Witnesses to Climate Change: Our reflections on the 2012 First Stewards Symposium

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ACKNOWLEDGEMENTS

First, we'd like to thank our elders who have instilled in us strong values for family, community, responsibility, and strength. Without our elders this unique Symposium would not have been possible. Additionally, we thank each panelist who shared their experiences and stories, the First Stewards' Board members, our Director, Micah McCarty, and all the organizations, agencies, and leaders who came together for this remarkable event. We also want to extend a special thanks to those who took time away from their subsistence responsibilities to travel long distances to share their stories. This level of participation and commitment help to elevate the indigenous voice and allows us to more effectively prepare for climate change. As we chronicle the words shared in this Symposium, we hope to honor our elders, communities, ancestors, and future generations.

INTRODUCTION

On July 17-20, 2012 the inaugural First Stewards: Coastal Peoples Address Climate Change Symposium brought together indigenous coastal peoples and Indigenist collaborators to discuss climate change at the Smithsonian's National Museum of the American Indian in Washington DC. Five panels consisting of indigenous and non-indigenous experts from the East and West Coasts of North America, the Great Lakes region, Alaska, the Pacific Islands, and the Gulf of Mexico spoke about many of their concerns, research and stories regarding the effects of climate change within their homelands and around the world.

The First Stewards Symposium is an adaptation tool that has taken a step toward building capacity among coastal indigenous communities. We, the indigenous participants of this unique Symposium, are deeply connected to our homelands, and in most cases, we understand how to approach climate change issues. Therefore, as we move forward, it is important for us to share our insights about how we are locally addressing climate change. The First Stewards Symposium strengthens collaboration in order to meet these challenges within the context of what is important to indigenous peoples, and further, it enables us to develop ways of forming alliances to better meet these challenges.

In the traditions of the Pacific Northwest, when important work or a significant event occurs, individuals are chosen to bear witness to that work, and to transfer that information from one generation to the next. We, the authors of this article, are four individuals from indigenous communities located in Arizona, Hawaii, Texas and Alaska, who were likewise entrusted to become witnesses as a means to record what was shared at the Symposium. In this document, we compose some key concepts, major themes, and stories shared by panelist and speakers. Each of us comes from communities that depend upon, and live closely with the environment. With this in mind, our communities' concerns are paramount. As participants of the First Stewards' Symposium, we share these stories for several additional reasons, including:

1. to describe how climate change and its dire consequences have impacted our communities
2. to inform and educate our readers about how we are addressing these issues within our communities
3. to encourage our readers and Indigenist collaborators to help address climate change

Under the context of colonialism and exploitive western practices, sharing our stories publically comes with some hesitations. We have been cautioned by panelists and our elders to not give away our traditional spiritual knowledge, so in this document we only share knowledge that can be respectfully shared publically. In addition, we would like to extend our apologies if we have unintentionally omitted information that was shared at the Symposium. Lastly, we aim to honor the knowledge shared by each of our panelists by footnoting the names of speakers we quote below and we thank each of you for your dedication and generosity.

There are three parts in this article. We first begin by briefly describing the impacts of climate change on indigenous communities, and then segue into discussing the importance of Traditional Ecological Knowledge (TEK) and Traditional Environmental Adaptive Methodologies (TEAM). Lastly, we end by listing some research gaps and initiatives regarding discussions and presentations at the Symposium.

CLIMATE CHANGE IMPACTS ON INDIGENOUS COMMUNITIES

The environmental and ecological processes around us shape our cultures, worldviews, values and our ability to survive. Currently, the impacts and challenges of climate change include adaptation, relocation and the retention of cultural and subsistence practices. In this section we discuss the impacts of climate change in some indigenous communities of Alaska, Washington and the Pacific Islands, but first we begin with an overview of climate change.

Since the industrial revolution in the United States, millions of tons of pollutants have been released into the earth's atmosphere. Such pollution has contributed to greenhouse gases that compose an atmospheric blanket that traps heat in the earth's atmosphere. The compounds trapped in the atmosphere include: carbon dioxide (CO_2), chlorofluorocarbons (CFC), nitrous oxide (N_2O) and other compounds. Due to policies and regulations implemented in the 1980s, CFCs have been reduced; however, carbon dioxide emissions continue to increase, and we are now beginning to realize the impacts this process has on ocean ecologies. Despite the overwhelming evidence that illustrates the relationship between increased atmospheric carbon dioxide levels, increased temperatures and decreasing pH levels in oceans[1], some continue to deny global warming and climate change. Such opposition is rare among first peoples who depend on the land and waters for subsistence and survival.

