

Tributary Tribune

Service Year 21

District A, 2015

Volume 21, Issue 4



Stories and Art by the Members of the
Watershed Stewards Program



WSP Members & Staff with LeRoy (WSP Mentor) and Teresa Cyr at Klamath-Trinity Fish Fair, April 2015.

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.

TABLE OF CONTENTS

About WSP / Letter from the Program Manager	3
Plight of the Pacific Lamprey: Why We Should Care	4
Klamath River (poem)	5
Year 21 Photo Journal	6
“Live Free, Die Young”	7
Fish on Fire	8
Beneath the Surface of the Klamath River Estuary...	9
A Year in Yreka	10
Who You Gonna Call?	11
What Lies Beneath...	12
The Tale of Salmon McGee	13
A Journey into the World of Teaching	14
Busy Beavers: Helping Us Get Wood for Restoration	14
Salmon Zen	15
A Few of My Favorite Pictures	16
Alumni Spotlight: Bob Pagliuco	17
WSP Staff / Credits	18

The Tributary Tribune showcases the adventures, insights, and art of members of the Watershed Stewards Program. For 21 years, WSP has been serving communities throughout California’s coastal watersheds. This issue features stories and art by Members from Region I, District A, which encompasses WSP sites from Yreka to Eureka, CA.

District A

Members. From

left: Danielle Hurley, Wiyaka Previte, Katie White, David Lam, Monica Tonty, Hannah Coe, Sylvia Gwozdz, Janelle Christensen, Rowyn Cooper-Caroselli (handstand) Brianna Walsh, Chris Attias, John Herrera (kneeling).

Not pictured: Jason Held.



LETTER FROM THE PROGRAM MANAGER

WSP's 21st year is coming to a close, and what a fun, challenging, educational, and rewarding experience this year has been. I want to thank each Member, Mentor, Placement Site, and volunteer who contributed their energy, time, and knowledge to improving California's watersheds. I also want to express my gratitude for the WSP staff team—with their boundless energy and unwavering support of Members and the program. This year, our 47 Members educated 1,880 K-12 students in Title I schools, recruited 1,209 volunteers for 26 hands-on restoration projects, and served over 79,900 hours. I wish all of our amazing Year 21 Members the best as they move forward in their careers—California's watersheds are lucky to have you.



Thanks for a great year,
- Jennifer Catsos



Pacific Lamprey caught in a downstream migrant trap sucks on a sheet of Plexiglas. (source: David Lam placed at CA Department of Fish & Wildlife Arcata)



Sylvia Gwozdz (placed at CDFW Arcata) hikes towards pools in a culvert during a juvenile salmonid snorkel survey. (source: David Lam)



Calypso Orchid speaks for itself. (source: Jason Held placed at US Forest Service Lower Trinity)



Some early morning frost shows that winter can get pretty cold in Willow Creek. (source: Jason Held)

Plight of the Pacific Lamprey: Why We Should Care

By: Sylvia Gwozdz

Placed at CA Department of Fish & Wildlife (CDFW) Arcata

Pacific lamprey (*Entosphenus tridentatus*) are an ancient fish (about 450 million years old) that have enthralled and intrigued me ever since I became acquainted with them while working as a Watershed Stewards Program member at the U.S. Forest Service in Orleans last year. Just like Pacific salmon, lamprey are anadromous, spending most of their lives in the ocean and returning to freshwater to reproduce. Both groups of fishes have experienced serious declines in abundance and distribution as a result of human disturbances, resulting in the loss of spawning and rearing habitat, degraded water quality and quantity, and their extirpation from many river basins. Lamprey have many of the same ecological requirements that salmon do, and are adversely impacted by dams that block their passage upstream (Moser and Close 2003). Unlike Pacific salmon, however, the decline of lamprey has remained relatively unnoticed and undocumented.



Pacific lamprey. Photo source: USFWS

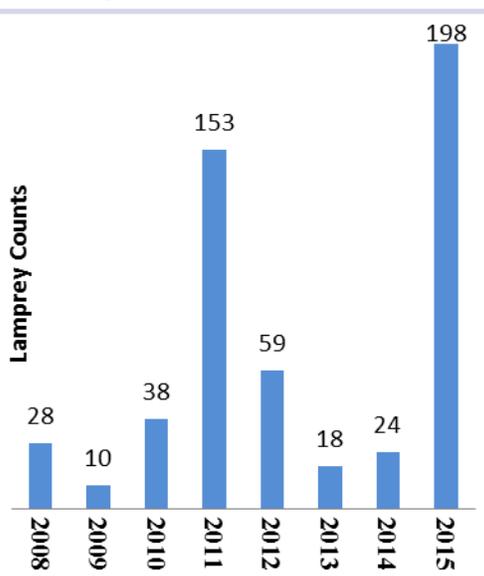
Lamprey have generally been burdened by a poor public relations image. In the Great Lakes, invasive sea lampreys (*Petromyzon marinus*) are well known parasites that feed on and sometimes kill large game fish. Our aversion to parasites, especially ones with jawless mouths filled with rows of sharp, rasping teeth, has led to a lack of data and research surrounding the decline and conservation of native lamprey species (Close et al. 2002). In recent years, however, the tide has been changing and lamprey are being acknowledged as an important keystone species, both ecologically and culturally. In the Pacific Northwest, indigenous peoples have harvested lamprey alongside with salmon for many generations and the fish is considered an important subsistence and cultural resource for tribal communities. Lamprey are also an important prey species and contribute significantly to nutrient exchange between marine to freshwater and terrestrial ecosystems. To address this decline, the Columbia River treaty tribes created one of the most comprehensive plans dedicated to restoring and reestablishing populations in the Columbia Basin. The entire Tribal Pacific Lamprey Restoration Plan is available online. The U.S. Fish and Wildlife Service also launched the Pacific Lamprey Conservation Initiative to improve the status of Pacific Lamprey through research and conservation actions.

The Arcata CDFW office has maintained a life cycle monitoring station on Freshwater Creek, part of the cooperative Coastal California Salmonid Monitoring Plan, since 2008 to monitor adult escapement in the winter and juvenile out-migrants in the spring. This year, 198 lamprey have been counted, which is the highest number since counts began. These numbers are important for developing the foundation for future plans to investigate lamprey life history trends and abundance. It's been exciting seeing such high numbers of a fish that no one expects to see much of anymore. I've learned how to insert PIT tags into individuals, which allows us to track their movement throughout the Freshwater Creek watershed and even saw my first lamprey on a redd.

Whether this year is an anomaly or part of a mysterious lamprey life history is too soon to discern. But lamprey are a fish that are definitely appearing on the radar more and more, with their status elevating within agencies and geographic locations. Continued research and management objectives that take lamprey into consideration are important tasks that will help lead to the recovery and stronger protection of lamprey in the Northwest.

