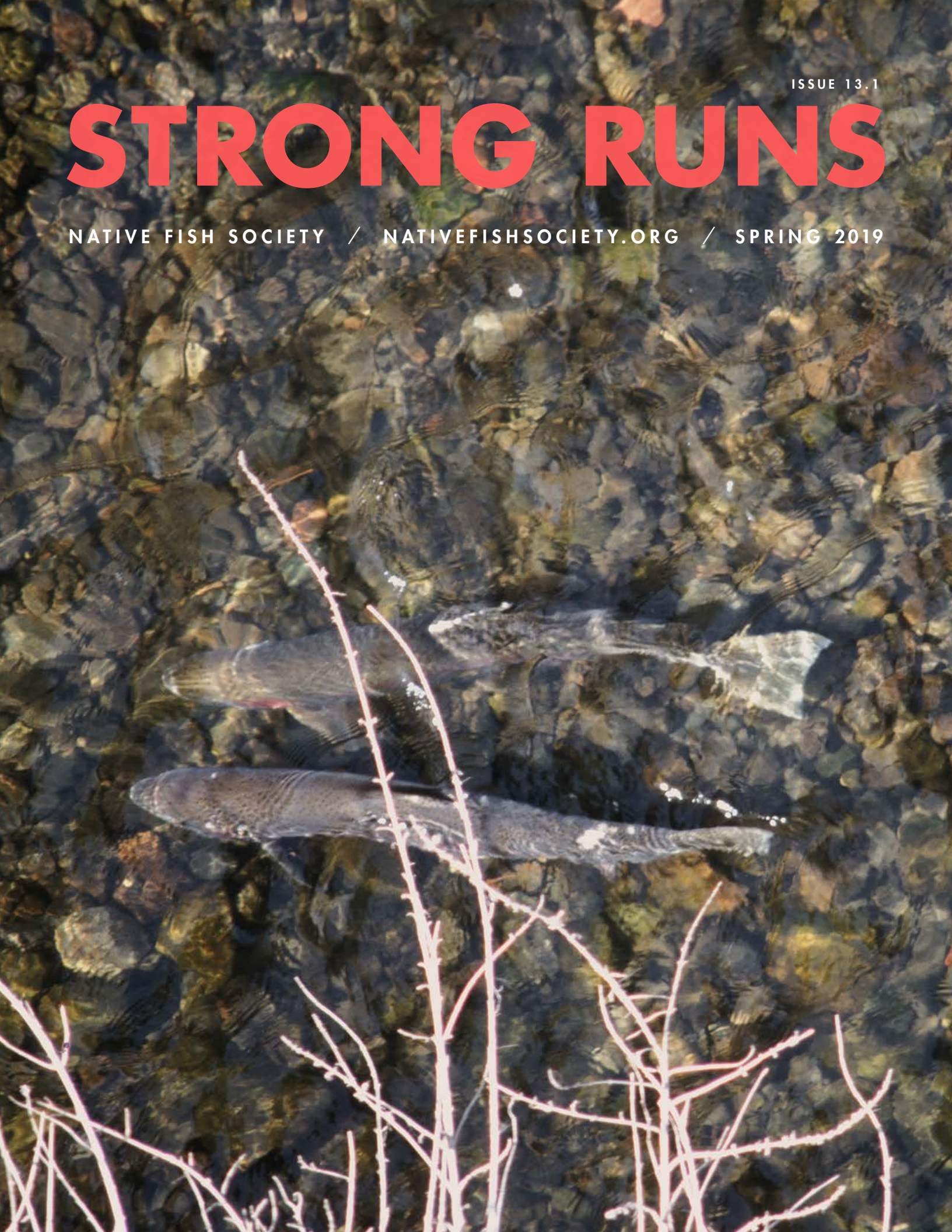


ISSUE 13.1

STRONG RUNS

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Native Fish Society is a tax-exempt, non-profit charitable organization.

“As for us: we must uncenter our minds from ourselves; we must unhumanize our views a little, and become confident as the rock and ocean that we were made from.”

—ROBINSON JEFFERS

STRONG RUNS

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COVER

A spawning pair of wild winter steelhead. Photo: Randle Stetzer

ABOVE

The next generation of River Stewards prepares to snorkel an Oregon Coast stream. Photo: Ben Moon, Courtesy of Patagonia



UNCONDITIONAL REVIVAL

Love As Fuel For Environmental Stewardship

WORDS

Mark Sherwood, Executive Director

ABOVE

Mark and Enzo Sherwood on lower Pistol River.

Photo: Emily Sherwood

In my early days with Native Fish Society, I visited a lot of Stewards to learn more about them and their watersheds. Once in late summer, I paid a visit to Stan Petrowski, our angora goat farming steward of the South Umpqua River. I made the mistake of arriving after dark. In the days before smartphones, Google maps and legalized marijuana, finding Singing Falls Ranch involved a brief, after-hours run in with the local “guard.” He didn’t have to say anything. Seeing the glowing ember of his cigarette in my side view mirror, the head-to-toe camo, and the semi-automatic rifle slung over his shoulder, I was happy to put the car in gear and move along. Mercifully, the inky darkness of the two-lane highway gave up enough clues and I arrived at Stan’s that night, car and body intact.

The next morning, Stan greeted me on the couch with a steaming cup of tea. “Who was that?” I asked. Stan laughed. “He’s a neighbor,” he said. “Probably thought you were someone

from the government or competition looking to make off with his grow. Someone stole all his plants last year, so this year he’s guarding them himself. He’s paranoid, hasn’t slept for a week; it’s probably the meth.” Immediately I regretted my question. I nodded slowly saying, “I see” a few times over. Some things are best left unknown.

