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Polytech to PolyTEK: Traditional Ecological Knowledge, Indigenous Science, and the Future Forward Polytechnic University

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Abstract

It is clear from Cal Poly Humboldt's Polytechnic Prospectus that Traditional Ecological Knowledge (TEK) and Indigenous communities are key parts of what elevates Humboldt's development of a polytechnic university for the next century. The prospectus demonstrates Humboldt's proposed framework for a different comprehensive polytechnic "will also be informed by Indigenous communities and ways of knowing, as many Native peoples have lived sustainably in their places since time immemorial" (19). There are many considerations when engaging with TEK, especially around sustainable use. It is also important that engagement with TEK and Indigenous science not only center knowledge sharing, but also how departments, programs, and colleges are dedicated to upholding sovereignty and self-determination and working to empower Indigenous students, communities, and ongoing projects of land return, environmental justice, and education. This article will discuss the role of Native American Studies in building decolonial frameworks for a new polytechnic—polytech to PolyTEK. The article explores the history of cultural knowledge exploitation, Humboldt Native programs and initiatives; the resurgence of Indigenous science and knowledges, and new interdisciplinary initiatives at Humboldt that value NAS as a partner to building polytechnic programming.

Humboldt is positioned to offer a cutting edge and unrivaled polytechnic experience to current and future students. Indigenous knowledge systems are especially important and appropriate to consider in the development of a polytechnic institute because Indigenous knowledges are fundamentally interdisciplinary and applied. Indigenous knowledges are also at the forefront of cutting-edge research interventions in the sciences and western academic institutions. When we talk about or propose "decolonizing" curriculum or higher education we must build this from Indigenous frameworks with Indigenous Peoples at the center of our academic vision and planning.

Keywords: Traditional Ecological Knowledge, Native American Studies, indigenous science, sustainability, decolonization, STEM education

ON DECEMBER 8, 2021, ESTEEMED SCHOLAR Robin Wall Kimmerer (Citizen of Potawatomi Nation) joined Cal Poly Humboldt students, faculty, and administrators for a virtual discussion titled “‘Poly-TEK?’ A Discussion with Distinguished Author Robin Wall Kimmerer,” about how Humboldt can ethically and sustainably incorporate Indigenous sciences and Traditional Ecological Knowledge (TEK) into the development of a polytechnic institution. Cal Poly Humboldt alumni Marlene’ Dusek (Payómkawichum, Cupa, and Kumeyaay) opened the panel discussion with a question: “Dr. Kimmerer, what would your recommendations and ideas be for the first steps that HSU¹ and any other settler-colonial university should be taking to center Indigenous knowledges and TEK, and, how do you think they genuinely begin to repair the relationship with the land and the peoples, whose stolen land they sit upon and occupy, without just re-duplicating another broken treaty?”

Dr. Kimmerer responded by referring to the ongoing work of the Native American Studies (NAS) Department at Cal Poly Humboldt to engage in faculty learning circles about TEK as “inspirational” adding:

I think the first thing that we do is tell the truth, when we are dedicated, as we all are, as academics, as students, and teachers, and I hope, and I know we’re all those things simultaneously, students and teachers, that we have to have a dedication to telling the truth, which really means telling the truths. But then we say, well, what do we do about that? How do we act upon our recognition of historical wounds? And, how do we enact our role as healers? Because that’s what we all are, as teachers and students, we are healers of land, and healers of relationship. So, that telling of the truth needs to go into every corner of the curriculum... because, in my experience, oftentimes, these issues of cultural justice and land justice tend to be siloed. They tend to occur in the margins, right?

Dr. Kimmerer asks that we think critically about how we build cultural and land justice into what it means to be a “polytechnic” university. What does it mean to be a 21st Century polytechnic university that is occupying dispossessed Indigenous lands and continues to benefit from Indigenous lands and resources? How do we at Cal Poly Humboldt engage with and foreground an ethical praxis of being in place?

It is clear from Cal Poly Humboldt’s Polytechnic Prospectus that TEK and Indigenous communities are key parts of what elevates Humboldt’s development of a polytechnic university for the next century. The prospectus demonstrates Humboldt’s proposed framework for a comprehensive polytechnic that “will also be informed by Indigenous communities and ways of knowing, as many Native peoples have lived sustainably in their places since time immemorial” (HSU 2021:19).

Cal Poly Humboldt is the northernmost California State University (CSU) campus. The Humboldt campus is located in the traditional homelands and unceded territory of the Wiyot people which includes the Blue Lake Rancheria, Bear River Band of Rohnerville Rancheria and Wiyot Tribe. Humboldt County is home to the three largest Tribal Nations in the state of California—the Yurok, Karuk and Hoopa Valley Tribes. Cal Poly Humboldt also enrolls one of the largest percentages of Native American students in the California State University system. We are the only four-year university in our rural region and though we are among several thriving Tribal Nations, there are no Tribal colleges within our service area. In addition to Humboldt having a well-earned reputation in the fields of sciences and natural resources, it is also home to some of the longest standing Native and Tribal Programs within the CSU and University of California (UC) systems, including the NAS Department, the ITEPP (Native American Center for Academic Excellence) and INRSEP (Indian Natural Resources, Science and Engineering Program + Diversity in STEM) programs. Humboldt’s local admission and service area is also home to many of the Tribal Nations who are leading the way in managing and co-managing their

1. This panel was held before HSU officially became Cal Poly Humboldt. References throughout the article in quotes or previously published articles or documents may refer to now Cal Poly Humboldt as “Humboldt State University” or “HSU.”

traditional lands, waterways, airways and natural resources with methods that include traditional values and traditional science coupled with western science practices. Ongoing research projects and educational programs with the Tribal Nations of our service area have already made Cal Poly Humboldt an important collaborating institution with Tribal Nations in this region.

NAS is a discipline that has existed for Native peoples for time immemorial. For some, NAS emerges during the “intellectual and political ferment of the late 1960s and early 1970s” enveloped within the Red Power Movement, the development and activism surrounding Ethnic Studies in the academy, and the continued struggle for Indigenous self-determination (Kidwell and Velie 2005:3). However, the development of NAS has roots and connections to a long history of education and intellectual disciplines of Native peoples that stretch back for time immemorial. NAS in the academy, in part, developed out of an interest and need to shift academic research and disciplines away from the study “of” Native Americans to the study “with” and “for” Native peoples and communities. NAS was not necessarily welcomed into the academy, but instead was the result of numerous protests and activism by students, community leaders, faculty and staff at various universities across the United States (Cook-Lynn 1997). The development of programs, projects, majors and minors, certificates and other areas of academic development and community-facing projects should invite and include NAS as partners and encourage the support and involvement of a discipline that represents the vision of Tribal Nations and peoples. It is clear that “place-based learning” cannot occur without NAS curriculum, as the lands the university occupies are Indigenous lands with ongoing critical Indigenous connections across organizations and Tribal Nations. It is also important that engagement with TEK and Indigenous science not only center knowledge sharing, but also how departments, programs, colleges and the university are dedicated to upholding sovereignty and self-determination and working to empower Indigenous students, communities, and ongoing projects of land return, environmental justice, and education.

