

# 9<sup>th</sup> Annual Rising Voices Workshop

## *Centering Justice in the Convergence of Sciences, Communities, and Actions*

RISING VOICES CENTER FOR INDIGENOUS AND EARTH SCIENCES

Virtual Workshop

29 September – 1 October, 2021



NCAR



UCAR



OFFICE FOR COASTAL MANAGEMENT  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION



HASKELL  
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# WORKSHOP REPORT

<https://risingvoices.ucar.edu/>

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## BACKGROUND

[The Rising Voices Center for Indigenous and Earth Sciences](#) (RV) facilitates intercultural, relational-based approaches for understanding and adapting to extreme weather and climate events, climate variability, and climate change. RV supports a growing network of Indigenous, tribal, and community leaders, atmospheric, social, biological, and ecological scientists, students, educators, and other experts from across the United States, including Alaska, Hawai‘i, and the Pacific and Caribbean Islands, and around the world. It functions as a boundary network among diverse individuals and knowledge systems, and fosters relationship building based upon mutual trust and respect. RV acknowledges the inherent value of Indigenous knowledge systems and Indigenous science, including but not limited to traditional ecological knowledge and adaptive practices and processes, honoring them equally with Earth sciences.

RV’s mission is to center Indigenous knowledge systems in the Earth sciences for more innovative responses to extreme weather and climate change. This includes envisioning collaborative research that brings together Indigenous knowledges and science with Earth sciences in a respectful and inclusive manner to achieve culturally relevant and scientifically robust climate and weather solutions. At its core, Rising Voices aims to advance science through collaborations that bring Indigenous and Earth (atmospheric, social, biological, ecological) sciences into partnership, supports adaptive and resilient communities through sharing scientific capacity, and provides opportunities for Indigenous students and early career scientists through scientific and community mentoring. Central to Rising Voices are our [values](#) and [Ethics Guidelines](#), which provide a starting point for considerations when working in intercultural spaces.

RV is co-administered by the University Corporation for Atmospheric Research/National Center for Atmospheric Research (UCAR|NCAR) and the Livelihoods Knowledge Exchange Network (LiKEN) in partnership with Haskell Indian Nations University, the Indigenous Peoples' Climate Change Working Group, and the National Oceanic and Atmospheric Administration's (NOAA) Office for Coastal Management. RV is housed within NCAR (in turn managed by UCAR) in Boulder, Colorado, which is in the Traditional Territory of the Arapaho, Cheyenne, and Ute.

For more information about Rising Voices: [Website](#), [Introductory video](#), link to [previous workshops](#)

## WORKSHOP OVERVIEW

Please see Appendix 1 for the workshop agenda. The following report reviews the workshop chronologically, following the flow of the agenda.

**The RV9 Workshop Theme:** We chose the theme of *Centering Justice in the Convergence of Sciences, Communities, and Actions* for the RV9 theme to emphasize the importance of centering justice in collaborations between Indigenous and Earth sciences as these collaborations contribute to scientific efforts, community capacities, and actions for more sustainable and regenerative futures in response to climate change. "Convergence science" conveys the idea of many disciplines and many ways of knowing coming together to create a whole that is larger than the sum of its parts.

In the spirit of RV, we also hold that convergence science goes beyond knowledge building to support communities towards equitable and just climate action. Within the workshop theme are three selected and interwoven areas of focus: Centering justice in Indigenous and place-based methodologies (Day 1 focus), centering Justice in intergenerational research practices (Day 2 focus), and centering justice in Indigenous data sovereignty (Day 3 focus).

**Community agreements:** (1) [Rising Voices Ethics Guidelines](#), (2) [UCAR/NCAR Participant Code of Conduct](#); (3) [Workshop Report and Outcomes](#)

**Intended Workshop Outcome:** As with previous RV workshops, one key outcome of the workshop is fostering new and existing relationships to facilitate collaborations between Indigenous and Earth sciences in response to the climate crises. A specific outcome for the RV9 workshop is to develop a collectively authored set of guidelines for centering justice in convergence science, particularly in relation to the three focus areas of Indigenous and place-based methodologies, intergenerational research practices, and Indigenous data sovereignty. These guidelines will be distilled from transcripts and notes taken throughout the workshop and all workshop participants will be credited as contributors to the guidelines. The intention of the RV9 planning committee is to work with the editors of a special collection journal to publish these guidelines in a format where they can reach a broader audience, extending the reach of the RV9 workshop into communities, classrooms, research engagements, and boardrooms.

**Acknowledgments:** The RV9 workshop would not be possible without our supporting institutions: University Corporation for Atmospheric Research and the National Center for Atmospheric Research (UCAR|NCAR), the Livelihoods Knowledge Exchange Network (LiKEN), the National Oceanic and Atmospheric Administration Office of Coastal Management (NOAA-OCM), and Haskell Indian Nations University. We are deeply grateful to the numerous individuals who have helped support, plan, and participate in the RV9 workshop. Our special appreciation to the RV9 Workshop Planning Team: Paulette Blanchard, Patrick Freeland, Katie Jones, Heather Lazrus, Julie Maldonado, Katie Spellman, Althea Walker, and Aara'L Yarber; the technology team: Reed Summers, Kelvin Tavarez, and Bret Batterman; the evaluation team: Malu Castro and Angélica De Jesús; artist work: Pamela Beans; to all the speakers and moderators (please see everyone listed in the sections below); and to the Workshop's Working Group facilitators and notetakers: Aranzazu Lascurain, Bill Thomas, Nathan Jessee, Jessica Brunacini, and Itzel Flores Castillo Wang (Community Relocation/Site Expansion); Paulette Blanchard, Ciarra Greene, Patrick Freeland, Michelle Sevilla, and Cam Brinkworth (Energy Systems); Althea Walker, Mary Beth Jäger, Marie Schaefer, Katie Gavenus, Noor Johnson, Maraya Ben-Joseph, Erika Gavenus (Food Systems); Nikki Cooley, Michelle Montgomery, Michael Chang, Aara'L Yarber, Simona Perry, Monica Barra, Cambria Wilson, Jamie Vickery, Courtney Carothers (Health); Katie Jones, Alyssa Rosemartin, Brian Miller, Katie Spellman, Nicole Herman-Mercer, Kristen Aponte, and Yemaya Thayer (Phenology); and Karen Cozzetto, Kelsey Morales, Jean Tanimoto, Shannon McNeeley, Stefan Tangen, Colleen Cooley, Jackie Rigley, Alexis Frasz, and Aramati Casper (Water Systems).

**Workshop Report citation:** The Rising Voices Center for Indigenous and Earth Sciences (2021), The 9<sup>th</sup> Annual Rising Voices Workshop (RV9): Centering Justice in the Convergence of Sciences, Communities, and Actions. Workshop Report. Virtual Workshop, September 29-October 1, 2021.

*\*Please note that if material is cited from the sections shared by workshop presenters, credit needs to be given to that person(s); it is their knowledge and wisdom being shared.*

This report is an overview of the workshop sessions. It is not meant to be exhaustive of the breadth and richness of the conversations and discussions, but rather to provide a summary context of the convening. This report will help contribute to the goal outcome for the RV9 workshop, which is to develop a collectively authored set of guidelines for centering justice in convergence science. To listen and watch the workshop keynotes and panel sessions, please visit the Rising Voices 9 workshop webpage, <https://risingvoices.ucar.edu/events/workshops/2021>.

## **ARTISTIC REPRESENTATION OF THE WORKSHOP'S SPEAKER SESSIONS**

Pamela Beans, a Yupik student at Northwest Indian College, translated the recorded keynote and panel sessions into a flowing artistic composition after the workshop. Please view her artistic representation [here](#).



***“Knowledge has an inherent amount of responsibility. If it's shared in a way that is equitable to everyone, it's inclusive and it's diverse, then we're using knowledge to call people into conversation.” – Dr. Michelle Montgomery***

When we work together, we should respect each other as family. Therefore, what interdisciplinary research skills and goals are needed to align with the priorities and interests of BIPOC populations for inclusive community science? How do we call people that are marginalized and underrepresented into conversations? We've seen this front and center with climate justice issues happening, in the Pacific Northwest with the heat dome, massive fires, and our relatives dealing with the repercussions of hurricanes one after the other. How do we call people into conversation and acknowledge the responsibility of knowledge so that we can empower people and be inclusive?

Dr. Montgomery asked the participants to consider if we're really thinking from a lens of what does justice demand, we should be able to add on to the rest of the statement: What does justice demand from a community science approach? Equity responds to... Inclusion asks... Justice responds... Diversity asks... If we cannot fill in the rest of these statements, then we have a lot of hard work to do, and that's the important part of acknowledging that knowledge has an inherent amount of responsibility.

From a traditional knowledge perspective the things that are so important when we talk about knowledge and knowledge systems are the three pillars of ethics, knowledge, and practice. Considering Paulette Blanchard's articulation of the [7R's of Indigenous research](#),<sup>1</sup> one of the most important components is respect; the respect of knowledge, that knowledge comes from place and that we learn from place. When we think of how a community is interrelated, it's also about wellness. It's about acknowledging that learning, working together, learning the history of place comes with having grace and humility. How do we bring our whole selves as we're developing these interrelationships, but also acknowledging that these knowledge systems are diverse, they're interdisciplinary and that our knowledge also has agency. Indigenous realism is about honoring the voice, the conduit of voice. Throughout Indigeneity, voice isn't just verbal. Data isn't just verbal. It can be an artistic expression.

From eco-critical race theory, it's about how do we acknowledge environmental racism, how do we acknowledge that pipelines and other types of mining entities are mimicking the impact of the railroad that came through Indigenous lands and created so much human and more than human harm. How do we unpack racism to equal how do we re-change this narrative around what does justice demand? When we think of community science and Indigeneity, we have to move beyond the narrative of I, me, my, and talk about the we. An eco-critical race theory perspective challenges the anthropocentric view that human beings are the epicenter. We must move beyond the decolonized historical analysis and recognize that Brown and Black bodies are often at the end of a lot of environmental racism. When we think of environmental racism, we need to think about how erasure takes place and how we can prevent erasure. The

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<sup>1</sup> Montgomery M., Blanchard, P. (2021). Testing Justice: New Ways to Address Environmental Inequalities, Solutions Journal: <https://thesolutionsjournal.com/2021/03/01/testing-justice-new-ways-to-address-environmental-inequalities/>

[Indigenous Speaker Series](#), emerging from the mentorship of Dr. Daniel Wildcat (Yuchi; Haskell Indian Nations University), is a partnership with Dr. Montgomery, the Salish Sea Institute, and Ciarra Greene (Nez Perce; Northwest Indian College), that uplifts Indigenous voices. One example from this series was a [talk by Dr. Ryan Emanuel](#) (Lumbee; North Carolina State University), of calling people into conversation to talk about things like the Atlantic Coast Pipeline.

Dr. Montgomery concluded by asking, What are the actions when talking about the reciprocity of knowledge? How do we decolonize the narrative? To decolonize the narrative, who defines for whom the meaning of diversity and safe science and what is safe? What are the rules of engagement and who's at the table when deciding the rules of engagement? And how are these bidirectional safe spaces for researchers and community partners to bring their whole selves to these conversations and ways of developing partnerships? And how do we create professional development workshops on history of place?

Participants convened in breakout groups, facilitated by Dr. Michelle Montgomery, Stephanie Powell, and Hoku Rivera, to discuss the following questions: Explain what has or has not been incorporated to incorporate BIPOC place-based needs that are grounded in interdisciplinary knowledges; describe your research needs and support for successful place-based community science opportunities; and explain how your research would incorporate community science. Some of the take-home messages across the conversations were about the importance for reciprocity to start with relationships, of bringing our whole selves to the work that we do, and thinking intergenerationally, including future generations and our more than human relatives, and living together in a culture of belonging and love.

#### ***Additional resources shared***

- Montgomery M., Blanchard, P. (2021). Testing Justice: New Ways to Address Environmental Inequalities, Solutions Journal: <https://thesolutionsjournal.com/2021/03/01/testing-justice-new-ways-to-address-environmental-inequalities/>
- Montgomery M. (2021). An Indigenous Feminists Lens: Dismantling the Settler-Colonial Narratives of Place-Based Knowledges in a Climate Change World. The Routledge Handbook of Sustainable Cities and Landscapes in the Pacific Rim Planning and Engagement (Forthcoming).

### **29 September 2021**

#### **WORKSHOP FOCUS 1: INDIGENOUS AND PLACE-BASED METHODOLOGIES**

Rev. M. Kalani Souza, Elder Hank Fergertstrom, and Ramsay Taum, through the creative connections of Lomikai Media and the Olohana Foundation, opened the workshop space with an opening ceremony and prayer in Hawaiian, calling in gratitude to the Creator, the Spirit in the Water, Earth Mother, Grandmother Moon, Great-grandmother, and for the time to heal.

Dr. Heather Lazrus (NCAR) welcomed everyone to come together to consider the workshop theme: *Centering Justice in the Convergence of Science, Communities, and Action* for equitable and regenerative responses to climate change. Convergence science has become a way of talking about science that brings together multiple disciplines and perspectives. At this

workshop, we'd like to expand upon that to consider how convergence also brings together multiple ways of knowing and, critically, that it must center justice so that our practices of knowledge building don't perpetuate harm but rather uphold and amplify voices that have been excluded in Earth Sciences.

The workshop theme will be reflected each day in three specific and interwoven topics: Centering Justice in Indigenous and Place-based Methodologies, Centering Justice in Intergenerational Research Practices; and Centering Justice in Indigenous Data Sovereignty. Over the three days, keynote speakers, panelists, poster presenters, and Working Group breakout discussions explored these ideas as well as how we each think of justice and what it means to center it in intercultural collaborations broadly. We reflected on what it means to center justice in our relationships and responsibilities to each other and beyond.

In the spirit of Rising Voices, one key outcome of the workshop is fostering new and existing relationships to facilitate collaborations between Indigenous and Earth sciences in response to the climate crises, along with the specific outcome of developing a collectively authored set of guidelines for centering justice in convergence science, particularly in relation to the three focus areas of Indigenous and place-based methodologies, intergenerational research practices, and Indigenous data sovereignty.

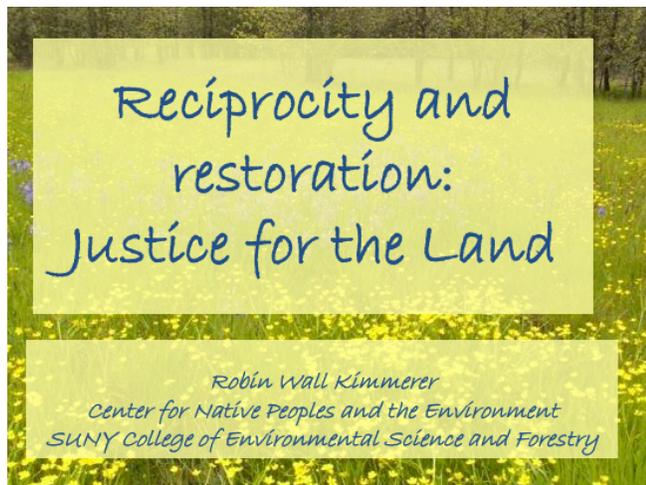
Dr. Everette Joseph (NCAR Director) offered a welcome, sharing that in the coming months NCAR will be accelerating its efforts to expand engagement with colleges and universities that have traditionally not had equal access to NCAR facilities or expertise. These efforts will include bolstering capacity with students and faculty in programs such as non-R1 institutions<sup>2</sup>, Historically Black Colleges and Universities (HBCUs), Hispanic-serving institutions, and Tribal Colleges and Universities (TCU). A goal of being more inclusive and intentional about building research partnerships with these programs, faculty, and students is to focus on capacity building, such as supporting programs to strengthen their ability to compete successfully for NSF grants. One such recent example is the partnership with Haskell Indian Nations University to develop a proposal for the NSF Coastlines and Peoples Hub (CoPe). The theme of centering justice in the convergence of sciences, communities, and actions is very timely for NCAR and aligns with the Center's strategic plan of science with and for society, emphasizing actionable and convergent science. This extends beyond NCAR's core strength in curiosity-driven science and builds capacity in use-inspired science to equip society with the tools and knowledge needed to rapidly respond to our most serious environmental challenges. This evolution amplifies our core values as a community in ways that more directly benefit everyone in society. Understanding the role of justice in science will shape the evolution of this actionable science program.

