



Floodplains by Design

• REDUCING RISK, RESTORING RIVERS •

Newsletter

March 2023



Photo Credit: Marlin Greene

By the Numbers: Pierce County

Pierce County completed the fifth and final phase of the Orville Road Setback Revetment project in November 2022.

The project was located along Orville Road between Electron Road and 249th Street East near Orting. Orville Road serves as a lahar emergency evacuation route for the residents of the Orting Valley, making it critical to protect this arterial road. The previously built levee and revetment along the Orville Road side of the Puyallup River were damaged in multiple locations due to river channel migration and disconnected the river from over 70 acres of its natural floodplain.

Using engineered log jams, the project constructed a new revetment setback from the river to provide protection to Orville Road while allowing the river to reconnect with its floodplain. Additional engineered log jams were distributed throughout the floodplain to encourage braided flow paths and enhance riparian forestation. The project also removed approximately 2,800 linear feet of the existing levee.

With the completion of the project, benefits include:

- Reduced flood risk along Orville Road and surrounding properties
- Reconnected floodplains
- Enhanced off-channel salmon habitat

Additional funding from the Salmon Recovery Funding Board and the Pierce County Flood Control Zone District was also utilized on this project.

IN THIS ISSUE:

- 1 By the Numbers: Pierce County
- 3 FbD Video Vignettes
- 4 Launch of the New FbD Website
- 5 Emergency Readiness and Response Module
- 6 Interview with Scott McKinney
- 8 Planning for Change: A Conversation with Steve Moddemeyer
- 11 Resources & Relevant Links

Learn more about the project at PierceCountyWa.gov/Orville.

Orville Road Setback Revetment



To build the engineered log jams, horizontal logs are manually anchored to the pile-driven vertical logs. The woody structures are stabilized by concrete dolosse that mimic large woody debris.



Another layer of racking logs and slash are applied to the anchored structures to cover the concrete dolosse and provide surface roughening to disrupt flow and slow velocity.



The new revetment setback from the river provides protection to Orville Road, while allowing the river to reconnect with its floodplain.

PROJECT OUTCOMES:

- 111**
engineered log jams (ELJs)
- 672**
unreinforced 8-ton concrete anchors (or dolosse)
- 1,500+**
habitat logs & thousands of racking logs and cubic yards of slash
- 70**
acres of floodplain reconnection
- 2,800**
linear feet of levee removal
- 15,000+**
cubic yards of levee fill removed from the floodplain
- 5,000+**
plants & shrubs planted

TIMELINE:

- 2013**
Phase 1 Completed
- 2018**
Phase 2A Completed; Property acquisition along river.
- 2019**
Phase 2B Completed
- 2020**
Phase 2C Year 1
- 2021**
Phase 2C Year 2
- 2022**
Phase 2C Completed

Project Phasing & Approximate ELJ Locations



FbD Video Vignettes

Hear from FbD partners sharing about their work and the impact of their projects in this FbD video vignettes series.



[Floodplains by Design: Sequim](#)



[Floodplains by Design: Skokomish](#)



[Floodplains by Design: Kittitas](#)



Launch of the New FbD Website

The FbD backbone team is excited to announce the launch of a new Floodplains by Design website!

We encourage you to enjoy and explore the new site. Check out the new [resource pages](#), featuring helpful resources and tools related to project management, tribal engagement, and more! We will continue to populate these pages with new content, so be sure to check back for more.

Check out the new site!

Resources

SUPPORT FOR INTEGRATED FLOODPLAIN MANAGEMENT
Capital projects, programmatic actions and collaborative work to advance integrated floodplain management are increasingly large and complex. As a result, calls for support and capacity building have grown across the network. Luckily, there is a lot of knowledge, expertise and resources to draw from on topics such as Project Management, Interpersonal Engagement, Communications, Research and Monitoring, and Pacific Northwest Tribes and Tribal engagement.

PROJECT MANAGEMENT RESOURCES
Project management associated with integrated floodplain work ranges from how to manage a complex, multi-interest, multi-party collaboration to seeing a capital project from idea to construction. For many, it includes working at a watershed scale, which means dozens of partners and projects and associated contracts and meetings. Resources on collaborative work, and permitting and contracting efficiencies can help move work forward easier.