Works Cited

- Moser ML, Close DA. (2003). Assessing Pacific lamprey status in the Columbia River basin. *Northwest Sci* 77: 116-125.
- Close DA, Fitzpatrick MS, Li HW. (2002) The ecological and cultural Importance of a species at risk of extinction, Pacific Lamprey. *Fisheries*, 27: 19-25.



Yearly Pacific lamprey counts from a monitoring station on Freshwater creek.

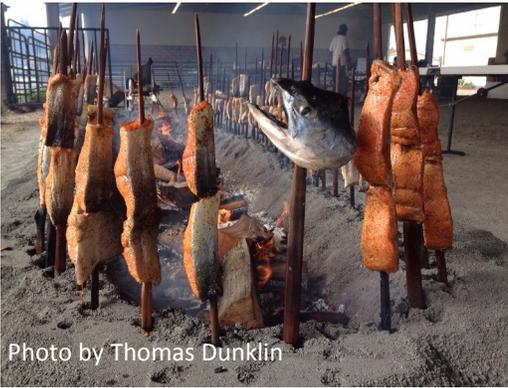
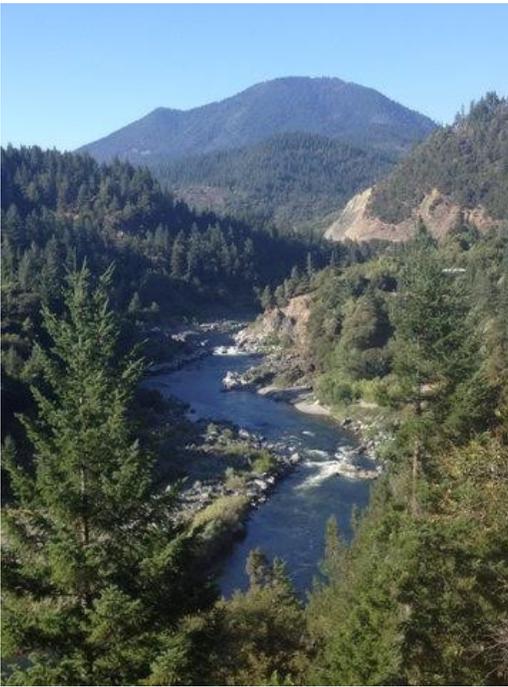


Photo by Thomas Dunklin



Klamath River

Poem & Photos By: Wiyaka Previte

Placed at The Yurok Tribe Environmental Program

Ishkêesh (Klamath River)

I see her vastness, I feel her glory

From my Grandmother, I know the old story

Told with pride

The one of when the Káruk'árara (Upriver People) came to be

It was this river that wove our family tree

Caregivers and stewards

The people looked after her so she could keep on giving

Knowing that abundance sustained all the living

Even the children knew

The water was more than the weaver of all creation

She is our identification

Grandmother says:

"Each of you, a descendant of someone passed on

Never forget where the salmon spawn

The river has shown signs

Her journey through time has taken its toll

To save her we must have a common goal

Always do your part

The water, fish, acorn, deer, all need protection

Live in a way that preserves the connection."

So, here I am today

Collecting samples on the Klamath's banks

Honoring my duty and giving my deepest thanks

Yôotva! Yôotva! Yôotva!

Year 21 Photo Journal

Photos By: David Lam
Placed at CA Department of Fish & Wildlife Arcata



Scale samples from downstream migrant trap on a penny for scale.



Female Coho salmon carcass we found on a spawning ground survey in Prairie Creek.



WSP members hike through Humboldt Redwoods State Park in preparation for Creek Days.



Tools used for sampling juvenile Coho salmon. Scissors are used to clip the caudal fin for mark and recapture, the knife grabs scale samples, the scalpel makes an incision, and the PIT tag is finally inserted into the body cavity.



Chris Attias (placed at US Forest Service Orleans) enjoys the outdoors after a long day of teaching and being a docent at Creek Days.