Stan and I spent that day driving washboard roads across the entire watershed. We hiked to overlooks, studied Forest Service maps, and identified future habitat restoration sites. Along the way, Stan taught me to recognize the differences between the irregular beauty of an old-growth forest and the dizzying uniformity of Doug fir plantations. The list of challenges facing the South Umpqua and its native fish was a long one: toxic blue-green algae, suction dredge mining, unsustainable logging, non-native, salmon-eating bass, and a covey of wild characters extending well beyond



HOMEWATERS: REVIVAL

ABOVE

NFS River Steward Stanley Petrowski on the South Umpqua River.

Photo: Jake Crawford

TAKE ACTION

Ready to lend a hand?

You can support the revival of abundant wild, native fish by heading to nativefishsociety.org and

- 1** Joining as a member
- 2** Volunteering as a River Steward or a Native Fish Fellow or
- 3** Supporting our work with a donation.

Put your passion into action!

the guard I'd bumped into the night before. Undaunted, Stan would turn to me every 20 minutes during that first watershed tour and say, "Mark, I LOVE this river." Of course, any declaration of love can be awkward and risky. Stan didn't seem to care.

That day, like many of my early watershed tours, was overwhelming. There were so many challenges. Where should we start? How would we make progress? Could we sustain it? Why did Stan love this mess, and what did that mean anyway?

This is what I reflected on this February during the long hours I sat holding my newborn son in the Medford Neonatal Intensive Care Unit. In the early morning on February 5th, he'd been born pale and limp, struggling to breathe. For six hours, I watched as a team of nurses worked to keep him alive and, then, for four more days as they watched over him while he improved. For nine months, my hope was for a healthy child. Did I have what it took to love and care for a sick one? I'd avoided the thought; I didn't want to find out—I'm not sure anyone does. Holding my son, wires and tubes trailing off him like flung spaghetti, I had come face to face with an aspect of love I'd been unfamiliar with.

Stan, like so many of our River Stewards,

had been using love to fuel his efforts for his homewaters. Those of us who have had the good fortune of working with Stan have seen firsthand how effective love is as fuel for advocacy. When suction dredge miners swarmed his river, Stan, NFS, and partners fought to protect salmon habitat and clean water. At the encouragement of NFS and Umpqua Watersheds, Oregon Fish and Wildlife declared open season on bass in the Umpqua, removing all size and bag limits. When just a single coho salmon returned to the creek on Stan's property, he partnered with the U.S. Forest Service and his neighbors—many of them out of work loggers—to restore salmon habitat all over the South Umpqua. A few years ago, the wild coho run set a modern record when 40,000 salmon returned to the South Umpqua. The coho in Stan's creek were part of that revival. Stan wasn't exaggerating. He LOVES the South Umpqua.

The same thing could be said for River Stewards across the Pacific Northwest, whether they're working on the Molalla, Willamette, Deschutes, Rogue, Nehalem, Yamhill, Klamath, Eel, Nisqually, Nooksack, or the Skagit. These watersheds are far from pristine. Many of the challenges will require generational stewardship to be put right. But their present condition is not what compels our advocacy—it's our love for these special places and the wild fish that return to them. Our community's overwhelming love for our homewaters is what gives me hope. No matter the challenge, our deep connections will drive our advocacy as we seek to restore our watersheds, heal our communities, and revive abundant wild fish. 🐟



GRASSROOTS GROWTH

BEAR TRACKS AND SOLITUDE

Southern Oregon's Rugged Pistol River

My first connection to the rugged Pistol River was through its wild, native winter steelhead. The small coastal stream in Southern Oregon draws much of its appeal from the magnificent hikes in and the hope of connecting with a willing wild steelhead in solitude. When walking to favorite stretches of the river, it is not uncommon to follow only bear tracks on the way.

The Pistol is a free-flowing stream that originates in the coastal mountain range and reaches the Pacific Ocean between the towns of Brookings and Gold Beach. The watershed consists primarily of working forests as well as a few farms. More than half of the watershed is publicly owned, managed primarily by U.S. Forest Service and the Bureau of Land Management.

In addition to beautiful winter steelhead, the Pistol supports wild populations of fall Chinook and coho salmon, as well as sea-run cutthroat. The coho are currently the only ones listed as threatened under the Endangered Species Act. Coho and Chinook enter the river in the fall, after the sandbar breaches with the first significant rains.

After many hours of hiking around and exploring

this watershed, I am particularly concerned about the impacts of timber harvest and road building on water quality and spawning habitat. I am also concerned about the legal harvest of the Pistol's wild winter steelhead. Pistol River is one of the only fisheries on the West Coast where regulations allow anglers to harvest wild winter steelhead. The annual limit was reduced from five wild winter steelhead per year to three after Oregon Department of Fish and Wildlife received a petition advocating for wild steelhead release. Headed by local fishing guide Harvey Young and supported by community members and Native Fish Society, the petition convinced ODFW to reduce, but not eliminate, retention. According to the agency, harvest of wild steelhead is sustainable on coastal Southern Oregon rivers.