INTERPERSONAL ENGAGEMENT RESOURCES
Trust, collaboration and communication are foundational components of integrated floodplain management. This section contains resources for building trust with diverse project stakeholders, engaging with unhoused communities living in the floodplain or taking a trauma-informed approach to emergency communication.

COMMUNICATION RESOURCES
Building support for the vision of integrated floodplain management and the FbD capital grant

UPCOMING EVENTS
3:00 pm - 4:30 pm
20 FbD Tribal Convening
1:00 pm - 3:00 pm
21 FbD Operations Team Meeting
12:00 pm - 1:00 pm
6 Monthly Lunch & Learn Series

FbD SPOTLIGHT
Anna Geffre
North Pacific Coast Lead Entity
"Salmon runs have significantly declined from historic levels in the Washington Coast Region. The Historic Oxbow Project will establish long-term habitat restoration, restore natural riverine processes, reconnect floodplains and wetlands, and restore in-stream habitat; all high-priority strategies."

Emergency Readiness and Response Module

BEF has worked with [Trauma Informed Oregon](#) and [Lush Kumtux Tumtum Consulting](#) to create online trauma informed care training modules specifically tailored to those who steward lands and waters. You can view all of these free online trainings [here](#). Topics covered in these modules include fostering cultures of wellness in the workplace, the impact of trauma on the brain and body, and tools for interpersonal engagement with partners, coworkers, and the public.

We're excited to announce the launch of two new training modules!

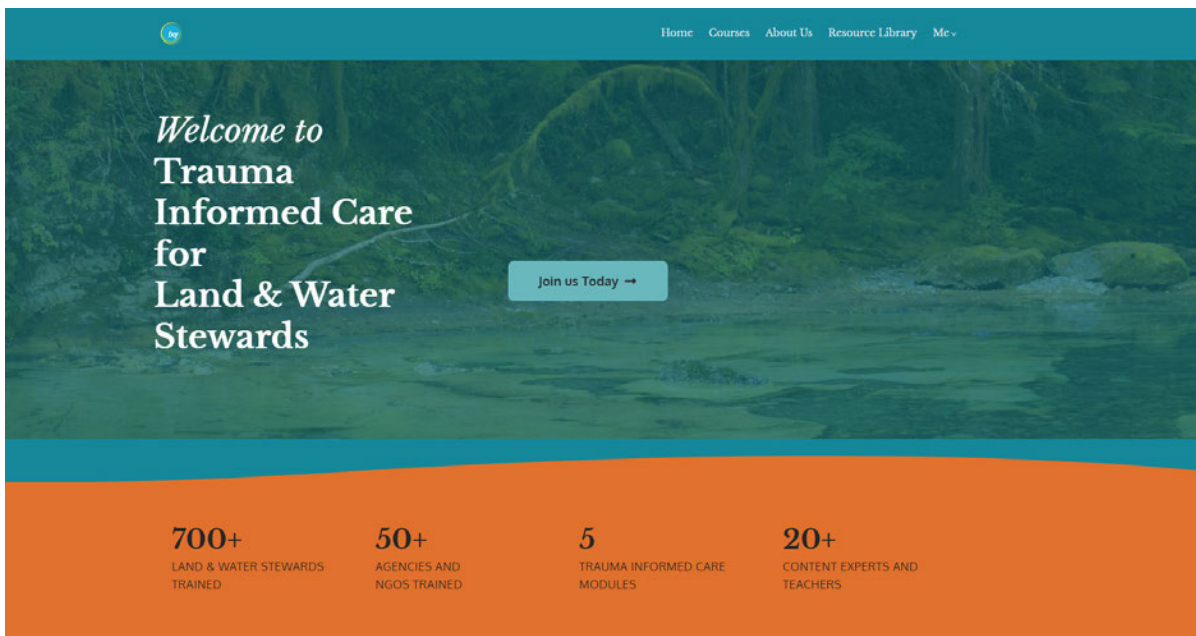
The first new module, [What is Trauma Informed Care](#), lays a foundation of understanding about individual, collective, and historical trauma and introduces the key principles of the Trauma Informed Care framework.