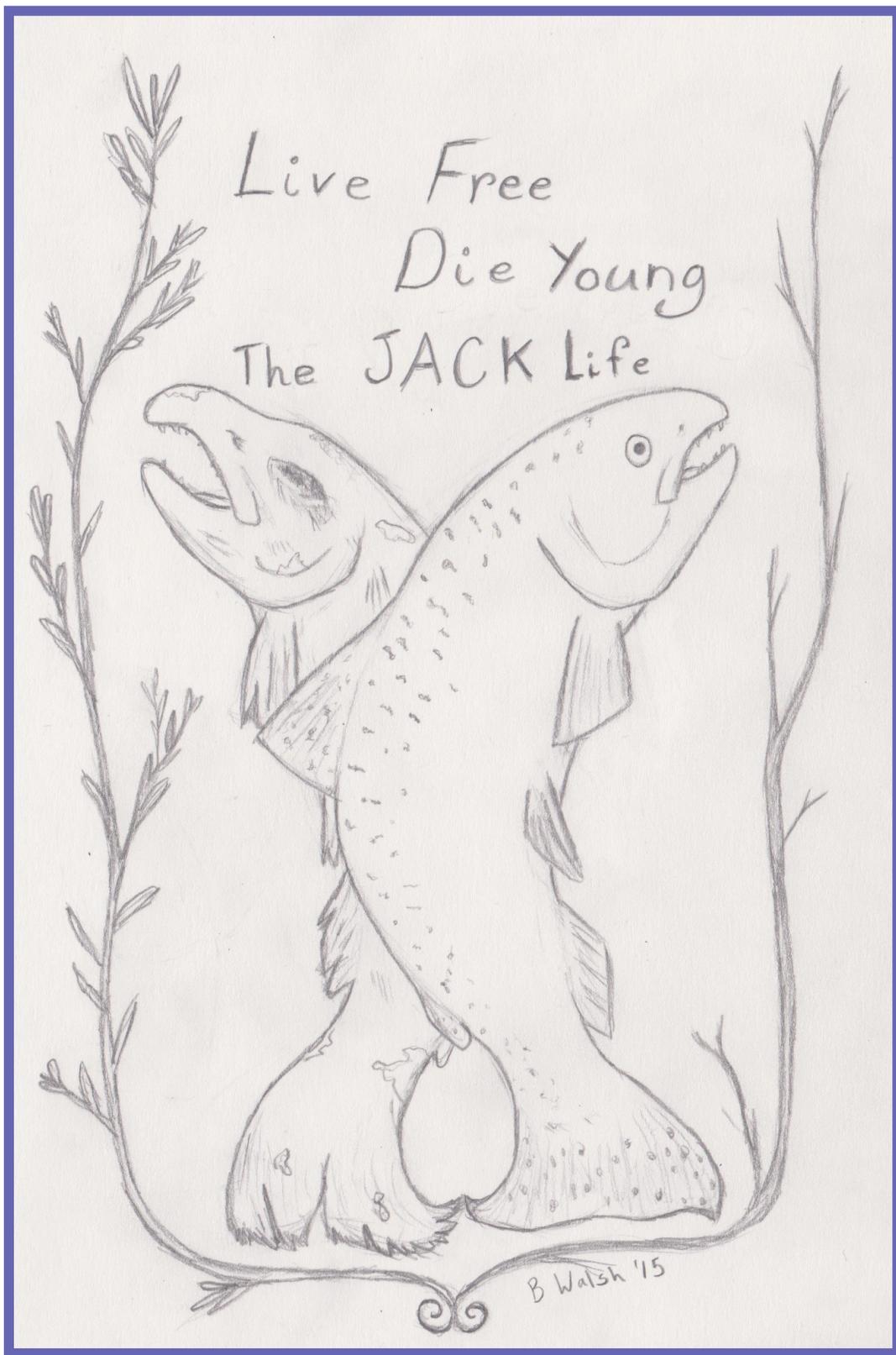


Larry Notheis gives a tour of the fallen Dyerville Giant in Founders Grove after Creek Days.

“Live Free, Die Young”

By: Brianna Walsh

Placed at US Forest Service Orleans



Jacks are young Chinook that return to their natal streams to spawn years earlier than the average Chinook. Because they are younger, they are much smaller than their more traditional Chinook counterparts and tend to employ a "sneaker" strategy for passing on their genes, wherein they trespass on a preexisting redd and fertilize the eggs contained within. Despite its youth, the Jack still dies after spawning, thus living a tragically short (but very eventful) life.

Fish on Fire

By: Monica Tonty

Placed at US Forest Service Lower Trinity

Fire is a naturally recurring component of ecosystems. Indigenous peoples in the Pacific Northwest embraced and utilized fire to access food and cultural resources. For example, the Karuk people in the Western Klamath Mountains used fire to open the forest canopy and cultivate stands of hazelnut trees. Federal policy passed in 1911 began strict fire suppression and an end to traditional burning.

This has changed ecosystems, especially in drier mid- and low-elevation forests where fires once burned more frequently (Reiman et al. 2003), like much of the Salmon River watershed. Denser understory leads to more destructive fires and loss of lives and property. However, unresolved questions surround the effects of fire on aquatic ecosystems and fish.

Both terrestrial and aquatic ecosystems have been impacted by past land use and this complicates the relationship between fire and fish. Severe fires that blaze through riparian areas cause high mortality and emigration of fish and other organisms because of heat and changes in water chemistry. In-channel woody debris can also decrease right after a fire. Loss of vegetation and reduced infiltration capacity of soils can cause increased surface erosion, changes in the timing and amount of runoff, and elevated stream temperatures (Reeves et al. 2006).

However, these effects are usually temporary, unless those systems are already seriously impacted by habitat loss or other effects. For example, riparian plants have lots of adaptations for rapid recovery after a fire. Also with less riparian plants, evapotranspiration decreases. This can accelerate recovery in riparian areas because of increases in soil moisture, higher riparian water tables, and elevated summer flows. (Reeves et al. 2006).

Fish rebound relatively quickly, usually within a decade after a wildfire, in part through recolonization from nearby unburned reaches of stream. Additionally, fire and subsequent erosion events contribute wood and coarse sediment that create habitat complexity. Fires can also increase aquatic productivity by stimulating primary and secondary production, which may make up for otherwise stressful conditions for fish (Reeves et al. 2006).

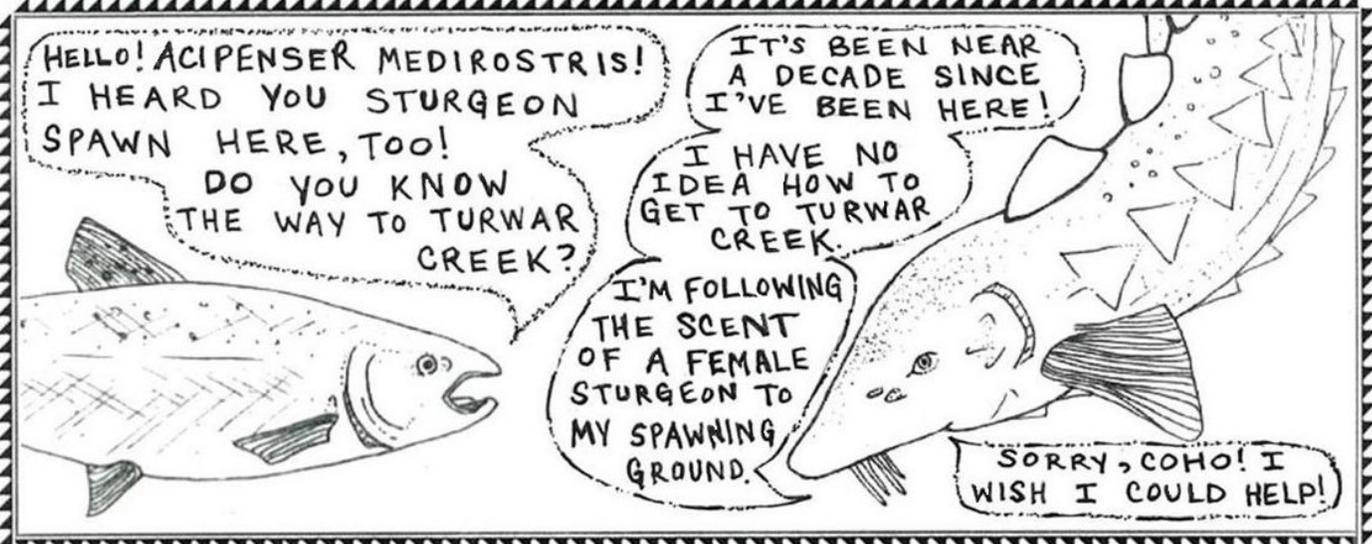
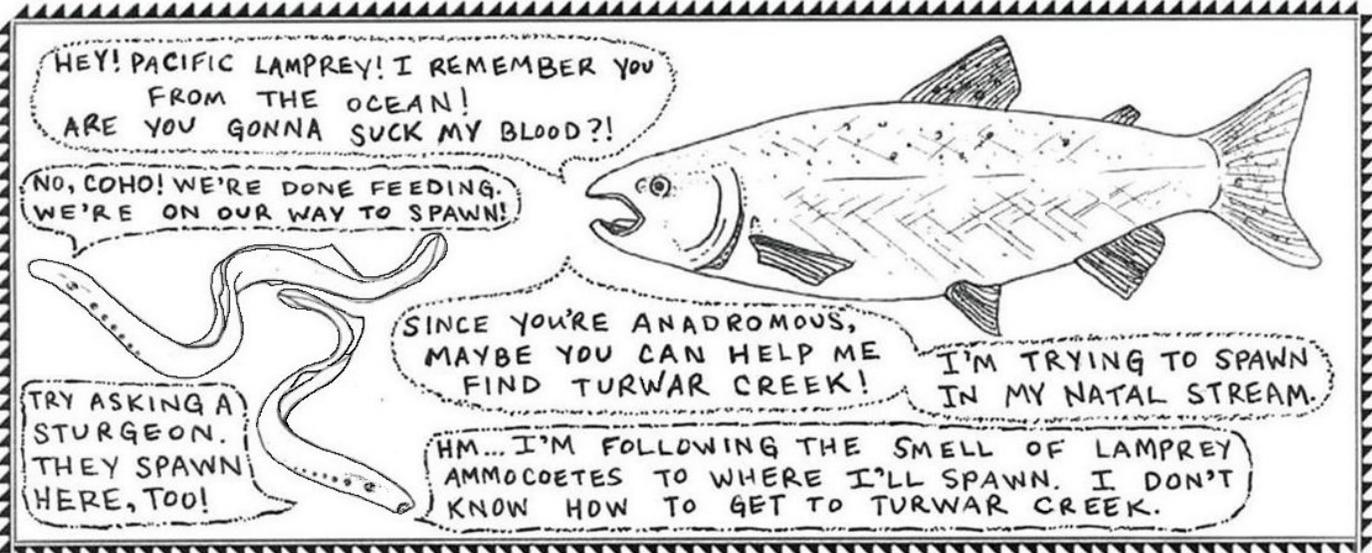
In 1987, smoke from forest fires was trapped in the Klamath River Canyon due to atmospheric pressure conditions. The smoke reflected sunlight because smoke has a higher albedo than a forested surface. This led to surface cooling and a positive feedback loop that trapped more smoke. Daily maximum air temperatures lowered more than 15°C below normal for 1 week and more than 5°C below normal for 3 weeks (Robock, 1988). This lowered river temperatures during a critical time of high temperature stress for fish.