This article will discuss the role of Native American Studies in building decolonial frameworks for a

new polytechnic—**polytech to PolyTEK**. The article explores the history of cultural knowledge exploitation, Humboldt Native programs and initiatives; the resurgence of Indigenous science and knowledges, and new interdisciplinary initiatives at Humboldt that value NAS as a partner to building polytechnic programming.

Traditional Ecological Knowledge & Indigenous Science

On November 15, 2021 the White House Office of Science and Technology Policy released a national-level memorandum regarding the importance of TEK and collaboration with Tribal Nations. In this memo they recognize TEK as a contributor to the “scientific, technical, social, and economic advancements of the United States and to our collective understanding of the natural world” (White House 2021). It also stated that TEK is essential, “for developing comprehensive climate adaptation and natural resource management strategies” (White House 2021). Indigenous science is at the forefront of how climate scientists are thinking about our shared futures and it is clear that students who have a foundation in both Indigenous science and western science perspectives are more prepared for their careers.

Traditional Ecological Knowledge (TEK) or Indigenous Environmental Science (IES) is broadly defined as encompassing millennia of environmental knowledge passed down through generations through observation and practice of spiritual understandings and interactions with the environment (Anderson 2005). TEK is modern and adaptive and may have different meanings to different Indigenous groups. TEK is foundationally centered on interdisciplinary, interconnected approaches to scientific interventions. TEK is also necessarily regionally and Tribal Nation specific and cannot be singularly defined or applied but instead requires thoughtful engagement with place. Unlike western conceptions of conservation, preservation, and natural resource management where humans are considered outside of nature, TEK considers that humans are integral to functioning ecosystems and are a part of nature (Pierotti and Wildcat 2000). According to Dr. Jessica Hernandez (Zapotec/Maya Ch’orti) the foregrounding of western conservation and

environmentalism in western science fundamentally ignores how “conservation is a Western construct that was created as a result of settlers overexploiting Indigenous lands, natural resources, and depleting entire ecosystems” (Hernandez 2022:72). Hernandez’s book *Fresh Banana Leaves: Healing Indigenous Landscapes through Indigenous Science* offers a powerful critique of the ways in which settler colonial ideology has always, and continues to, inform environmental knowledge and practice within the United States and Latin America. Within her text, Hernandez employs the concept of ecocolonialism, which she defines as:

...the altering of our environments and landscapes due to colonization of Indigenous lands and the paradigms that are upheld to grant settlers (white people) the power to continue managing our environments and landscapes. *Every environmental scientist, researcher, policy maker, and anyone else who ever took a decision over our environments without consulting the Indigenous peoples of those environments has practiced some form of ecocolonization* (Hernandez 2022:42 emphasis added).

Western ideological conceptions of *terra nullius*, or nobody’s land, marked the landscape of North America as open for removal and dispossession of Indigenous peoples. Notions of manifest destiny engendered a moral justification to colonize and develop territories. The western concept of wilderness aligns with *terra nullius* and also erases Native presence and ecological management practices. Wilderness, however, had to be *created* (Blackburn and Anderson 1993; Cronon 1996; Spence 1999). As Anderson (2005) argues, California was far from an idealized wilderness when invaders first arrived—what the Spanish and the miners stumbled upon was actually a well-tended landscape.

TEK has been described as a “third alternative” for science, conservation, and sustainability work, where Pierotti and Wildcat (2000) argue that “TEK is inherently multidisciplinary in that it links the human and the nonhuman, and is the basis not only for Indigenous concepts of nature, but also for concepts of Indigenous politics and ethics. This multidisciplinary aspect

suggests that TEK may be useful in resolving conflicts involving a variety of stakeholders and interest groups in controversies over natural resource use, animal rights, and conservation” (1333). TEK is also an imperfect term applied to a complex system of knowledge that engages science, culture, spirituality, political, and social praxis. Reframing Indigenous science and knowledges as TEK may separate the methodological interventions of Indigenous science from western science or more widely accepted disciplinary labels like “Ecology” or “Biology” or “Chemistry” or “Zoology.” There is no doubt that Indigenous TEK includes interventions and methodologies of ecology, biology, chemistry, astronomy, zoology, and other fields, yet it is rare to see Indigenous TEK valued or centered as part of these western scientific disciplines. Hernandez discusses how the terminology of TEK can “historicize” Native peoples and their knowledges. Hernandez advocates for the use of “Indigenous Science” defined as “Indigenous voices, perspectives and lived experiences... [which] embody our ways of knowing that are rooted from ancestral knowledge and valid sciences” (Hernandez 2022:13). Dr. Kimmerer expands on a critique of western terminologies in her December 2021 discussion at Cal Poly Humboldt:

When we start talking about rivers and berries and trees and mountains, as natural resources, well, we know that’s violent language. That’s damaging language to say that these lands are not our relatives. These lands are not our pharmacy, and our library, and our elder. They’re natural resources, they’re commodities, which are only valuable when they are extracted. That’s really damaging kind of language. ..Well what’s the alternative? You can have a department of natural resources, or you could have a department of earthly gifts. Just that language changes everything, doesn’t it? It changes everything, from thinking about extraction and rights, to thinking about responsibility. Language has tremendous power.

Intervening in the discourse surrounding TEK to center Indigenous language of place has been an important way to demonstrate the diversity of Indig-

enous Science and TEK. Wildlife biologist Dr. Seafha Ramos describes “Yurok TEK” through Yurok language as *hlkelonah ue meygeytohl* (‘to take care of the Earth’). Yurok TEK is expressed as striving to create and maintain balance between people, wildlife, and the environment via “physical and spiritual management in tandem” (Ramos 2019:86).

The development of a “polytechnic” university at Cal Poly Humboldt can be a cutting-edge and relevant pursuit needed to address some of the most pressing environmental issues of our time. Daniel Wildcat (Yuchi/Muscogee) (2010) argues that Indigenous Sciences provide key foundational concepts and approaches that demonstrate their ongoing contributions and relevance to science and technology. First, Indigenous knowledge production is thousands upon thousands of years old, much longer than the creation of and knowledge gathering of most western academic disciplines. As Dr. Kaitlin Reed (Yurok) argues “California Indians have been here since time immemorial and we have had a lot of time to experiment, to figure out what works and what doesn’t. Yet despite the literally tens of thousands of years California Indians have been studying their environments, Western scientists—who have been in California for 170 years maximum—assume they hold intellectual superi

Wildcat (2010) also argues that Indigenous knowledges ask students, scholars, and practitioners to connect through a spiritual and cultural interrelationship with land. For example, climate change is a cultural issue and will necessitate a change in worldview. Dr. Kimerer adds to this in the context of understanding how a change in culture will necessitate changes in how we approach science and technology: ority on the functions of our ecosystems” (Reed 2023:6).