The second new module, [Trauma Informed Emergency Response & Readiness](#), looks at emergency preparedness and response at the intrapersonal, interpersonal, and organizational levels. Topics covered include the timeline of the recovery process, caring for oneself and community in the response, and building



adaptive teams. We are assessing interest in forming an FbD discussion group to go through the Emergency Readiness and Response module as a cohort. If you'd be interested in joining this discussion, please reach out to hbuehler@b-e-f.org.

We welcome any thoughts and feedback on these training modules. Feel free to reach out to hbuehler@b-e-f.org with any comments, questions, or needs for additional Trauma Informed Care resources!

A screenshot of a website landing page. The top navigation bar is teal and contains the text: Home Courses About Us Resource Library Me. The main content area has a teal background with a white text overlay that reads: "Welcome to Trauma Informed Care for Land & Water Stewards". Below this text is a teal button with the text "Join us Today →". At the bottom of the page, there is an orange section with four columns of statistics: "700+ LAND & WATER STEWARDS TRAINED", "50+ AGENCIES AND NGOS TRAINED", "5 TRAUMA INFORMED CARE MODULES", and "20+ CONTENT EXPERTS AND TEACHERS".



Interview With Scott McKinney

Scott McKinney, the Washington Department of Ecology's Floodplain Management Policy Lead, will be retiring from state service at the end of March 2023. Scott has served as the agency's coordinator for FbD since the program kicked off in 2013. We asked him about his experience with kicking off and managing the grant program, his advice for the initiative going forward, and how he plans to spend his upcoming free time.

What was your first impression of the FbD program when it began?

I was very excited about the concept. It fit right in with the work I'd previously done for Ecology in the watershed planning world with the ideas of thinking holistically, doing big complex things, restoring natural functions for ecosystems, and getting all the stakeholders to the table from the very start. It seemed to me that floodplains were coming into their time in the spotlight as critical habitats and places where numerous human activities take place. And importantly, it was a restoration program, not a regulatory program.

Tell me about how the FbD program and partnership began.

We (Ecology's Shorelands and Environmental Assistance Program), The Nature Conservancy (TNC), and the Puget Sound Partnership (PSP) coordinated around a new budget request for capital funds. Ecology was seeking a very modest \$4 million to support large on-the-ground flood projects. TNC had assembled a package they called Coordinated Investment: multi-benefit projects that addressed floodplain restoration, reducing the flood risk for communities while also improving and protecting critical salmon habitat and other community values. That package was \$33 million. Despite a very difficult legislative session that threatened to shut down the state government, in July 2013, we actually received \$50 million for the TNC package, an expanded Ecology grant opportunity, and a couple other local flood projects. The agency saw that as a mandate to use this model as the new approach to floodplain work and restoration. The FbD program was born! Ecology, PSP, and TNC created a public-private partnership as the backbone of the program that continues to this day. My duties were changed, along with a promotion, to primarily manage the new FbD grant program and be the Ecology lead on the FbD partnership.

What was it like working with the first round of FbD grant recipients?

There was a lot of excitement that the funds came through, but not all the recipients were ready to go. And there was some confusion in areas. For one project, they couldn't come to an agreement on who should manage the funds among the four entities involved, so we had to split the grant into four pieces. However, most areas dug in and got their projects rolling. There were the nine provisos (some later split out), and we also had to run a competitive round in 2014. That's where we



Livingston. Photo Credit: Marlin Greene

intentionally made the program statewide, and many of the competitive grants were outside of Puget Sound watersheds. Then it was time to run another solicitation for the new FbD grant program. We ran three grant rounds in three years' time, all the while hiring staff and drafting the first FbD Funding Guidelines. It was a very busy time, and it hasn't really let up since.

Do you have a favorite FbD project?

I don't have a favorite project; there are so many great ones. But I do like the combination project on the lower Dungeness River by Clallam County and the Jamestown S'Klallam Tribe. Impressive to see in person. I also think the Nelson Dam project, wrapping up this calendar year, is a major restoration on the Naches/Yakima River systems.