Fire's effect on fish is dependent on many factors, such the nature of the fire, the amount of rain afterwards, the prior conditions of the watershed and riparian communities, and the history of fire suppression (Reiman et al. 2003). But it is important to remember that all disturbances, such as fire, are inevitable and usually beneficial over time (Bisson et al. 2003). They create variation in space and time which is important to maintaining biological diversity and resilience of aquatic populations (Reeves 2006).

Works Cited

- Bisson PA, Rieman BE, Luce C, Hessberg PF, Lee DC, Kershner JL, Reeves GH, Gresswell RE. 2003. Fire and aquatic ecosystems of the western USA: current knowledge and key questions. *Forest Ecology and Management* 178: 213-229.
- Reeves GH, Bisson PA, Rieman BE, Benda LE. 2006. Postfire Logging in Riparian Areas. *Conservation Biology*: 20: 994-1004.
- Rieman RE, Hessberg PF, Luce C, Dare MR. 2010. Wildfire and Management of Forests and Native Fishes: Conflict or Opportunity for Convergent Solutions? *BioScience* 60: 460-468.
- Rieman B, Lee D, Burns D, Gresswell R, Young M, Stowell R, Rinne J, Howell P. 2003. Status of native fishes in the western United States and issues for fire and fuels management. *Forest Ecology and Management* 178: 197-211.
- Robock A. 1988. Enhancement of Surface Cooling Due to Forest Fire Smoke. *Science* 242: 911-913.

BENEATH THE SURFACE OF THE KLAMATH RIVER ESTUARY...



BY DANIELLE HURLEY

PLACED AT THE YUOK TRIBE ENVIRONMENTAL PROGRAM

A Year in Yreka

By: Janelle Christensen

Placed at CA Department of Fish & Wildlife Yreka

Come one, come all
It is time to explore
Let me tell you what it's like
To work in the great outdoors

Up here in Yreka
We have a lot of fun
We mostly play with fish
All day in the sun

Our year starts off running
Early in the Fall
We have so many fish
We can barely count them all

We do spawning ground surveys
On tributaries of the Klamath
Mostly Chinook Salmon
Man, those guys are mammoths

While walking the rivers
We really experience the seasons
The fall is beautiful
For so many different reasons

The cooler temperatures
Make the air so clear
You can see for miles
At this time of year

The trees are all bare
So we are lacking in greenery
But to the south is Mt. Shasta
And it makes up for the trees, this scenery

The fall progresses to winter
And we install the rotary screw traps
These are serious pieces of equipment
Definitely not made out of scraps

Some parts of the traps are heavy
But we lift and we carry
These pieces down steep hills
At times, it is quite scary

We haul the traps up river
To the perfect locations
To catch the highest numbers of fish
To get the best population estimations

We do a swift water training
And we swim in the rivers
It's definitely a lot of fun
But the water makes you shiver

As the season progresses
It gets very cold
But with winter comes snow topped mountains
And those never get old

The dead looking trees
Can cause some strife
But although it is hidden
The rivers are brimming with life

The fry start to emerge
And into our traps, they swim
There are so many little fishes
Our traps are full to the brim!

Soon it starts to warm up
With the first signs of spring
The trees start growing leaves
Oh what joys this season brings!

The life that was hidden
Emerges to the surface
There are birds and butterflies
And the beauty leaves you wordless

The wildflowers start to bloom
But not all at once
You get an endless progression of beauty
For at least three solid months

The fry have more food
And they start getting bigger
They really are fascinating
These small little critters

While working so closely
You see their true nature
They have such personality
It's so sad they're endangered

We see all types of fish
Like Lamprey and Dace
It's exciting to see what is hidden
And not right in your face

The seasons progress
And soon it is summer
As we all know
That is anything but a bummer

It gets pretty hot
But in the heat we do not wither
Because, as you know
We still work on the rivers!

We are so lucky
Up here in Yreka
I have discovered my happy place
Eureka!



WSP Member Janelle Christensen holding a macroinvertebrate sample.

Who You Gonna Call?

By: Chris Attias

Placed at US Forest Service Orleans

KF HAT!

If there's something strange, in your neighborhood

Who you gonna call?

KF HAT!

If there's something weird, and it don't look good

Who you gonna call?

KF HAT!

So, clearly the Klamath Fish Health Assessment Team (KFHAT) does not roll off the tongue like Ghost Busters, but this group is no less important to call than our popular dust buster toting heroes. This is particularly true when reporting signs of dead and sick fish exceeding natural levels, AKA a “fish kill.”

KFHAT started in the summer of 2003, as a response to the 2002 fish kill in the lower Klamath. KFHAT’s mission is to provide early warning and a coordinated response effort to address a fish kill in the anadromous portion of the Klamath River basin. The interagency group now communicates weekly through conference calls to discuss the status of fish health and river conditions. Topics of high concern include the direct cause of the 2002 fish kill: outbreaks of the protozoan parasite *Ichthyophthirius multifiliis* (Ich) and the bacterial parasite *Flavobacter columnare* (columnaris) (CDFG). Related talking points include the river conditions that encouraged the parasite outbreaks: high salmon densities, low water flows, and high water temperatures (CDFG).