Hypothesis testing, and the criteria that we have for what constitutes valid knowledge, are all really important when the question is true/false, and that's essentially what hypothesis testing is right? And we very carefully separate the observer and the observed, so that these questions of faith and subjectivity don't influence our answers to a true/false question. I honor that. That's kind of the canon of western science. ...What if the question

isn't a true/false question? What if it's a right/wrong question? In that case, our objective, materialist true/false hypothesis testing needs something else. It needs values inserted into it. It needs subjectivity. ...And, those questions that require an examination of our values, and our assumptions of what are our responsibilities as human people. Science, western science, can't answer that. We've explicitly cut ourselves off from incorporation of values, for good reason, because we want to answer true/false questions. But I think we have to honor the incorporation of subject knowledge, subjective knowledge, and values and belief systems, and spiritual ways of understanding spiritual responsibilities, in the realm of more complex questions about, what should we do? How is it that we should live?

Cal Poly Humboldt, Traditional Ecological Knowledge, and Indigenous Science

Cal Poly Humboldt has a unique opportunity to be a leader both statewide and nationally in implementing Indigenous perspectives across university curricula and programming. The region has a significant Native American population, including 12 Tribal Nations within Humboldt County alone. In California, the percentage of Native Americans or Alaskan Natives is reported at 3.6%, one of the highest percentages in the nation, whereas in Humboldt County that number is 11.3%. Del Norte County, located just 40 miles north of Cal Poly Humboldt, is approximately 14.4%. NAS has expanded their faculty over the past five years and has been integral to ongoing partnerships with the College of Natural Resources and Sciences to integrate and engage with TEK, Indigenous Science, and decolonial frameworks for educational curriculum that addresses the most pressing needs of the future workforce in STEM. NAS has partnered with the Forestry Department to develop a Tribal Forestry Concentration and with the School of Engineering to create a Masters of Engineering and Community Practice which includes a rigorous curriculum in NAS and Indigenous Science/Traditional Ecological Knowledge.

In the Cal Poly Polytechnic Prospectus, Tribes are mentioned over 75 times (HSU 2021). In total, the prospectus engages with terms like “Tribe,” “Indigenous,” “Native American,” “Indian,” and “Traditional Ecological Knowledge” 198 times. The Polytechnic Self Study quotes a 1989 consultant report titled “American Indians and Humboldt State” written by leading Indigenous scholar Vine Deloria, Jr. (Standing Rock Sioux). Deloria’s report is an essential document highlighting the role of NAS on our campus. But he was clear in his recommendations at the time that there needed to be much more support of the work that Native programs were doing to elevate the University. Deloria, Jr. recognized this in his report when he wrote: “The most impressive part of my visit to Humboldt State was to see how much the existing staff has accomplished with minimal to barely existing resources” (Deloria 1989:9). The accomplishments that impressed Deloria did not happen due to the goodwill of the university, but were hard won victories fought for by students, faculty, and staff that continued well after Deloria’s visit in the late 1980s. For example, the Behavioral & Social Sciences (BSS) Building on campus was constructed in 2007 and included the Native Forum as a space designated for Native American programming on campus. The design of the Native Forum on the first floor of the BSS is modeled after a traditional house for Northwest California Tribes. The official name of the space is the “Native American Forum” and has been since the opening of the BSS Building in 2007. In January of 2015 Humboldt State students occupied the Native Forum with specific concerns about many issues, but one of them was the designation, signage and support for the Native Forum and Native programs on campus. Students expressed frustration that while the BSS building had originally included an entire first floor that was dedicated to Native programs, over the years these spaces had lost any connection to Native peoples. Because of this student activism the Native Forum was re-dedicated and officially named as the “Native Forum.” In October 2019, NAS was able to secure funding and remodel the lobby outside of the Native Forum, something that was appreciated by Tribal peoples and students because it brought in a clear Indigenous presence to the space. For Cal Poly Humboldt to prioritize Trib-

al knowledge systems and community partnerships in the development of a polytechnic institute, Humboldt needs to put those commitments to action.

On April 29, 2021, the Council of American Indian Faculty and Staff (CAIFS) released the “Statement on PolyTech University Development and Indigenous Knowledge/Indigenous Science/ Traditional Ecological Knowledge” (included in full as an appendix), written as a collaborative statement from the Native faculty and staff at Cal Poly Humboldt. CAIFS is

an advisory council that includes members from many of our Humboldt Departments, Programs and Colleges across campus. This multi-tribal , interdisciplinary group meets regularly to discuss complex issues facing our American Indian communities with a focus on campus and regional matters (CAIFS 2021:1).

The document was submitted to the Polytechnic Prospectus working groups in order to provide a guiding document to help ensure that tribal voices are not only included but become a part of the foundational fabric and ongoing leadership of this opportunity in front of us” (1-2). The document includes “Guidelines for TEK engagement and partnerships with Indigenous communities” including:

To be a leading polytechnic means naming and engaging with TEK across this campus and it is important that courses that center Indigenous perspectives, (such as Native American Studies, American Indian Education, Decolonizing Social Work, etc.) not be treated as an “elective” to majors but instead as essential courses to our campus curriculum. Indigenous knowledge systems are relevant to every field on campus, ranging from health, art, business, law, governance, sciences, etc. (7).

There are many examples of successful integration of Indigenous perspectives on the Humboldt campus to look to as models for building a PolyTEK university. Rroulou’sik (“rising up” in Wiyot) was a 3-year funded National Science Foundation Research Experience for Un-

dergraduates Project that encouraged Native students to work on “natural resource management research topics relevant to Indigenous peoples.” The Place-Based Learning Communities (PBLCs) in the College of Natural Resources and Sciences include NAS curriculum as an integral part of the curriculum. Since fall 2020, Cal Poly Humboldt has been the only CSU where over 80% of the incoming first-year students who are majoring in the sciences also take a NAS course. Johnson et al. (2020) found that students who participated in PBLCs “had stronger sense of belonging, improved academic performance, and increased first-year persistence... Equity gaps were narrowed in first year GPA, pass rates in several gateway STEM courses, and in first year persistence at the institution and in a STEM major specifically” (522). This demonstrates both the significance and necessity of ethically integrating Indigenous perspectives and knowledge systems in STEM education.