What are some of the biggest changes you've seen in the FbD initiative since it began?

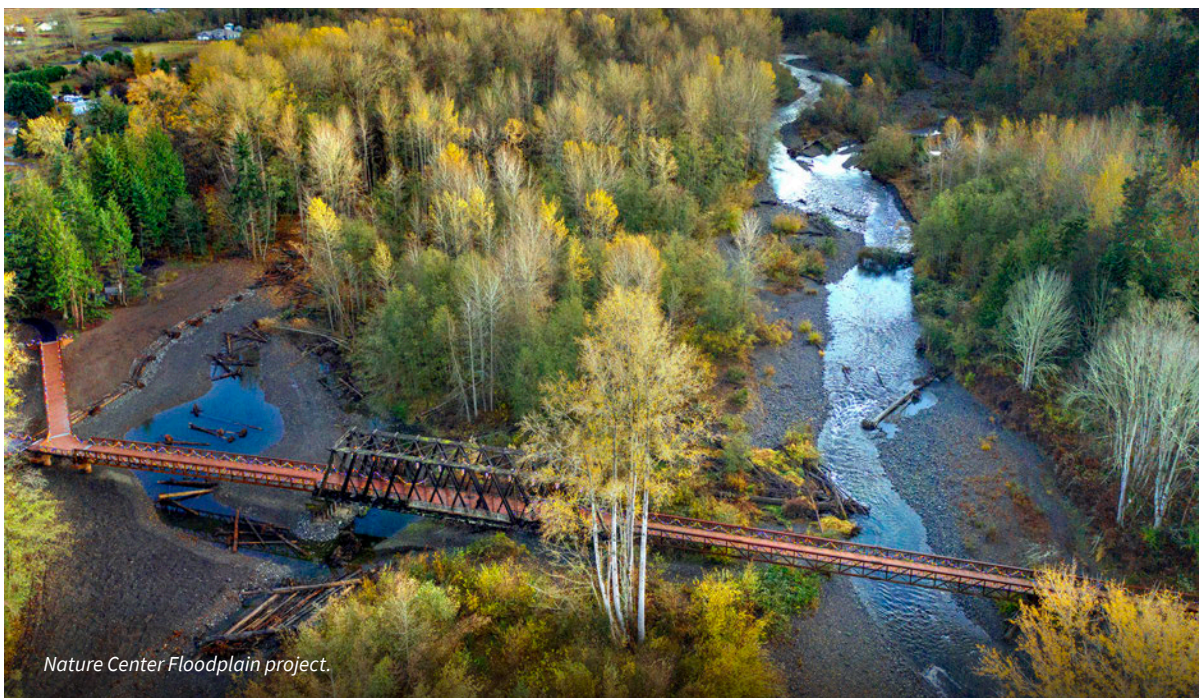
The change from a concept or pilot project to a firmly established program, both the grant program and the broader integrated floodplain management (IFM) initiative. The idea had been around for quite a while, but we were one of the first states to really put it into play and fund it. It also helped establish IFM as best practices around the state and, to some degree, the country.

Do you have any advice for the FbD initiative going forward?

I think the reappropriations challenge is big and must be addressed. That will take work by all parties. I would also advise the program to make considered, simple changes to the program as needed. Complexity will impose itself eventually, so keeping it simple is good for everyone. I would also suggest not trying to make "perfect" modifications or adjustments. Consider the options, make a good choice, and see how it works. The program will always be adaptively managed as we continue to learn and have successes and challenges. I also think it's really important to celebrate successes and accomplishments. There are huge changes happening to our state's floodplains thanks to FbD, and we need to stay focused on that and not get bogged down and distracted by the challenges. Get out and see the finished projects; they're very impressive!

What do you plan to do after retirement?

I love being outdoors and anything to do with hiking, camping, skiing, fishing, etc. So, I'm looking forward to having more time for that (and less excuses not to!). And if I'm not getting out of town, then cycling, bird watching, and working in the yard are easy backups. I'm also part owner of a pontoon boat we call the 'party barge' on Pattison Lake, a great place to be when the weather warms up. In quiet times I like to do hatha yoga and read.