After comparing data they determine the “readiness” at which members should be. The spectrum starts at **Green** (all okay) and progresses through **Yellow**, **Orange**, and onto **Red** (die-off occurring). The readiness level on June 30th can be seen in Figure 1.

A readiness of **Red** is where the members of the Watershed Stewards Program enter. WSP members from the USFS Eureka, Lower Trinity, Orleans and Yurok Tribal Environmental Program all attended the annual KFHAT Emergency Response Training held on the Salmon River on June 2nd. Here we were taught adult fish enumeration, juvenile fish enumeration, water sample collection, water quality equipment, and disease sampling. If needed, WSP members are now prepared to help quantify the extent and cause of a fish kill.

The information collected would in turn be used by natural resource agencies to help decide appropriate actions to improve fish health, such reservoir water releases. It can also provide valuable scientific evidence for future habitat restoration needs.

So, who you gonna call to report signs of a fish kill? KFHAT at (800) 852-7550.

For more information visit <http://www.kbmp.net/collaboration/kfhat>.

Works Cited

California Department of Fish and Game Northern California North Coast Region. "September 2002 Klamath River Fish Kill: Preliminary Analysis of Contributing Factors." Jan. 2003. <<http://www.karuk.us/images/docs/wqdocuments/COMPLETEDKlamFishKillFactors.pdf>>.

Klamath Fish Health Assessment Team (KFHAT). "Readiness Level Interactive Map." 30 June 2015.



KFHAT and WSP Members learn about water sample collection methods (source KFHAT).

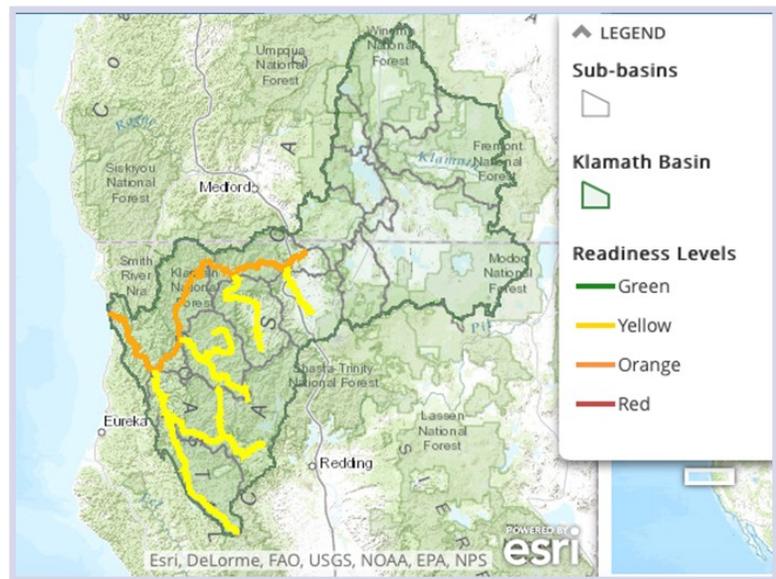
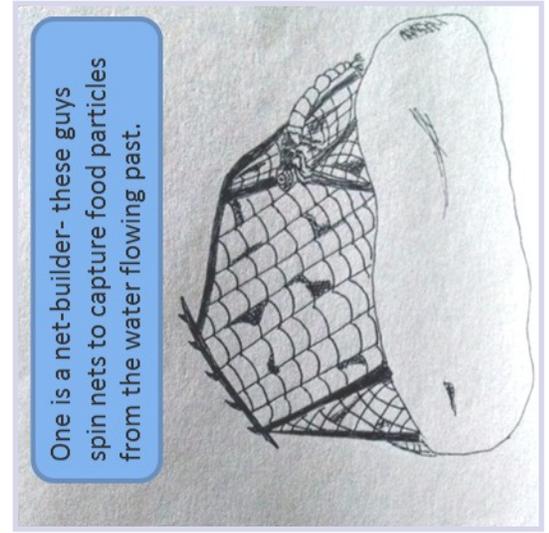
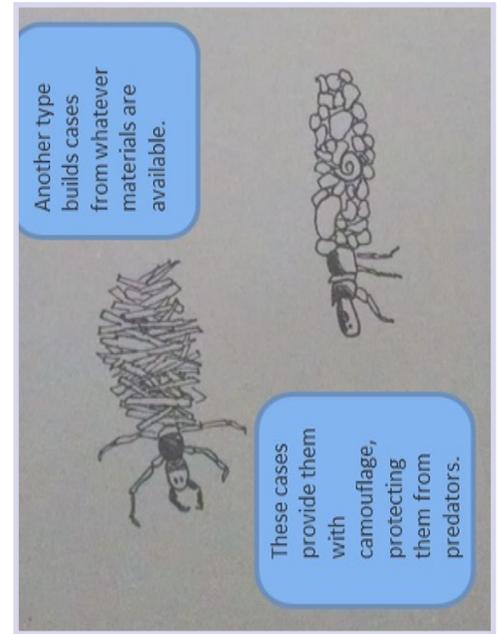
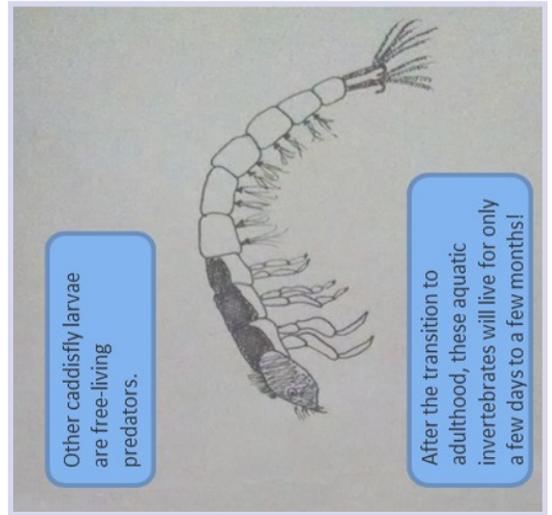
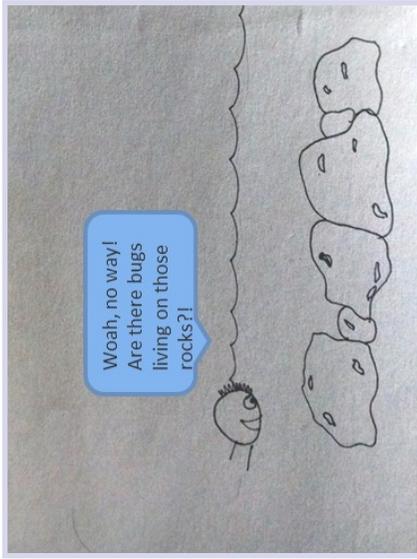
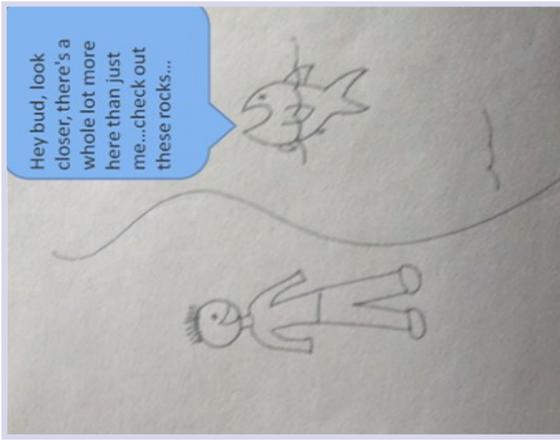
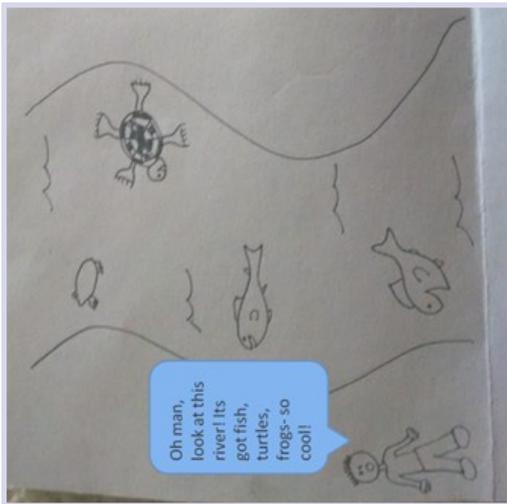