As part of the PBLCs, incoming first year students experience a week of summer immersion prior to the start of classes. The NAS Department has facilitated interactions between students and Tribal leaders in the local community. For example, the Among Giants PBLC, which focuses on mammal and plant biodiversity within the coastal redwood ecosystem, summer immersion experience has included a welcome to Wiyot territory at Cal Poly Humboldt by Wiyot Tribal Chair Ted Hernandez. Mr. Hernandez offered the students a prayer, taught students about Wiyot history and worldviews, and with the help of Rachel Sundberg (Ner-er-ner, or ‘Coastal Yurok,’ enrolled at Trinidad Rancheria), showed students regalia, songs, and dances. The following day, Among Giants students traveled to Prairie Creek where they were welcomed by Yurok Tribal leaders Susan Masten and Linda Cooley. Susan Masten is a former Yurok Tribal Chairperson and former President of the National Council of American Indians. Linda Cooley is the Deputy Director of the Yurok Tribal Economic Development Corporation. Both leaders shared the

history of the Yurok Tribe, Yurok Tribal worldviews and natural resource management practices.

As part of the PBLC experience, the NAS Department—in partnership with the PBLCs and ITEPP—created two educational videos to aid in student learning that features NAS faculty, local Tribal leaders, and several Indigenous alumni. One of the videos, entitled *History of Native California*,² is the most viewed video on the Humboldt PBLC YouTube channel by a significant margin. As of April 2023, this video had over 135,000 views. This video has also been shared in a variety of classes, academic conferences, featured on local news stations, and even screened for the California State Legislature. The other video, entitled *TEK & PBLCs*,³ demonstrates the significance and necessity of TEK within the natural resources sciences. The partnerships created between NAS and science departments in the College of Natural Resources and Sciences while developing and implementing the PBLCs is unprecedented and has created public discussion and outreach to NAS from universities throughout the nation and globe interested in learning more about this curricular milestone. The NAS Department welcomes these conversations, and is proud to represent Cal Poly Humboldt on the international stage as a leader in the field. Additionally, the NAS Department is currently developing a third video focused on TEK in the humanities and social sciences to demonstrate that the applicability of TEK is not limited to natural resource sciences, but every field of study at Cal Poly Humboldt.

NAS has also developed and implemented community-informed department-led initiatives that contribute to the integration of TEK in higher education. This includes the establishment of the Rou Dalagurr Food Sovereignty Lab & Traditional Ecological Knowledges Institute, the development of faculty book circles and professional development trainings on Indigenous knowledges and histories, partnerships with local non-profit organizations to integrate Indigenous perspectives into local high school curricula, and ongoing community-facing events.

2. *History of Native California*: <https://www.youtube.com/watch?v=T-azcPugmKQ&t>

3. *TEK & PBLCs*: <https://www.youtube.com/watch?v=liKV74avPso>

Scheduled for its grand opening in fall 2023, the Rou Dalagurr Food Sovereignty Lab & Traditional Ecological Knowledges Institute will be the first Food Sovereignty lab in the CSU system and will build a space that supports Tribal communities in ongoing revitalization of traditional ecological knowledges and Indigenous sciences. The development of Rou Dalagurr has been an interdisciplinary and collaborative effort that is student-designed and community-informed. This project was designed and proposed by students in fall 2019 as part of the NAS 331: Indigenous Natural Resource Management Practices course. These students represented twelve different majors from both the College of Arts, Humanities & Social Sciences and the College of Natural Resources & Sciences. Students worked collaboratively during the semester to interview Native faculty, staff and Native students on campus, and also held a community stakeholders meeting to discuss the implementation of a Food Sovereignty Lab. This research was subsequently awarded second place in the Social Sciences Graduate Research division of the CSU Student Research Competition in April 2020.

The Rou Dalagurr Food Sovereignty Lab & Traditional Ecological Knowledges Institute sits adjacent to the Native Forum and Goudin'i Gallery outside the BSS building. In November 2022 the outdoor space was officially renamed “Wiyot Plaza” (Humboldt Now 2022). Wiyot Plaza includes an official space allocation to the NAS Department and “Shared Maintenance and Co-Management Agreement” developed with Facilities Management and approved on July 6, 2022—a historic and transformative formal exterior space allocation. The agreement 'inscribe(s) the University's shared commitments to caring for the space, and to relationship with the landscape and the more-than-human relatives therein, ensuring their well-being, to return tribal community access and sovereignty to landscape, and to ensure the safety of those who utilize it. It is the first landscape co-management agreement between an academic department and the University and required ongoing work by the Food Sovereignty Lab Research Associate, Kar-

ley Rojas, along with Co-Directors Dr. Cutcha Risling Baldy and Dr. Kaitlin Reed to amend, navigate, and negotiate campus policies. Rou Dalagurr is a Wiyot term that means ‘everyone works/work together/everyone work.’⁴ The governance of the lab is made up of a majority Native American leadership. The steering committee, which includes representatives from local Tribal Nations and Indigenous organizations/nonprofits, meets bi-monthly. The Steering Committee also has students and youth members. In 2022 the lab was awarded a \$1 million dollar grant for the “Food for Indigenous Futures” project from the Sierra Health Foundation for implementation of youth food sovereignty camps; the lab also hosts the Indigenous Foods Festival at Cal Poly Humboldt; and is building ongoing workshops and interventions into curriculum that centers food sovereignty and TEK. Wiyot Tribal Chairman, Ted Hernandez, illustrates the potential significance of such a space on our campus:

Such a lab could provide hands on experience for students and tribal members in fields such as botany, biology, genetics, anthropology, Native American Studies, and Natural Resources Management, to name a few. The end result would be an interdisciplinary learning lab worthy of Humboldt that would both attract Indigenous people and students from out of the area, while also serving the local Indigenous peoples by helping to preserve their food sovereignty and native food security (NAS n.d.).

NAS continues to be mindful of how TEK is presented, acknowledged, and integrated into ongoing curriculum, projects, and initiatives at our university. Historical exploitation of TEK and Indigenous knowledge means that Indigenous peoples and Indigenous disciplines and departments are necessarily cautious about how TEK is framed within training and outreach programs. As Jessica Hernandez explains “We cannot just solely identify Indigenous teachings and remove Indige-

4. Listen to a pronunciation by Marnie Atkins: <https://drive.google.com/file/d/15zi9tXsVmWlWbpmvGkqLo-eHCeEsK-k6P/view>

nous peoples out of this narrative as co-option of Indigenous knowledge contributes to the oppressive narrative we currently have in the environmental discourse. These teachings do not and cannot be applied in the Western scientific paradigms or frameworks without incorporating Indigenous peoples as well” (Hernandez 2022:108). In other words, TEK cannot happen without Indigenous peoples, and by extension, we cannot create a PolyTEK without Indigenous people, communities, and nations.