Planning for Change: Resilience, Resistance and Recovery

A CONVERSATION BETWEEN STEVE MODDEMEYER AND HANNAH BUEHLER

This is the final part of a three-part conversation with Steve Moddemeyer on planning for resilience. The first two sections can be found [here in our Nov/Dec newsletter](#) and in our [January newsletter](#). Steve is a principal for planning at Collinswoerman, an architecture and planning firm based in Seattle. He works at the intersection of sustainability, resilience, and land use and is the Chair of the National Academies of Sciences, Engineering, and Medicine's [Committee on Hazard Mitigation and Resilience Applied Research Topics](#).

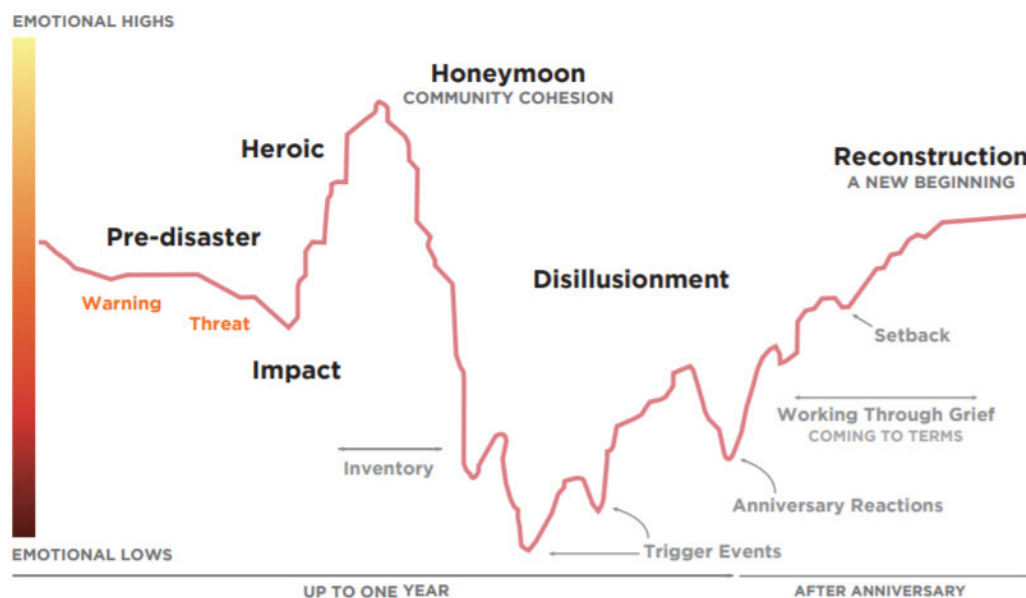
HB: Do you have any local or regional examples of the importance of storytelling in helping people recover after a disaster?

SM: In Whatcom County I am working with the steering committee of the Floodplain Integrated Planning process. They represent farmers, small cities, Tribes, and fisheries interests who have been working together since well before the devastating floods of November 2021. In 2022, the steering committee invited farmers,

regulators, and the Tribes to a value planning workshop that we called the flow-split charrette. In large floods like 2021, the Nooksack floodwaters split with some flowing north into Canada through the Sumas River corridor. These workshops are a tool for creating a shared story of recovery.

We start the workshop with a question, “What values do we share?” Folks write down their answers and put them on the wall in groupings. It can be surprising how often there are overlaps in values between people with opposing interests. We then agree to use those shared values as metrics for success. These values eventually become elements of a new shared story. During the workshop, everyone works in small groups to identify creative solutions that do a good job of solving real world issues while also meeting as many of the shared values as possible. So, rather than a single group dreaming up their best solution and then springing it on others who may or may not be impressed, we get

Phases of Disaster



Source: Zunin/Meyers, as cited in Training Manual for Mental Health and Human Service Workers in Major Disasters, U.S. Department of Health and Human Services (2000).

everyone in the room working together on strategies that include their values from the beginning.