As a steward for Pistol River, I want to be a part of advocating for data-based decision making. When timber harvest occurs in the watershed, the effects need to be monitored in order to promote responsible practices. This is also the case when considering road construction and repair. With all this in mind, my goal is to promote proper management of the watershed, so that the wild fish that inhabit it can continue to thrive. 🐟

WORDS

Josh Pruden, *Pistol River Steward*

PHOTO

Mark Sherwood

THE SPRINGER PATHWAY

What We've Learned After 10 Years of the Rogue River Spring Chinook Conservation Plan

WORDS

Peter J. Tronquet,
Rogue River Steward

ABOVE

On the Rogue River, spring chinook adapted to the cold water and high flows of spring by migrating deep into the system. Lost Creek Dam eliminated that advantage.

Photo: Open Source

When you reach a certain age, nostalgia takes over and you begin to examine your life and the pathways you have chosen. With wild salmon, those pathways are called life histories and they describe the many ways that salmon adapt to complex environments. The ancestors of Rogue River wild Chinook salmon survived a thousand years of floods, El Niños, and fluctuating river temperatures. They have been shaped over time and fit perfectly in their homewaters. Whether by Chinook from another basin or salmon from a hatchery, they can't be replaced.

Any story about the modern runs of wild Rogue River spring Chinook must begin with Lost Creek Dam. Completed in 1976, the dam blocks about 30 percent of historical spawning habitat. Before it was completed, 29,000 Rogue springers returned, on average, each year. In 2007, with the ten-year average at just 7,700 salmon, the run plummeted to 3,500. It was the lowest return on record.

As guardians of the Rogue and its native wealth, we have a responsibility to remember the river's pre-dam abundance. We are also accountable for reversing post-dam trends of degradation

and decline. In 2004, in order to meet the tenets of Oregon's Native Fish Conservation Policy, Oregon Department of Fish and Wildlife and a public advisory group drafted a conservation plan. We identified the factors limiting natural production, namely: loss of historical spawning habitat, harvest of wild springers, and hatchery fish on the spawning grounds. Three years later, the ODFW Commission approved the Rogue River Spring Chinook Conservation Plan. Now a decade in, the ten-year average has climbed to 9,700 wild adults.

In spite of the progress, the plan has not accomplished its primary goal—a ten-year average of 15,000 wild adults. Fifteen thousand has been an elusive number, even though a determined conservation community has orchestrated the removal of all mainstem dams and removed barriers or improved fish passage on tributaries. The U.S. Army Corps of Engineers, which operates Lost Creek Dam, has managed reservoir releases to benefit salmon. Since 2010, ODFW biologists have counted carcasses in order to estimate abundance and collected scale samples. The scale samples allow them to document age composition, a particularly important metric. Maturity and spawn timing

are highly heritable. Before Lost Creek Dam, the majority of Rogue spring Chinook returned as four- and five-year-old adults. Our hope was that, with proper management, post-dam spring Chinook would continue to return as older fish.

Hybridization between spring and fall Chinook is a threat we are just beginning to understand. Researchers at University of California, Davis have discovered a single allele identifying the spring life history in Chinook salmon. If the fish displaying that allele disappear, we won't be able to restore the Rogue's legendary spring runs.

On the Rogue, Chinook adapted to the high water and cold flows of spring by migrating deep into the system. Nature gave them a spring pathway and, once they adapted, they did not compete with other salmon. Lost Creek Dam eliminated that advantage.

In the last ten years, we have learned that the water-release strategies outlined in the plan have cut both ways. Though wild spring Chinook have benefitted from water releases, higher summer flows have allowed fall Chinook to push into the highest spawning territory, once the exclusive spawning grounds of spring Chinook. In the 18 miles between Dodge Bridge and the Cole Rivers Hatchery, a third of spawning Chinook are now spring/ fall hybrids. Rogue River springers are being squeezed out.

The Rogue still supports the most abundant population of wild spring Chinook on the West Coast. Though I am reluctant to bang the drums too loudly when discussing our progress, only the North Umpqua has shown similar resilience. Everywhere else, wild runs of coastal spring Chinook are flagging and some have been extirpated entirely.



A recent recovery proposal calls on the federal government to upgrade Cole Rivers Hatchery and invest in habitat restoration. Furthermore, they would like the community to be compensated. That anger is not unfounded and some of the proposals, like more instream water for the tributaries, would benefit wild fish. But objectives get scrambled when the net is cast as widely as this proposal intends.

As an NFS River Steward on the Rogue, I will continue to insist that recovery of wild spring Chinook remains the priority. If we treat the inhabitants of the river with respect and perhaps find it within ourselves to allow them to prosper, spring Chinook will continue to follow their pathway and share their rich legacy far into the future. 🐟

ABOVE TOP TO BOTTOM
Rogue River spring Chinook were cut off from one third of their critical spawning habitat by Lost Creek Dam.
Photo: Marcus Mattioli

Rogue River spring Chinook.
Photo: Mark Conlin, Courtesy of Oregon Department of Fish and Wildlife



CAMPAIGN
KICKOFF

HOT HOMEWATERS

Preparing Ourselves And Our Native Fish For Climate Change

WORDS

Jennifer Fairbrother,
*Campaign &
Columbia Regional
Director*

ABOVE

A spring chinook salmon that died without spawning on Oregon's Clackamas River.

Photo: Courtesy of Oregon Department of Fish and Wildlife

Hot rivers and smoke-filled skies. Late-Harriving snows and early spring melts. The impacts of climate change are increasingly apparent across Pacific Northwest landscapes. Hotter summers, warmer winters, and decreased snowpack have hit the region's waterways and native fish especially hard.

Native fish face a double whammy of diminishing stream flows and a hotter climate. In 2015, the warm winter and subsequent drought led to fish kills in rivers throughout the Pacific Northwest. This is a harbinger of our not-so-distant future.

