are a part of our identity. Feeling connected and inspired to engage with your *place* can start with children through Place-Based Education.

Place-Based Education is a method of teaching that uses the local community as a classroom and a starting point for curriculum. It integrates local ecology, culture, sociology, and traditions into multidisciplinary subjects. When using Place-Based Education ideologies, lessons are relevant to the community, there are strong community partnerships, and education serves as a foundation for understanding and participating in local and global issues. Place-Based Education helps develop an early appreciation and awareness that can inspire change beyond the classroom and create a connection to place at a very young age.

Currently, education reform is moving towards accountability, testing, and standards and student experiences are lacking Place-Based pedagogy because children are being compared on a global scale.

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Children today are so well-connected with what is going on in the world that they sometimes lose interest in what is happening in their own backyard. However, WSP is trying to reconnect students to their place and motivate the next generation of environmental stewards. I feel children should have the opportunity to bond with their natural world and develop their own relationship before they are expected to act on its behalf later in life. I believe that citizens grow into more motivated activists, stewards, and community members, when their life experiences have supported a strong relationship with the natural world, and WSP is helping foster that relationship.

By using Place-Based Education tactics, we can teach students how to live and work in harmony with their environment, their culture, and their place. We can teach them the intrinsic value of nature; no matter where they live and how to sustain it. I encourage you to find your place within your community and get outside to connect with your local environment, because that is where we belong.

#### References

Gruenewald, David. "Foundations of Place: A Multidisciplinary Framework for Place-Conscious Education." *American Educational Research Journal*. 40.3 (2003): 619-654.

Gruenewald, David. "The Best of Both Worlds: A Critical Pedagogy of Place." *Educational Researcher*. 32.4 (2003): 3-12.

Sobel, David. *Place-based Education: Connecting Classroom and Community*. The Orion Society, 2005.

## Precocious Coho of the Russian River Watershed

By: Jenna Dohman  
Placed at California Sea Grant

Since 2001, the Russian River Coho Salmon Captive Broodstock Program has been releasing Coho salmon into the Russian River Watershed. These fish, originating from Don Clausen Warm Springs Hatchery, are tracked using PIT-tag technology. Not only does this data provide information about fish movement and location, but it also allows us to identify the life history strategies of returning coho. Essentially, we can tell which fish return as 3-year-old adults or 2-year-old precocious males known as "jacks". Precocious maturation (early development) is much more common in males, and in recent years, the Russian River Coho salmon run has seen a high proportion of jacks.

Why does return age matter? For one, precocious maturation comes with some pros and cons relative to the typical three-year life cycle. Jacks increase genetic diversity by bringing in genes from a different brood year and also increase the rate of survival to maturity by limiting marine mortality risk. At the same time,



Working on fish from the Mill Creek



The Mill Creek downstream migrant trap



Checking the downstream trap



Jack coho salmon

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**Figure 2. Downstream migrant trap operation.**  
Photo Credit: UCCE California Sea Grant

they are less effective spawners due to their lower capacity to carry milt. Precocious maturation is also predominantly associated with males, so a high rate of jacking results in a skewed sex ratio towards males.

Our research indicates that smolt size at outmigration influences age at maturity for Russian River Coho salmon. Coho that return as 2-year-olds tend to be larger in size when caught at downstream migrant traps on their way out to the ocean. While there may be potential survival benefits to releasing large juveniles from the hatchery, hatchery programs should also consider possible unintended consequences of artificial selection for the jack life tactic when setting target sizes for juvenile releases. Of course, there are a suite of other factors at play that may affect jack proportions including genetic effects, creek productivity, and ocean conditions. There is much left to learn about both the causes and consequences of coho jacks. Further research into this topic may be important for long-term success of these critically endangered populations.



Figure 1. 2-year-old “jack” vs. a 3-year-old Coho salmon. Photo credit: University of Washington

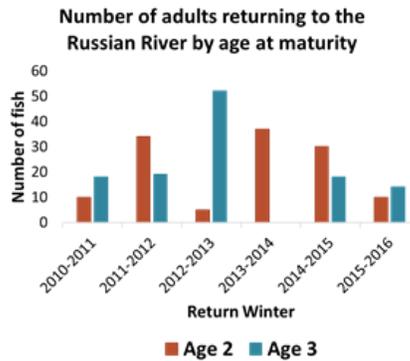


Figure 3. Proportion of PIT-tagged Coho salmon returning at age-2 and age-3 in the Russian River

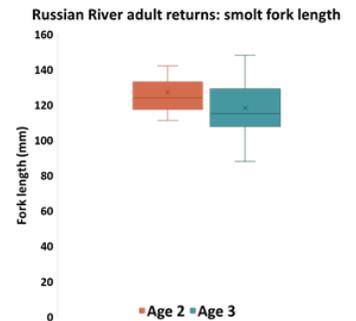


Figure 4. Comparison of smolt fork length for adult returns that matured at age-2 and age-3 as detected by PIT antennas