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<sup>2</sup> R1 academic institutions are universities with doctoral programs and very strong focus on research activity.



While the notion of protection of rights is often understood as what we mean by justice, the Indigenous way of thinking is often more oriented not to protection of rights but enactment of responsibility. For Anishinaabe concepts of justice, is the focus of making justice; for justice is a verb, not a noun or endpoint. It is a dynamic ongoing process of making justice in which the focus is on relationship between the offender and the offended, and this notion that the offense occurs because the system is out of balance. Justice in the Anishinaabe way is thought about in terms of healing and how do we create this healing and regenerate balance.



In the context of healing and restorative justice, justice for the land might look like restoration, rematriation, protected cultural areas, meaningful consultation, co-management, Indigenous land trusts. To rematriate land to Indigenous stewardship requires convergent science. One of the important elements of creating justice is the rights of nature, which has its grounding in Indigenous wisdom and worldview, not anthropocentric but bio-centric and centered on the continuity of life. An example is the personhood of the Whanganui River by our Māori relatives, recognizing the inherent right of the river.

What is the role of the ecological sciences and how do they contribute to creating justice for the land? It's not enough just to protect the remnants of homelands; we have to heal the damage that we have done. And that is restorative justice for land and for the people who depend on that land and care for that land. For example, relatives in the Columbia River Basin are using treaty rights and Indigenous science to protect the salmon and the watersheds on which they rely.

In designing healing interventions for the land, it becomes obvious that it's not the land that's broken. It's our relationship to land that has been broken. But what does it look like to restore relationship to place? Can we use convergent sciences to think about how we restore subsistence relationships for foods, medicines and all the gifts of the earth by which we sustain ourselves and our relatives? This is an embodied reciprocity, a justice that is manifest in our well-being. This means also having to reclaim the Indigenous science and philosophy that underpin our tending relationship to those places because this is a way that we enact justice, not by claiming our rights but by enacting our responsibilities of caregiving for all of the other species, through ceremony, through restoration of foodways, language, place-names. We need science that is heart-driven, justice-driven science that is directed by community priorities; knowledge in service to justice, where we reflect and respect those more than human teachers, of how we do this work together.

Restoration of relationship to place is outside the realm of Scientific Ecological Knowledge (SEK) and the reductionist materialist approach to SEK. We need a different kind of science, a

symbiosis of ways of knowing that brings us some of the tools of Western science and the values and guidance of Indigenous science. Convergence science is the science of two-eyed seeing; it's science which embodies all the ways of knowing around the medicine wheel, not only the intellect and the mind that Western science privileges, but also to bring our emotional intelligence and spiritual guidance into this work, then we are really doing transformative science that works toward justice.

For the crises that we face, and in order to work justice on the land, we need more than objectivity. We need complicated questions and approaches, which incorporate value. This is the approach taken at the [Center for Native Peoples and the Environment at SUNY-ESF](#). The methodology that guides our thinking is of planting a knowledge garden where there is a mutualism among knowledge systems, of thinking about how they might work together.

Centering the knowledge of the land, the Indigenous pedagogy of learning from the land, is grounded in the knowledge of the Three Sisters poly-culture garden. In the Three Sisters garden, corn supports beans increasing light availability. Beans fertilize soil with nitrogen fixation and use light efficiently by positioning leaves opposite to corn. The squash shades the ground and suppresses weeds. The results in a Three Sisters Garden is that there is more food, more nutrition, it's better for the people, it's better for the land when these grow together.

At the center of this knowledge garden is traditional knowledge. The corn, the elder knowledge, is planted first and centered; it is our intellectual scaffolding for all of the research that follows. Then we plant the beans, which are an analog to scientific knowledge. But beans alone, without something to guide them and climb on them, are less productive and can overtake many other aspects of the garden. The beans need to be guided by the leaves of the corn. Could we have beans guided by the leaves of that intellectual scaffold, the values of Indigenous knowledge? And then the squash, the one who has created a microclimate in which beans and corn can grow together. That is our work in our institutions, as we bring our gifts out into the world, is to create a climate in which Indigenous science and Western science can grow together.

***“Rooted in the land, in the knowledge of the land, we center Traditional Ecological Knowledge in our research, use tools of Scientific Ecological Knowledge guided by those principles, and then create a collaborative microenvironment in which they flourish. The symbiosis for scientific knowledge is in partnership and complementarity with Traditional Knowledge, so that all are fed.” – Dr. Robin Wall Kimmerer***

In a Three Sisters garden there is sovereignty of knowledges. They have their strengths, their gifts, and we create a microenvironment in which those gifts can be complimentary. How do we reciprocate the gifts of the earth, not just with ecological restoration, but reciprocal restoration, where there's mutual reinforcing so that as we use our science to care for the land and culture, when we restore the land it contributes to cultural restoration or cultural revitalization and renewal of cultural lifeways promotes restoration of ecological integrity. Land justice is a kind of reciprocal restoration.

Dr. Kimmerer highlighted a case study done with her students for making justice on the land,

guided by our teacher *Wiingaashk*, Sweetgrass. In using the Three Sisters teaching, they centered Traditional Knowledge in this research, using the tools of Western science guided by the knowledge and the wisdom of traditional basketmakers. Mohawk basketmakers came to the university because the sweetgrass didn't seem as vigorous and healthy as it once was. Then graduate student Daniela Shebitz worked with the basketmakers and with scientific sources to ask, where did sweetgrass used to be? She visited many of those places and categorized the reason that sweetgrass might not have been there anymore. This helped initiate a successful sweetgrass restoration in a Mohawk community.

The basketmakers then asked about overharvesting. They shared that there were several different ways that harvesters traditionally practice sweetgrass gathering using the honorable harvest. In the Indigenous worldview, we know that if we use that plant respectfully it will flourish. If we ignore it and don't tend it, it will go away. But in the Western paradigm of conservation of exploited plants, the idea is the way that we can serve plants is by limiting harvest, by keeping people away. In doing an experimental harvest, they found that the plants that were not harvested at all were declining. In the places where they used the honorable harvest, those plants were thriving. They had much higher regeneration rates, demonstrating that traditional harvesting practices stimulate the growth of sweetgrass.

In terms of land justice, this convergence science means that if we are to restore these plants we have to restore the harvesters. That justice for the plant means justice for the harvesters, that this is the kind of science that can lead us to land justice, of return, of access and tenure, to Indigenous homelands for the benefit of all.

### **Panel: Centering Justice in Indigenous and Place-based Methodologies**

The focus of this panel was on Indigenous and place-based methodologies and how these can lend themselves to centering justice in Indigenous and Earth science collaborations. Speakers included Dr. Deborah McGregor (Anishinaabe; York University), Dr. Margaret Redsteer (Crow; University of Washington-Bothell), and Jackie Qataliña Schaeffer (Iñupiaq; Alaska Native Tribal Health Consortium), with Paulette Blanchard moderating.

As a way of introduction, Dr. McGregor shared that her research focuses on what sort of futures Indigenous Peoples want, particularly at the community level in terms of how they're negotiating and managing what's coming and what's already here such as climate change; how to transcend concepts like mitigation to talk about what a self-determined climate future looks like as Indigenous Peoples envision it. Dr. Redsteer started from the foundation that the idea of justice should already be self-evident; we can't address climate change without equity. The pursuit of knowledge and what we are seeking with science is still traditional knowledge; it is based on what we can do to maintain and promote life. Whereas conventional science is more about how we can separate ourselves from the natural world. Consider how science can be part of the tool we use to advance our traditions. Ms. Schaeffer shared about her background in studying interior design, which is about people in their space, an interesting concept because

Indigenous people were migratory. Her focus became on learning about how different sectors intersect and then infusing it from a traditional knowledge-base perspective.

Responding to a question about how Indigenous science centers and projects can better support and connect with each other, Ms. Schaeffer started off with framing the new opportunity in today's age to connect and that there is an opportunity here to do just that, inviting Indigenous science centers and project managers to share their personal experiences and interactions. The question is if we are ready for the responsibility to share. Dr. Redsteer similarly reflected that we have to think about sharing our time with others, but we also have to be reaching out and inviting people to come and share their knowledge with us. Dr. McGregor agreed that there needs to be the space for Indigenous Peoples to provide their own narrative, but considering how to share without people appropriating and taking credit for Indigenous Knowledge, which is seen quite a bit in the climate change literature.

Dr. McGregor posed the question in turn of what does our future want to look like, and how might Indigenous climate leadership approach this question. For example, considering the United Nations 2050 vision for biodiversity and nature-based solutions. Indigenous People have already done that, yet Indigenous voices, perspectives, and experience are marginalized in those global discussions.

Considering their perception and experience with centering justice in Indigenous and place-based methodologies, Dr. Redsteer shared that she hasn't focused as much on methodology as community knowledge. How do we document the fact that our home is drier and hotter than the surrounding communities? In working to communicate what is happening where she came from and how climate plays a major role in that, she was very cognizant of the knowledge-holders and how that knowledge was tied back to their connection to the land and to the natural systems. Where did they go to get medicinal plants, to get dyes for baskets and for weaving, what kind of historical changes do they see, what are the plants they need for ceremonies and how have they changed?

***“It's about people and about promoting life and vitality of life, not just resilience.”***  
– Dr. Margaret Redsteer

Dr. McGregor spoke to her experiences in the climate policy circles in Canada, where economists and scientists don't want to go certain places with language or acknowledge justice because then they have to acknowledge there's injustice. The dialogue and the terminology that we use really matters. In these spaces, they don't like the word colonialism. They don't like it when you say you need to decolonize how you're thinking. The recent IPCC (Intergovernmental Panel on Climate Change) report and the recent IPBES report (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services), they call for a transformation but just tweaking the status quo business as usual isn't going to get us there. They don't like discussions around gender or patriarchy or if you call capitalism into question.

***“People say they don't understand how colonialism is relevant to climate. It's because you call it climate change and not climate justice.”***  
– Dr. Deborah McGregor

Taking a place-based approach, Dr. McGregor gave the example of working with youth on the phases of the moon and what is or should be happening during each Full Moon, e.g., are the fish spawning? They are trying to embed the place-based component and embody the relationships with the natural world and our relatives, like the moon.

Ms. Schaeffer posed the question about how do you talk about climate justice when you live in a place and work with communities that are seeing it seven times faster than anywhere else on the planet, yet they don't even have basic water and sanitation. An example is a community that has been threatened by climate change impacts and seen hundreds of feet eroded into a tidal-influenced river. When you sit with the elders, their dreams are of their grandchildren being washed out in their sleep. You're trying to find solutions to bring them to safe ground, but the federal government needs them to hire an attorney to negotiate a land exchange because it's a reserve where they want to move. And in that process, the government gets three times the amount of land as this village. Our American processes in government are through a colonized lens. If we can't even acknowledge it in conversation, policy will never change. There are 144 environmentally threatened communities in the state of Alaska, and the government placed most of those communities in areas that are very fragile. If we look at climate change in Alaska through an Indigenous lens, elders remind that our people have gone through multiple changes and we've survived in the same geographic area for 17,000 years.

***“Right now we are in a critical pivotal point in time where that Indigenous knowledge is going to be the solution-base for the future. So we have to have these gatherings and hard discussions and recognize that if we’re going to create equality, we have to look at it through an Indigenous lens.”***

***– Ms. Jackie Qataliña Schaeffer***

*Question: How can we push land-based universities to honor Indigenous communities, or give reparations? How would this work?*

Dr. Redsteer articulated that we first need to acknowledge all of the Tribes and Indigenous People in a particular region. Until we can resolve some of the ways that tribes have to exert their sovereignty, it's going to remain a difficult question. Dr. McGregor shared that in the Canadian context, this more has to do with the Truth and Reconciliation Commission and recommendations, with universities recognizing that they are on Indigenous territories and figuring out who those communities are and trying to come to some relationship building and agreements. In research involving Indigenous People, you need to support the capacity in the community to engage with the institution. Indigenous Peoples aren't just objects or subjects to be studied; they were complete societies when disrupted through colonialism and capitalism and imperialism, and they need to be recognized as such.

*Question: How do we address that Indigenous Knowledges have agency? Knowledge - from my lens - is our elder(s).*

Ms. Schaeffer articulated how our Indigenous Knowledge is our elders, they are our keepers, our libraries of our oral history and our traditional practices. There are multiple ways to look at it

and stepping in and stepping up and carrying that responsibility, and being comfortable in that you are the warrior for your people to share their story and their knowledge and then find that new space and protect it.

Dr. McGregor shared that Indigenous Knowledges having its own agency is embedded within people but it's also embedded within the land and the land also contains and conveys knowledge and can decide whether it's going to be shared or not. A young woman at a youth-elders gathering a few years ago described climate change as Earth is trying to tell us what's happening to her, and it's our capacity to be able to listen and act on that knowledge that the Earth is trying to convey. Other people are calling it natural disasters but really things are happening to the earth and she is trying to communicate with us. That's not conveyed in the peer-reviewed literature. Dr. Redsteer agreed that the more that science begins to look at all the interconnected systems that support life on Earth, the more it reinforces the fact that the Gaia hypothesis didn't start with James Lovelock.

*Question: How can a non-Indigenous person create a respectful Indigenous led and centered SEK/TEK convergent science program within their institution, with the goals of this workshop but on a smaller scale prioritizing decolonization and anti-racism without the emotional burden falling on the Indigenous leaders?*

Dr. Redsteer believes the pandemic has opened people's eyes, that our societies need to think more holistically about our communities, our children, and our health and how they're all connected. And it's forced people to spend time outside, which will help to promote learning in a way that is more meaningful for our children.

Ms. Schaeffer shared that in Alaska, communities were cut off during the pandemic because flights were minimized and they are logistically challenged in the sense that you have to fly. But being part of a revitalization of our Indigenous medicine and plants as food, it was beautiful to see the knowledge sharing of our Indigenous plants and return of our language. Part of that revitalization is understanding. If you're a non-Indigenous person and you're trying to learn, you first have to listen, and listening is not taught in the English setting. You learn to speak, and you learn to present and listening is not part of the lesson. In an Indigenous community, the first thing a child learns is to respect and be quiet. These opposites can coexist, but you have to teach each other them and first you have to acknowledge it.

Similarly, Dr. McGregor shared how people think colonialism isn't relevant, yet she's living it every day. But there's different approaches such as ethical space around different knowledge systems because it's not just science and Indigenous Knowledge, there's multiple knowledges that need to be recognized and embraced, and recognize the differences and their strengths and weaknesses and what they could bring to a problem or to a challenge. Decolonization needs to be part of that conversation. For ideas around ethical space, a lot of people are drawing on Dr. Kimmerer's work, like the idea of braiding different knowledge systems. These different paradigms and ideas are coming from the land and from nature for how to do this. We need to get people outside and starting to use their senses. If you recognize Indigenous People

as complete societies and nations, we want science too because we want to make the best decisions that we can make for ourselves and communities and future generations. So there's a place for knowledge sharing in all of it.