In a time of intense polarization, I believe working at this local level with a grounding in our values might be perhaps one of the only ways to make progress towards a shared story of local resilience. I think local polarization can partly be explained by a mismatch between the “media-shed” and the watershed.

Using values is transformative. Yes, the world has some bad actors with bad intentions, but there are also many more of us who are and can be good actors with good intentions. We can work together more than we think if we let our shared values help us write a shared story that resonates with all of us in the community. Our shared values can help to populate that story with our shared humanity and resilience. When we talk about our values, we rise above the scrum of our competing interests.

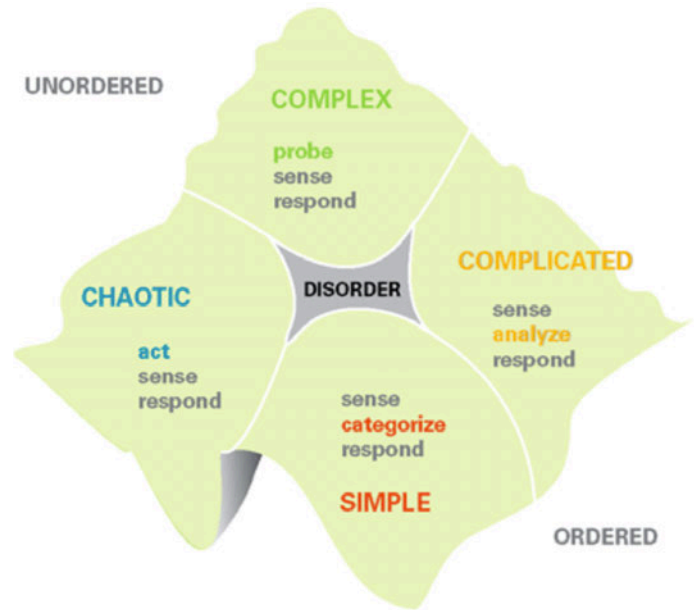
Earlier in this interview, I walked through [the attributes of resilient systems](#). I'd like to highlight modularity for a moment. If we create a local pattern of interaction and success that honors the humanity in each of us, that builds on our shared values, that finds solutions that address our range of interests, then we are creating a modular blueprint for national and planetary transformation that can be replicated by others.

In the early 21st century, we have inherited a paradigm that no longer provides us with the outcomes we hope to see. When we create local collaborations that work, we create the seedstock for a new paradigm. When we develop new patterns that teach us how to live together, that allow us to see each other as human beings with different skills and weaknesses and values that we share, then we have the makings of an emerging resilience.

The story we create with our shared values builds our capacity for community in times of recovery. Ultimately, this is why the story we tell ourselves about ourselves is so important. That story defines our identity. It needs to include the diversity of our community to build on our unique skills and experiences. It needs to count on us recognizing the humanness we share and to avoid “othering.” It gives us the capacity to thrive and grow together into a new, more appropriate paradigm.

HB: In systems theory, I've heard of people classifying systems as simple, complicated, complex, or chaotic. How do those four different characteristics relate to floodplain management and thinking about flood disasters?

SM: Understanding the differences between simple, complicated, complex, and chaos is an important tool for making sense of the world. We can use these categories to recognize the conditions we are in and then shift our decision-making appropriately.



The Cynefin framework

The Cynefin framework, first surfaced by [Snowden and Boone](#), is all about those four types of systems. I've found their framework to be an important tool for sorting out how to navigate from where we are in the present to where we want to be in the future.

The “simple” model is where we don't really need to think to know what to do. For example, the alarm goes off. I reach over and I turn it off. I don't need a committee or an advisor to know I need to turn it off. It's one of those cases where it's a simple decision, so just keep it simple.

The next level is “complicated.” The complicated decision is one where we require expertise to do something. I reach over to turn off the alarm clock, but it keeps ringing. Then I have to get up and ask someone else if they can get this thing to stop. So, someone that knows how this thing works, they bring in their technical skills. So, if it's a simple decision, keep it simple. If it's complicated, find an expert. Next is “complex.” Complex systems are challenging. Expertise may or may not be useful because what the complex system will or will not do cannot be known until it does it. Complex systems—like nature itself—have multiple drivers and multiple autonomous actors. Complex systems have distributed autonomy that makes predicting what will really happen an educated guess, at best.