If current global trends continue, the average temperature in Oregon will climb an additional three to seven degrees Fahrenheit by 2050. Even under more optimistic scenarios, the impact on water availability is grim. Modeling from the U.S. Bureau of Reclamation indicates that, while changes in total precipitation will be minimal, the type and timing of precipitation will be drastically altered. By 2040, eastern Oregon basins like the Deschutes are expected to have 33 to 58 percent less springtime snowpack.

For native fish and the communities that depend on them, the Pacific Northwest's impending climate future means fisheries managers must adopt and implement policies that proactively protect our native fish from changing climate and altered landscapes.

At NFS, we are working to integrate climate change considerations into all of our programs and campaigns. Management strategies that don't cannot serve our vision of restored abundance. We also know that the impact of climate change on our rivers and fisheries necessitate proactive management and approaches aimed at fostering the resilience and adaptability of our ecosystems. To that end, we are launching our Hot Homewaters campaign. The objective: to promote proactive management that protects and enhances the resilience of our native fish.

We're kicking off the campaign in Oregon, where Governor Kate Brown has made climate change a priority during her final term in office. She has directed management agencies to foster the resilience of Oregon's natural resources. In the coming year, we'll be promoting a suite of policies to proactively protect our homewaters and wild fish.

First, we are advocating for an established policy for closing recreational fisheries when water temperatures exceed specific parameters in a stream or river section. Temperature-based closures, also known as "hoot owl" closures, are critical to protecting coldwater fish when water temperatures rise to unhealthy levels.

Throughout the summer, many rivers in the

Pacific Northwest regularly exceed suitable temperature thresholds for ethical catch-and-release angling. In recent summers, Oregon Department of Fish and Wildlife has recognized this threat and responded with emergency closure orders. Last summer, for example, temperature-based closures were implemented on stretches of the Umpqua River. Yet temperatures had spiked in rivers across Oregon, and many streams remained open to angling. Emergency regulations are currently applied section by section, one river at a time, on a discretionary basis. They are a burden for the agency to implement year after year. More often than not, they are also inconsistent, confusing for anglers, and applied long after water temperatures have exceeded safe levels for fish. It behooves the agency to abandon its piecemeal approach and craft the regulations in advance.

Establishing guidelines for temperature-based closures will secure long-term angling opportunity by protecting stocks foundational to Oregon's fisheries. Hot weather and low flows spell real trouble for native fish. Our goal is not to limit anglers' time on the water. Rather, it is to develop a standard policy that is proactively responsive to the need for temperature-based regulations.

We are also promoting the adoption of angling regulations that make it unlawful to remove fish from the water when catch-and-release fishing. Oregon's current fishing regulations include suggested catch-and-release ethics, but do not mandate that fish remain in the water. The information is generally viewed as optional, and compliance is poor.

Research has clearly established that, the greater fish's stress during capture and release, the greater the chance of subsequent mortality. One common and easily avoidable stressor is air exposure when fish are removed from the water. Mandating that fish remain in the water would ensure that the impact of angling is minimized. Any fish that is caught needs to be released with the greatest chance of successfully surviving and spawning.



ABOVE

Deer Creek, in the Rogue River Basin, ran dry in the summer of 2015, stranding thousands of fish. Climate change will make events like this more common for many Pacific Northwest streams.

Photo: Pete Samarin,
*Oregon Department
of Fish and Wildlife*

Finally, we are promoting the use of less-lethal gear types when angling over runs of fish listed as threatened or endangered under the Endangered Species Act. Research has found that angling with barbed hooks and bait increases post-release mortality. The use of these gear types also increases the number of fish caught per angler, magnifying the impact. Many northwest fisheries targeting threatened wild steelhead and salmon have shifted to artificial flies and lures with barbless hooks, but some critical runs within Oregon are excluded from these protective regulations. In one egregious example, ODFW allows anglers to use bait and barbed hooks to target ESA-listed wild steelhead in a catch-and-release fishery on the John Day River. As the longest free-flowing tributary of the Columbia, the John Day deserves more.

As stressors like climate change impact coldwater species across the Northwest, anglers understand that additional measures need to be taken to protect sensitive species. Wild fish are already struggling to survive. Low river flows, changes in flow timing, warmer water temperatures, and diminished water quality will only be exacerbated in the coming decades. As stewards of our homewaters and native fish, we must take the proactive steps to minimize our impact and foster resilience. Our proposals are just the first step. They are simple actions that, taken now, will leave our communities, our homewaters, and our wild, native fish better prepared for the future. 🐟

THE FATE OF TRIB 1

WORDS

Conrad Gowell,
Fellowship Program
Director

ABOVE

Healthy Oregon
Coast Range forest
on a steep slope
above Trib 1.

Photo: Conrad
Gowell

Fishing has been tough lately, not because there are not fish to catch or because the conditions are unfavorable, but because I don't much feel like angling. I still love the connection to fish I feel through a rod and reel, but there is something larger and more dire tugging at me.

Anglers' hearts sink when they meet the timber cruiser on the road into their favorite section of river. We know what this means. Pleasantries hang awkwardly in the air. We look at our feet and kick rocks. The slope down to the water is steep, we think, and the roots of old growth stumps that hold this hillside together are rotting.

The next time out, a brush clearer has taken a 10-foot swath from either side of the road. New gravel has been laid down. We know what comes next.

The damage will unravel over months, years, decades, and centuries to come. You're supposed to feel helpless—the forces of extraction are at work. It's not the fault of the person standing before me, or the people who will operate the machines that will turn these trees into commodities—I don't blame them. I feel a responsibility to ensure that this familiar scene doesn't continue unchallenged.