### **Working Groups: Centering Justice in Indigenous and Place-Based Methodologies**

Working group sessions were held each day of the workshop on that day's focus area: Centering justice in Indigenous and place-based methodologies (Day 1 focus), centering justice in intergenerational research practices (Day 2 focus), and centering justice in Indigenous data sovereignty (Day 3 focus). Discussions focused on examples and experiences related to the working group topic. There were between one to three sub-groups per topic, to keep the conversations more intimate with a smaller group. Each working group topic focused on a similar set of prompts, to be considered through that topic in particular. The working group topics included:

- **Community relocation/site expansion:** discussion on issues around communities working on community-led relocation, resettlement, or expanding into a new or ancestral site when adapting in place no longer becomes an option
- **Energy systems:** discussion on a just transition away from fossil fuels to cleaner, renewable energy
- **Food systems:** discussion on food security and food sovereignty, as connected to climate, weather, and water
- **Health:** discussion on individual, community, and cultural health (physical, mental, social, emotional, spiritual) as these connect to climate, weather, and water
- **Phenology:** discussion on the timing of natural events, in relation to climate and plant/animal lifecycles
- **Water systems:** discussion on water quality and quantity issues, including freshwater ecosystems and marine ecosystems

What follows are key points and perspectives that emerged from the working group conversations, compiled from the report-out reflections each day and notes taken during the sessions.

#### ***Community relocation/site expansion***

It's important to consider where the blockages are, such as for making funding flow, where it gets stopped, and the rules around funding. One of the big challenges is the length of time that grant proposals are given. We need more time to do this work and walk together. The grant timetables do harm because they constrain time and aren't realistic for building that trusting relationship that needs to happen; they are set on colonial rules of funding and adoption of plans. Another blockage is the federal government's plenary power of tacking on rules for funding, of treating tribes as internal rather than sovereign nations, considering meaningful consultation vs. procedural consultation. When it comes to relocating people and communities, there is no consideration in the agency-processes for ceremonies or traditions; it needs to be

part of the whole process. When people move, these things can be lost but it's not talked about by agencies or planners. The people being moved are not considered.

These issues are part of what was addressed in the [recommendations](#) developed by the RV community relocation/site expansion working group in partnership with the Legal Justice Coalition (facilitated by the Unitarian Universalist Service Committee and the Lowlander Center), on a just and equitable response to address climate-forced displacement in the US.

Relationships are critical and take time and patience. Western scientists need to make space and time for this relationship building, and to not separate the personal from the professional. When it comes to relationships it starts with being in right relation with one's self, with our neighbors, being in right relation with the land. Where possible, doing things outside of that grant-funding cycle tends to be more effective because you're doing it from the heart, you're doing it not on any preset time or with definable outcomes. You're allowing that emergence to come through. The relationships define what needs to be done, with the priorities foregrounded at each phase. Collaborations are needed to find ways to get data where there are gaps.

Among the respectful practices discussed when it comes to community relocation/site expansion and Indigenous and place-based methodologies include:

- Relationships take time to be able to walk together. All relationship building must have a personal touch from the start.
- Collaborate and connect with people already doing the work.
- Find the qualitative, localized data in storytelling. The stories of the people and places are vital to developing solutions. And understand the lens through which they see and live with these issues and challenges. For example, the [Institute for Hawaiian Language Research and Translation](#) is doing work on this, through translating Hawaiian newspapers and stories from years ago that have a lot of important information that can be used today.
- Indigenous management and co-governance are important and it's important that those who want to help develop those relationships engage those communities from the very beginning, from development all the way to the solution.
- Consider what the benefit is to the tree, the ocean, the land, and not just the benefits to us.
- Bring young people back to the land, while the elders are still around and while the land is still there.
- Remember that we are all connected to the Earth, we all have a responsibility to her.

### ***Energy systems***

Conversation was shared around the power of place, going to that place, sharing those stories, listening to the language, and thinking about how we can better those relationships within ourselves, within the communities we work in and within, and the fields that we work in. The conversation was focused on the local or even individual level; something for us all to reflect on is we want to think about these larger systems but what are we doing as individuals? Importantly as well, understand energy not as a "system" but energy as interconnected.

There is a need for listening and hearing what the community needs are and supporting the

needs of the place and peoples, as opposed to coming in with an idea and trying to form fit a one size fits all; rather, more listening and spending the time and money needed to build the relationships. We need to honor these cyclic perspectives of education and science and knowledge within communities, whether that is local or Indigenous Knowledge. To promote collaborations of Indigenous Knowledge and Earth science, it starts with relationship building. We need to build those relationships, listen to those stories of the place. There needs to be a collective and mutually respectful place to start from, and agreed upon plans for engagement. To know the history and culture is as important, if not more so, than the physical data of the science.

To center justice in this work, communities need to be engaged on the front end of a project to establish community needs over industry needs. Create methodologies that acknowledge past histories and wrongs, in order to re-envision how we work collectively moving forward. It's important to recognize the disproportionate costs Indigenous Peoples are paying for energy consumption. Many of the solutions will come from Indigenous communities. Indigenous Knowledges should not be incorporated into Western science but valued on their own. Talk about our collective processes, goals, expectations, and perspectives at the beginning, middle, and later – never the end – in our work together.

### ***Food systems***

First foods and access to first foods are hugely important in terms of thriving communities and climate resilience and adaptation; it feels backwards when those climate impacts then affect food access. Some innovative ways that some communities are addressing this is, for example, sending hunters and fishermen out with respirators when there's wildfire smoke so they can get out on the land and gather those foods. There also need to be considerations for other physical and tangible barriers and intangible regulation and policy level barriers to getting out on the land.

Good practices for redefining success in collaborations by centering justice include:

- Building the table together. When you build that table together what are the type of questions that you should ask: Why are you doing the work? Who are you doing the work for? Who are the communities, the population that should be at the table with you?
- Meet on the land and eat together; this shifts relationships. You're able to build those relationships and have deeper conversations.
- Research should benefit the communities that it is coming out of. The importance of listening, and that listening doesn't stop if you hear something you don't want to hear. That's not when you turn away, but that if you're listening, and you hear something that doesn't fit with what you want to hear, it's time to listen harder.
- Shifting perspective from thinking about something as a weed to a food or a medicine, from thinking about a conflict between food production and wildlife conservation to seeing those being woven together rather than in conflict. Shifting from climate change as the be all end all problem, to recognizing that colonialism and capitalism and land management structures oftentimes are more the problem and climate change is the symptom. Shifting from looking at problems one dimensionally to looking at interconnectedness and the multifaceted effects of something such as a cultural burn.

## ***Health***

A sense was shared of needing to re-ground ourselves, reconfigure what spirituality means, and think about the heart. Don't try to live as a reaction of your trauma but be present and reground ourselves spiritually to come from a healthier place and to acknowledge that it's an ancestral route that comes from that. The importance of observation and listening when we talk about health and well-being. Health is a plural word that could mean the whole self, the spiritual, more-than-human relationships health, the health of how we engage, how we're presenting ourselves, and not to be too far in the future or too far in the past, to try to center within the present.

How do we reconnect? Everything is connected. For example, the interconnection if an elm tree becomes sick and it spreads through the root system to all. We as the human part of this broader situation, we're all interconnected. There's a need to reengage in different forms of communicating, and to acknowledge the different knowledge systems that are there; not trying to coopt them or change them, but understanding our lived experiences defines how we define our health and how to heal ourselves.

Understanding what health means to people and their communities, not only what the federal agencies, academic institutions, or Western institutions say it should or does mean; going beyond the physical health impacts to mental and spiritual. Also keeping in mind the historical injustices that have contributed to the siloing effect of departments, topics, and the structural inequities that exist. The importance of including and acting on the inclusion of more Black, Indigenous, and people of color, to shift the decision making process. For example, there are more people of color as authors in the current [5<sup>th</sup> U.S. National Climate Assessment](#) than previous such assessments; this calls for being really proactive, and the approaches for engagement are meaningful, reciprocal, and co-produced.

## ***Phenology***

Some of the key themes that emerged in the phenology group were around language and communication, deeper connectedness, and bringing humanity back into science. Questions to start with are recognizing who needs to be in the conversation to discuss how to work together, and are they there? It's important to notice at the very outset who's there and who might be missing from the conversation to start mindfully in that way as well. It's important to reach out to elders for more in-depth collaboration.

The Indigenous methods contribute a way of seeing things as a familial responsibility rather than a scientific accomplishment; the way you frame that problem impacts how you do the work and connect. Similarly on framing, learning to think like a berry versus thinking like the person. Justice is about being able to put yourself in different shoes and a different perspective. Knowledge is not stagnant and grows through time, experience, and has to be lived in order to be passed down. We must consider the data that's collected and reach out to elders for more in-depth collaboration. There needs to be discussion and understanding around intellectual property rights, which is a key point that is often overlooked.

In the past people moved seasonally and stayed with the resource; today, gatherers are cut off

from places because the land is privately owned or there are barriers to utilizing the place, and there is no space for nomadism, which is the heart of phenology in many communities. Yet, knowledge grows through lived experience, to be passed down. An example shared of whole-landscape functioning is the [Camas to Condors project](#).

Thinking about phenology in the context of cultural practices, which are place-based, there's a lot of considerations on the impacts of climate change on seasonal practices. Centering justice in the process can mean listening to the local needs, pushing for more local voices in phenology monitoring programs, and reflecting on Dr. Kimmerer's talk, balance and regenerative relationships. One question that emerges is how to balance local needs with the national or Western demand for standardized data. A possibility is building into phenology modeling additional variables, although communities might not need or want the how and why certain things are happening to be shared; this calls for building data sovereignty and privacy into the process.

The group struggled with the term "best practices" and that maybe it's mindful and informed practices to center justice in collaboration, and considering how to build and sustain good relationships, because the practices would differ depending on who you are working with and how much you trust each other.

### **Water Systems**

It's important to consider not only *why* justice is important in collaborations but also *how*. Start with asking the communities themselves what justice looks like to them. Climate change has occurred because of inequities, injustices, and the colonial, capitalist system, with impacts further fueled by managing water as a resource instead of recognizing waters' rights and legal and regulatory barriers that constrain what tribes can do in terms of their own sovereignty. We need to understand how systemic racism holds land use policies in place and to break down systemic racism in our institutions and the general public. If you're in the Earth sciences, what injustices did your institution impose? For example, where your museum sits, whose land was it originally? What part did your organization play in those injustices?

Recognize the difference between knowledge gained through data and wisdom. There is a lack of wisdom in Western science. One can't begin to understand wisdom without engaging local communities and Indigenous Knowledges. Start these conversations within a place by recognizing the values of the people in that place, addressing the issue in the context of those values and asking the community what they want to see and what they want to know. Recognize, acknowledge, and follow traditional protocols and traditional practices; specifically in the context of water, working within existing traditional water rights, whether they're recognized or not, and understanding traditional relationships with water and the traditional history of water management. In this kind of work, you are building sustained relationships, not one-off little activities. Do your homework before approaching communities, to have the appropriate framework for engagement. Establishing trust is an important part of partnerships and developing long-term relationships.

Indigenous Knowledge should guide framing the question and analyzing the data, then weaving

in the Earth sciences. Indigenous and place-based methodologies allow us to be grounded and create depth and shared meaning among partners, and guide thinking about resiliency away from the colonial structure of dominion over land and towards humans being a part of nature and living with nature. This enables resilience when, for example, flooding occurs. Space has to be consciously created to address power differentials and to listen, learn, and build relationships. Funds need to be written into grants for Indigenous People to participate from the very beginning. It's critical to understand that tribes are not stakeholders; they have particular rights, treaty rights. Capacity should be built and shared particularly with tribes that don't have the resources to engage.

There can be a push and pull between Indigenous practices that need water and urban areas, considering how to rectify water needs when, for example, streams flow differently from the past. A question emerges of how to manage the water for multiple uses with institutional systems and agencies understanding traditional uses of water. A possible new future research area is of Indigenous Peoples that live in urban settings and their relationships to water and water policy.

Addressing climate change will depend on an alliance of humanity and science. We must protect and advocate for water as a living entity, knowing that all water is connected, and it is essential to listen to our elders and take care of knowledge holders. This should include intergenerational empowerment, and empowering students and youth by honoring their potential at all ages. Values are key to centering justice and intergenerational knowledge exchanges. There needs to be justice for all beings, recognizing the interconnection and balance between all beings. The current system keeps us stagnant; this is a time for innovation.

### **World Café Meet and Greet**

A World Café Meet and Greet session took place each day of the workshop, during which participants selected an organization to learn about. Representatives from the various organizations, programs, and networks were available to learn about their programming and engage in conversation. Appendix 3 includes a list of the groups that facilitated spaces during the meet and greet sessions.

### **Day 1 Closing Remarks**

Tomorrow is the first Truth and Reconciliation national day in Canada and beyond, and Indigenous-led grassroots commemorative day that honors the children who survived Indian residential schools and remembers those who did not. And we hope that in some small way our work here continues that honoring, as we work to center justice in our collective endeavors.

### ***Additional resources shared, Day 1***

- Tribal Adaption Menu developed by Great Lakes Indian Fish and Wildlife Commission and tribal partners. <https://glifwc.org/ClimateChange/TribalAdaptationMenuV1.pdf>
- Workshop on Indigenous and Anticolonial Views of Human activity in Space <https://www.media.mit.edu/events/mit-anti-colonialism-seminar-series-panel-discussion-with/>
- Example of creating new space for co-production and collaboration,

<https://www.searcharcticsscience.org/>

- Restructuring how we communicate so both Western and Indigenous populations can use the context. [https://anthc.org/wp-content/uploads/2019/02/4-Oscarville-Adaptation-Plan\\_1-31-19\\_Screen-resolution.pdf](https://anthc.org/wp-content/uploads/2019/02/4-Oscarville-Adaptation-Plan_1-31-19_Screen-resolution.pdf)
- Curriculum, [www.g-wow.org](http://www.g-wow.org)
- <https://www.inuitcircumpolar.com/project/icc-ethical-and-equitable-engagement-synthesis-report/>
- Program that centers Cultural Ecology <https://tryonfriends.org/whole-community-partnerships>

## THE 3<sup>RD</sup> ANNUAL BOB GOUGH PUBLIC SYMPOSIUM, “CLIMATE CHANGE IS INEVITABLE, ADAPTATION IS OPTIONAL”

This public online event was designed to honor the legacy of [Rising Voices’ co-founder, Bob Gough](#). This year’s symposium included:

- Recipients of the 2021 Bob Gough Award for Climate Justice in Action. The Award was created to recognize an individual(s) from within the Rising Voices community for their long-term and dedicated service to climate justice.
- A discussion with climate justice leaders featured in the documentary film, [INHABITANTS](#), which follows five Native American Tribes across deserts, coastlines, forests, and prairies as they restore their traditional land management practices. Speakers include: Rev. M. Kalani Souza (Olohana Foundation), Pres. Chris Caldwell (College of Menominee Nation), Dr. Michael Kotutwa Johnson (Native American Agricultural Fund), Anna Palmer and Costa Boutsikaris (INHABITANTS Directors), with moderator Colleen Cooley (INHABITANTS Native Impact Producer)

Bob Gough, co-founder of the Rising Voices movement, was a visiting scientist at the National Center for Atmospheric Research (NCAR) in 2011, where he vocalized his musings on wondering how far we have really come in decades of attempting to integrate Indigenous and Western perspectives in weather and climate research and policy. This led to the first Rising Voices Workshop in 2013, which brought Indigenous and non-Indigenous Earth scientists into conversation about weather and climate change by asking the question: “What are the elements of successful co-production of science and policy in the fields of extreme weather and climate change?” Rising Voices is one node in the constellation that was Bob’s lifework and legacy. Bob was a connector, instigator, and by his own measurements, “the most interesting man in the world.”

Lisa Colombe, Bob’s step-daughter, kicked off the symposium by sharing reflections about Bob, the legacy of his work, the context of moving his work forward through Rising Voices and the broader community.