Climate change is complex. We can create complicated models of what the climate might do, but those models have a limited number of conditions and a nearly unlimited number of assumptions hardwired into the model. These models can give us clues, but what will really happen is virtually unknowable in a

complex system. This is especially true given that earth ecosystems have tipping points that, once tipped, can cause spiraling non-linear change. To describe complexity, Snowden and Boone use the example of a Brazilian rainforest. We can take it apart and spread it all over the floor and name all the pieces and processes, but no ecologist can take those parts and build them back into a Brazilian rainforest.

Flooding is an example that used to be complicated but is now complex because of the death of stationarity. We can build a wall to a certain height and figure out all the calculations for it, but we cannot say just how high that wall needs to be because the baseline conditions are shifting all around us. We can no longer estimate the frequency that the wall will be over-topped either, because shifting baseline conditions make comparisons with the past unreliable for predicting future conditions.

We know how to make decisions when facing complex systems. We take an incremental approach to decision-making; we leave options open as long as possible as the future reveals itself; we parse out expensive investments into shorter increments and time frames; and we admit that whatever systems we build will fail at some point. Ironically, recognizing that whatever we build will fail encourages us to look at what we build and don't build with fresh eyes. When we accept the failure mode into our planning, we can often find better solutions that are more humane and cost-effective than spending capital dollars on major brittle improvements that will still fail.

Leaders who plan for complexity build in adaptability. Leaders encourage and fund multiple creative pilot projects to see what works. We also try not to get ahead of ourselves. When we understand complex systems have their own drivers and their own motivations and their own interactions, then our job is to create patterns and the modules that set the stage once future conditions are revealed.

"Chaos" is the fourth level of the framework. Chaos is when systems break or are broken intentionally. Things we count on no longer work. Information and perspective is clouded. In times of chaos, everything and everyone is extremely vulnerable, so this is where the human capacity to create order is important. Leaders need to provide temporary order or structure. Chaos is when transformations happen for better or worse. Sometimes the transformation goes in ways we want; other times it goes in directions we regret.

In evolutionary science, the loss of order can open up new opportunities for systems to shift and for niche species to suddenly thrive. Leaders who understand this dynamic need to anticipate these times of chaos by encouraging pilots and trying different sorts of solutions before they are needed.

I feel like my work for the last decade has been, as much as possible, to create these small wins, these new patterns in a way that's mindful of a desirable future. As daily life is increasingly stressed, there emerges a real hunger and an openness for new answers. If what we've been doing isn't working anymore, then what are the solutions that make sense for us? This is when outliers and things that no one would try before are suddenly on the table.

HB: When does this work around resiliency get complicated or really difficult to do?

SM: One thing I'd point people towards is this graphic about the different emotions that come up throughout the recovery timeline. It details some of the emotional phenomena that occur on the one-year anniversary of something bad happening and the feeling that happens after the semi-euphoria of surviving the event, as reality really starts kicking in. In the Nooksack for example, we've been explicitly talking about that. I think it really has helped people to feel understood. People see that everybody's feeling terrible about where we're at and are wondering how we're getting out of this. It helps when we can point to something and validate that these feelings are a normal occurrence after a big event like this.

Eventually this does end as long as we tip in and work together. For example, I used to be a carpenter remodeling houses. Monday mornings were hard. I'd get to the job site and look around at the thousand and one things that needed to be done. It was demoralizing. Eventually I learned that all I needed to do at that moment was just one thing. I would just pick one thing and do it. Once the flow started, then suddenly everything seemed doable again. This propensity to take a snapshot of where we are at any moment and feel hopeless is normal. We might misinterpret that that's where it's always going to be. Actually, we are on a predictable emotional roller coaster ride. When we face recovery from disasters, the frustration and fear and the need for change is understandable. Tipping in is the only way we get out of it. We just need to start where we are and know we're doing at least one thing that needs to be done. That emotional roller coaster is a part of the journey.