In the eyes of the state, this is perfectly legal. While the 80-degree slope above Trib 1 is classified as a "High Landslide Hazard Area," it supposedly doesn't pose a downslope public safety risk. Under the Oregon Forest Practices Act—the weakest logging regulations in the Pacific Northwest—downslope coho salmon, threatened with extinction, are not considered. At least not yet.

In January, United States District Court Judge Michael W. Mosman heard oral arguments in a lawsuit to protect fish from harmful clearcuts in Oregon state forests. Five plaintiffs—The Center for Biological Diversity, Pacific Coast Federation of Fishermen's Associations, Institute for Fisheries Resources, Cascadia Wildlands, and Native Fish Society—argued that the current boundary between fish habitat and upslope logging is insufficient. Judge Mosman agreed. However, hoping to better understand where and to what extent his rulings would apply, he asked that the complaint be made more specific and refiled.

The fate of Trib 1 remains in flux. It's hard to convey the beauty of this little stream using the legalese of the courtroom. I wish I could show Judge Mossman the tangled western red cedars, buried under stream cobbles, that form the tailout where coho, Chinook, and steelhead

come every year to lay their eggs. Those trees provide a home to pacific giant salamanders, tailed frogs, pacific lamprey, signal crayfish, and myriad other aquatic species.

When you spend time around forests and water, you understand how habitats are formed—the hundred years it took for the tree to grow on the ridge, the landslide that uprooted the tree and deposited it in the stream, and the future floods that will push this tree downstream, into the estuary, and, finally, onto coastal beaches. The process is one that a diverse array of native species have come to depend on. It has been disrupted now for three generations, and is at risk of a fourth.

Our understanding of forests has been warped by the commodification of trees, in the same way that our relationship to fish is skewed by hatcheries. Industrial logging has no use for the inextricable relationship between trees, fish, and rivers. Its story is one of cheap labor and maximum board feet—an ugly alchemy that converts an ecosystem's richness into shareholder profits. Is this the best that Oregon can do?

At the state capitol in Salem, a quote is etched into the marble to the left of the entrance:

"A free state is formed and is maintained by the voluntary union of the whole people joined together under the same body of laws for the common welfare and the sharing of benefits justly apportioned."

Inside the capitol, however, forestry is a hot potato. In a state that allows unbridled campaign contributions, the money that industrial logging gives to our representatives is in a league of its own. Many Oregon lawmakers maintain tacit ties to timber. Any bill that challenges the industry is quickly killed.

There is hope. Among the members of the Oregon Board of Forestry, there are fewer direct conflicts of interest than ever before. And



ABOVE

Conrad Gowell surveys the aftermath of a logging operation in the Oregon Coast Range.

Photo: Ben Moon,
Courtesy of Patagonia

recently, the board directed the Department of Forestry to take a second run at a Habitat Conservation Plan for state forests in order to prevent logging from impeding recovery of threatened coho, marbled murrelet, and spotted owl.

We were there, pointing out the degraded standards by which we judge our responsibility to the environment. Citizens, too, have more power than they may know. Oregonians can petition the Board of Forestry to identify and protect resource sites for listed species. This has never been done for coho salmon, but if people want the rule to change we will need to change them.

Shortly after Oregon became a state, timber cruisers went through the rich forests of the Oregon Coast Range. The richness included the species present in the watershed. There was a seemingly limitless abundance of salmon, trout, lamprey, and more—and a seemingly limitless abundance of trees.

Looking across the landscape now, roadbuilding and logging are causing more frequent landslides, debris torrents, and chronic sediment problems. The impacts on native fish, amphibians, and other aquatic species are acute and often lethal.

Our natural resources are being drained, and the profits from the damage is exported elsewhere. How much damage has industrial forestry also done to our drinking water? What impact has it had on commercial, recreational, and tribal fishermen and women? How many more rotations can our hillsides take? Is this in the interest of the "common welfare" as the capitol wall suggests? I am certain it is not. 🐟



IN STEELHEAD

Qualitative and Quantitative Investigations into Summer-Run Steelhead in the Eel River Basin

WORDS & PHOTOS

Samantha Kannry,
Van Duzen River
Steward

ABOVE

Eaton Falls was thought to be a barrier to anadromous fish until Samantha and her team found a summer steelhead above it.

In steelhead, I see the fulfillment of love. While snorkeling in the Eel River in mid August, the expression of love is even more acute. The air is hot, the water is warm enough to go wetsuit-free—but cool enough for summer-run steelhead—and a clear emerald green. Early on in my summertime river snorkeling career, I realized I had no choice but to dedicate myself to protecting that love.

I am currently investigating the distribution and ecology of steelhead in California's Eel River using genetic analysis. The lab I work with at the University of California, Davis focuses on conservation genetics and has published new research that revealed the genetic basis of run timing in summer-run and winter-run steelhead, as well as spring-run and fall-run Chinook salmon.

In the Eel River Basin there are two extant populations of summer steelhead, in the Van Duzen and the Middle Fork Eel Rivers. For the last eight years, counts have averaged 150 adult fish in the Van Duzen. Counts on the Middle Fork go back 20 years, averaging 800 adults annually. It is likely that, historically, there were also summer steelhead in both the upper mainstem, above Scott Dam, and on the North Fork. Eel River summer steelhead represent the southernmost expression of this imperiled life history. Evidence of a historic run of summer steelhead above Scott Dam would strengthen the argument for dam removal.