In fact, indigenous peoples have been describing extreme and unusual changes in their environments for decades now, attributing these conditions to "climate change."[2] In some cases, while their stories were initially disregarded, researchers are now articulating them, albeit years later. Observations by indigenous peoples describe polluted conditions and extreme weather, and the resulting consequences that lead to compromised harvested biota, altered landscapes, habitat loss, and migration anomalies. The summation of these significant events has affected how native peoples are adapting. Therefore, among indigenous peoples, the concern is not expressed in terms of whether climate change will affect us, but *when*, and more importantly, how we will learn to adapt and survive.

Next, we discuss some climate change and anthropogenic impacts on the lifestyles and well-being of coastal indigenous peoples.

Ocean Acidification, Marine Pollution and Food Security

Ocean acidification is largely caused from the absorption of higher than normal concentrations of carbon dioxide in the atmosphere by the world's oceans. Simply stated, the increase in atmospheric CO_2 levels also increases CO_2 in the world's oceans. Atmospheric carbon dioxide absorbed into the ocean reacts with water (H_2O) to produce carbonic acid (H_3CO_3). Carbonic acid dissociates into hydrogen ions (H+) and a bicarbonate ion (HCO^{-3}). This process leads to an abundance of hydrogen ions in oceans, which ultimately consumes carbonate ions. Carbonate ions ($CO3^{2}$-) are present in oceans and used by shelled organisms to build healthy and strong shells. The abundance of hydrogen ions decreases the pH levels in oceans, creating ocean acidification, which causes the weakening of calcium carbonate shells. This chain of events cripples the reproductive capacity of mollusks and crustaceans, and leads to modifications in the ecological food chain. Ultimately, this process decreases the availability of subsistence food sources for indigenous coastal communities who depend upon these organisms for their food security.

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[1] Simone R. Alin PhD, Oceanographer at NOAA, Seattle, WA

[2] Stanley Tocktoo from the Inupiaq village of Shishmaref

Aside from shell weakening, in some indigenous communities, hunters observe physical signs of ocean acidification and pollution in fish and sea mammals caught for consumption. For example, some salmon with half of their heads rotted[3] are found swimming upstream. Alaskan subsistence fishermen use these fish for dog food because they are not suitable for human consumption. Furthermore, physical abnormities on the bearded seal have manifested as hairless patches on their skin, enlarged kidneys, and discolored or yellowish blubber.[4] Other injuries are seen on walruses, such as sores on their flippers and necks. These new abnormities and deformations are obvious to indigenous hunters, as they and their ancestors have hunted in their territories for generations, and therefore carry expert knowledge about the anatomy of their catch.

In the Symposium panels, each Pacific Island territory representative mentioned concerns regarding coral bleaching and the negative impact it has on the natural food webs for fish and other marine biota. Again, because many Pacific Islanders subsist off of the ocean, the loss of fish and other marine biota is a threat to their well-being and survival. Pollution, warming waters, and sedimentation, has devastating effects on coral reefs. Coral reefs are subjected to high water turbidity from sediment discharge due to heavy flooding, pollution runoff, and other anthropogenic factors.[5] For Pacific Islanders, coral bleaching is a fearful problem. In many ancient stories, the coral is mentioned as the very first living creature that began the food web. These stories warn that everyone's existence is contingent upon a healthy coral bed; thus, coral bed health is vital to our livelihood and wellbeing.[6] Indeed, even the land-base of islanders depends on the health of coral reefs. That is, not only do the reefs ensure a healthy food-web, but the structure they provide protects places like the Northern Mariana Islands, which depends upon the coral reef for protection from erosive waves and ocean tides, especially during storms.

Ocean acidification and marine pollution threaten the food security of indigenous peoples who must subsist on fish, sea mammals, and birds, and who depend on healthy ecosystems to preserve the integrity of these organisms. The severity of these threats has yet to be fully understood by researchers and those living closest to marine waters. Accordingly, such uncertainty leads to well-founded anxiety among indigenous peoples that these environmental stresses will also erode our profound and beloved cultures that have evolved with these ocean organisms since our genesis. Though ocean acidification is thought to be irreversible within the current generation's lifetime, if our relatives and descendants are to survive, it's important for us to take action to eliminate or mitigate our dependence on fossil fuels.