***The Bob Gough Award for Climate Justice in Action*** was created to recognize people from within the Rising Voices community for their long-term and dedicated service to climate justice. Because there was not an award made last year, multiple individuals were selected this year. To this year’s award recipients, a heartfelt congratulations to **Kalani Souza and Fred and Frieda Eningowuk**. Over the years, Kalani has often reminded us “we need to talk about this as

family", and the importance of shifting from looking with our eyes to looking with our hearts. His lessons in ways of bringing people together across cultures and backgrounds, his stories that teach us about how we must change our ways to see different outcomes and to think and act across generations. He provides grounded examples of adaptation in action through the [Global Breadfruit Heritage Council and initiative](#), [VICTree Gardens](#), transforming organic material into fuels with zero waste emissions, and many more, inspiring not only the actions needed, but doing so by focusing on the power of relationships and "we" over "me".

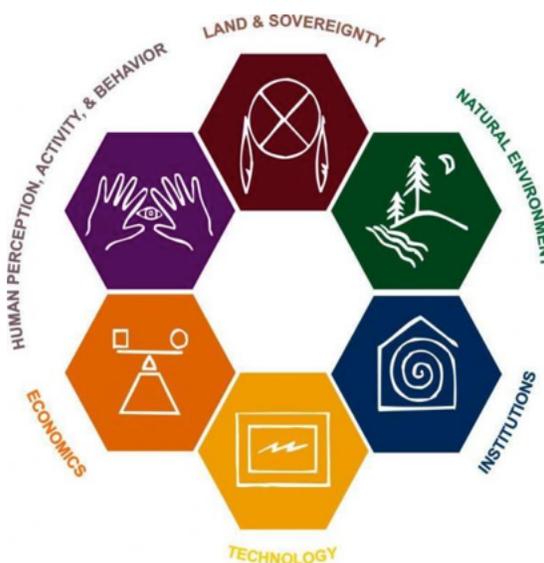
Fred and Frieda have shared with the RV community over the years the ways in which the ocean and land are their garden and the ways through their subsistence practices they've survived for thousands of years. From melting permafrost to erosion to unusual low tides and high water without storms, they've been a leading voice in sounding the call for action based on what they are observing, witnessing, experiencing, and living through every day. They have shared the ways in which their family and community are adapting to the extreme climate effects, such as adjustments in timing of harvesting practices and considerations for proactive site expansion. As Fred reminded at a recent Rising Voices gathering, "We are all one people."

Our deepest gratitude for your lifetime of dedicated service to climate justice, and for your mentorship, leadership, guidance, teachings, and shared wisdom. Your leadership within Rising Voices and far beyond has radically shaped and influenced people around the globe and while we are without words to properly express the influence you have on our lives and actions, we hope you feel the profound effect you have on so many. From Kalani's spiritual guidance and teachings of the ways in which we must start well and build relationships from human-to-human connections to Fred and Frieda's shared stories and courageous acts of adaptation in action and work to co-create climate knowledge and information that provide a guiding light to many places and communities.

Kalani, Fred, Frieda, your impacts are profound and we are all better individuals and better collectively because of your mentorship and gentle guidance along our journey. Our most heartfelt gratitude for you, for your friendship, and for being such a strong heartbeat of this community.

### ***INHABITANTS panel conversation***

During the panel discussion, Pres. Chris Caldwell (College of Menominee Nation) shared about the effort at the [Sustainable Development Institute at the College of Menominee Nation](#) to develop the theoretical model of sustainability, as a way of sharing the Menominee story of sustainable development within the context of sustainable forestry. It reflects on our experiences but also as a way to share what we learn so we can develop solutions both as a part of our community and more collaboratively with others that are seeking



The SDI theoretical model of sustainability.  
<https://www.menominee.edu/sustainable-development-institute/about-sdi/the-menominee-theoretical-model-of-sustainability>

to address these issues that impact our human-environmental relationships. The model is an extension of the body of work that our tribal leaders have done but over time we look at ways to work the model, advancing our understanding of what it means and represents in terms of our people's story and long history of being on the land, being part of the land, and how we maintain those relationships according to the values of the Menominee people. By building our work off of that story and framing it through this model it helps us carry that forward as we do work with the current forest sawmill and forest management enterprise that that takes care of our forest today.

*Question: What does an intergenerational transfer of knowledge look like in Hawaii, and how does that relate to building sustainable food systems?*

Rev. Kalani Souza shared that in Hawai'i, they maintain the connection through the generations, keeping the cultural songs, dances, as well as historical and practical knowledge systems alive. That's been principal in defending themselves against 130+years of illegal occupation. Maintaining this intergenerational transfer of knowledge in Hawaii looks like sustainable regenerative resilient capacities entrenched within community, handed down generationally and family groups that give the capacity to survive during changing economic times, and during these changing climate times. The transfer mechanism between the generations is of great importance. In Hawaiian culture the word *Puna* means spring, where the water springs up, the word for grandparent is *Kupuna*, the person standing at the spring. The word for grandchild is *Mo'opuna*, which means lizard; the little human on four legs crawling towards this spring is called the grandchild, and the person standing at the spring is the grandparent. Our information moves from grandparent to grandchild, jumping generations, preserving the information intact because it can be checked every other generation whether the information is transferring accurately.

*Question: What do you think are some of the barriers of transferring this knowledge between generations?*

Kalani continued, after several decades of applied research, the barriers seemed to be the solution, which is education. It's the structure of education that is questionable; the difference between the Doctrine of Discovery and the Doctrine of Relationship. It's the relationships that we have that keep us going, those relationships to our generations and to each other feed us as we move forward. In the world of modernity that deals in transactional arrangements, where the intellectual property right is preserved through the knowledge-base for the university so that we can all capitalize might be the main barrier to us sharing information in an open, transparent, and inclusive way.

*Question: Michael, the [Native Nations Institute at the University of Arizona](#) includes the definition of Indigenous data sovereignty as "the right of a nation to govern the collection, ownership, and application of its own data. It derives from tribes' inherent right to govern their peoples, lands, and resources."<sup>3</sup> Based on your journey and experience in academia and*

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<sup>3</sup> See Rainie, Stephanie Carroll, Desi Rodriguez-Lonebear, and Andrew Martinez. 2017. [Policy Brief: Data Governance for Native Nation Rebuilding](#). (Version 2). Tucson: Native Nations Institute.

*feeling that you have to prove that Hopi and Indigenous techniques are valid, how can institutions be supportive and collaborative of Indigenous data sovereignty?*

Dr. Michael Johnson articulated that when we talk about cyber data sovereignty, we first have to have the data. There is very little data on Indian Country. We come up with maps that show the fair market value of land in the United States and according to this map, Indian Country is not worth anything. He's working to reverse this map and come up with a biodiversity map of Indian Country. One of the goals is to bring data to the forefront to support Indigenous Peoples' ideas for infrastructure. Different agencies have different sets of data, which isn't helpful for conservation efforts. It needs to be centralized.

*Question: According to the [Indigenous Seed Keepers Network](#), "seeds are a vibrant and vital foundation for food sovereignty, and are the basis for a sustainable, healthy agriculture." In the film you mentioned that the corn are your children, and that the seeds and plants need biodiversity to adapt to climate change. As a farmer, can you share with us the importance of seeds and how your doctoral work on Indigenous cultural knowledge can contribute to centering justice and collaborations between Indigenous knowledge holders and Earth scientists?*

Michael shared how he was taught from a little kid that it's all really about the seeds, that's our life and in that preserves our biodiversity. [The IPBES Global Assessment Report on Biodiversity and Ecosystem Services](#) says that Indigenous People protect 80% of global biodiversity on 25% of the land with just 5% of the population. This needs to be thought about in trying to find solutions to adaptation, but it also starts with the seeds. He'd like to find mechanisms to help genetically sequence some of the precious varieties to create deterrence from exploitation. Corn is a \$3 billion industry but Indigenous People haven't benefited from that.

Restoring our food systems includes showing how a lot of what is grown is by using Indigenous practices. In Dr. Johnson's paper published recently in the [Journal of Soil and Water Conservation](#)<sup>4</sup>, proving that Hopi have 2,000 years of replication and Menominee have 10,000 years of replication on their management techniques; it shows that they have the same conservation outcomes, and this is based on replication. Most Western science at least in the United States only goes back 200 years. His main goal is the restoration of Indigenous food systems using the path of conservation.

*Question: Anna and Costa, what did you learn about best practices while documenting tribes and collaboration while working on this documentary?*

There's no way that the film would have been able to happen without collaboration. In 2018, while doing climate research with the [Native Waters on Arid Lands](#) project, the film's producer Anna met Chris Caldwell, and through that work attended a lot of academic conferences such

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<sup>4</sup> Johnson, M.K., M.J. Rowe, A. Lien and L. López-Hoffman (2021) Enhancing integration of Indigenous agricultural knowledge into USDA Natural Resources Conservation Service cost-share initiatives. *Journal of Soil and Water Conservation*, DOI: <https://doi.org/10.2489/jswc.2021.00179>

as the National Adaptation Forum, and in those spaces and in conversation with tribal project leaders, it became clear that there wasn't enough media documenting the important work that was being done on tribal land from their perspective. So they started having conversations and started to document their stories from their own perspective. They set up a Tribal Advisory Board for people in the film to see edits of the film to give feedback and co-create it.

*Question: For Chris, how do you approach Indigenous place-based research and your work at the College of the Menominee Nation?*

The focus of Indigenous research methodologies as a part of his doctoral program is a reflection of his experiences at SDI (Sustainable Development Institute) and in connecting with Indigenous scholars, students, the community, teachers, practitioners, those that are engaged in that daily way of living. Drawing from experiential learning to then frame it in the academic way of learning is what's developed as his methodology as an Indigenous researcher and premised on the relationship with the land, growing up in the community, and taking on leadership roles. For place-based research, it's important to look at what has developed over time through Deloria, Wildcat, Kovach, Smith, Wilson, the foundational, theoretical work that has laid the path for applied research. The application of not just the theory but how to put those stories into action and continue to develop them. A long time ago, Menominee leader Chief Oshkosh, when faced with a question posed to him at a Tribal council meeting, responded that he wished to pursue a course that will be best for the generations that will come after us. And that's been Pres. Caldwell's push to apply for the doctoral program and focus on what to do now, so that the following generations will be able to have the best available to them and that Menominee language is revitalized and becomes a common language in their community again.

*Question: What are some of the things going on in your community that you would love to see more media attention on or more documentation?*

Kalani shared that using stories to tell future lessons is an ancient art form. We need to create an interrelated network of media stations where we could continuously upload information and build stronger relational networks through the sharing of these media pieces. If we're not using our ability to tell our stories forward into the future, to give the generations coming the mythos they need to survive, we're missing a great opportunity.

***“While I value the stories we've all shared with each other, stories from the past, deep and relevant, I think it's more important that we find a way to tell ourselves new stories into the future, about who we can be.” – Rev. M. Kalani Souza***

Michael reflected that we need to tell more stories of resilience, to have stories that are in the mainstream media. His vision is that we will once again thrive in our communities and Indian Country will lead the United States in food production and will once again be feeding the people who are looking for solutions. He wants to find ways to help protect our information, to not be exploited, not be extracted but hold on to what we have. Vine Deloria Jr. said that the American Indian during the civil rights movement wasn't looking for equality but was looking for recognition. And we're still doing that today.

Lisa provided a closing prayer, and gratitude for all those continuing to carry on the work of Bob Gough and all our relatives and everyone coming onto the Rising Voices path.

### **30 September 2021**

## **WORKSHOP FOCUS 2 – INTERGENERATIONAL RESEARCH PRACTICES**

Ava Hamilton (Arapaho) welcomed everyone gathered to the day. She shared the ways in which the representation and interpretation by the knowledge-holders is needed. The partnerships that support Indigenous knowledge-holders and practitioners and that way of life is critical, not for academic purposes, but for love of life. She opened the space by leading from a place of love.

### **Poster “walk”**

On the second day of the workshop, participants “walked” around to different breakout rooms to discuss posters with the presenters; see Appendix 2 for the poster descriptions.

### **Panel: Centering Justice in Intergenerational Research Practices**

Mentors and mentees came together for this panel focused on Intergenerational research practices and how these can lend themselves to centering justice in Indigenous and Earth science collaborations. Speakers included Papalii Dr. Tusi Avegalio (Doc Tusi) (Samoa; University of Hawaii Pacific Business Center Program), Leroy Harris (HITmethods Inc.), Cheyenne Lurvey (General Manager Phoenix Carbon LLC), Chief Shirell Parfait-Dardar (Grand Caillou/Dulac Band of Biloxi Chitimacha-Choctaw; Louisiana Governor’s Office of Indian Affairs Native American Commission), Devon Parfait (Grand Caillou/Dulac Band of Biloxi Chitimacha-Choctaw; Williams College), Dr. Daniel Wildcat (Muscogee Nation; Haskell Indian Nations University), Annalise Guthrie (Cherokee; University of Kansas), with Jasmine Neosh (Menominee; College of Menominee Nation) as moderator.

Sharing how they were brought with their mentor/mentee and how that intergenerational relationship has helped them and their work, Dr. Wildcat opened with how in Indigenous traditions, leadership is something that one grows and matures into. He has been blessed to work with so many students at Haskell Indian Nations University. In every grant proposal, he makes sure to build in substantial internship opportunities, which is how Annalise and him met. It’s part of helping the younger generation learn to, sharing from Doc Tusi’s framework, how to navigate the waters not only when they’re calm but also when they’re stormy. Part of our job is getting students engaged, such as taking them to scientific meetings and conferences.

Annalise, in turn, shared how instrumental Dr. Wildcat is in what she’s doing now and how she will continue to bring what he says into the future. He has brought inspiration and created programs, which is a huge deal to bring to a tribal university, for so many of her experiences. For example, he took her to Boulder, Co to the Tribal Colleges and Universities day for NOAA (National Oceanic and Atmospheric Administration) and it was from there she was able to build upon the opportunities.

Doc Tusi shared how one of the things that traditional wisdom brings to the table, is that it's not taught in the schools. And yet, many of our young don't realize many of the answers are already in them. It's part of their DNA, connected to the universe, connected to the earth. If you go to business school they take you to a lab or you read case studies and there's a mechanical approach based on the machine paradigm.

***“We come from an organic paradigm. So when they come with solutions, they say let's fix the problem. But for us, we say, let's heal the problem. You don't fix the earth and its pain. You don't fix pain you heal it. When you heal in our way it's to make you whole again.” – Doc Tusi***

The ability to attune, it's an intuition and it's best defined by our languages. We speak in metaphor, analogy, an allegory. That means that we're able to speak to the sacred myth, and we can attune to the sacredness of the other. It is to understand that *'ike* and intuition are just as valid as scientific research and products that come out of the laboratory.

How do we weave traditional wisdom and modern science and knowledge so that there's mutual respect? For example, in the 1920s, there was fierce objection to Albert Einstein's groundbreaking theory of relativity. But the basis of what he said was his intuition. He stood by his instincts. From his physics we're now moved into quantum mechanics, which embraces the concept of energy and thinking and flow and *'ike*. Einstein said that the rational mind is a faithful servant and the intuitive mind a sacred gift. We've created a society where we have honored the servant and forgotten the gift. And that's where we and the other elders step in to say it's not necessarily one or the other, it's both. Cheyenne's father is the inventor of an amazing technology. He had *'ike*, he sensed the earth was suffering. With his intuition and scientific knowledge, he created the technology to help address that. We weave the traditional wisdom and our cultural values and spirituality, with modern science, knowledge, and technology. By doing that, we will unleash the healing powers of our next generation.