Beginning in spring 2021, the Cal Poly Humboldt Center for Teaching & Learning, the NAS Department, the Office of the Provost and the Office of Sustainability held a series of decolonial coffee breaks in the format of a book discussion group for faculty. The text for this book circle was *As Long As Grass Grows: The Indigenous Fight for Environmental Justice, from Colonization to Standing Rock* by Dina Gilio Whitaker (Colville Confederated Tribes). The specific objective for this program was to hold a book circle that would (1) facilitate evaluation of interest and needs/gaps for future programming on similar topics, and (2) if merited, serve as the first step in a multi-semester Faculty Learning Community on Indigenous environmental justice, TEK, sustainability discourse, and decolonization to facilitate productive further learning. All disciplines were invited to creatively engage with this challenge. Due to the success and positive feedback from faculty that participated in this initial book circle, this type of professional development activity continued into the following academic year. During Fall 2021, the faculty book circle read *We Are the Land: A History of Native California* by Damon B. Akins and William J. Bauer Jr. (Wailaki/Concow). During Spring 2022, the faculty book circle read *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* by Robin Wall Kimmerer (Potawatami).

In addition to the faculty book circle, the NAS Department and the Office of Sustainability collaborated to host the Decolonizing Sustainability Speaker Series entitled *Decolonizing Sustainability: Amplifying Indigenous Perspectives and Transforming Sustainability Discourse* during fall 2021. This speaker series highlighted and unpacked intersections of settler colonialism, white supremacy, and systems of power/privilege/oppression within the discourse and rhetoric of contemporary sus-

tainability, environmental, and climate change movements. This series was intended to serve as a deep dive into the problematic and harmful discourse(s) of sustainability with the goal of moving toward a decolonial sustainability movement that amplifies Indigenous sovereignty and experience. Indigenous Science and NAS are still left out of much of the discourse around “sustainability” as TEK challenges the “hegemonic visions of sustainability discourse” (Velasco-Herrejón, Bauwens, and Friant 2022: 1). Velasco-Herrejón, Bauwens, and Friant elaborate that in sustainability discourse, “it is assumed that through these innovations, economic growth could be effectively “decoupled” from environmental degradation, leading to a dematerialized and decarbonized “green economy” created by a third or even fourth industrial revolution” (2). They conclude “different conceptualizations of sustainability must be recognized to ensure an inclusive and just energy transition” (1).

The Decolonizing Sustainability Speakers Series included talks entitled:

- We Have Always Been Scientists: Western Science, Sustainability & the Delegitimization of Indigenous Knowledge Systems;
- Nobody Asked You John Muir: Settler Colonial Environmentalism, White Supremacy & Sustainability;
- Colonialism Is Not Over: Green Colonialism & Sustainability from the TMT to the Terra Gen Wind Project; and
- Indigenous Knowledge Cannot Be Treated as a Back Up Plan: Indigenous Collaboration, Sustainability & Decolonization.

The sessions were recorded and are available to be accessed, used, and built into curriculum at the NAS YouTube page.

The NAS Department has also collaborated with community partners, including Save California Salmon, the Blue Lake Rancheria, the Yurok Tribe's Visitor Center, Klamath-Trinity Joint Unified School District's Indian Education Program, Humboldt County's Pathmakers Program, and the Hoopa High School Water Protector's Club to produce curricula that centers Indigenous perspectives and traditional ecological knowledge. In spring 2021 NAS collaborated with Save California Salmon on

the Advocacy and Water Protection in Native California High School Curriculum and Teacher's Resource Guide. The curriculum, which meets California state standards in science, social studies, health, history and language arts, responds to California's urgent water, climate and educational crises, along with the need for Native American culturally informed education and representation in schools. The curriculum features online, classroom, and nature-based learning. As Dr. Risling Baldy notes:

This curriculum was created for high schools, however all of California's primary and university students and faculty can benefit from the culturally-informed lessons it provides. California faces a water and climate crisis that will only be solved by foregrounding Indigenous management practices. Our restorative environmental management and tribal place-based knowledge are best practices for climate resiliency. If we teach the next generation how to better manage and live with the land. They will become the leaders that can solve our challenges. (2021).

Over the past twenty-five years, Cal Poly Humboldt has become a leader in both natural resources sciences and sustainability, as well as NAS. In the next 25 years, Cal Poly Humboldt is well poised to become a leader in Indigenous Environmental Studies & Sciences. While we have achieved significant milestones, there is certainly more to do. As part of implementing a PolyTEK institution, the university must develop additional programming and curricula that meets these needs. NAS has proposed and the Board of Trustees has approved the creation of a new 'Applied Science' Bachelor's of Science degree in Indigenous Science and the Environment to be housed in the NAS Department. This innovative major brings together principles of both Indigenous Knowledge and western science through curriculum and hands-on applied science research methodologies with a critical and integrative approach to complex environmental issues. Additionally, and significantly, Cal Poly Humboldt's designation as a Hispanic-Serving Institution offers a unique opportunity to build decolonial pedagogies and cultural affirming curriculum across In-

igenous nations throughout the Western Hemisphere. To meet these curricular needs NAS was able to hire an additional faculty member, as part of AB1460 California Ethnic Studies funding and welcomed Dr. Cinthya Ammerman who focuses on global Indigenous studies, hemispheric relationality, land defense movements, and Indigenous climate change studies. Her current research follows the stories of various plants and the links they have created between Mapuche and California Native homelands mapping potential paths to hemispheric collaboration in response to climate change. Dr. Ammerman is a multi-heritage interdisciplinary scholar from Wallmapu, ancestral Mapuche homelands in southern Chile.

NAS is also a partner in the Masters of Engineering in Community Practice which will host the first cohort in fall 2023. "The one-year M.S. in Engineering and Community Practice degree addresses state and national workforce needs and is tailored to those who wish to pursue resource management positions that require strong technological and management skills with a particular focus on interfacing and working with Indigenous and traditionally underserved communities" (Engineering & Community Practice n.d.). Newly hired faculty Dr. Aaron Gregory (NAS) will work alongside Dr. Qualla Ketchum (Environmental Resources Engineering) to implement the program. Students will take both Engineering and NAS courses to help them navigate community-based research projects. Dr. Gregory's work is focused in science and technology studies, critical infrastructure studies and political ecology.

The results of continuing to expand our university engagement with TEK has also resulted in the hiring of two additional Native American professors in the College of Natural Resources and Sciences. Dr. Qualla Ketchum (Environmental Resources Engineering) and Dr. Daniel Lipe (Environmental Science & Management) are new additions to Cal Poly Humboldt as of 2022-23.