Glacial Retreat, Melting Ice and Erosion

Globally, warming temperatures cause glacial retreat and rapid environmental changes. David Troutt, a First Stewards panelist, described the disappearance of several glaciers from the Pacific Northwest Coast; as many as eight major glaciers are substantially shrinking.[7] Two examples of glaciers in retreat are on Mount Rainier and the Nisqually. The seasonal melting of glaciers is interrelated with the life cycle events of fish (i.e., salmon), such as spawning, migration and aggregation, [8] because glaciers leave a signature in the water that lead salmon back

[3] Williams, Mike of the Akiak Community & Member of Executive Committee on the National Tribal Environmental Council
[4] Tocktoo, Stanley from the Inupiaq village of Shishmaref
[5] Artero-Cameron Joseph President of the Guam Department of Chamorro Affairs, Guam
[6] Governor Beningno Fitial, Commonwealth of the Northern Marianas
[7] Troutt, David Director of the Nisqually Indian Tribe's Natural Resource Department
[8] Tom Younker, Former Vice Chairman of the Coquille Indian Tribal Council

to specific rivers and streams. In the future, if there are no glaciers to slowly melt into rivers and streams, there will be a diminishment of salmon, and the health of tribes who depend on salmon will be negatively impacted.

In a more positive light, collaborations among the Nisqually Watershed Council, the Nisqually Nation, and other partners, have lead to major efforts to protect and restore the Nisqually River, thereby improving the health of salmon runs. Some strategies that they have employed include tree-planting events along the riverbanks, increasing the size of estuaries, and the development of rain gardens that allow water to percolate into soil.

In the past few decades, communities in Alaska have increasingly described early and aberrant ice melts, spring breakup, and flooding, and today they continue to fear these phenomena for several reasons. Once massive ice sheets, sea ice, and permafrost, are now thinning to the point where hunting on ice has become extremely dangerous,[9] and landscapes are lost to erosion. Thin ice sheets make it nearly impossible for sea mammals to move in areas where ice creates island habitats. Closer to the villages, sea mammals previously hauled themselves out onto sea cakes, but they can no longer do so. This causes two visible problems. When sea mammals become tired from swimming, they may drown unless they can find ice to rest upon. Also, such an altered habitat encourages sea mammals to migrate to other and possibly more distant areas. Due to this behavioral shift, hunters must travel further away from their homes to find solid ice where sea mammals are located. The distance and instability of ice make the trek to hunting grounds extremely dangerous.

Melted ice also has implications to indigenous communities thousands of miles away. For instance, increased sea levels in the Hawaiian and Pacific Islands lead to fear among Islanders that their islands are going to disappear. Their fear is warranted. These islands are decreasing in area, and communities living on coastal territories are being relocated. For example, the Kiribati government is planning to move their entire population to Fiji.[10] The Kiribati nation are among the people who must move because low lying atolls and islands are directly affected by rising sea levels.

The Alaskan panel shared several heartfelt stories about the devastation that erosion has caused in their lives. There are two types of erosion that were emphasized by the Alaskan panelists: - sea erosion due to sea levels rising, and water erosion due to quickly melting ice and permafrost. Islands and coastal communities are negatively impacted by such erosion and melting permafrost, which has caused their buildings, homes, and communities, and forests (i.e. habitats) to sink. Infrastructures are unstable; leaking and broken pipes, sewer systems, and sewage lagoons compromise community health.[11]

Coastal erosion is also intensified when ice melts along Alaskan shorelines; this leaves this region without a protective barrier from crashing ocean waves. Similarly, a coastal shoreline near Forks, Washington, has a high percentage of diminishing kelp beds due to anthropogenic forces.[12] Kelp beds are natural buffers that slow down the impact from the ocean tidal movements, much like coral reefs. In this case, the ocean is now pushing up onto beaches causing beach and land erosion, which then exposes tree and plant roots to seawater.