## Oncorhynchus mykiss.

By: Melissa Orozco

Placed at the San Francisco Regional Water Quality Control Board

**Life stages of *Oncorhynchus mykiss*.** After four to seven weeks the eggs hatch in freshwater, becoming an alevin (Fig. 1). This new trout carries a yolk sac that once absorbed in two weeks, becomes a fry (Fig.2). At this stage, it feeds on zooplankton and starts to develop vertical dark marks on their sides, this juvenile stage is known as parr (Figure 3). Between one and five years the parr moves downstream and start the process of smolting, changing the parr marks for a silvery coloration (Figure 4). The smolts live in groups and migrate to the ocean and live there between three to five years (Fig. 5). When they return to their river of birth, they stop eating and develop changes in their coloration and appearance and are ready to spawn (Fig. 6)



Fig. 1 Alevin

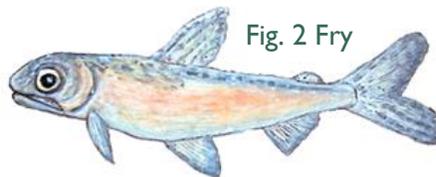


Fig. 2 Fry



Fig. 3 Parr

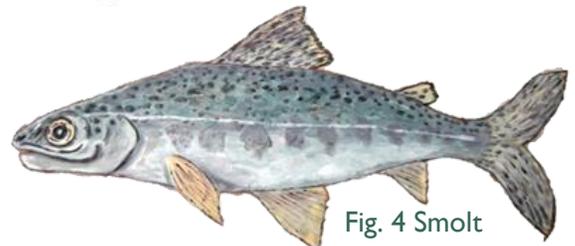


Fig. 4 Smolt

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Fig. 5 Adult



Fig. 6 Spawning Steelhead

Cam  
©

## Forest Mandala

By: Troy Cameron

Placed at California Sea Grant

Slowly tracing the  
Mandala of Forest Life  
Feeling the thorns, branches,  
Fur and slime of its wild surfaces  
While singing gratitude for Berries  
Mouthing sutras for Salmon  
Hymns for Hemlock  
Prayers to Penstemon  
Benedictions for Bear  
And other rustic rosaries

Its ochre hues and dappled greens  
Are soft against my eyes  
This untouched stream unfurling  
Cerulean elegance like a tapestry  
Bearing concentric circles of  
Light and Dark  
Beauty and Decay

A fish carcass rots in the grass  
Spawned, spent and frayed  
While a fresh lily opens  
Its pale petals  
Releasing soft fragrance amidst  
Fetid offal

Along this living contemplation maze  
Knowing the way, earthbound  
Weaving between ancient redwoods  
The foundation, the pattern, the truth  
Encrusted in amber sap

Here I walk in reverence  
Shaking the dew from morning leaves  
Passing with quiet footfall  
Attended by startled mayflies

Name and purpose expired  
The husks of each creature, each being  
Sinking deeper into  
The forest floor  
Reclaiming lost nutrients  
Melding death into life

Detritus:  
The ink of the Mandala



*Illustration by Jo Thilwind*

## Smolt

By: Brianna Walsh

Placed at the Point Reyes National Seashore



Smolts are juvenile salmonids that have grown enough to begin making their way to the ocean. A smolt faces many hardships as it travels downstream, but never will you see a more determined fish. Whether they face predators, high temperatures, or lack of stream flow, these fish constantly push forward, sometimes covering vast distances in order to reach the unknown that is the sea.

## The Tying Thread

By: Nick Cusick

Placed at the North Coast Regional Water Quality Control Board

*Once thriving and filled with diverse aquatic life, California's threatened rivers and streams look forward to the difficult task of adapting to a rapidly changing environment. Will they recover from anthropogenic activity, and will people play an effective part in their restoration to wholeness? Or will our rivers and streams continue to suffer from neglect?*

Faded set, the glory wanders  
Leaving lonely none to answer  
Empty door of hollow frame  
Creased land sighs "I have no name"

Hastened tame by voices shrill  
Lost between earth swelling filled  
Rhythm green proceeds to crawl  
Plenty gives for few enthrall

Scoured fall the thread runs shallow  
Listless lines of painted shadow

Covers fold to weathered vein

Siren cries toward glory old  
Glory old holds still small soul  
Spoken deep, the tying thread  
Broken softly, roaring den

Round moves round above long fallow  
Sun caress gives air of hallowed  
From buried wave gasps new breath  
Greeting life from final death

# Swimming Upstream

By: Elizabeth Ruiz

Placed at the Marin Municipal Water District

“First Otolith”



“Snack Break”



“Work Restricted (Injured)”