Over the last two summers, along with my field partner and some remarkable volunteers, I collected fin clips from 850 juvenile steelhead in the Van Duzen and Middle Fork Eel Rivers,

as well as the upper mainstem. We collected our samples after dark using dip nets. During the day, we traveled between sampling locations and caught colorful resident trout by hook and line. We spent many hot summer days hiking and snorkeling, working our way up and down forks and tributaries to some of the most remote reaches of the watershed. Not only did this ensure that our sampling locations were well-dispersed throughout the basin, it also took us to several stretches of river that we had never seen but dreamed about for years.

We wanted to investigate how barriers impact the distribution of the run-timing gene, so we concentrated our efforts above and below barriers. In addition, we searched for the presence of the summer run allele in resident populations above the dam.

This past summer, we made two remarkable sightings of summer steelhead. While exploring the Van Duzen, we found a summer steelhead above Eaton Falls—an imposing bedrock wall previously believed to be a complete barrier to anadromy. The sighting confirmed what a recent, unpublished otolith study had already shown—that anadromous salmonids are present above Eaton Falls. The other sighting, not far from Red Lassic Peak, was only a few miles from the source of the South Fork Van Duzen. Both observations suggest that summer steelhead travel high into the Van Duzen's headwaters, using habitat on U.S. Forest Service land and in federally designated Wilderness Areas—possibly using many more miles of the river than was previously believed.

I would gladly spend the rest of my days walking and swimming in the streams and canyons of the Eel and catching fish at night. But in order



ABOVE
Admiring an Eel River pool full of wild summer steelhead.

to share my research, there are further tasks to complete—laboratory processing, data analysis, and writing. The laboratory work involves preparing the samples, extracting DNA, and creating DNA libraries to be sequenced. Then we use a conglomeration of on-campus computers called “the cluster” to rapidly process the data. Using this process, we can determine the frequency of the summer-run allele (called the GREB1L region), the frequency of the major area of influence over anadromy versus residency (called the OMY5 chromosome), as well as the relatedness of sub-populations and how much gene flow is occurring around barriers.

Technology can not quantify the experience of diving into a crystal-clear, 20-foot-deep pool set in a steep red-chert canyon and filled with fifty steelhead from 24- to 36-inches-long, just beginning to show a red blush. What it can do, however, is help us scientifically describe what some people have known for a long time—that summer-run steelhead (and the congeneric, similarly adapted spring Chinook) are distinct from winter-run steelhead on numerous levels. They use separate habitat that is mostly inaccessible to winter-run steelhead and, without another rare mutation that would likely take eons to occur, they will not re-evolve from winter-run steelhead. In Northern California, these unique fish are on the verge of extirpation and in dire need of our assistance. 🐟



WILD. ABUNDANT. LOCAL.

Re-Envisioning The NFS Brand After 24 Years

WORDS

Mark Sherwood

ABOVE

Discussing Native Fish Society's brand identity at the June 2018 River Steward Gathering on the Scott River.

Photo: Conrad Gowell

STAY TUNED

Native Fish Society will have new hats, t-shirts, and stickers on our website this summer.

This January, after a year of gathering input, developing a strategy, design exploration, and organizational soul-searching, all of us at Native Fish Society were thrilled to roll out our new logo.

Re-envisioning Native Fish Society's brand after 24 years was no simple task! Thankfully, we didn't do it alone. Our Board of Directors, River Stewards, conservation partners, and members guided us by providing insights, personal stories, and fodder for deep discussions. The process ultimately validated that it's time for our brand—our identity as an organization—to evolve.

The strategic planning process began in 2016. The key insight: we need to expand and diversify our community. Our fly angling founders are a powerful and passionate community. But wild, native fish and the rivers they call home are dear to many people—sport anglers, commercial fishers, tribal nations, conservationists, naturalists, outdoor enthusiasts, foodies and foragers, educators, scientists, and policymakers. The vast majority of these groups are unfamiliar with or have misconceptions of Native Fish



Society. They don't know why we exist, what we do, or how they can support our work. And yet they are a critical part of the future we envision.


Love for what's wild is our common ground. This discovery has sparked new relationships, growth within our River Steward and Fellowship programs, and the evolution of our science-based/community-driven campaigns. If we want to revive abundant

wild fish, free-flowing rivers, and thriving local communities, we must first cultivate a groundswell of public support.

Our new logo is the visible expression of this work. It honors our past and aims us toward the future we envision. It demonstrates our commitment to the expansion of our community and remembers our bold mission. For those who know us, we want it to evoke a sense of pride and strengthen our identity. For those who don't, we hope it piques their interest, helps us stand out, and makes them think.

Arcing through the foreground are two wild fish. They are the embodiment, both of our advocacy and our vision of abundance. The fish are on the move—dynamic, alive. They are a pair, spawning to pass on locally-derived traits to future generations. And they are salmonids, with stripes like a steelhead to embody the Northwest's most charismatic native fish.

Behind the fish stands a silhouette—a river steward, staff in hand. The silhouette represents the critical part we play on behalf of wild fish. We are their guardians, their stewards, and their advocates. We are keepers of the wild. We are everyday people taking action. Time and again, we have seen movements of public support swell from the passion of a single advocate. We are here to educate, inspire, and forge the lasting relationships that will keep fish and rivers forever wild.

We kept the tried-and-true circle for our mark. Framed by our name, it now includes our new rally cry: "WILD, ABUNDANT, LOCAL." These three words capture our common ground, our vision for success, and the twin strategies of local adaptation and local grassroots advocacy that make Native Fish Society unique. 



