



he landscapes of the Middle Fork of the Salmon River watershed and other usual and accustomed places of the Shoshone-Bannock are imbued with meaning and wisdom that we are actively seeking to connect our tribal youth with. The corridor is the heart of the largest wilderness segment in the lower 48 states with intact cultural sites and vast untouched lands with no cell service. The perfect place to disconnect youth and get them into a sense of what our ancestors knew about living without modern technologies and at the same time sharing in a true sense of unfragmented and connected riverscapes. The experience has been one where the students begin by wanting to go home to the final days of not wanting to leave and have real connection to place. We cannot stress how important this has been to our youth and tribal members.

To begin, we share a vignette that begins to capture the intentional and oftentimes dynamic approach we are taking to engage our Tribal youth deeply and meaningfully with experiences that give them grounding in the present, hope for the future, and a foundation for explorations using Traditional Ecological Knowledge and Western scientific methods to inquire about their curiosities.

"We wake from many stressful days of preparation to get here. We arrived at Dagger Falls campground the evening before. Yesterday was so much work finalizing all the things, loading ice, food, and organizing the coolers and dry boxes by meals, days, and how to access them the best. The trailer is mostly organized to get out things we need for a short breakfast and some coffee. Not sure what we forgot but at this point we will just make do. Coming from the Rez, our lives are mostly about making do, so we're good at it. No worries, as we enjoy coffee and visiting with new and old friends and family. The kids and some of the adults are checking out the falls, picking raspberries, journaling, taking in the scenes of a river carved valley. Taking down the tents, stuffing sleeping bags, some hair braiding, and another cup of coffee. It's starting to feel like we should move over to the boat launch - 'Alright, let's load up and head on over!'

"After mounting the frames, we begin rigging the rafts with heavy coolers, dry boxes, groover and tanks, camp chairs, tables, and dry bags filled with our hygiene kits, tents, sleeping bags, and dry clothes. We leave space for future dreams and incoming memories made with new faces and ones we haven't seen in a bit.

"As each raft gets fully rigged you can hear, 'Hey everyone, can we get a hand over here?' It takes a team to load our rafts onto the boat launch ramp and walking it down together.

"At the same time our youth were creating prayer bundles to mount on the front of our rafts made up of tobacco ties, sage, and lots of good thoughts and laughter.

"Before we begin our journey down the Middle Fork of the Salmon River, our women will ask the river for permission to travel with her. Once we make our offerings and give to the river a gift of our first foods and prayer, we can then open the circle. We acknowledge the land, water, rafts, and guides who will be working tirelessly to keep their hands on their oars, ears to their neighbors, and reading the water. She will tell us how to get down the river.

"The first two days will be rough as they are supposed to be. We are getting reacquainted with her again and she has lessons to teach us all. Mostly what is on our minds is the running of rapids like Sulfur Slide, and the big one for the day is Velvet Falls. We will arrive at our usual camp and enjoy a soak for the weary, just to relax, and some play for the young and old alike."

The vignette above is a window into how we are approaching our ideas about place, homelands, and resituating Shoshone-Bannock culture into the 21st century, and reconnecting our youth with our memory traces left by our ancestors. We have a long history in the Middle Fork of the Salmon River watershed and to hear and see our young people couple Traditional Ecological knowledge with science, technol-

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ogy, engineering and mathematics through their own research, journaling, and artistic ways of capturing not only what they're learning in mind, but also in heart and spirit, is to begin to see the future, and what is possible in this new, envisioned future. Each season and our planned activities can be thought of in this manner: traditional teachings, customs and protocols, tools, places across spatiotemporal distributions by elevation, weather, and climate, etc.

Intergenerational traumas such as the boarding school era interact with living in desperate times of survival between two

"...to hear and see our young people couple Traditional Ecological knowledge with science, technology, engineering and mathematics through their own research, journaling, and artistic ways of capturing not only what they're learning in mind, but also in heart and spirit, is to begin to see the future, and what is possible in this new, envisioned future."

entirely different cultures through the onslaught of threats to our literal and cultural existence. In a contemporary setting we are still orally in our collective thought about how our knowledge already knew the recent findings in Western science, that we have unwritten theoretical frameworks. Indigenous storytelling is a rich metaphor for the bold and creative space of curious Indigenous minds, hearts, and souls for the betterment

of our Sogope Bia (Mother Earth) and to support our nation-building. Our connection in thought, verb-based languages, and action is complex and adheres to the so-called messiness of ecology, and the nature of science. The broader issue affecting our communities' reflexive abilities are daily conflicts from a racialized society upholding asymmetrical forms of reasoning and assumptions about human entitlement to, and extractions from, the natural world, that continues to separate humans from nature (i.e., the nature-culture divide, Bang & Marin, 2015). A more localized related problem begins at K-12 schools where we are losing our children to the norms of the education system, that continues into college and in the workplace where our voices are dead before arrival (Matsaw et al. 2020). As professionals, the expectation is exceptional fluency in scientific