Toward a PolyTEK for All

There is a significant demonstrated need for Indigenous informed curricula, programming, and research. At the

time of article preparation, there were roughly 190 job postings for “Tribal Liaison” or “Tribal Outreach” in federal government agencies, many of which focus on natural resources management or natural sciences. Many federal and state agencies have departments dedicated to Tribal relations and collaboration. Many non-profit environmental organizations and research institutions are also making commitments to improve their relationships and collaboration with Tribal Nations. There were over 20 positions at Tribal offices listed in Northern California specifically with a focus on both Indigenous governance and science. Tribal Nations are at the forefront of many ecological restoration efforts in this region and beyond. We anticipate that with the growth of Indigenous Science based research studies over the next decade, there will be an influx of students interested in the natural sciences that integrate TEK in a meaningful and hands-on way.

While we have made important strides at Cal Poly Humboldt, it is important to be cognizant of the power dynamics that exist between Indigenous knowledges and western institutions of higher learning, and the ways in which settler colonial ideologies continue to inform understandings of Native peoples, land, and environment. Historically, research in Native American communities has been very extractive, so we need to be particularly aware of developing equitable relationships with Tribal Nations and peoples who are partners and collaborators—not subjects from which the university can acquire knowledge. And thus, a polyTEK institution that foregrounds TEK must also develop and sustain collaborative policies. There are concerns about situations wherein TEK is marketed by the university, but access to university resources, support for higher education attainment, and support for Tribal peoples is still limited. These limitations continues an extractive relationship wherein the university profits off of Indigenous lands and knowledges—at the expense of Indigenous peoples. NAS is the discipline that was advocated for by Tribal nations. We have not been in the academy as a discipline as long as other disciplines have and yet, now that we see how NAS curriculum is important to future careers and the future of the planet, we also see an attempt to capitalize on NAS focused curriculum in other

departments without acknowledging, collaborating, or partnering with NAS. Alongside our work to strengthen the Department, our faculty and staff must consistently prepare for challenges to our very existence as a department and major; respond to accusations of favoritism by administrators; and respond to administrative decisions that deprioritize NAS needs. The development of programs, projects, majors/minors, certificates and other areas of academic development and community facing projects should invite and include NAS as partners and encourage the support and involvement of a discipline that represents the vision of Tribal Nations and peoples and has historically been devalued by western academic disciplines and institutions. There are many examples we could offer to illustrate ongoing challenges but one clear example is the Food Sovereignty Lab. In 2019 students worked with Dr. Risling Baldy to initiate a space request for the lab. This initial request was denied by the University Space Committee. The committee noted in their denial of the lab that they wanted to reserve the space for a program that would serve the “general” student population. The implication was that a lab space for NAS would not be for “all students.” In a response memo to the Space Committee the NAS Department wrote:

Our major, minors, programs and projects are very popular across campus and with the local communities because Indigenous knowledge is foundational to how we will approach major issues like climate change. Dismissing Native knowledges as being too specialized or not for the “general student population” effectively stereotypes and propagates attitudes that have always functioned to marginalize and dismiss Indigenous ways of knowing, our philosophies, and our place in higher education. We are now being further marginalized as a department on this campus, by segmenting an NAS Center/Lab as not being for all students or stating that only a “general student space” will be accessed by all, as if we do not serve the general student population through our work, outreach, curriculum, and community partnerships. We wonder if these types of assumptions about whether or not our Lab/Center would serve a “general

student” population would be expected of other labs on campus and why NAS is seemingly held to a higher standard for being able to manage space as part of our department curriculum and program.

NAS was finally able to secure the space when the students appealed to the Academic Senate and provided public testimony about the importance of the lab. At that time the Space Committee reversed its decision but said it would only approve the space request “conditionally” as they required that NAS fully raise the funds for remodel before getting the space. It was clear from this experience that the NAS Department continued to be held to higher standards than other programs requesting facilities across campus. While we consistently met all of the requirements and now are in the process of remodeling the lab, this experience is just one way to highlight the ongoing challenges faced by the Department in just the past five years.

At the core of Cal Poly Humboldt is a commitment to social and environmental justice that is shaped by ongoing support for Indigenous peoples that moves beyond acknowledgement and toward an ethical praxis of being in place. Significantly, Humboldt’s designation as a Hispanic Serving Institution offers a unique opportunity to build decolonial pedagogies and cultural affirming curriculum. This cannot be accomplished merely through the presence of Indigenous peoples on campus but must also include meaningful efforts to show how NAS is integral to the fundamental curriculum and learning outcomes of the institution. If Cal Poly Humboldt is truly committed to guiding students in “social and environmental sustainability” so they can make a difference in the world, we must continue to support the key role that Native American Studies plays in grounding students in decolonial frameworks and land-based learning across colleges.

When visiting Humboldt virtually for a talk to our campus regarding the role of TEK in the forthcoming Polytechnic brand identity and transformation, Dr. Kimmerer’s response demonstrates her expert support for this ongoing work, a polyTEK that moves disciplines and education forward.

Oftentimes, there’s this notion that somebody else is going to talk about these things, but they don’t really belong in the physics classroom, or they don’t belong in the botany classroom. Well, they belong in every classroom, I think. And, giving people the tools to enact that. I think of how many colleagues I have who say, ‘Well you know, I’d like to think about those things. I’d like to introduce them into my classroom, but I don’t know how. I’m afraid of doing it wrong, so I don’t do it at all.’ But, I think [NAS/Faculty Book Circle] approach of faculty and staff professional development in this arena is the implementation step for this first priority of telling the truth. ...I want to sincerely reciprocate that gratitude, knowing the path that you all are on, and what your aspirations are to center Indigenous ways of knowing in your university is deeply inspiring to me, and I want to continue to learn from you.

Kimmerer’s contributions here should not be overlooked because they underscore that Cal Poly Humboldt should continue investing in the work of faculty development to integrate TEK and Indigenous wisdom to the identity of the Institution. As a leading educator, best-selling author, and thought leader, Kimmerer’s comments demonstrate that the campus is already pushing the boundaries of innovation by moving the needle in the way we teach to a lens that foregrounds history and Indigenous knowledge *and* that we should continue doing so. These comments align with all the positive feedback from faculty and their demand for future programs to go deeper with this work.

TEK must be ethically practiced and culturally informed. In short, TEK is not a singular module or overview taught in a class, it cannot be treated as a diversity initiative or as window dressing for primarily western scientific courses, majors or programs. There needs to be meaningful support from higher education institutions like Cal Poly Humboldt for Indigenous led movements like #LandBack and the return of Indigenous remains and cultural items from university collections. As a campus that trains thousands of students on the best practices of environmental management, it is imperative that Hum-

boldt teach in a way that honors, respects, and elevates the need for Indigenous sovereignty in environmental and natural resource work.