Figure 1. Readiness Levels for main stem Klamath and tributaries below Iron Gate Dam (source KFHAT).

What Lies Beneath...

By: Hannah Coe

Placed at CA Department of Fish & Wildlife Yreka



The Tale of Salmon McGee

By: Patrick Doughty

Placed at Marin Municipal Water District

A fishy ballad inspired by Robert W. Service's
"The Cremation of Sam McGee"

The stakes are high for the fish that try
And make the journey, long.
Out to the sea and, through anadromy,
Return to stream to spawn.

They start a slew, but just a few
Last the round trip to the sea.
But I know of one who made the run-
My chum, Salmon McGee.

He began as an egg and could only beg
For water cool and clear.
For soil smothers and few of the others
Ever saw light that year.

When it came time to hatch in the gravel patch.
An alevin he became.
He was small and knew that until he grew
To trout, he was but game.

With a surge in flow it was time to go
So he finished his yolky sac.
Saying goodbye to his home he started to roam
but soon came under attack

His pursuer gave chase at a rapid pace,
Striking at lightning speeds.
But McGee took flight and escaped from sight
By hiding amongst the weeds

As he grew to smolt, he changed his coat
To shine bright like the sun
He fooled the trout, still sneaking about,
To see McGee undone

McGee made his way to the salty bay
And, glancing along the shore,
He gaped as gulls picked at the skulls
Of those who'd come before.

In the ocean vast, one must be fast
To grow quickly without fail.
For those who wait are naught but bait
And the big fish will prevail

McGee knew this trick and grew up quick
But not without close calls.
He avoided hot waters, sharks and otters
And evaded the fisherman's trawls.

He grew in size, and he deemed it wise
To swim towards waters fresh.
He knew for sure he was now mature
From the red hues on his flesh.

He was quite spry when he snagged my fly,
Nearly dragged me from my feet.
I let him go because I know
His journey was almost complete.

The stakes are high for the fish that try
And make the journey, long.
Out to the sea and, through anadromy,
Return to stream to spawn.

They start a slew, but just a few
Last the round trip to the sea.
But I know of one who made the run-
My chum, Salmon McGee.

Chinook Salmon spotted in a riffle during a spawner survey on reach 4 of Camp Creek. (Credit: WSP Member Chris Attias)



A Journey into the World of Teaching

By: Katie White

Placed at US Forest Service Supervisor's Office Eureka

My most memorable experience serving with WSP was teaching kids about watersheds and fish through the Wonders of Watersheds (WOW! curriculum. On the first day of our WOW! series, a timid boy came up to me and handed me a drawing he had done during the lesson. Inspired by our description of the upcoming curriculum, he had drawn a colorful depiction of a watershed, complete with forested mountains, a bright sun, and a meandering river teeming with fish. I had barely uttered my deep-felt "Thank you!" when he turned on his heel and slipped away.

A timid person myself, I had been bracing for the challenge of teaching two classes of fourth graders each week. But with my trusty site partner at my side, enthused students in every direction, and a kind gesture from someone I could relate to, I was suddenly looking forward to our upcoming lessons. In the coming weeks we taught students about the water cycle by making it rain in the classroom, about the salmon life cycle through interpretive dance (which many students thought made us very silly!), and about ecology and the interconnectedness of all life through demonstrations and discussions.

Our students were quite the crew—they were ecstatic to see us each time, but also prone to distracting one another. They jumped spontaneously from one idea to another, but over time I learned how to better hold their focus. I learned to ask them more questions, and grew to recognize when students just needed some self-reflection time outside of their busy day.

I was disappointed when our WOW! series ended, and was sad to have to say goodbye to the kids we'd been working with. They were disappointed too, and one class attempted (literally) to hold us hostage in the classroom. We miraculously escaped, and made off with the beautiful "Thank You" cards we were given. It's been several months now since our last day teaching WOW!. My site partner spends most days working in the field, and I stick around the office doing data entry and writing research reports. On occasion I chance upon day-long education opportunities, like the Redwood Environmental Education Fair, and I seize upon them as I might fresh-baked cookies. The drawing that kind-hearted student handed me on our first day still sits on my desk at work, and while it was drawn on a tissue, I know I will keep it for a long time.

Busy Beavers: Helping Us Get Wood for Restoration

By: Rowyn Cooper-Caroselli

Placed at USFS Supervisor's Office Eureka

The North American Beaver, *Castor Canadensis*, is a large rodent known for its ability to construct its own habitat by applying principals of hydraulic engineering. They were also hunted close to extinction in the mid 1800's for their desirable pelts (Brian, 2002).

Beavers build dams to establish ponds in which they can build lodges. The ponds protect the lodges from the intrusion of predators and allow beavers to more easily transport felled trees for food and continued structural improvements. The largest beaver dam in the world is 850 meters long and can be seen from space. It has been estimated that construction began in the 1970's and several generations of beavers have continued to expand it to this day (AFP, 2010).