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[9] Dougherty, Erin, Staff Attorney at the Native American Rights Fund
[10] Artero-Cameron, Joseph, President of the Guam Department of Chamorro Affairs, Guam
[11] Tom, Stanley, Yup'ik Village of Newtok, Alaska & Tribal Administrator
[12] Morganroth, Chris, Elder of the Quileute Indian Tribe, La Push, Washington

Relocation

Erosion and sea level rise have forced many communities to relocate. One example is the Hoh Nation on the West Coast of Washington state. For years, they feared their homes would be swallowed up by the Pacific Ocean. The community was in a vulnerable position to the threats of tsunamis, and unpredictable, extreme weather. In 2010, legislation to expand their lands away from a flood plain was passed in Washington State, and they are presently in the process of relocating to higher ground within their "usual and accustomed" lands. Although relocation of Indigenous communities is tragic, in some cases retreating to higher ground is the only option.[13]

Indigenous communities are burdened by relocation as a result of climate change, and those directly impacted face urgent needs for resources, while the emotional toll ripples through these communities. The relationships that indigenous peoples share with the lands where their ancestors and their families have lived are intact, so the mere anticipation of having to relocate creates depression and anxiety for these communities. The lack of land to move to, and the nonexistent financial means for moving every family, school, administrative building, social service and business in the entire village, creates an uncertain future for these communities who are further challenged to put into effect the necessary changes at a dizzying speed. Moving an institution can be slow in the best of circumstances, but for Native nations enmeshed in trust relationships with colonial governments, the process can last two or more generations. For example, the Quileute Nation worked for 56 years to move a children's elementary school to a safe location away from the tsunami zone. The tenacity of this Nation to protect their youth from harm should not have been challenged so strongly and for so long. For communities whose survival will depend on swift and decisive action, a similar delay would mean the permanent dissolution of extended families as the residents essentially become refugees, with their homeland, submerged.

The people of Newtok, Alaska have already moved twice due to erosion and extreme weather. Despite funding and permitting obstacles, they are now preparing plans for a third relocation to a site called Mertarvik.[14] Still, there are even more examples, including some not mentioned in this article. The Alaskan panel expressed the relocation challenges they face in regions of Shishmaref [15]and Akiak,[16] where again, they emphasized the reluctance of their communities to move, and yet, it is urgent to find a safe and stable site to move to, given that there is no other option. When faced with this complex problem in Shishmaref, the Mayor, Stanley Tocktoo feels it's important to exercise as much control over their situation as possible, by taking the opportunity to train young people in skills that would help to maintain the survival of the group as a whole. That is, because the prospect of relocation, involves a daunting amount of work, he advocates training people in the skills necessary to design, build, and maintain sustainable communities. This strategy simultaneously helps address the resource gap, in addition to maintaining the self-determination of the group, as exemplified by Tocktoo's self-sustaining "community building task," a program that trains youth as carpenters, electricians, and plumbers so that they can contribute to the re-building of their communities.

[13] Hudson, Dave, Vice Chair of the Hoh Tribe
[14] Tom, Stanley, Yup'ik Village of Newtok, Alaska & Tribal Administrator
[15] Tocktoo, Stanley, from the Inupiaq Village of Shismaref
[16] Williams, Mike, of the Akiak Community & Member of Executive Committee on the National Tribal Environmental Council

Shifting and Decreasing Biota

Tom Younker, the former Vice-President of the Coquille Tribe, reflected on his childhood; a time when he could easily scoop sizable Dungeness Crabs from their habitat on Coos Bay, Oregon, with his hands. He remembers observing an abundance of striped bass, deer, ducks, perch and other biota during those years. Over time, many of these natural resources have decreased in population. He attributed this to industries such as timber companies, their usage of chemicals and poor forest practices, increased human population, and the resulting strain on resources, and of course, climate change. In Alaska, another anomaly was the citing of a dead stingray washed up onshore near Nome—miles and miles from temperate waters.[17] Panelists gave many other examples of habits and habitats being in a state of confusion, such as the decrease in seal and seabird populations among the Pribilof Islanders, the shift of fur seal populations,[18] and the migration of the spruce bark beetle from warmer climates to the coastal regions of Alaska.[19] Tying these numerous effects to human causation was Pat Pletnikoff (Aleut), who, from his vantage point in the Pribiloff Islands, observed that more than ever, humans seem driven by a constant need to consume. They have overfished, over-hunted, and over-used all that nature provides, to which, Pletnikoff says there is only one solution: "let the land and ocean recover".[20] Pletnikoff and the other panelists' clearly link human activity to pollution, to temperature changes, to habitat loss (for humans and other biota) migration anomalies, and the decrease in biota in specific areas. The consequences of climate change compromise food security, infrastructure, housing stability, well-being, ecosystems, and biota.

We now discuss the importance of culture when preparing, and planning for climate change.