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Appendix:

Council of American Indian Faculty and Staff (CAIFS)
Humboldt State University
Statement on PolyTech University Development and
Indigenous Knowledge/Indigenous Science/ Traditional
Ecological Knowledge
April 29, 2021

The Humboldt Council of American Indian Faculty and Staff (CAIFS) is an advisory council that includes members from many of our Humboldt Departments, Programs and Colleges across campus. This multi-tribal, interdisciplinary group meets regularly to discuss complex issues facing our American Indian communities with a focus on campus and regional matters. One of our objectives is to provide feedback on issues as a collective of tribal voices with the end goal of ensuring that we are advocating for and supporting a campus that meets the needs of our tribal students and tribal

community while also building a positive campus environment for all of our campus and local community.
campus and local community.

With Humboldt undertaking a self-study to explore becoming a polytechnic university, CAIFS has developed this guiding document to help ensure that tribal voices are not only included but become a part of the foundational fabric and ongoing leadership of this opportunity in front of us. Within the stated goals of this study, we have included guidance to build on the concepts of sustainability and hands-on learning, as well as infusing our polytechnic goals with Traditional Ecological Knowledge, and equitable and ethical practices. Each of these speaks directly to the strengths and wisdom that American Indian and Indigenous communities and peoples can offer in this process. We are fortunate to have as a part of CAIFS a number of cultural practitioners, community advocates, community organizers, and community leaders with the experience and knowledge to build best practices for engaging Indigenous science and TEK in a meaningful and informed way.

We believe in working directly with tribal communities. Humboldt is positioned to offer a cutting edge and unrivaled polytechnic experience to current and future students. Humboldt has the opportunity to build on all of these strengths and we believe this work must be undertaken with intentionality and integrity so that we can take that step forward together. Indigenous knowledge systems are especially important and appropriate to consider in the development of a polytechnic institute because Indigenous knowledges are fundamentally **interdisciplinary** and **applied**. Indigenous knowledges are also at the forefront of cutting-edge research interventions in the sciences and western academic institutions. When we talk about or propose “decolonizing” curriculum or higher education we must build this from Indigenous frameworks with Indigenous Peoples at the center of our academic vision and planning.

What is Indigenous Knowledge (IK)?

Indigenous Peoples compose 6-8% of the population globally (approx. 350 million) and 1.5% of the Unit-

ed States population (approx. 4.1 million peoples). All Indigenous groups come from distinct lands, cultures, languages, worldview, philosophies, and ways of knowing. Indigenous Peoples have millennia-old Indigenous Knowledge (IK) systems that are tribally and geographically specific. Indigenous Knowledge is also referred to as traditional ecological knowledge (TEK), tribal knowledge, tribal science, Native science, Indigenous environmental science, Indigenous environmental studies.

Indigenous knowledge systems are diverse and they are rooted within specific cultural and geographical contexts. However, there are important distinctions between Indigenous bodies of knowledge and Western/colonial knowledge.

1. IK is communal, not individual. Some IK includes culturally-sensitive information that tribal nations may not choose to share with researchers or universities. Some IK includes information that can, and should, be accessed by all, including Indigenous perspectives on law, business, government, technology, health, art, history, etc.
2. It is embedded in community practices, rituals, relationships and is difficult to codify.
3. Valid in its own right and does not need to be verified or legitimized by other bodies of knowledge.
4. IK is not frozen in time; some knowledge adapts to reflect the dramatic changes reoccurring within Indigenous communities today.
5. Tribal peoples are sovereign nations and have the right to exercise self-determination over their knowledge systems—therefore, Humboldt needs to work in partnership with tribal nations—not extract knowledge from.
6. Lastly, IK is fundamentally interdisciplinary.

Within the context of California, Indigenous peoples have lived with and stewarded their lands in this region from time immemorial. Native peoples in California developed sophisticated and complex ecological management regimes^a that promoted habitat heterogeneity and increased biodiversity.^b The invasion of northern California by settlers facilitated land theft and genocide of Native peoples—but also the erasure of land management practices (e.g., creating “wilderness”) and criminalization of Indigenous land management prac-

tices (e.g., fire suppression policies). The massive ecological transformation in northern California—brought on by 170 years of settler colonial invasion—cannot be understood without an understanding of settler colonialism and will require Indigenous knowledge and practices to rectify.

Indigenous Knowledge systems pre-date settler colonial invasion and the establishment of Western universities. To conduct ethical research and facilitate reciprocal collaborations with tribal partners, requires an understanding of the historical context of the Western university and its role in settler colonialism. Western academic disciplines are all implicated in imperialism and colonialism.^c Devon Mihesuah and Angela Wilson note that “The academy has much invested in maintaining control over who defines knowledge, who has access to knowledge, and who produces knowledge.”^d The creation of a polytechnic institution must actively challenge historic patterns of domination through the prioritization of Indigenous knowledge systems and values in its creation and implementation process. This requires developing and maintaining ethical relationships with tribal nations. In nurturing these relationships, we must always have the best interests of the native community at heart. While we are a place of education, we should first be advocates and protectors of Indigenous culture and knowledge. We must make a distinction in our decision-making between knowledge that has a place in the university and knowledge that belongs in the community. We must be cognizant of how treasured knowledge of our Indigenous peoples may be exploited and consumed. In the development of the polytechnic self-study, we offer the following guidelines and recommendations for best practices in engaging Indigenous communities and foregrounding Indigenous knowledges.

Critical Approached to Sustainability and Climate Resiliency

Part of the intervention that is made by Indigenous scholars and Indigenous community knowledge holders is to offer critical analysis of sustainability, conservation, and other western environmental perspectives

that can be developed in a way that continues the same exploitative practices that have caused the problems we face. We caution against superficial comparisons between Western notions of sustainability and the ethos of living well in Indigenous knowledge systems. Deborah McGregor (2004) argues that “Indigenous views of sustainable development are concerned with giving rather than taking, and with what it is that we can contribute to creation. Indigenous views also include active resistance (sometimes to sustainable development itself) and the process of reclaiming our traditions” (77). Rhetoric of sustainable development has been used to continue the process of Indigenous land dispossession. This is often referred to as “green colonialism.” According to a World Bank report of 2008 Indigenous peoples make up 5% of the global population and yet, protect 80% of the globe’s biodiversity. Green industries and conservation entities target Indigenous territories, using the lack of ecological footprint as rationale for seizure and exploitation under the guise of “sustainability” and “sustainable development.” Discussions at Humboldt and as part of building a Polytechnic university should include Indigenous peoples and curriculum that foregrounds a critical approach to sustainable development.

Anthropogenic climate change is an intensification of environmental change imposed on Indigenous peoples by colonialism and capitalism.[5] The field of Indigenous Climate Change Studies has emerged to support Indigenous peoples’ and is reflected in Indigenous knowledge systems and relationships to land, as well as climate resilience plans created by tribal nations. Indigenous Climate Change Studies emerges from the memories, knowledges, histories, and experiences of oppression of Indigenous peoples that differ from many of the non-Indigenous scientists, environmentalists, and politicians that are prominent in the framing of the issue of climate change today. Responding to colonialism-induced climate change requires a return to traditional ecological knowledge (e.g., burning the landscape). We encourage critical reflections on curriculum, programs, and research that is proposed or recommended for the Polytechnic self-study to foreground how to best include an Indigenous curriculum.