The great engineering feats that beavers undertake to develop their own habitat have profound landscape scale effects on the physical and ecological properties of a drainage. The pools behind dams slow water down. This allows particulates to settle out of the water column and aggrades the channel which helps reconnect a stream with its floodplain, raises the water table, and creates swift water refugia for salmon species during high flow events as well as pools with good low water refugia during the drier months (NIFC, 2014).

To achieve these types of restoration goals by conventional means is expensive and can have unforeseen impacts due to the frequent need for heavy equipment. Human restoration efforts are often under pressure to demonstrate responsible spending and therefore need to be durable so placed logs and boulders are anchored together with bolts and cables. These inevitably fail due to the dynamic and powerful nature of watercourses and leave a mess behind. Once introduced, beavers keep doing what they do best, and they do it free of charge (NWFSC, 2012).

Unfortunately beavers don't know what property law is and will happily plug culverts and chew down landowners trees to make their homes. With proper planning and management however humans can coexist peacefully with beavers. There are several simple technologies that can keep beavers from causing undesirable flooding, making culverts fail, and eating prized trees. A simple mechanism known as a pond leveler can be integrated into a beaver dam or installed through a culvert to allow free flow such that the elevation of the pond can be... (continued on page 15)

regulated and flow can be maintained through a culvert. Trees can be wrapped in a loose fitting wire mesh or a group of trees can be fenced off entirely (Swift, 2015).

Facing increased likelihood of drought and high intensity storms it seems only natural to team up with our beautiful, buck-toothed, beaver buddies to store our precious water in the ground and bolster our valuable fisheries resources. More and more land managers are doing just that and working to reintroduce beavers to places they once lived. Fortunately for the beavers they are now generally being encouraged to colonize areas via habitat improvements instead of being air dropped into the wilderness by parachute (Wright, 2014).

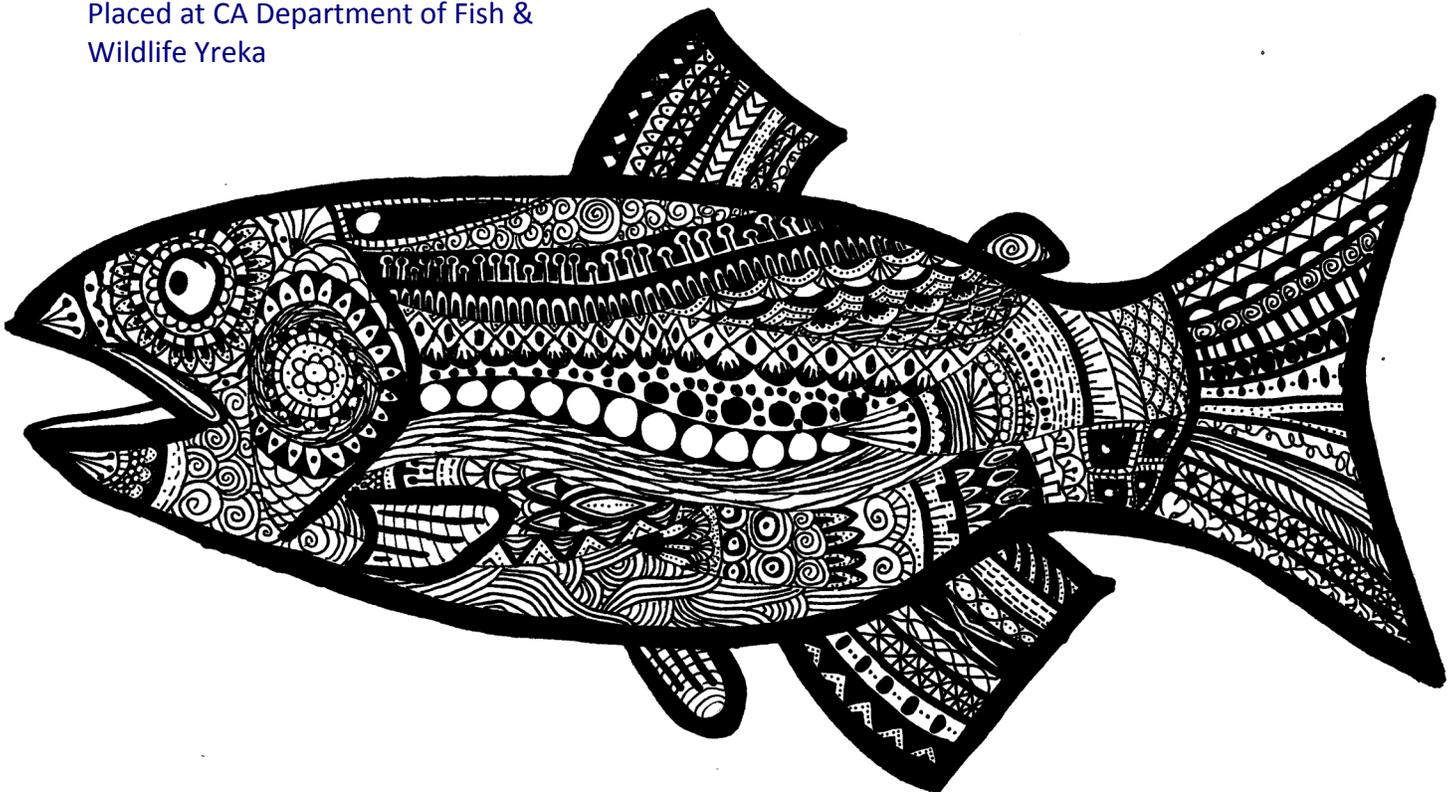
Works Cited

- AFP. (2010, May). *Largest Beaver Dam Seen From Space*. Retrieved from Discovery News: <http://news.discovery.com/animals/zoo-animals/beaver-dam-canada-space.htm>
- Beck, J. (2013). *Beaver Based Alternative to Vanilla*. Retrieved from The Atlantic: <http://www.theatlantic.com/health/archive/2013/09/beaver-based-alternative-to-vanilla/279811/>
- Briant, P. (2002). Chapter 3: Extinction and Depletion form Over-Exploitation. Retrieved from Biodiversity and Conservation: a Hypertext Book: <http://darwin.bio.uci.edu/sustain/bio65/lec03/b65lec03.htm>
- NIFC. (2014, September). *Beavers relocated to improve salmon habitat*. Retrieved from Northwest Indian Fisheries Commission: <http://nwifc.org/2014/09/beavers-relocated-improve-salmon-habitat/>
- NWFSC. (2012). *Working with Beaver to Restore Salmon Habitat*. Retrieved from Northwest Fisheries Science Center: <http://www.nwfsc.noaa.gov/research/divisions/fe/wpg/beaver-assist-stld.cfm>
- Swift, K. (2015). *preventing beaver problems*. Retrieved from Swiftwater Designs: <http://www.swiftwaterdesign.com/preventing-beaver-problems/>
- Wright, S. (2014, January). *Parachuting Beavers Into Idaho's Wilderness? Yes, It Really Happened*. Retrieved from Boise State Public Radio: <http://boisestatepublicradio.org/post/parachuting-beavers-idahos-wilderness-yes-it-really-happened>

Salmon Zen

By: Janelle Christensen

Placed at CA Department of Fish & Wildlife Yreka



A Few of My Favorite Pictures

By: Jason Held

Placed at US Forest Service Lower Trinity

These past 9 months with the Watershed Stewards Program at USFS Lower Trinity have brought me to some of the most beautiful areas I could imagine, and have put me in contact with the most wonderful people to enjoy them with. These photos provide a snapshot into our daily lives in northern California and I feel fortunate to be able to share them. Hope you enjoy!