We want to be in conversation about resilience and planning with you. Feel free to reach out to Steve at smoddemeyer@collinswoerman.com with any questions or comments.

Resources & Relevant Links

FbD Lunch & Learn Series: Flood Control Assistance Account Program (FCCAP) Grant Opportunities

Watch our January Lunch n Learn to hear about the FCCAP program, a funding source to support communities across the state in developing comprehensive flood hazard management plans (CFHMP) that identify and prioritize flood risk reduction strategies.

[Learn More](#)

FbD Lunch & Learn Series: How to Better Understand and Engage with Farmers

With the return of another La Nina winter and the risk and benefits flooding can bring, farmers across the region are preparing their fields, drainage systems, and businesses for the wet season and flood management. Watch our December Lunch n Learn to hear about how to better understand and engage with farmers.

[Learn More](#)

King Tides Showcase Future Sea Level Rise

Ecology blog post about sea level rise and the work it does to address it.

[Learn More](#)

Wettest Winter Storms in the Western U.S. Growing Wetter

New research findings from Pacific Northwest National Laboratory.

[Learn More](#)

This Experiment Could Help Restore Eroding Coastlines

Focuses on WA's coast and has quotes from Ecology staff member.

[Learn More](#)

County Wants to 'Redesign' River to Reduce Flooding

A rural county in northeastern Washington state is working to return the Colville River to a more natural condition to reduce the flooding of nearby farmland.

[Learn More](#)

Join Us for the 2023 FbD Tribal Engagement Training Series!

Back by popular demand, the [FbD Culture and Capacity Action Group](#) is pleased to host another round of FbD Tribal Trainings. The intended audience for the training series are non-tribal floodplain managers, practitioners and scientists (i.e. state, county, federal, non-profit and non-tribal member tribal staff) who are interested in gaining a deeper understanding of the multi-dimensionalities of Tribal Nations in Washington State.

We are extremely pleased to partner again with The Whitener Group, a tribally owned consultant team, who will be facilitating the training series. Your workshop hosts will be Ron Whitener, Bob Whitener and Jennifer Whitener Ulrich of The Whitener Group. To learn more about the trainers, [check out their bios!](#)

Registration and Commitment

Space is limited to a max of 30 people and not all that register will be accepted. We ask that registrants make a firm commitment to all three sessions occurring on **May 17th, 24th and 31st from 12:00-2:00 pm** and commit to their own research time (min 1-2 hrs). No previous knowledge in Tribal governance or history is required or expected. Please complete the registration form linked below and we will contact you to let you know whether or not you have been accepted. For those that qualify, we will be accepting participants on a first come first serve basis. We encourage you to sign up soon to reserve your spot!

[Click here to complete the registration form](#)

REAL (Real Food, Real People) Podcast With Nooksack Farmer Shelli DeJager

A battle with stage 4 cancer and a dangerous flood could have ended their farm, but Shelli DeJager and her husband Pete have managed to keep their small family dairy near Everson, WA alive.

Hear Shelli recount the dramatic details of survival, and find out why her children won't be able to keep the farm despite their desire to continue the family's farming legacy.

[Learn More](#)

New Hazard Mitigation Planning and Water Resource Management Module

This module from the EPA's Watershed Academy is intended for water quality and hazard mitigation professionals that are interested in integrating water quality issues and/or nature-based solutions into state or local Hazard Mitigation Plans (HMPs), and highlights the benefits of working across water quality and hazard mitigation programs. Modules in this series can be used as training tools to help planners from both worlds explore activities of mutual interest and benefit. Case studies and examples are provided to assist hazard mitigation planners with integrating water resource programs into HMPs and help watershed planners understand the synergies between water resource plans and HMPs.

[Learn More](#)

Nooksack River Floodplain Improvements: Episode 1, Landowner-Led Initiatives

Across the Nooksack River basin, in Northwest Washington, work is constantly underway to manage flood risk, improve habitat for salmon, and make sure that land remains farmable. Join host Gavin Willis in this first episode of a three-part series as he follows a floodplain replacement project, and in the meantime learns more about the history of floodplain improvement projects on Bertrand Creek, a tributary of the Nooksack River.

[Learn More](#)