Dr. Harris shared how he looks at helping from a disaster management and healthcare perspective to help communities become more resilient. One of the things that connected Leroy and Cheyenne is that the technology that Cheyenne and his father work on targets destroying vectors, getting rid of standing water that creates breeding grounds for mosquitoes, and prevent other types of water- and foodborne and other types of illnesses.

Cheyenne shared how with Doc Tusi, Leroy, and his father's guidance, it's helped introduce him to better pathways for introducing technologies to areas which include building a relationship and establishing connections. He looks at things as a whole approach, how one you do one thing, how does it affect everything else; for example, bringing back the natural soil growth and health enables a community to stand on their own instead of being reliant on continue to feed themselves from the outside.

Chief Shirell reflected on their elders' saying that the old way is the right way. What that means is respect, the understanding of respect. And when you have respect it's easier for your heart to love. And you have to guard your heart because that's where all your work comes from. Chief Shirell shared her connection with Devon, her Tribe's future chief, who came to her at 12-years-old as she was in the middle of doing tribal records to apply for federal acknowledgement, and

out of this young man came the call to, how can I help. In working with Devon, his heart was in the right place and he understood those values being taught to him, through the wisdom that was handed down, and it was all based on respect and love. We are currently in recovery from Hurricane Ida that has swept through our homelands and our biggest focus is on resilient housing that can withstand a category-five storm, and adaptation based on traditional ecological knowledge.

***“We understand where we live, we know our environment and we must build and live here, respectfully, and accordance with Mother Nature, not trying to control her or work against her.” – Chief Shirell Parfait-Dardar***

There are many related projects we’re working on, such as the [canals backfilling project](#) that is very inexpensive and it allows the land to heal more naturally. These projects are all projects that Devon has been a part of in some way, because in his role as the chief of this tribe in the future he will be called to task every single day to do what is right for the people that he is serving. And the biggest part of that is going to be protecting and healing the homelands that we live on, that we call home.

Devon reflected on what Dr. Wildcat shared about leadership being a role that you grow into. Having so much love and respect for Chief Shirell, the way that she went about life and the way that she helped the community, that really sparked in him this passion to want to help and give back, growing into that leadership role. Looking for opportunities to diversify his experiences and connect with people in a way that is meaningful and fulfilling, Devon participated in the Williams-Mystic Program with the Coastal and Ocean Studies Program of Williams College and Mystic Seaport Museum, which included being in his own tribal community and discussing social justice, climate change, land loss; it was life changing to see his home from a different lens. Pursuing a journey to a degree at Williams College and taking courses on geographic information system data mapping and layering and looking at how land loss was affecting the tribal communities in Louisiana, he’s been able to utilize the opportunities and give back to his community.

*Question: How do intergenerational practices contribute to centering justice, when they're part of these collaborations that engage Indigenous and Earth sciences?*

Devon reflected how a lot of this is passing down of knowledge, like Chief Shirell teaching him ways of knowing that are both Indigenous and cultural, and learning storytelling techniques and how to tell the story in an Indigenous way, to be present and to and to give information in a way that is meaningful and impactful.

Doc Tusi shared that In the Indigenous setting there's no such thing as a neophyte, so we see you in a different light than being an intern. There's so many perspectives, are we speaking from a human centric perspective, or are we speaking from a living, Earth perspective. Sometimes when the two get intermixed it can create confusion. This is where the wisdom component comes in. The transcendent justice is balance, harmony, restorative, giving, love, and respect. How we apply it depends on each generation. Knowledge, unless it can be applied, has little value. This is why the mentorship relationship is so fundamentally important. Right now, Mother Nature is under assault in so many different areas, but our emphasis is on human-

centric justice. The Māori have been fighting in the courts in New Zealand for over 100-years to claim that the Whanganui River is them, and they are the Whanganui River. In 2017, the New Zealand government awarded person rights to the Whanganui River. That means an amazing weaving of traditional wisdom and modern knowledge.

Leroy articulated how their communities don't have technical folks to come in and provide solutions.

***“To do real work in the community, you have to spend time, a lot of listening, eat the food, be with the people, understand what's going on before you try to find out what's going on.” – Leroy Harris***

Dr. Wildcat built upon what Annalise shared about the way Haskell students worked for almost 25 years to protect the wetlands on the south part of the Haskell campus. We fought a traffic way proposal by the county and the city and launched the battle in federal court. Eventually permission was given to go through the wetlands and build a traffic way and a lot of students were hurt. It was important to remind the students that we always defended the wetlands because we never translated it into resources. We understood the wetlands as full of relatives.

***“If we want to center justice I've got two suggestions. First give up living in a world full of resources. That's a myth. That's the greatest myth that's ever been told. We live in a world full of relatives. Isn't that what ecology and evolution teach us? And then we can get across this mindless adherence to individualistic notions of my inalienable right...we know inalienable rights are hollow and groundless unless they are joined and complemented with inalienable responsibilities.” – Dr. Daniel Wildcat***

Think of how our world would change, of how do I become a mature competent human being in this world by acknowledging my relatives, and my responsibilities.

Indigenous cultures are inherently scientific. We ask questions, we observe, we want to know how the world works. And for us to go and be in settings, in a box, where we have to adhere to this certain system and things are only fact if they line up. And that's not the case whenever we create spaces like this we don't have to do that. There's a difference between being a scholar and being somebody who goes to school. Indigenous People, we want to know how things work, we want to advocate, and if we just have enough confidence and the voice and the space to do that, it's going to happen.

*Question: The idea of intergenerational knowledge and wisdom also includes intergenerational trauma... healing as stated is bring one to whole. If one is un-whole (in pain, traumatized) yet find themselves in a position of power or responsibility, is it better to heal first, then lead?*

Doc Tusi reflected how healing is an ongoing process. But in order to heal in our belief systems you must be capable of restoring and strengthening love. What we call Aloha. It takes tremendous maturity. And oftentimes suffering to even get to that point. But that's when healing actually begins and thrives, and it can make all the difference in whatever circumstance you may find yourself in.

Dr. Wildcat reminded that one does have to take care of their own mind, body, and spirit. The book that almost never got finished was Red Alert.<sup>5</sup> In doing research for it and reading all the science, I got really depressed. My elders guided me to look to my relatives. I'd been looking too much at the human part of the world. They said get outdoors. And what you will see is beauty surrounds you. All of the ugliness in this world, the vast majority of it is anthropogenic. I was able to finish that book because it brought me back to that Indigenous core. That's got to be a key to healing people. They've got all of these relatives and all this beauty and creation around them, to help them heal.

Cheyenne shared how he considers himself on a listening tour when he's in different nations and environments to know what perspective they bring so when he looks at designing a solution, he makes sure it's something that's made with them, for them, and by them, and then we just add whatever technology that they wish to have.

*Question: How can we better support Indigenous youth in K-12 to even get them into higher education and or into vocations that support climate solutions?*

Devon suggested to get them out in the world. The thing that really changed his life was experiential learning, being able to go to places and learn and be there.

***“Get [Indigenous youth] out there, teach them the ways, get them excited about science, make it accessible to them.” – Devon Parfait***

Annalise built upon that, sharing how Native people tend to be shy or soft spoken and it's hard to put yourself in the middle of something you're not familiar with. Bringing them with you out to the field to go collect samples or into the lab; getting them in there and getting them doing it is so important, because they can see it's not so intimidating. They can see they do have a place and seeing somebody else who's Indigenous in that place is so important and building confidence and knowing that you're allowed to be there.

Dr. Wildcat expressed that we need a full court press to get a good Indigenous-based climate change education in K through 12 schools. And we need to disabuse any Indigenous child from this notion that their ancestors didn't have knowledge. We had incredibly rich knowledge traditions because we were taught to pay attention and be mindful. That's how we solve this problem today and if we're going to successfully address climate change in this 21st century, the most important voices doing that will be Indigenous voices.

Leroy proposed that as adults and leaders we have to reach back and engage the youth, not wait for them to come to us. For example, getting kids interested in being pilots, you take them around airplanes and expose them to it, show them they can be one too. We don't do things for community, we facilitate and assist things to allow them to bring out their own knowledge, their solution.

Doc Tusi in our belief system, any time you deal with training, curriculum development, we must always be cognizant that we don't allow knowledge to outrun wisdom. Often times the function

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<sup>5</sup> Wildcat, Daniel (2009) Red Alert! Saving the Planet with Indigenous Knowledge. Fulcrum Publishing.

and focuses on knowledge, we have something called the *ama*, it's the outrigger. It keeps the canoe from tipping over in rough seas. Knowledge needs wisdom of the *ama* so it doesn't tip over. And you don't take off and leave the *ama* on the beach; they go together. Doc Tusi shared four fundamental wisdoms that we pass on to every generation. It's one, engage in all things with the wisdoms of humility. Followed by embracing in all things with the wisdoms of respect. Thirdly, sustaining in all things with the wisdoms of love. And fourthly, heal all things with the wisdoms of forgiveness.

### ***Additional resources shared, Day 2***

- 'Day in the Bay' - Bristol Bay Native Corporation, depicts life in Bristol Bay Villages. Bunch.net bbnc.net
- <https://pacificworldsinstitute.com/wp-content/uploads/2020/09/wis2dom-sust-science.pdf>
- Vandana Shiva. Seed Sovereignty, Food Security.
- Mihesuah, Devon and Elizabeth Hoover, eds. (2019) Indigenous Food Sovereignty in the United States: Restoring culture knowledge, protecting environments and regaining health.
- Clint Carroll, The Roots of Our Revival - Cherokee restoration of plant heritage despite displacement.

### **Working Groups: Centering Justice in Intergenerational Research Practices**

#### ***Community relocation and site expansion***

In conversation around collaboration and continuity and connections across generations throughout thinking about migration, one aspect that came up was private property as a barrier and stumbling block to recognizing intergenerational connections, both in terms of to the land and to different lands or places. Property lines pose barriers for those who are not owners; we're stewards of land and have relationships with land that aren't codified as property. Relationships with land have been disrupted by property lines, along with forced sedentarism. The legal system is another key blockage, considering in particular loss of land rights and aspects of legal title, including for those who wish to relocate. There is also the issue of access and rights to resources, including those that migrate; having a connection to protocol, process, and ceremony to place is not included within the law. Settler colonialism has caused the need to even think in terms of relocation or planned resettlement. Counteracting that, for example, is the Native Village of Shishmaref's framing of site expansion, as a more place-based and historically-informed possibility.

To address these blockages, communities can collect their own science, which undergirds legal systems and codified law. Participating in science is key and a place to start to change the legal systems. However, climate science has not been good at honoring Indigenous ways of knowing; a critical question becomes, who is going to own the data?

It's important to learn from past harm and atrocities, such as people in the Marshall Islands not being properly consulted with by the US military; what lessons does this bring in the context of climate change? What is the relationship between people who have already migrated and those facing that decision? The wisdom of the elders is important in terms of place.

We need to work with the elders to understand what has happened over time. Younger generations need to be brought back to these places before the land is lost so that cross-

generational knowledge sharing can happen in place to protect areas that are disappearing. There's a tension however in sending younger generations out to get an education elsewhere, but then coming back is proving difficult because of increasing gentrification and housing costs, and decreasing job opportunities, so younger generations are having a harder time going back home. In addition to facilitating cross-generational knowledge sharing, we also need to create the types of spaces and pathways for younger generations to actually go back home.

It's critical that people are able to find ways to remain in place and withstand increasing climate-related threats, such as increasing storms. At the same time, the key is bringing back people who have left a place, as they are the problem-solvers of the future. The connections to youth are critical, and too often not included. It must be a matter of how this affects justice for the people and the land. Bill Thomas (NOAA Office for Coastal Management) shared thinking about *pono*, as a Native Hawaiian concept of sustaining balance and harmony.

### **Energy systems**

Patrick Freeland (College of Muscogee Nation, LiKEN) connected some ideas from the group's conversation and penned a poem, *Engagement, our relatives. The children are the coach. The trees who knew our ancestors when young, an acknowledgement of our connections. We recognize, not only responsibility but opportunity. The deep learning, two way communication of elders to youth and youth to elders allows us to understand, to see and recognize that accolade, despite its expectation may not truly work, the piece of paper on the wall is not experience and mentoring is not merely credential. Thus, our work is not complete without the youth present, and this education is also not complete without practice. So let us not get lost in the necessity of lineage rather to embrace and engage community, to encourage children to bring their whole selves to know that everyone has something that they're good at, and to take care of each other.*

Participants discussed how we are all interwoven and our intergenerational capacity includes our non-human relatives. The intergenerational transfer of knowledge and healing around the trauma of boarding schools as an intentional way to break-up that continuity, recognizing that when you're taking care of youth, you're taking care of your ancestors. For the youth coming out of college and the job opportunities available for workforce development, it's important to create opportunities and space, working in renewable energy, making space for local engagement and sovereignty for expanding local energy systems and managing on the local level. It's about two-way learning from our elders and non-human relatives, about history and deep knowledge of what came locally, that youth have opportunities to learn new technologies and energy systems, and what balances new ideas. By putting prayers out and taking them in, we are perpetuating energy from one being, one prayer, to another.

We have to look cradle to grave for technology, for building, sustaining, and disposing. For example, solar panels may not be stable after 20-40 years, stator blades have to be replaced on windmills and end up in landfills; in considering other technologies, let's look at and emulate nature and use what works. We must create more opportunities for youth and communities to engage and participate in energy, working within communities on localized solutions. An example was shared about an organic farm in Costa Rica where the farmers scoop cow manure

into a balloon device to harness the methane gas, which is then used to power the farm buildings and café.

Education needs to be hands-on and include the usability of technology. Intergenerational knowledge that comes from the community, based on existing relationships. Looking at the ways our ancestors did energy, water, and other resource systems, a lot of knowledge is matrilineal, and there's some ancient knowledge that can be reclaimed; it's important in this process to empower teachers around energy and support them in educating youth that is not grounded in capitalist scientific ways. Youth need to be empowered to be leaders, to challenge the system, and to be able to bring their full selves and identities into science.

### ***Food systems***

A starting place is what is even meant by food systems? Food systems encompass everything; without those systems, there's no food, which includes the grass and the forests that convert sunlight into food and medicine systems. There are aspects of distribution and access, local trade and sharing, but also not confining ourselves to a human-centric understanding of food systems; we're in this with all of our relatives. There are no boundaries. Food systems encompass all the ways in which we and our relatives nourish each other; not just food but also in terms of nourishing our bodies, hearts, minds, and souls.

The importance of having that sharing of knowledge and wisdom between generations and how important that is for Indigenous students or young people to be able to learn from Indigenous scholars, mentors, elders. It's fundamental to recognize that research that does not engage those intergenerational practices is incomplete. If we're in a space or an institution or a place where we have responsibility, we can be proactive as a bridge, looking towards tribal colleges or the Indigenous communities where we are, to help create structures and support systems so that you can interact and have those Indigenous mentors. Indigenous scholars are understood to be not the limited definition of Western science but also those that are knowledge-holders.

In this time of a pandemic, justice, food sovereignty, and systemic access issues are being underscored. Food sovereignty is central to justice. Indigenous communities should be at the center of defining what justice means and look like for them, and making decisions about the food system, with others supporting that vision. We must recognize that justice is not just for humans but it touches upon everything and all of our relatives.

We need to be thinking about not only intergenerational but also community-to-community sharing, sharing that knowledge between communities and regions, including connecting people in urban areas to those in rural areas. Food is not just about nutritional or physical, it's also cultural, emotional, spiritual, it's about relationships woven in. Knowing the context and learning those stories from generation to generation, reviving that knowledge, and passing it on to other generations. It's more about our wise, rather than best, practices. Indigenous Peoples are not homogenous, and neither is what justice means and looks like.