Guidelines for TEK and Partnership with Indigenous Communities

1. For far too long research has been utilized to disempower Indigenous peoples and communities. It is important that named partnerships and opportunities for engaging TEK and Indigenous science are done in a way that is informed by Indigenous partnerships and relationships. TEK must be ethically practiced and culturally informed. There are many considerations when engaging with TEK especially around sustainable use, and it is also important that engagement with TEK and Indigenous science not only center knowledge sharing, but also how departments, programs, and colleges are dedicated to upholding sovereignty and self-determination and working to empower Indigenous students, communities, and ongoing projects of land return, environmental justice, and education.
2. Tribal nations should be considered equal partners in projects that are being developed on their lands or in their tribal communities. Consultation is not collaboration. A polytechnic that foregrounds TEK should also be clear to develop and sustain collaborative policies.
3. Tribal programs and projects hosted at Humboldt should be prioritized and there should be support for these programs across campus. We have a number of leading programs through Indigenous Peoples Week (October) and California Indian Big Time (April) that would benefit from institutional support.
4. To be a leading polytechnic means naming and engaging with TEK across this campus and it is important that courses that center Indigenous perspectives, (such as Native American Studies, American Indian Education, Decolonizing Social Work, etc.) not be treated as an “elective” to majors but instead as essential courses to our campus curriculum. Indigenous knowledge systems are relevant to every field on campus, ranging from health, art, business, law, governance, sciences, etc. We have some outstanding examples and current practices to build

upon, including both the ongoing work to introduce a NAS focused Forestry concentration as well as with our cross-disciplinary work in the Place Based Learning Communities (PBLC's). NAS is an important and influential component of the PBLC's at Humboldt and beginning in Fall 2020, Humboldt is the only CSU where a majority of the incoming first-year students who are majoring in the sciences will also have taken a NAS course. A survey of Klamath Connection students, 87% felt that the knowledge they gained about Native American cultures will help them in their careers. Qualitative data also indicates that the NAS course component of the PBLCs is very influential in students' decisions to remain at Humboldt. There are still majors on this campus that do not include Indigenous perspectives as integral to their curriculum and we see value in offering support for curriculum revision that truly embraces Indigenous knowledges as part of all majors across campus.

Recommendations for Polytechnic Self-Study/Indigenous Campus

- **Support the creation of a Vice-President of Tribal Affairs office** to increase communication, empower CAIFS and help faculty and staff understand best practices for collaboration. Many other campuses in the CSU have a Tribal Liaison position and as we increase our reliance on Indigenous communities and tribal nations for our curriculum and programs, we also need to provide them with representation moving forward. Collaborating with CAIFS to help design and implement this position will be important.
- **Provide additional support for Indigenous students:** Embracing and utilizing TEK as central to our Polytech curriculum also necessitates a dedication to our Indigenous students so they can engage in programming that supports their student success, and offering opportunities for Indigenous students to attend and succeed at Humboldt (through fee/tuition waivers, scholarships, research assistantships etc.) demonstrates how our university will give back to our communities.
- **Support the continued enrollment and growth of Indigenous students and Indigenous student focused programming on campus:** It is essential to establish a polytechnic university that embraces BIPOC students and we encourage finding ways to evaluate student admissions based on a holistic review. We urge the university to dedicate additional resources to Native American student recruitment and encourage the creation of a Native American Student Recruiter position. We also recommend providing additional resources to our Native programs like ITEPP and INRSEP+ to outreach, review, and guide Native students through the application and admissions process.
- **Provide support for the Native American Studies Department** to grow their tenure-track faculty, course-offerings, curriculum development and continued outreach.
- **Provide support for active leadership of CAIFS** at our university including funding of administrative and faculty positions to assist with the ongoing development of recommendations for tribal engagement.
- **Reconstitute the Center for Indian Community Development (CICD):** CICD was a center for language and outreach to tribal peoples and tribal nations. This community-facing program was one place where Native peoples could build partnerships with the University but it was also a community focused program at Humboldt that demonstrated how Humboldt was dedicated to tribal community success. Programs like this build community support for campus work and if we continue to rely on tribal leaders and community members, we should also provide resources for the community that is focused on hands-on applied assistance.
- **Develop incentives for a cluster-hire of Native faculty across campus** with a focus on the College of Natural Resources and Sciences (CNRS). While there have been qualified Indigenous candidates with connections to local community, there are currently no tenure-track Native faculty in CNRS, especially the STEM programs. There are several examples across multiple campuses throughout the

country who have been able to integrate TEK/Indigenous Science into faculty hires in the STEM disciplines. Efforts must be made, not only to hire Native faculty across campus, but convert non-tenure track faculty to tenure track positions.

- **Provide ongoing funding for Native focused community and student centered programs.** We see a great need for ongoing increased funding for native specific spaces on campus that allow students, faculty, staff, and community to encounter diverse perspectives and provide unique places to experience Indigenous knowledges that will enhance the overall polytech experience. There are so many important programs on this campus that will need additional support: the NAS Food Sovereignty Lab, ITEPP, INRSEP, American Indian Education Minor, and the Social Work Program. We see great value in putting together a working committee to help design an Indigenous space plan for the campus that can be included as part of the overall space planning goals for the University.

We look forward to how we can continue to engage the Polytechnic Self-Study in a conversation about the role of Indigenous peoples and nations in the future of our university. We encourage the leaders of the self-study to attend a CAIFS meeting to

gather additional insight and recommendations. We also offer some potential program links of interest as potential best practices or directions for moving this study forward.

1. Indigenous Strategic Plan (University of British Columbia): <https://indigenous.ubc.ca/indigenous-engagement/indigenous-strategic-plan/>
2. NAGPRA and applied sciences <https://www.nps.gov/orgs/1539/nas-nagpra-and-applied-science.htm>
3. Public Health Training Certificate in American Indian Health <https://caih.jhu.edu/training/scholars/category/public-health-training-certificate-in-american-indian-health>
4. Applied Science in Legal Studies (with a focus on Federal Indian Law) <https://catalog.uaa.alaska.edu/undergraduateprograms/coh/legalstudies/aas-para-legalstudies/>
5. Applied Indigenous Studies: Bachelor of Science (Northern Arizona University) <https://nau.edu/ais/bs/#:-:text=Applied%20Indigenous%20Studies%2C%20Bachelor%20of,communities%20into%20the%2021st%20century.>
6. Indigenous Environmental Studies & Sciences, B.A. or B.S. (Trent University) <https://www.trentu.ca/iess/>