My site partner (Monica Tonty) enjoying a crystal clear pool at the end of our survey on Bluff Creek.



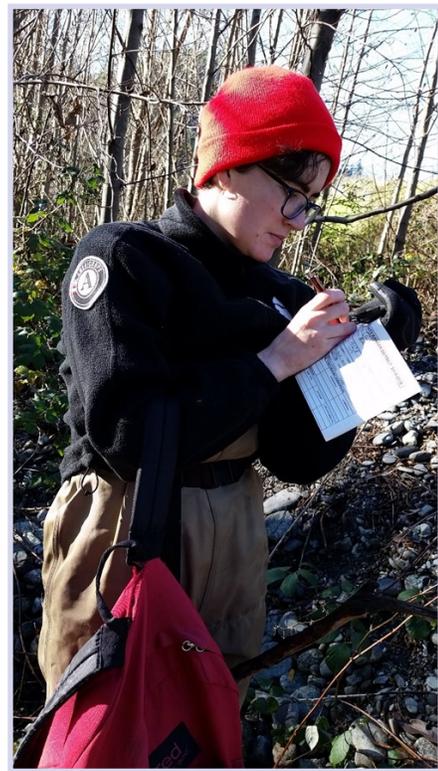
Baby sturgeon found in a smolt trap on the Klamath. All of the features of an adult, only mini!



A field of carnivorous CA Pitcher Plants.



WSP Member Rowyn Cooper-Caroselli (placed at USFS SO) just has to ask... WHY?!



WSP Member Brianna Walsh (Placed at USFS Orleans) all bundled up as she records time and temp on an autumn survey.



Signs of life...

Alumni Spotlight: Bob Pagliuco

Interview By: John O. Herrera, II (Fortuna WSP)

Bob was a Year 9 & 10 Member at CA Department of Fish & Game Fortuna and Humboldt Fish Action Council (HFAC). Bob provided photos in this article.

What was your WSP member experience like?

My experience was excellent, diverse and very rich. Since I knew that I was maxed out at the \$6.25/hr stipend that I earned, I decided to earn additional riches by squeezing every bit of experience out of WSP to build my resume and help the fish and community. I had an incredibly diverse experience that included operating a full-channel fish weir and a juvenile salmonid rearing facility on Freshwater Creek, directing spawner surveys and volunteer recruitment, coordinating and implementing the 2002 and 2003 CCC Salmon Restoration Project training, authoring a CDFG grant seeking waders, monitoring and safety equipment to be used for spawner



Bob teaching 3rd graders at Creek Days about the local geology and how salmon have evolved with different geomorphic features (2002).

surveys

on Freshwater Creek along with many more opportunities.

Tell us about a particularly memorable experience.

I had a chance to organize restoration planting events on McReady Gulch and Redwood Creek that involved over 30 - 60 community members and I was amazed at how much a dedicated group of volunteers can do in 4 hours on a Saturday! Since these experiences were significant to my development as a WSP member, I suggested that all WSP members should experience something like that during my first year exit interview and I think that my suggestion was taken to heart and the individual Watershed Awareness Project (WAP) was born.

You have been involved with WSP in a variety of ways since serving as a Member. What have these experiences been like and how have they differed from your time as a Member?

Since leaving WSP in 2003, I was a pseudo-mentor for 4 generations of WSP members, training them on the HFAC weir, spawner surveys, PIT tagging, and downstream migrant trapping. I also worked with the CCC as a fish habitat specialist in Ukiah and would mentor corpsmembers to design, budget and build restoration projects in coastal Mendocino, Sonoma and Napa Counties. In my current job as a Habitat Restoration Specialist for the NOAA Restoration Center, I sit on the Fisheries Restoration Grant Program's Technical Review Team and I now have been one of the lead reviewers on the AmeriCorps WSP application for the past six years.

What are your responsibilities in your current job? What is involved in a typical day?

I am a Habitat Restoration Specialist working as a contractor to the NOAA Restoration Center. My geographic responsibility is found between the Oregon border and Humboldt Bay and includes all of the Klamath and Trinity watersheds in CA. My job is very diverse and my duties include reviewing restoration grant proposals and making funding recommendations, sampling rivers for salmonids pre and post project, developing restoration projects, streamlining the permitting process for restoration projects, assessing the damage to NOAA trust resources from oil spills so that we can hold the responsible parties accountable to clean up their mess and restore what was damaged, and sitting on several committees including the Calfish Steering Committee, the Fish Passage Forum, and several technical review teams.



Bob Pagliuco drilling holes in a LWD structure prior to anchoring it in Box Canyon Creek in the Mattole (2003).

What's your favorite part of your job now?

I really enjoy traveling around Northern CA and reviewing restoration projects. It gives me perspective of all of the different issues facing fish in CA and allows me to keep my finger on the pulse of what is happening with restoration on a statewide level.

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

WSP taught me how to work hard, take chances, expand my horizons and participate in as many well rounded experiences as I can.

What advice would you give current WSP members?

Don't be afraid to take chances, work outside of your comfort zone and ensure that you take advantage of every opportunity in front of you in order to diversify your experiences for resume building and to find out what inspires you the most.



Bob with an albacore tuna caught 100 miles off of Eureka in 2014.

ABOUT THE WATERSHED STEWARDS PROGRAM

For the past 21 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.

Contact Us

Watershed Stewards Program Main Office
1455-C Sandy Prairie Ct.
Fortuna, CA 95540
(707) 725-8601

Watershed Stewards Program Satellite Office
1527 Madera Ave.
San Luis Obispo, CA 93406
(805) 542-8461

www.ccc.ca.gov/go/wsp
WSP.Info@ccc.ca.gov

WSP STAFF

Program Manager: Jennifer Catsos
Region I Program Coordinator: Zia Schatz
Region II Program Coordinator: Jody Weseman
Member Coordinator/Office Manager: Stephanie Birmingham

CREDITS

Editor/Layout Designer: John O. Herrera, II—District A Team Leader
Front Cover Image: Unknown