Some of the wisdom practices for centering justice in collaborations that engage intergenerational research practices, including in relation to Food Systems, include building the table together, listen first, be with the community on the land, honor different perspectives and

vantage points, hold the baby, drink the tea, cut the onion, do the hard labor. For research specifically, consider why you are doing the work and for whom? Research takes place in context. If you're doing some experiment in a lab, especially around food, for example, there are implications to what you do; there are ethical considerations, such as how your research could support treaty rights or go against them. Relatedly, consider whether institutional review boards (IRBs) allow intergenerational language to be included in their IRBs.

## **Health**

A key question posed by the group was how to support upholding traditional wisdoms in the sciences. Our personal health or community health is inextricably tied to the land, the environment, the waters. We need to anchor ourselves into the earth. We've become disconnected. Instead, work with the whole energy being holistic. Looking to balance and harmony, unity between heart and the brain, working through the heart; everything is heart connected. Feeling should be a part of science. An example shared of wellbeing indicators includes the [mauri model](#). To get through the climate crisis, we must bridge the gap; it's not them or us, it is all of us together. We need to bring in and share both Indigenous practices and Western science. Connect with Earth; feel and touch her to know she is changing.

Considering the theme of grief, especially grief for family members and the past year and a half in the pandemic. Grief is multifaceted. It's connected to how we express gratitude, how we care for each other, how we care for the land especially, and that ties in the theme of connection to the land and examples of restoration. Using new and innovative ways of gardening and in managing or restoring land is a way to reclaim, especially for Indigenous communities and for Black communities that have a lot of violent history that has happened, and that being intentional and how we manage that is a method, is how we cross generations and heal.

It's critical to bring arts and cosmology into these conversations, human relationships with our more-than-human relatives. Affective science has been used for thousands of years, yet Western science discounts the value of the affective realm. We have to return to maintaining the harmony in ourselves and each other, the traditional balance by polarities in ceremony and interactions, how we teach our children, and how we are examples for each other. The affective and cognitive realms need to exist together. Ancient traditions include sharing knowledge and wisdom through dance and singing. Incorporate dance into all we have; our relatives were not allowed to speak, dance or hold prayer or ceremony, which were outlawed by the colonizers.

Considering centering justice around health, who defines health? We must ask what does health mean to people, before it's decided what measures will be studied. We need to evaluate the different definitions of health coming from Western and non-Western science traditions. Indigenous and other underrepresented communities should be the ones defining health, in thinking about the natural ways that we heal ourselves. Earth sciences can be asking deeper questions about heart connections and practices and what that means when it comes to health indicators; it's important to go back to the source and traditions. Natural healing needs to be incorporated into the health benefits we receive. Learning natural practices have physical health benefits built in; soil contains properties that give you a sense of wellbeing.

In sum, anchor ourselves into Earth, unite the polarities and work with whole energy, incorporate dance into all we do, demand different definitions of health and what it means to “feel well”, and create spaces for young scientists, both Indigenous and Western.

### ***Phenology***

A question that emerged from the phenology group included, what are we learning from our more-than-human relatives, our plant elders? We must have a cultural lens for our phenology observations and have more of a holistic approach, including native languages and understanding that we hold our phenology knowledge and blood memory. We can heal ourselves with language. We think with and express ourselves with language; language influences our thoughts and the feelings that are even possible. Names have power; prioritizing language and blood memories from ancestors and acknowledging and naming plant relatives in one’s own languages is important. This connects to healing ourselves through blood memory. Thinking about ancestors who had to go through the boarding school era, and the language barriers they faced, and now being able to bring things like language back.

Native languages contain a lot of information, and are much more descriptive and say more than English. It’s important to understand that some things don’t translate, and in the translation process, it can be very transactional. Before jumping into projects when working with plants, make sure to respect the plant, connect with it, and get the right word; doing the inner work as well. It’s important to take time and listen to ourselves, which can also help with intergenerational knowledge transmission, through one’s language and being able to acknowledge and name your relatives by their given names. If you listen, you can learn the songs and language from the elders who are still here and want to share. Indigenous Knowledge is a responsibility; it is not separate from science. We are all related to each other.

Bigger, Westernized programs try to standardize the data to compare and share knowledge easily, but it causes deep issues; one way to address this is having students rewrite the datasheets in their own language so it makes sense for them and their use. One example shared of gathering phenology data included not only looking at the fruiting and blooming but also includes looking at everything around you, the sky, ground, animals, keeping that connection of relationships. Indigenize phenology and restructure it into a more relevant data set to use in traditional ways.

### ***Water systems***

Water is integral to whom each person is. This includes knowing where your water comes from and what that means for your family. Intergenerational wisdom has a holistic view of the interconnectedness of water systems and all systems. Intergenerational practices reflect both the respect aspect and solidarity; we’re all in this together. One can see water management through intergenerational collaborative community engagement work, and that it’s not about a focus on resources but more of a relationship with the water. Each generation has different perspectives on issues related to water systems; elders share about experiences of, for example, past floods, while younger generations bring new perspectives. Younger generations often contribute with technology and communication between their generations. Elders communicate lifeways or paths of practice towards science. Together it can be a moment of

healing between the generations, creating time for sharing perspectives, remembering, and looking forward together.

Getting to know things like long-term threats such as extreme events and how those are lost if you don't have that intergenerational knowledge. For example, there was a [recent paper about a hurricane](#) that atmospheric scientists tracked using the Hawaiian-language newspapers and were able to categorize the strength of a hurricane based on the damage, such as people describing coconut trees on their houses in the 1800s.

Revitalizing knowledges, languages, and cultures can help integrate Indigenous Knowledge at younger ages and within education, such as at the Kamehameha schools in Hawai'i. A diversity of generational perspectives, experiences, feelings, and aspirations encourage each other to see, understand, feel, and know more, which is important in considering decision making and responses to climate impacts such as drought. Reflecting on the importance of intergenerational knowledge as a Native Hawaiian student,

***“it’s part of my kuleana, my responsibility to be a good scientist, and that however I behave, or do my science is a reflection of my family, and will be tied to my family and that’s an added pressure that I think is hard to convey unless you’re in those shoes. There’s a whole other level of doing pono science within my own family and that added level of intergenerational justice offers.” – Diamond Tachera***

Respect that not all knowledge has to be through the formal, Western educational system. Support opportunities outside of "schools" for young people to work with elders, including days off for traditional practices. Set *keiki* (young ones) up with *kūpuna* (elders) who have similar backgrounds, so they can see a role model in someone like themselves. Intergenerational interviews and oral histories/storytelling can go in all generational directions. Other activities might be intergenerational mapping, walking, or observation activities. Create ways for youth to be engaged and to share their ideas and observations.

Understanding the colonial legacies can help to connect the dots about why Tribal communities might have challenges managing water systems and understanding the cultural relationships to water. For example, why might the Tribe run into regulatory issues for managing water? The current COVID-19 pandemic has highlighted that a lot of Indigenous people still don't have access to clean drinking water. Supporting communities in accessing clean drinking water is critical for centering justice. For example, [DigDEEP](#) is a non-profit organization working to bring communities clean, running water.

A key justice question in collaborating with different audiences is asking, “do you understand where your water comes from?” It’s critical to be in those places, with the people with whom you’re collaborating. It’s important to take the long view. It’s all about relationships and trust building. Values are an important component of centering justice. You can look to guidelines co-produced with Indigenous communities, as a starting point for reference. One example is [Kūlana Noi'i](#) – which was co-produced by the University of Hawai'i Sea Grant College Program, [Kua'āina Ulu 'Auamo \(KUA\)](#), and stewards in the He'eia ahupua'a on O'ahu– which is

a starting point for considerations of building “more just and generative relationships between researchers and communities.”<sup>6</sup>

## **Evening Arts Event**

During the second evening of the workshop, participants came together to share stories, short films, artwork, music, poetry, and more, related to the workshop theme of centering justice in the convergence of sciences, communities, and actions. Below are some of the resources that were shared during the event that relate to the workshop theme:

- [www.spiritofthesun.org](http://www.spiritofthesun.org)
- [www.womxnfromthemountain.com](http://www.womxnfromthemountain.com)
- Link to the artist Eve Mosher's work helping people to visualize storm surge and sea level rise, <https://highwaterline.org/>
- Website: <https://www.thesofterthspeaks.com/>
- Marshall Islands video, <https://www.youtube.com/watch?v=9vWDRZMGZ88&t=34s>
- <https://www.eastwestcenter.org/node/40221>
- <https://yehawshow.com/artists/pahtu-e-pitt>
- <https://escholarship.org/uc/item/2189q9w6>
- K-12 teachers and their students created an online Zine last year <https://tucson.projectwet.arizona.edu/rtr/art>
- Listening for the Rain: Indigenous Perspectives on Climate, Paulette Blanchard's Master's work, <https://vimeo.com/87696613>
- PROTECT, documentary film; <http://protectfilm.org/>

## **1 October 2021**

### **WORKSHOP FOCUS 3 – INDIGENOUS DATA SOVEREIGNTY**

Kukuya Margarita Noguerras-Vidal (Taíno) opened the space through the welcoming of the heartbeat, inspired by the ancestral spirit of the heart. Focusing on breath and working through the heart to see what we want to manifest in our lives, we can create our own reality through our heart, through our affirmation, feeling, and determination. Touching our heart, we become aware that we are children of the Earth. In our continuity of breath, we feel the Earth Mother's heartbeat. Our gratitude, our faith, and our trust manifests our purpose and our objective. We are all one. Touch the earth and embrace that eternal love that is within us, holding us, carrying us in this journey in life and guiding us, creating our reality through the heart.

#### **Keynote Presentation**

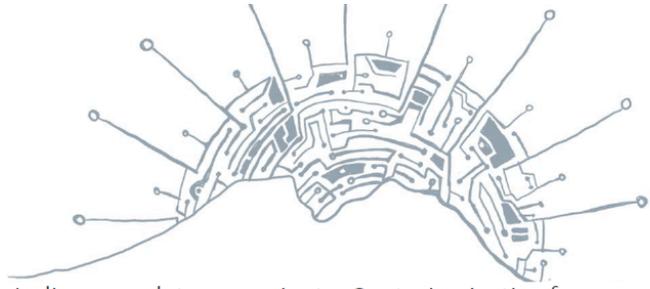
##### **Indigenous data sovereignty: Centering justice for our shared futures**

Dr. Dominique David-Chavez (Taíno/Arawak; Colorado State University) guided us towards a shared understanding of Indigenous data sovereignty by sharing a story from her Caribbean Indigenous community around their climate resilience work, contextualized the role of this work within their Indigenous ancestral and settler colonial experiences, and shared some critical

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<sup>6</sup> <https://seagrant.soest.hawaii.edu/kulana-noii/>

resources to help us further enact Indigenous data sovereignty for our shared futures and lifeways. This work is done with collaborators at the [Collaboratory for Indigenous Data Governance](#), the [US Indigenous Data Sovereignty Network](#) and the [Global Indigenous Data Alliance](#), and in particular her mentor Dr. Stephanie Russo Carroll.



Indigenous data sovereignty: Centering justice for our shared futures

RIISING VOICES IX WORKSHOP, OCTOBER 1, 2021  
DOMINIQUE DAVID-CHAVEZ, COLORADO STATE UNIVERSITY & THE COLLABORATORY FOR INDIGENOUS DATA GOVERNANCE

The foundational understanding of the origin of the Indigenous data sovereignty movement is that our people have always been data stewards. For 1000s of years, our data has lived in stories, song, dance, art forms, traditions, customs, protocols, prayer, and in practice, encoded in a variety of forms or cosmology stories. Our data holds observations of space, time, and of change and duality that is generations in the making. Data in this way is also our relations to which we hold relational responsibilities. This includes responsibilities to the knowledge systems, information, and communities for whom data generates impacts.

In our current era, Indigenous data takes many new forms, which includes data about our natural environments and our more than human natural relatives. This includes information about us as individuals (census data, demographic data, public health data, and genetic data) and also collectively generated and held data, including our Indigenous knowledge systems, stories, and oral histories. Indigenous data sovereignty then is the inherent right of Indigenous Peoples and nations to govern the collection, ownership, and application of their own data. And it's rooted in sovereignty. Only Indigenous nations and peoples can enact Indigenous data sovereignty.

***“Indigenous data sovereignty carries responsibilities, customs, and roles regarding how to steward and use community held knowledge and information.” – Dr. Dominique David-Chavez***

Indigenous data sovereignty draws from human rights frameworks, including the [United Nations Declaration on the Rights of Indigenous Peoples](#), treaties, laws, policies, and formal agreements. It affirms the collective rights of Indigenous Peoples regarding data stewardship. Together these aspects work to restore authority over Indigenous data back to Indigenous Peoples.

Bringing this into the climate science realm, Dr. David-Chavez carried out research that assessed 20 years of field studies that were accessing Indigenous Knowledge and data for climate research, which included 125 field studies across 140 publications.<sup>7</sup> She found that nearly nine out of 10 studies demonstrate extractive research methods, meaning community knowledge-holders, decision-makers, and rights-holders do not have authority in those cases to determine what research questions are asked, how data is collected, maintained, and

<sup>7</sup> David-Chavez, Dominique and Michael Gavin (2018) A global assessment of Indigenous community engagement in climate research. *Environmental Research Letters* 13, 123005.

disseminated, and in many cases don't even have access to the study findings from those climate studies. And yet, a growing number of studies including numerous grassroots efforts, including Indigenous community-led and cultural efforts, are exercising Indigenous research, data governance, and self-determined community engagement. This is the shift that we're working for, to move from this dominant, colonial model of science, which is this pattern of extractive research, toward this self-determined edge of the scale.

Dr. David-Chavez shared the justice implications of this historic imbalance through the lens of a specific community context in history. In her Indigenous Caribbean maternal homeland, the forces of huracán, including Hurricane Maria have shaken awake the ancestral memories and databanks of many of our community members. Indigenous People have been observing and adapting to climate change for centuries. These knowledges and data are embedded often in our cosmology stories and creation stories, which is why in the Caribbean, long before we knew Maria or Irma, or Harvey, Katrina, or Sandy, we knew their mother and matriarch Guabancex. From her skyward home, she urges the thunder songs of Guatauba and invites the surging swell of Koatriske drawing energy from the ocean and summoning the mixing of dual forces. These are our Indigenous Caribbean sciences, Earth sciences. These are understandings of oceanic and atmospheric forces. It's also these original data sources and understandings that we can remember as bringing forth a new cycle, not only of destruction but also a renewal. This is our legacy, handed down from one generation to the next encoded in many forms of data, story, song, dance, and art form, especially in our community. And our relationship to that data, our relationship to those stories, and to that legacy have suffered severe injustices in the island more recently known as Puerto Rico, in the case of two waves of colonization. That manifests in ways that we need to be attentive to, to understand then how to address justice.

Dr. David-Chavez shared a [National Public Radio \(NPR\) report on the aftermath of Hurricane Maria](#), which referenced rural families as squatters, having been denied FEMA aid due to lack of legal title to the homes and lands, which they cared for and which in turn have cared for them for generations. This story revealed the disconnect between customary rights and practices and relationships, and climate relief policy. We need to understand how is it that descendants of Indigenous Peoples can be referenced as squatters on their ancestral land, how they can be continually displaced and even criminalized on their ancestral lands? To understand this, we need to look deeper at the roots of contemporary injustices; when we follow those threats, those symptoms of vulnerability for example, they bring us back to this direct connection between the legacy of settler colonialism and the marginalization and vulnerability forced upon Indigenous and local peoples who are naturally climate adaptive, strong peoples. And in this way, data has been used to fuel the physical genocide and the paper genocide of our peoples, through suppression of Indigenous self-identification in the census records, and through colonial narratives that have been overriding Indigenous language and legacies of land stewardship.