For the past five decades the Shoshone-Bannock
Tribes have been working to restore the Snake River
and its salmon runs. With the dams in place we have
experienced impacts to our culture, spirituality, and our
way of life; we need to change the system in order for
salmon and our people (Newe) to survive. Removing
the Lower Four Snake River dams will help restore our
fisheries, protect our culture and create a better future
for our Tribal membership.

comprehension and writing, coding, statistical analysis, and Western scientific theory, principles, methodology, and methods. The social and environmental justice of our times is to rise above racist microaggressions to on-the-fly cultural competency affording cultural relevancy so that we can broker space, and time for sustainable pedagogies and methodologies to the benefit of our Indigenous Knowledge. Sadly, we are outnumbered, and our children are being left behind, the gap in between is continually ever widening, so our loss deepens and the attainability for our youth to replace us in the workforce is further out of reach.

To combat these issues, we are using traditional ecological-thinking through a Shoshone-Bannock seasonal round in our homelands doing STEM learning activities. Activities through protocols of consent asking our land and waterways permission to test the ideas of our frameworks with tools of Western science such as river trips down the Middle Fork Salmon River; hunting/gathering of our wild foods; interacting with places of the stories/knowledge/theories of our ancestors. Along the way we will



Jessica Matsaw instructs Shoshone-Bannock youth on Indigenous mathematics using drum-making to demonstrate geometry during a trip down the Middle Fork of the Salmon River.

Photo by River Newe staff 2019.

collect data, observation, journaling, using tools from our digging sticks to iPads, spear poles to DNA and otolith (ear bone) collections from salmon. These activities will be used to evaluate pedagogies and methodologies rooted in Shoshone-Bannock Traditional Knowledge by building theories, study plans, experimental designs, methods, and technologies as a way of creating new/old pedagogies. Our old pedagogies have been interrupted by colonialism and now we are adapting using state standards to quantify our learning and transfer of knowledge in the form of new pedagogies so that our knowledge persists. Concurrently, working to vacate racist structures in our tribal institutions, situating our own tribal organization and leadership to support making effective and meaningful changes in policy and reframing thoughts of becoming teachers and STEM professionals that

cross with traumas associated with boarding schools and objects of research.

The doorway we are intentionally and mindfully creating is one for our youth to begin to envision a renewed path through an ecosystem of opportunities that will lead to their own success. In many ways we are just beginning to reimagine how to rebuild our presence of the Shoshone-Bannock people back into the cultural riverscapes of our ancestors and how we still see the land, as our Sogope Bia. Our river trips along ancestral homelands are to facilitate observations of where we once lived, how the landscape once appeared, and how our people interacted, honored, and were sustainable co-inhabitants with our more-than human relatives.

Back to the river...we stop at cultural sites where there are pit house depressions, and/or pictographs. We exercise our imaginations of what we know today with how it must have been then. For instance, looking at the villages and how they are arranged and imagining the proximity of families amongst the larger community. We can imagine this because our community back home on the reservation still reflects a similar state, preserved by our natural, innate need to arrange as we always have. Families in family areas closer to relatives of similar clans, bands and where we were when we came to the reservation life. Each site is not a far-off imaginary. To open the imagination of our youth is to then see the STEM, the Indigenous Ecosystem builders we always have been and still are today.

We are also wanting to be respectful of those who inherited the wrongful displacement of our Tukadeka relatives over a century ago. We believe they are there in the most loving way they can be, and we want to reciprocate the relationship they have with our home. In that we are wanting to share with them how this place is not only special, but also largely intact from the way our ancestors left it when they were forcibly removed. For the most part what we have gathered is that the guides on the river are happy to see us back.



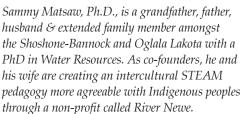
Prayer ties created by our youth in respect of elements, directions, sky and earth, and medicines we use to keep us safe and healthy for attaching to our rafts.

Photo by Popp Photography 2021.



Shoshone-Bannock young ladies, Abrianna (7) and River (15), gathering wild berries, and enjoying one another's company in the homelands of their ancestors. Photo by Popp Photography 2021.

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