There is a long list of people whose creativity, skill, and perseverance were vital to the rebranding process. I owe them a debt of gratitude. This list includes: longtime NFS Member and talented artist Ed Hepp, who designed the logo; Ryan Gallagher of GoodGallagher, a nonprofit brand consultant, who guided our team through the strategy process; board Vice Chair Doug DeRoy and NFS Member Michael Dalton, who both provided invaluable feedback along the way; former Board Member Danny McGinley, who really got this ball rolling; and, of course, all the River Stewards, staff, and board members who shared their ideas and and, of course, all the River Stewards,...who shared their ideas and support.

ABOVE

Ryan Gallagher (left) discussing Native Fish Society's brand identity with Williamson River Steward Marshal Moser.

Photo: Conrad Gowell



SPRINGTIME SMALLMOUTH BASH

The Scourge of Juvenile Salmonids, Breaded and Fried

WORDS

Brett Tallman

ABOVE

Invasive lunch: a Willamette River smallmouth bass po' boy served with sweet potato fries, a lemon wedge, and a cold beer.

Photo: MJ Samples

Each spring, when the scotch broom blooms gold and iridescent starlings nest in my eaves, I think of the smallmouth bass in the Willamette River tributary that runs through my hometown. And I think of the Smallmouth Po'Boy that becomes a staple of my diet from March to June.

South Umpqua River Steward Stanley Petrowski believes smallmouth make better fertilizer than table fare, but, as the base for a Po' Boy sandwich, exotic bass are just the thing. Over-abundant and locally-invasive, the more fresh smallmouth you take the more sustainable they become. This sandwich saves salmon.

I serve it the (mostly) traditional way—on a baguette with a big dollop of Cajun mayonnaise, coleslaw, and jalapenos julienne.

Smallmouth were introduced in the Willamette River in 1923, but their impact on native salmon and steelhead was negligible for the first half-century. As dams proliferated, so did the smallmouth. At the same time that dams were turning the Willamette River into a warmwater wonderland, the region's average temperatures

have been rising. Biologists expect their range to expand and their impact on native species to increase in direct proportion to climate change.

Though smallmouth thrive in slackwater, the fillets should be rinsed in cold, clean water and patted dry with a paper towel. Remove the pinbones—I use my forceps for this job—and cut the fillets into sandwich-sized pieces. In a cast iron pan, heat canola oil—about an inch deep—to 375 degrees Fahrenheit.

A 2004 study on Washington's Yakima River estimated that bass consumed 335,000 juvenile salmon each year between March and June. In some places, like the South Umpqua River in Oregon, fishery managers have responded to the proliferation of smallmouth by lifting bag limits. When Columbia River salmon runs crashed in 2016, Washington Department of Fish and Wildlife followed suit. It was open season on invasive species.

Faced with an identical problem on the Willamette River in Oregon, fishery managers are dragging their feet. The Willamette's native runs of winter steelhead and spring Chinook salmon are flagging. Though the causes are myriad, there is no doubt that invasive species are taking a toll. Why there is a conservative five-fish limit on Willamette bass is anyone's guess.

In a mixing bowl, combine flour, salt, pepper, and baking powder. Whisk in a beaten egg and cold beer, adding enough to make the batter smooth and thin. In a separate bowl, combine flour, pepper, and salt.

Taking a limit of smallmouth is a token gesture. For the time being, they're here to stay. But according to a 2002 study, liberal bag limits could put a dent in the Pacific Northwest's invasive smallmouth population. That, along with increased spill from dams and responsible land use, could give native salmonids a fighting chance. If doing my civic duty means smallmouth bass breaded, fried, and served with cold beer, so be it.

Check the oil—375 is the magic number, but you can test it by dropping a little batter in the oil. If it sputters, bubbles, and turns golden brown, the oil is ready. Dredge the smallmouth fillets, first in the dry flour mixture and then in the batter until they are completely coated. Gently place the battered pieces in the hot oil, frying each side until golden brown—about one minute.

I grew up catching and eating salmon, steelhead, and cutthroat. Out of necessity, the eating gave way to releasing, though I never stopped craving fish. I'm not entirely at ease with exotic

species on my table—probably I never will be. The catching, too, is a dubious thrill. But it is a thrill. Some days, I even forget that I'm not out there to have fun.

Assemble the Po' Boy. Add a generous dollop of spicy Cajun mayonnaise and slaw. Serve with sweet-potato fries, a lemon wedge and a cold bottle of whatever you've got. Keep a bottle of Tapatio handy. Just don't forget that this is only a way to keep things interesting until the salmon come back. And maybe, if we play our cards right, someday soon we can celebrate with a wild salmon on the grill.

I've got big plans for the holidays—Bratislavan-style bathtub carp. For Christmas dinner, the catholics of Eastern Europe prefer carp to prime rib and roasted goose. They buy them (!) from fish farms (!!!) and keep them in the bathtub until the day of the feast. 🐟

DISCLAIMER

Willamette bass are contaminated with mercury, PCBs, dioxins, and pesticides. The Oregon Health Authority recommends that you do not eat bass more than once a month if: you are younger than six, pregnant, or you have thyroid or immune system problems.

RECIPE

INGREDIENTS

Smallmouth Bass Fillets. Canola Oil. Flour. Salt. Pepper. Baking Soda. Egg. Beer.