Regarding the intergenerational transmission of our Indigenous Knowledges and data, we've seen these injustices continue today when our children are subjected to colonial education systems, when they are turned away from their data relations and responsibilities. It's that sick filling in your belly when you're reading what has been written about our communities, when you're seeing the data that has been informing policy and practice today, that has been written and collected by authors and researchers lacking love and relational accountability to our land, lifeways, and communities.

***“We’ve witnessed the results of generation after generation denied their inherent rights to data sovereignty. But we’re also witnessing something new and hopeful, which is that as long as we remember the depth and the strength of our roots, we will remain connected, both to land and to our community collectives. And it’s through our roots, both figurative and literal, that we often find resilience, that resilience which our ancestors had encoded for our shared futures, for our shared lifeways.”***

**– Dr. Dominique David-Chavez**

Dr. David-Chavez shared an image of her community research partner, Norma Ortiz, harvesting *yautia*, a nutritious Indigenous root crop. When the forces of wind and water during Hurricane Maria stripped their family farm, this was the only crop remaining. It’s a reminder to us. Today in our own hands, we are bringing together new ways of knowing and new forms of data, all of which this current and future generations will need in their tool bundles to guide them through the challenges before us. And as Dr. Kimmerer emphasized, we need a kind of science that supports symbiosis among ways of knowing. It’s our original responsibilities to the land, to lifeways, to our data relation, that can guide us in developing this science.

Dr. David-Chavez also shared images of their community-based climate research efforts in the Caribbean, where their youth, who are the inherent stewards of Indigenous data, are supported as the researchers and community knowledge-keepers, their grandparents, their abuelos, are also their primary sources of data and learning to try to continue to strengthen that bond. For those who are working through similar colonial legacy, working to support Indigenous data sovereignty, we now have numerous resources for guidance, including Indigenous scholarship and methodologies and human rights frameworks and guidelines developed through collaborative partnerships between Indigenous rights-holders and stakeholder organizations and institutions. We must remember the protocols and guidance that may not be published and written, but which we can only learn through listening and through being in community.

Sharing briefly about the work of their Indigenous Land and Data Stewards interdisciplinary research lab, working in partnership with the [Collaboratory for Indigenous Data Governance](#), they have gathered 32 Indigenous ethics frameworks from around the world and have been identifying key values and principles represented within them, which they’re applying to assess U.S. research standards for federally-funded environmental science research. These core principles include holding cultural responsiveness, grounding in Indigenous worldviews, nurturing reciprocal relationships, honoring rights, maintaining ethics for balance, centering Indigenous governance, and being a good ancestor. These speak to key responsibilities for accountability and justice on the part of researchers to land, community, to data, honoring our past and caring for our shared futures. Within each of these they’ve identified specific methods and mechanisms for applying these values and principles in practice, which we hope to learn from and apply in future researcher trainings and policy development.

Dr. David-Chavez shared the [CARE principles](#), which work complementary to data principles for Indigenous data governance, the [FAIR data principles](#) and the open-science-data-movement, as an example towards operationalizing Indigenous data governance for Indigenous data sovereignty. The CARE principles include collective benefit, authority to control, responsibility and ethics to ensure that the guidelines address historical context and justice, in terms of power

and equity. The [Local Contexts](#) community hub, also provides resources for Indigenous data governance in the form of traditional knowledge and biocultural metadata labels and notices. The focus is shifting from solely on data to our relational responsibilities that are connected to that data. This includes affirmation that Indigenous ethics should inform data use with Indigenous peoples rights and well beings the primary concern at all stages of the data lifecycle, and across the data ecosystem for minimizing harm, and for maximizing benefit and for justice and future data use. As our data evolves into new digital forms, we need new methods for retaining value-based and relational contexts that have been associated with that data.

*Question: Can you talk about the challenges of working this way within an academic context, especially with students and faculty and in community, and the ways you found the best in addressing them?*

A lot of the work is well intentioned but it's the pieces we've been missing in our training, for example, around relationships. The pieces of historical context that have been missing from so many of our peers' education where they don't know that Native history is US history, and how colonization has been and continues to be a part of that. We've been able to overcome that through Indigenous-led networks and teams where people are willing to paddle in the canoe but not trying to steer or put us in a whole different boat, and not bringing in the Indigenous scholars and partners as an afterthought.

We've been trickling into not just academia, but into leadership roles and policy and governance environmental leadership. There's this whole wave now coming behind, reinforcing the pathways for this generation coming in of culturally grounded scholars that are carrying these different ways of knowing in their being because they have to. If we can reinforce those pathways and provide them these different tools for their bundles that we can offer from our respective experience, and let them go forward and lead.

### **Panel: Centering Justice in Indigenous Data Sovereignty**

The focus of this panel was on Indigenous data sovereignty and how data sovereignty protocols and the responsibilities that come with working with Indigenous knowledge can lend themselves to centering justice in Indigenous and Earth science collaborations. Speakers included Dr. Stephanie Russo Carroll (Ahtna; Native Nations Institute, University of Arizona), Andrew Martinez (Salt River Pima Maricopa Indian Community; University of Arizona), James Rattling Leaf, Sr. (Rosebud Sioux; Cooperative Institute Research Environmental Sciences, University of Colorado-Boulder), with Bill Thomas (Native Hawaiian; NOAA Office for Coastal Management) serving as moderator.

*Question: In collaborations between the tribal colleges and western science, how important is data sovereignty and what kind of contributions has data sovereignty provided to a deeper relationship among the partners and a deeper understanding of the issues?*

Dr. Russo Carroll shared that in Indigenous data sovereignty work, what they're really doing is centering Indigenous self-determination and moving towards values-based relationships. The

important context is that these relationships start before the project starts; they also have to do with deeper issues like identity and purpose, as well as features.

***“How do the relationships that we have begin to create a space for not only that relationship to bloom, but for us to grow and advance our own aspirations for our children's and our future generations?” – Dr. Stephanie Russo Carroll***

What does that look like in our application to data? How do we build data systems that reflect our values? How do we create policies and practices that provide the guardrails for those relationships to bloom and for those futures to grow?

Mr. Rattling Leaf reflected on a question that had been posed to him by an Indigenous researcher about how to work with collective rights versus individual rights, of Indigenous knowledge? It's about respect.

***“Respect for one another, respect for our knowledge, and respect for our place in the world, and also how we deal with and accept knowledge and how we work with that knowledge in meaningful ways.” – Mr. James Rattling Leaf, Sr.***

Mr. Martinez started from the point of relationships and justice and climate justice don't work in fiscal years. Building relationships within communities happens in the background before the proposals are written, before funding is made available.

***“Part of data sovereignty and supporting data sovereignty and data stewards is building tribal data capacity.” – Mr. Andrew Martinez***

You may be wanting to work with the community or include a community but you have to meet them where they are. And learn about the history of research in Indian country and within those communities specifically.

*Question: How has this elevation of data sovereignty contributed to centering justice in these collaborations between Indigenous knowledge-holders and Western scientists?*

Mr. Martinez articulated that first, who's defining justice; is it the researchers, the funding institutions, the communities?

Dr. Russo Carroll shared that bringing the tribal perspective to the table and making sure that we're building tribal infrastructures and capacity and opening up the path for those to come behind us. I come in every day for Indigenous data sovereignty and mentoring students and creating opportunities.

Considering how we grow and center justice in the context of data sovereignty, Dr. Russo Carroll shared that example that by 2023, anyone who has National Institute of Health funding has to revamp their whole data management process because there's a new data plan. That creates an opportunity within academic institutions to revolutionize how we interact with Indigenous data within our repositories as researchers. These institutions will be creating or revamping template data management plans. How do we put language about Indigenous data sovereignty, about tribal self-determination into those plans? We're in the process of creating the indicators for the [CARE principles](#) so that we can assess how people are actually

implementing them. Relatedly, we need to make changes with funders, publishers, universities that all create scaffolding that supports tribal self-determination.

Mr. Rattling Leaf talked about how we need to look at philanthropy, the role of philanthropy and how they fund, especially with climate and climate adaptation. We need to figure out how we connect and not only decolonize, but also indigenization of how we move forward. There is going to be a greater emergence of virtual realities and that's data collection, which requires data management. Also considering the programs and work at universities, including work with tribal communities, it's going to require leadership from the tribal side and academia side.

*Question: Considering the metadata and working in these collaborations and coming up with the fields, it's not only about centering justice but the self-determination. What have been your experiences in developing metadata fields that aren't typically part of scientific research but needs to be there. This also includes dealing with the funders, especially the federal government when things need to be public, and not all those fields are released to the public based on the responsibilities of Indigenous knowledge-holders. How do you develop the correct metadata fields and get that into the conversation?*

Dr. Russo Carroll talked about how the balance is wanting to create space for the metadata fields and within our data and databases, but you don't want to be prescriptive because you need to allow space for individual communities to be able to apply that information, in their own language and the way that they conceptualize it. There's growing interest in applying Indigenous data sovereignty to repositories. Putting space into those repositories gets tough because you're taking space, but that space is fundamental to allowing Indigenous nations to be in relationship with their data, to continue to steward their data if it is in these repositories, but also to making sure that Indigenous communities can access their data for their priorities.

In relation, Mr. Martinez reflected on something that Mr. Thomas shared with him previously about how we're setting the table that we're never going to eat at, it's not for us to sit down, we just need to make sure that we're preparing it. Having these conversations, asking these questions, creating that space is what we need to be doing now, and still asking future questions as they come up and develop.

Mr. Rattling Leaf discussed how the questions, for example, around data repatriation includes how long it takes to do that work, who was involved, and how decisions are made. Capacity development needs to happen at the tribal level where the tribes can host and manage these data that they do repatriate. We're going to need this workforce to be able to do the data repatriation and to do that kind of work through prayer and ceremony. We are decolonizing here in America with MMIW (missing and murdered Indigenous women) work, work being done on Rosebud to bring back relatives from Carlisle, those events are important milestones we have to pay attention to and think about how that work was done. There was a number of people involved in that work and different kinds of technologies and expertise involved, and as well as cultural leaders.

*Question: With the funding that comes from the federal government there's always this caveat that the information is public, but as you repatriate data, not all of that is public. In these*

*collaborations, you want to have this mutual respect and deeper understanding, but how do you get through those conversations to a place where you can agree on responsibilities that you have to protecting some of this, but also understanding what can be done for the greater good that can be released? The greater good meaning the greater good to our Indigenous People.*

Mr. Martinez described how moving the conversations to the data governance mechanisms, data sharing agreements, building all that in the back end also is part of that. Understanding what the concerns are beforehand from the communities, and what they're willing to share, what they're not willing to share, whether they're willing to have that out in the public initially, and bring that back in to a place where it's not, but that's a non-federal funding situation, or can be worked into a non-federal funding situation.

Mr. Rattling Leaf talked about the need to look at the [638 contracting](#) process. What if we could contract that aspect of data and data repatriation? That might be a mechanism for at least incremental change. We need to do an assessment of current mechanisms like 638 contracting where we can advocate and work with the data.

Dr. Russo Carroll reflected on how we begin to shift federal policy. For example, the NIH (National Institutes of Health) has a Tribal Consultation Policy and while their data management plan lacks Indigenous content, they recognize that if a tribe has a written law that say you couldn't share data that they would honor that; however, these laws and customs may exist without writing but they are in the community. Behind that is a responsibility so that if we're working in communities, the responsibility is on the researcher and the federal funder to push that. Further, as findings from Dr. David-Chavez project showed, NSF (National Science Foundation) doesn't have any written policies around research and engagement with tribes or Indigenous communities. There is opportunity to learn from how other entities are doing it and not doing it and where we begin to put into place these responsibilities

*Question: We always mention stories and storytelling, but also the data that resides within them. What have been your experiences in understanding, collecting, and getting access to stories, and incorporating that into the data aspects of research projects?*

Mr. Rattling Leaf explained how one of his roles at the North Central Climate Adaptation Science Center is to work on tribal engagement and in that work they've been able to support tribal nations as they deal with the changing climate. They've been trying to link the climate adaptation work with the star knowledge, which deals with language and observation of the sky and the earth. It is challenging though because their language proficiency on the reservation is diminishing and there's challenges of communicating this information with one another. They need interpreters, brokers, to help translate. How do we teach that to the next generation, and also knowing that with that knowledge, with that wisdom, we can begin to address the big issues faced by Indigenous People and a changing climate.

*Question: How can both we focus on new work with climate models, as opposed to more concrete observational data, and hope to further Indigenous data sovereignty in your experiences?*

Mr. Martinez shared that this is where he listens and how this knowledge generation continues even through these panels. Dr. Russo Carroll articulated how we need more Indigenous People doing modeling. Some of the bias that's inherent in this process is that the models are biased and the way that they're conceptualized and the foundations don't always reflect the realities that we live. We need more data, data scientists, Native mathematicians. In the practice of it is questioning constantly, what are the biases and assumptions, and how do we begin to change that not only by the inputs and the data that we're using in these models but in how we're creating and using them and applying them. Mr. Rattling Leaf shared about a NSF proposal they submitted at University of Colorado, Boulder recently about a vision to diversify data science, and looking at tribal colleges and universities in this process. There's a lot of potential in young people at tribal colleges and universities. We all have a responsibility to connect with our schools; those students are there and they're waiting.

Mr. Thomas raised that within the realm of climate modeling, Dr. Rosie Alegado (University of Hawaii) is involved in a project on the El Niño Southern Oscillation in the Pacific Ocean, relevant to discussion on data sovereignty. These models are regional scope but they don't do a lot with respect to providing and understanding what's going to happen in specific locales at a smaller scale. In Hawaii there is a huge repository of things that have been written in the Hawaiian language. The newspapers, for example, described a lot of the daily occurrences of climate, what's happening with the fish, societal issues. So how to look for the data that resides within those stories, chants, songs, dances, and translating that into data that spans generations. The generational expansive data that resides within us, that legacy that our ancestors have passed on to us and incorporating that into this climate model, at least for the Pacific.

Dr. Alegado shared how they started this project to learn what the Hawaiian words are for climate phenomenon. In part of the resurgence and revitalization of the Hawaiian language, there is a perceived lack of curriculum for it, particularly in the geosciences and lack of linguistic lexicon. Inspired to try and understand what our words are and to restore them to our modern usage, so went back to the Hawaiian language newspapers. The question with Indigenous data sovereignty is what is the appropriateness of translating these words into English for English usage, when so much of this is actually interpretation rather than translation. There's so much that we are not capturing and 97% of our Hawaiian language newspapers are not translated. There's so much rich knowledge that is still held by our *Kūpuna*. There's a lot of questions around who should be translating that and what it should be used for.

*Question: Can you give advice or encouragement to Indigenous colleagues who might feel unmotivated to continue to work in that Western dominant space?*

Dr. Russo Carroll shared that her approach is to create community and connections with her research team and with the students that she works with, and to find really good mentors who are sitting beside you and validating what you see and do. In practice, it can happen by creating spaces even virtually, to support each other within their institutions, where they can tell hard stories and write grants together and promote their work.

Mr. Rattling Leaf discussed how one of the aspects of their Tribal Climate Leaders Program is the connection to culture. They recruit a cohort of students from different tribes and work to

identify not only the academic mentors and coaches for the students but also how they can stay close to their culture, which provides a means to strengthen themselves and continue to practice those ways.