TRADITIONAL ECOLOGICAL KNOWLEDGE AND TRADITIONAL ENVIRONMENTAL ADAPTIVE METHODOLOGIES

In this section we discuss Traditional Ecological Knowledge (TEK) and Traditional Environmental Adaptive Methodologies (TEAM)[21] that our panelists and their communities put into practice. We believe this information will help to educate people about how indigenous communities adapt to climate change, and will also serve as an adaptive tool in itself. As human beings whose identities and lives are embedded in the maintenance of our cultures and traditions, we also understand our responsibilities as First Stewards to continue as caretakers of these lands, and as voices against the destructive global trajectory of policies and practices that have created the dire conditions of this age.

TEK has its roots in place-based environmental knowledge and cultural knowledge. This knowledge includes data, and the interpretation of that data, that a community has collected and refined over a long period of time. In some communities, TEK experts are trained to become excellent observers and interpreters. Survival practices, including spiritual exchange, are adapted into efficient and effective subsistence methods, which are then passed on from one generation to the next. Native peoples continuously contribute empirical data such as baselines for healthy and

[17] Williams, Mike of the Akiak Community & Member of Executive Committee on the National Tribal Environmental Council
[18] Pletnikoff, Mayor Pat St. George, Alaska
[19] Begich, Senator Mark, Alaska
[20] Pletnikoff, Mayor Pat, St. George, Alaska
[21] TEAM was coined by Kalei Nu'uhiwa, an author of this article.

functioning environments, anthropogenic impacts on the health of environments, and pertinent information regarding adaptive practices when confronting adverse environmental changes.

Specifically, TEAM are the application of TEK and/or contemporary practices and procedures. TEAM are reflective of the worldviews of indigenous peoples to survive adverse change caused by environmental events. Furthermore, impacted communities provide instructions intended to prepare their descendants for similar adverse environmental episodes. Many instructions have been left in the form of stories, tribal histories, songs, poetry, and ceremonial or religious practices, so that valuable wisdom and information are passed on from one generation to the next. To the unfamiliar, these stories may seem like nothing more than the makings of "myth;" however, they are cautionary expressions filled with survival tactics meant to teach individuals and the community with tried and tested adaptive methods. For example, many stories will point towards natural indicators as signs that adverse environmental change is occurring, followed by the survival methodology the community needs in order to adapt and endure. Natural indicators such as shifting biota are what many indigenous peoples observe and use when preparing for environmental changes. Native peoples have created observational baselines (e.g. glacier size over an extended time period) that enable a trained observer to recognize natural indicators, and then plan for expected environmental changes.[22] Climate change initiatives and other indigenous communities can benefit from the many TEAM developed by our peoples.

TEAM are embedded in food security and resource management strategies. These methodologies include returning to and promoting traditional practices to ensure that food stocks or natural resources are available for future generations. For example, in America Sāmoa, the tribes have returned to utilizing traditional materials for gathering food stock.[23] These communities are encouraged to educate the youth to prepare, develop and implement the traditional practices for fishing. This assures that traditional practices associated with fishing are passed on to the next generation, fish stocks are sustainable, and biodiversity and natural resources are maintained over time.[24]

A suggestion expressed at the Symposium was to understand the decisions, knowledge and strategies that allowed indigenous communities to successfully adapt to climate variability in the past. Undoubtedly, there is a role for TEK to improve and compliment scientific understandings of climate change impacts, and simultaneously, TEAM can be developed to address these impacts for everyone's benefit.

In the final section, we discuss some examples of what can be done in our communities regarding climate change adaptation.

RESEARCH GAPS AND EDUCATION

The phenomenon of climate change is becoming more widely recognized as a fact of the current age; however, due to economic and political interests, there is no consensus about whether or not climate change is "real." Despite the lack of universal consensus, there is no denying we have much to prepare for, and still much to understand. The First Stewards Symposium brought together indigenous tribal leaders, scientists, witnesses, organizations and policy leaders from around the world. These diverse voices and stories sought to educate their

[22] Bailey, Paulokaleioku Timothy, Aha Moku Council, Maui, Hawaii
[23] Tulafono, Chief Ufagafa Ray, of the American Sāmoa, Director of American Samoa Department of Marine and Wildlife Resources
[24] Artero-Cameron, Joseph, President of the Guam Department of Chamorro Affairs, Guam

audiences about their experiences and observations in their environments. From these panel discussions, we learned that the landscapes, communities, cultures, and biota have been stressed, changed and negatively affected by climate change. We also heard clearly that more action is needed.