STEPS

- Step 1 Combine 1/4 cup flour, 1/4 teaspoon salt, 1/4 teaspoon black pepper and set aside.
- Step 2 Whisk together 1/3 cup flour, 1 teaspoon baking powder, 1/4 teaspoon salt, 1/4 teaspoon black pepper, 1 egg, and 1/2 cup beer until batter is smooth
- Step 3 Heat oil to 375 degrees Fahrenheit
- Step 4 Dredge the fillets in the dry mixture, then coat with the batter, and gently place into the hot oil.
- Step 5 Fry both side of the fillets until golden brown, about 1 minute.
- Step 6 Assemble your sandwich and serve immediately!

FIRE, FLOOD, AND CERATONOVA SHASTA

The Unique Legacy of the Salmonberry River's Wild Winter Steelhead

WORDS

Brett Tallman

ABOVE

A wild winter steelhead leaps the falls on the North Fork Salmonberry River.

Photo: Ian Fergusson, Salmonberry River Steward

In 1959, Oregon Department of Fish and Wildlife began stocking the Salmonberry River with juvenile steelhead from a pair of coastal drainages to the south—winter runs from the Alsea Basin and summer runs from the Siletz. Once released, their bellies swelled and their eyes bugged out. They stopped eating and sought out quiet, shallow water. Though their wild counterparts had no such problems, most—maybe all—of the hatchery smolts died before reaching Nehalem Bay. With no adult fish to show for the effort, ODFW abandoned the program four years later.

The culprit, they realized later, was *Ceratonova shasta* (then *Ceratomyxa shasta*), a parasite endemic to the West Coast of North America. *C. shasta* had been discovered almost a decade earlier at Crystal Lake Hatchery in Shasta County, California. In the summer of 1949, the hatchery's fingerling rainbow trout succumbed to a mysterious infection that left them swollen and lethargic. By September, the entire stock was dead. Assuming wild fish were spreading the disease, hatchery managers tried (and failed) to eradicate them from Crystal Lake, but the outbreaks at the hatchery continued until the water source was changed.

C. shasta was not a newcomer to Crystal Lake. Wild fish had evolved alongside it and developed defenses against it. Hatchery fish, however, had been trucked in from somewhere else and were perfectly susceptible. Two years later, *C. shasta* would be identified farther north, at La Camas Lake in Washington. In 1954 it was also discovered in Oregon, when infected spring Chinook salmon appeared at the hatchery holding pond at Dexter Dam on the Middle Fork Willamette River.

In 1965, in an effort to better understand the distribution of the parasite, ODFW biologists began sampling salmonids from the Columbia River and its tributaries, as well as Oregon Coast streams as far south as the Umpqua. *C. shasta*, they found, was widespread throughout the Columbia Basin. On the Oregon Coast, however, there was no evidence of the parasite, except in one river—the Nehalem.

The Nehalem River, as it turns out, was once a tributary of the Columbia. From a geologic perspective, it isn't hard to imagine. Dozens of Nehalem headwater streams, bound for the Pacific, begin on a ridge overlooking the Columbia. Cataclysms, which have shaped so

much of the Pacific Northwest landscape, could certainly cause those streams to change direction. Just what that cataclysm was, however, is a question I couldn't find an answer to.

From a more immediate perspective, the Salmonberry River is also a dynamic place. Each winter the landscape is reshaped by rainfall. In the last century, there have been six major floods. In 1996 and 2007, they obliterated large sections of the Port of Tillamook Bay Railroad, damaged three bridges, filled tunnels with mud and debris, and scoured the riverbed. Afterward, biologists wondered if the Salmonberry would continue to support such robust wild runs of winter steelhead.


In the fifties, drivers on Highway 26 were wondering the same thing. Between 1933 and 1951, a series of four fires—collectively called the Tillamook Burn—razed 350,000 acres in what is now Tillamook State Forest. The July 1945 fire burned 180,000 acres in the Salmonberry Basin and left the area looking like a moonscape. Many believed it would never recover.

In spite of its history of fire and flood, the Salmonberry still supports one of the healthiest runs of winter steelhead in Oregon. ODFW considers the river a “core area for salmon survival” and Oregon Department of Forestry designated it “Salmon Anchor Habitat.” More importantly, the Salmonberry is managed—unofficially—for wild fish.

Within the same basin, some native runs were not as lucky. From 1965 to 1976, ODFW planted Trask River coho into Fishhawk Creek. The 11-year effort failed to bolster the North Coast's fall salmon fishery, but the stocking was persistent enough that a handful of adult Trask River coho salmon returned each year to spawn with native Fishhawk Creek coho.

The legacy is not a happy one. In 1980, researchers compared Fishhawk Creek coho to other Nehalem Basin populations. They found that the wild fish of Fishhawk Creek were less resistant to *C. shasta* than coho in tributaries

where Trask fish hadn't been stocked. In 11 years, we had unraveled their ancient lineage, effectively de-evolving the fish.

To discuss what will happen next requires some imagination. We know that *C. shasta* spreads easier and kills fish quicker when the water is warm. As water temperatures rise with climate change, how will wild Fishhawk Creek coho fare with a weakened resistance to *C. shasta*? As for the Salmonberry winter steelhead, I'm betting they'll be all right. Climate change, steep-slope logging, fishing pressure, and swings in ocean productivity will take their respective tolls, but the wild legacy is intact—thanks, in part, to *C. shasta*. 

BELOW

Photo: Ian Fergusson



OR WILL THEY?

In 2018 and 2019, a group of guides and anglers started removing wild winter steelhead from the North Fork Nehalem River for a new wild broodstock hatchery program. ODFW's North Coast District Office approved the program in spite of their own 2008 report recommending against it, not to mention the Nehalem's designation under the 2015 Coastal Multi-Species Conservation and Management Plan as a “Wild Fish Emphasis Area.”



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