# Gopher Basketing: The Hipster Sewing Sensation that is Sweeping the Nation

By: Jennifer Fields

Placed at Acterra: Action for a Healthy Planet

Is your yard filled with giant bumps and bruises? Are your baby plants disappearing faster than you can plant them? Have you seen little furry creatures make your plants vanish before your eyes? If you answer yes to any one of these questions, you probably have a gopher problem. But don't worry; I have the solution for you: **The homemade gopher basket!**

Normally, a store-bought gopher basket costs between five to eight dollars each. If you are planting hundreds of plants that require gopher baskets, those costs certainly add up. All you need to create your own homemade gopher basket is a roll of aviary wire (we used quarter-inch hex style), sewing wire (24-gauge steel galvanized wire), a pair of wire cutters (regular pruning cutters would work as well), and a pair of gloves.



**The Essentials: all the materials you will need to prevent those pesky gophers from eating your baby plants**



**Gopher strip & sewing wire all ready to go**

First, cut a strip of aviary wire to size. Note: Certain plants will want different sized gopher baskets based on how big the plant gets when it is full-grown.

Once you have your strip prepared, fold the strip in half and sew the two sides of the gopher basket using the galvanized wire. Gophers do not care about the aesthetics of the basket; so there is no wrong way to sew the sides. I personally like the loop around technique as pictured to the right, but feel free to do whatever is easiest for you.



**One of the many sewing techniques you can use to make gopher baskets**

You are almost complete with your money-saving gopher basket! Next, shape the wire pouch so that it looks more like a basket. Do this by pushing both the bottom and the sides of the basket up.



**The final product! With a native *Melica* grass**

Now you have your completed gopher basket! When planting, dig a hole big enough for the size of the basket and allow for two to three inches of wire to be above the ground. Plant your baby plant in the center of the basket and make sure that there are no air pockets in the soil when you put the dirt back in the basket. Air pockets in the soil actually prevent roots from growing.

With the help of the homemade gopher basket, your garden or restoration project will be saved from those pesky gophers. Remember, save the baby plant, save the world.



**Gopher basket all ready to plant your plant in!**

## Alumni Spotlight with Karissa Willits

By: Madison Sanders-Curry (WSP-SLO)

**WSP Service Year:** 18 & 19 (2011 – 2013)

**Placement Site:** San Luis Obispo Steelhead Initiative

**Mentor(s):** Meredith Hardy, Steph Wald, Anna Halligan, Ann, Kitajima, Carlos Torres

**You were introduced to WSP in a very unique way compared to most Members. What do you remember about receiving Real Science in Elementary school and how do you think that affected you getting into the natural resources field?**

There are many amazing parts about growing up in Humboldt County, but the most life defining part for me is that I was immersed in the outdoors so early on. Some of my earliest memories are of playing with my dog in the ocean and swimming after little juvenile steelhead on Redwood Creek. When I was in the 2<sup>nd</sup> or 3<sup>rd</sup> grade, a WSP Member taught the “Real Science” curriculum (no called WOW!). That was my first introduction to the salmonid life cycle which I now teach others about on a daily basis.

I remember taking the Pre or Post-Test and spouting off various facts about fish that I learned that day to my parents. I also distinctly remember the WSP Members coming into my classroom wearing the grey AmeriCorps shirts.

The most exciting memory from all of this was going out and releasing the salmon out on the Mad River. That summer my dad bought me my first mask and snorkel, and from then on summers meant snorkeling around after trout all day long.

I was really lucky in that all of my teachers had a great appreciation for the outdoors and for bringing science into the classroom. I got to do a fun science fair project in middle school using the creek that ran behind my school, and in high school I worked on a couple projects with CDFW Arcata. With one of those projects, I got to go out to HFAC and help WSP Members fin clip and take scale samples off of adult steelhead. I think all of these experiences helped me decide to enter the natural resources field.

**What is your title and responsibilities in your current job?**

I am currently a Monitoring Coordinator for the Morro Bay National Estuary Program. As Monitoring Coordinator, I help implement monitoring projects for the Estuary Program monitoring program, train volunteers, manage data and communicate findings to the general public and partner organizations.

**How did WSP help prepare you for the work you are currently doing?**

I was lucky enough to eventually get a job with my Placement Site! WSP served as a great introduction to monitoring and restoration work being done within the central coast, as well as throughout the state. WSP also left me with a well-rounded set of field experience as well as monitoring and restoration planning experience, which I feel has really helped me get jobs after WSP.

**What advice do you have for current WSP Members?**

Have fun and take advantage of all the training opportunities WSP provides.



Karissa at her ISP during Year 18. Photo Credit: WSP-SLO



WSP Members at Acterra's Watershed Awareness Project in Cupertino, CA  
 Photo Credit: Daniel Davis

**Become a WSP Member! The Application is available  
 on the website.**

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