### ***Additional resources shared, Day 3***

- Local Contexts – Grounding Indigenous Rights, <https://localcontexts.org/>
- Collaboratory for Indigenous Data Governance, <https://indigenoustatalab.org>
- The CARE Principles for Indigenous Data Governance, <https://www.gida-global.org/care>
- Supporting Indigenous data stewards: Indigenous governance and ethics in scientific research <https://indigenoustatalab.org/indigenoustatastewards/>
- United States Indigenous Data Sovereignty Network, <https://usindigenousdata.org/>
- Global Indigenous Data Alliance, <https://www.gida-global.org/>
- Te Mana Raraunga Data Sovereignty Network, <https://www.temanararaunga.maori.nz/>
- Maiam Nayri Wingara Indigenous Data Sovereignty Collective, <https://www.maiamnayriwingara.org/>
- The Memorial Uni guidelines in Labrador, Canada, <https://www.mun.ca/research/Indigenous/agreement.php>
- 1886 Berne Convention [https://www.wipo.int/treaties/en/ip/berne/summary\\_berne.html](https://www.wipo.int/treaties/en/ip/berne/summary_berne.html)
- Kūlana Noi'i slides, <https://docs.google.com/presentation/d/1GUp3jEBZlqWaMVLDXSMw0cCBtbUCRHbisGnZR08lSrE/e/dit?usp=sharing>

## **Working Groups: Centering Justice in Indigenous Data Sovereignty**

### ***Community relocation/site expansion***

The group discussed ways in which to operationalize data sovereignty in an accountable way that's built on relationships, trust, and love. Co-governance is essential to the work that we do together, along with co-authorship, which needs to be done at the outset of a project, not as an afterthought. With those communities that have no option but to leave, the land is literally being washed out from under their homes, we might think about a new kind of indigenizing in that need to move that we could create an opening of healing towards.

So much in the language, place names, activities, relationships are tied to proximity with water; what happens if move away from that place? How does that impact language, place names, and identity? This becomes a matter of perspective. The loss can create both a void and an opening, creating opportunities to grow new roots and new language. The emphasis is on healing; not just seeing the void, but seeing the opening to create new relationships.

Considering the sacred sites and cultural heritage sites being inundated and the deep history that's being lost, what does this mean in the context of adaptation? What kinds of repositories do we maintain to not lose that information and how can that be operationalized in an accountable way to ensure Indigenous stewardship of information? With communities on the front lines of seeing their land be washed away, there's a kind of tyranny of climate change happening where communities are needing to survive, to rebuild their homes, to find shelter, without time to record what has been lost. That's the kind of emergency that's happening in

some coastal communities and there's a cascading effects of the legal structures of this blockage. Knowledge-holders are getting left out of funding structures because of legal blockages.

We need to find ways to uplift data stewards with whom we work. It can be a distinct challenge to get, for example, Western academic institutions to honor efforts to safeguard information. The standard language for template contracts is written by lawyers at universities and favors university ownership of data and intellectual property, undermining trust relationships with community partners; that language needs to be changed. Free, Prior, and Informed Consent needs to be integrated into contracts.

Considering who is driving the questions, purpose, and data collection, how might projects be audited to determine their driving force? For example, is a project about concerns for a local population dealing with climate impacts or is it driven by concerns about migration into potential host regions? This also raises questions of whom you are accountable to when creating data. When you receive data, there is a big responsibility. What are you responsible for and who are you responsible to? It's important to ask if the time is right, for example, to share a story publicly; sometimes it's not the time to tell the story.

Co-production of solutions is more effective and efficient when done in and led by the community. For example, community members from the Marshall Islands are developing a community-designed shoreline protection project; to read more about the project, [Applying Coproduced Flood Risk Science for Adaptation Action in Maloelap Atoll](#). Another resource shared in working with Tribes in addressing climate change was the [Guidelines for Considering Traditional Knowledges in Climate Change Initiatives](#). Focusing on community-driven processes, the group reflected on the [policy guidelines to advance community-led solutions to climate-forced displacement in the US](#).

### ***Energy systems***

There needs to be accountability, including more accountability on funds, and doing work from the heart. The group discussed issues of bullying by big energy corporations and manipulations of data to fit particular needs. This includes the biases that exist in science. Ideas were shared about the land back movement, the [Red Deal](#), and “energysheds”.

Energyshed and watershed systems are places of uniting humanity and how we protect what's within the watershed and energyshed that unites rather than divides, and is more inherently natural and community-oriented, protecting communities, humans, and all living beings. Bringing in technologies such as micro-grids in small communities is potentially possible in ways by sovereign Tribes, creating more energy independence.

### ***Food Systems***

The group focused on the paradigm shift of putting relationships first. It comes down to building relationships and taking the time and making the effort and commitment to do so; relationships are core and fundamental before anything else. To deepen relationships, data sovereignty, and Indigenous sovereignty more broadly, needs to be carefully considered and prioritized by non-

Indigenous collaborators. The group reflected on Dr. Daniel Wildcat's teachings, *"I don't care what you know, until I know that you care."*

We all exist in reciprocity with one another and with the land, water, and our more-than-human relatives. Having humility, as well as courage and optimism, especially as a non-Indigenous researcher coming into a community, you need to listen and understand that Indigenous knowledge is a complex and reciprocal way of being in the world, that knowledge is not separate from people and can't just be taken. In the southwest, for example, cultural burning is becoming more researched and looked at, however it's important to make sure that the Tribes have the money they need to do it and that it's not appropriated and done in a way that loses the context, complexities, and ceremony of the traditional practice. We need to be mindful of not just modifying this knowledge but actually uplifting communities, and understanding that the community might not want to share all knowledge or information.

Considering data sovereignty and the different standards in academics, corporations, and Indigenous communities, and even if there's protections from an academic institutional review board (IRB) and from an Indigenous IRB, there's still a need for personal boundaries, especially because of history of extraction. For personal protection and data protection, not giving direct access to all the specific details such as geographically-referenced data is one layer of protection; other layers can be members-only groups. Concerns were raised about whether it's appropriate to publish in journals; there are journals such as [AlterNative](#), that offer different ways of telling stories. Or considering if you're using a coding software, how are you going to put it into a usable format?

One major question is over the sustainability and long-term data access and management, and balancing that with short-term grant cycles. It's important to ask questions about who gets to decide what is data, where is it stored, and how will it be protected, and that the community has the power of refusal. Respecting that the community may not want the data to be made public, and having clarity on why, how, when, and where it can be shared, and including participatory data analysis. It's important to also think about how to heal following emergencies and disasters when communities might have to reveal information in an emergency moment but then work to reclaim and protect that knowledge. You must build the table together, for each project. [Mukurty](#) is one resource that was created with Indigenous communities, as a free open-source platform to manage and share digital cultural heritage.

Some data sovereignty considerations for food systems are about particular vulnerabilities, such as if wild foods are co-opted, over-shared, or over-harvested, or consequences of policies that limit the ability to harvest when they become genetically modified or trendy foods. Information and food knowledge or any data previously taken doesn't make it appropriate to keep using it, even if it's publicly available; the context is critically important.

### **Health**

It's important to consider the term justice across all barriers. We need to work with each other, and there needs to be balance and consideration to create unity between the science world and Indigenous communities. The purpose of data collection must be clear and the Tribe needs to know the why, where, and for whom. There needs to be a respect, love, and honoring between

both groups. When you work with communities, you need to create relationships where you remove your own biases and your own way of being listened to and understand what health means and what it entails. Bring in historical and spiritual aspects of health, and the connection of health with the environment, in an authentic way.

Many non-Indigenous scientists don't have a basic understanding of the history of Indigenous communities. It's hard to build relationships that are rooted in respect without knowing where people are coming from. At predominantly white institutions, systemic white supremacy can present a problem for students who are being brought up in these institutions, and we need to counterbalance this with community teaching, or those same kind of extractive behaviors will be produced again. There needs to be some benefit of research to the community. Protections need to be put in for data reporting to funding sources. One example is developing a memorandum of understanding that the Tribe owns the data and has to give final approval if the data is to be used in any way, including for publishing purposes. Community protocols need to be followed.

### ***Phenology***

Indigenous data sovereignty helps foster reciprocity and trust. This work is about building relationships, responsibility, trust, and love, about creating an inclusive table, informed by Indigenous voices, knowledge, and wisdom. Part of protecting Indigenous ownership is honoring customary practices. Data can be needed for the survival of lifeways. The data stewards are the Indigenous community noticing the changes first and foremost, such as the traditional gatherers, hunters, fishers, who see when something is out of place or time; they are scientists. There are some programs that support Indigenous stewards of phenology, such as the [LEO \(local environmental observer\) Network](#) and [SIKU](#), the Indigenous Knowledge Social Network.

One way of addressing data ownership is to aggregate data so that you can't tease out or attribute to any one individual or group but making sure the data is accessible and usable to them and stored in a protected and appropriate manner that works for them, and developing terms of agreement over what pieces of data will be shared. This requires strategic sharing and honoring what Indigenous groups do or do not want to share. We all have responsibility of making sure data ownership is where it should be; having community co-authors with ongoing opportunities for consent can support this process. It's important to understand who has authority to give consent. Non-Indigenous led programs have a responsibility to ensure Indigenous Peoples have authority over phenology observations and data; responsibility needs to be built into the infrastructure of organizations. This is a big issue particularly in Indigenous communities without formal governing bodies and/or who don't have federal recognition.

Considering data ownership, it's important to understand if it's cultural information and within the boundaries of tribal protection, and also thinking about individual perspectives, such as stories that belong to individuals or families; so both the individual and collective perspectives have to be understood. An important next step is making sure the youth know their own stories and their own data. For example, knowledge and phenology of traditional plants is taught at Blackfeet Community College.

## ***Water systems***

First, acknowledge that water has inherent rights. There's data and information associated with water and with the people who have relationships with that water. Recognize the personal, familial relationships between Indigenous Peoples and water, and that water includes social, cultural, and spiritual context, not to be reduced into a dataset. We need to look at it holistically as the entire system of water information, and that has implications for how humans, especially non-Indigenous, the governments and the regulators, manage water. It's about seeking ways to promote and raise awareness for water sustainability in Indigenous communities.

In this context, what does it mean to protect data? It comes down to building trust and relationships and recognizing the depth of risk for sharing knowledge. For example, if a tribe is engaged in water rights negotiations and settlements, sharing water data might compromise future water availability. There's approximately 24 federal agencies alone who somehow touch freshwater in the United States; there needs to be inter-agency collaboration at the federal level, and the governing power dynamic between the federal level and Tribal nations needs to be addressed. There's such an inequity of power that we need a fundamental paradigm shift.

A number of tribes have issues accessing safe drinking water due to contamination by colonialist activities such as mining, and data is protected by these extractive entities. In U.S. water law, water is an extractive resource, instead of the water, rivers, lakes, being understood as relatives with rights, and that all water is connected. Mandates within some federal agencies are to get water off lands to prevent flooding but don't take into consideration agricultural and cultural practices that need that water; are there other solutions? The scientific community can support in addressing these issues and helping to regain access to usable, safe water. Funding is needed for the planning and development processes and infrastructure that supports data sovereignty. The funding agencies need to establish timelines that allow for the relationship building and communication process, and provide funding for community time and labor in collaborations.

There needs to be clear communication to the local communities for any data obtained, so that the community can be active decision-makers. There also needs to be transparency with the community on data sharing and how, for example, depending on the institution, data can and cannot be protected. Building and maintaining trust is critical, particularly considering the history of researchers extracting knowledge. Indigenous communities need to be given the opportunity to review and decide on how data are used, in a collaborative, co-created process. To lean more towards justice, broaden the types of data that are considered relevant; data about people, fish, wildlife, plants, soil, culture, history, language, for example, is all relevant to water. The data must be protected and ensured that it can't be used for harmful purposes. Indigenous participants must be the ones to define what constitutes sovereignty, what constitutes justice in relation to data. If we don't center justice, we're not centering values. Justice is the way we restore relationships among humans and more-than-human relatives.

## Closing Reflections

Bill Thomas and Paulette Blanchard shared closing reflections. Bill noted the tremendous evolution of Rising Voices over the years, and yet at the same time while we involve we keep going back to the things that keep us connected. Throughout all of the workshop sessions and conversations, there's so many threads between them, that even when we're in different working groups we are united because of the threads that hold us together. Some of those threads are about love and trust, the love we have for one another, the love we have for the things that we do, which doesn't make it seem like work because of the passion that we have and we love the people that we've worked with. This trust that we have in each other. Differences occur but we respect them and we come together no matter what. It's always a safe space to express your thoughts and perspective. And in the end, everybody is part of the family. One of the other great things is seeing the new faces, new perspectives, and new voices, our new family members that are here. The connections that we have and thinking about the Rs of respect, responsibility, and reciprocity that we have here. To make sure that we always have in front of our mind to never forget the youth and learning from them. As Dominique phrased it, they're on their way, the next wave coming. And it's our responsibility to give them, in Hawaiian terminology, give them the right surfboards to surf that wave so that they can be successful in their ride.

Considering the intersection of social and environmental justice issues, there's also racial justice and climate justice. We work within those spaces that bring a lot of people together with astounding diversity of thoughts and ideas, always learning something new. When you get to the end of your career and take a look back at things that you've done and what you thought took so long and the frustrations, it's the reward of meeting new relatives and discovering all the things that connect us that you get throughout this ever growing *'ohana* – family - that keep us going.

Reflecting on how Rising Voices started and Bob and Heather's initial conversations, we can hear his voice, we can feel the spirit, and this week really encompassed the spirit of it. We can do all of these things by developing more relationships and understanding that we are a family. We are relatives, and like Dan Wildcat always says that our goal in life is to be a good relative, a good ancestor. And this is what our meeting is about.

Paulette shared about the ways in which Rising Voices has been a space where Native students and early career faculty and scientists have found each other, there's space for community voices to be elevated and heard, and been able to collaborate with non-Indigenous scientists and talk science in a way that is safe for them. It's worked to level the playing ground, and to elevate, support, respect, and appreciate elders and youth, together. There's been increasing leadership of women, which is important also in the context of women carrying a lot of the knowledge that has been overlooked throughout history, and that leadership speaks a lot to justice.

Reflecting on the 7Rs of Indigenous research<sup>8</sup> – respect, reciprocity, relationship, responsibility, relatedness, relevance, and redistribution – and making sure that we think about the kind of framework that can only lead to justice.

***“If we continue to do our work in place as the advocates for those with no voice at all, not the marginalized humans but the marginalized planet, I think then that will truly be what climate justice means and does and embodies, is making sure that the agency of the earth and all of those systems and beings is supported and perpetuated in a way that they can thrive.” – Paulette Blanchard***

We opened the workshop talking about a convergence of ways of knowing, how we can expand beyond the definition of convergence that is about different disciplines coming together and expand that to the convergence of knowledge and ways of knowing, and most importantly ways of doing but we can't be successful with this convergence of acknowledges if justice isn't at the center. To do good work, justice must be at the center of our actions but also our hearts. As Doc Tusi shared and as we opened with from Kalani and Hank, we can walk forward with wisdom, humility, and respect, love and forgiveness, these ideas can spread through our own root systems, as Dr. David-Chavez shared to a symbiosis of ways of knowing the way that Dr. Kimmerer talked about it, and ultimately to a relational science, which really can honor all the ways of knowing equally. A true convergence, as we collectively face climate crisis.

Julie transitioned the space for the closing ceremony, sharing how Rising Voices has worked to be not just a safe but courageous space and through our growth over the years, remembering as Bob would remind us, if you are not at the table, you are on the menu. We hope to share a meal together soon, with everyone sitting around the table.

For the closing ceremony, Kalani shared the story of water, tying in the foundation. Taking everyone on a journey of the water, and as the water finds its way back from the mountaintops to the ocean, and sustaining life, and the ways in which while we may be thousands of miles apart on the surface of the earth, we are connected in so many ways.

***“We have a responsibility to the humans that come after us to honor those relationships, to use those relationships, and I use the term use in a respectful way to maximize our ability to create a better world for the future.”***

***– Rev. M Kalani Souza***

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<sup>8</sup> Montgomery M., Blanchard, P. (2021). Testing Justice: New Ways to Address Environmental Inequalities, Solutions Journal: <https://thesolutionsjournal.com/2021/03/01/testing-justice-new-ways-to-address-environmental-inequalities/>