As First Stewards we are tasked to educate the public about how to take care of the environment and to increase awareness about climate change and environmental issues. When it is not clear how to do this, we can collaborate and share our strategies, and if gaps exist in our understanding about the impacts of climate change and how to make the best decisions, our communities can initiate research objectives and an agenda for meeting our needs. Addressing these questions can help us close some of the current gaps in our understanding:

- How does climate change impact the life cycles of sea life?
- How can we protect shorelines and riverbanks against erosion?
- How do we minimize coral bleaching and its precursors?
- How do we prepare our communities for tsunamis and extreme weather?
- How will climate impact the economies of First Peoples?
- What kinds of sustainable infrastructures should be built in our communities?
- How can we best share local indigenous strategies between indigenous communities?
- How can we best promote respectful participation within our communities and partners?
- How shall we utilize TEK within local indigenous systems?
- How do we learn adaption strategies that were used in previous climatic fluxes and changes that impacted our communities?
- How can policies be enacted to help communities facing relocation?

This is not a comprehensive list, so we encourage future Symposium participants to highlight the research needs of indigenous coastal communities. We also encourage everyone to work in partnership with indigenous communities to address these concerns.

Because of the legacy of dehumanizing research conducted within indigenous communities, we suggest that all research partnerships and projects conducted with our communities and on our homelands include community training and empowerment tools that are culturally driven, appropriate and acceptable. Furthermore, research should be conducted *with* the community, not *on* the community. And wherever applicable (e.g., in the United States), partnerships should honor tribal sovereignty, the government-to-government relationship, and the trust responsibility of the Federal Government. In essence, we promote the commitment to our rights as indigenous peoples and nations, and strong research ethics for those who wish to work within our communities.

To educate our communities, we encourage our relatives to create councils, working groups, organizations, and to work with existing councils to strengthen food and water security; to clean up and improve our watersheds; to promote indigenous climate change stewardship: and to help address the research objectives listed above. We also encourage the development and growth of indigenous-driven curriculum to teach our youth both TEK and western science, while holding on to indigenous value systems and worldviews through the implementation of TEAM.

Because storytelling is key to the sharing of knowledge and scholarship from one generation to another, we ask our elders to share their stories, and to teach us how to honor these stories, so that we may move through the world as human beings.

In developing our understanding and creating solutions, our panelists cautioned the importance of thoughtful and careful consideration when choosing and deciding on adaptive

strategies. Tim Yonker succinctly stated, "When we decide on a route to improve our communities, we also need to consider how this will impact our world in the long term."[25] The high uncertainty about climate change, its impact on the environment and on our communities, affirms this concern. Given that we currently do not know what our futures hold, planning needs to be conducted while considering the potential for damage that can be done to future generations.

CONCLUSIONS

Unwillingly, and unfortunately, Indigenous peoples have been described as "the canary in the coal mine," or, to use another metaphor that's maybe more familiar to scientists, native peoples are the litmus paper of the world. Because we subsist off of the lands, are dependent upon the integrity and continued existence of healthy ecosystems, and live by the natural seasonality of fish, sea mammals, birds, animals, and plants, we are vulnerable to climate change. For some native peoples, it's a choice to harvest, hunt, or fish; however, for others, there is no choice. For instance, for coastal indigenous peoples, the ocean and land are comparable to stores. Harvesting, hunting, and fishing are necessary for survival when, because of the prohibitive costs and excessive carbon emissions expended when importing foods to remote areas, subsistence practices are the only options for indigenous peoples to acquire food. As re-told here, the effects of climate change are devastating to the food security, stability, and well-being of indigenous peoples. Therefore, collaboration is required to positively impact what happens in our communities, and to ensure that our voices are heard.

Throughout the panel discussions, it became clear that there is an absolute need to ensure that our policies, practices, and strategies are based on indigenous wisdom. Relying upon our traditional and ancestral knowledge of adaptability and resilience are keys to our survival and identity. So, in this article, we highlight the importance of TEK and TEAM as we prepare the upcoming generations for adaptation and survival.

We also discussed our responsibility to educate and bring awareness to the stories shared at the First Stewards Symposium. Because participants gathered at this Symposium to learn and support one another, and to identify their roles in this conversation, we highlighted some key research objectives that were implicitly or explicitly stated. As witnesses of the inaugural First Stewards Symposium, we ask our partners and our communities to meet the needs expressed here. In taking steps to do this, we ask that partnerships are respectful of indigenous peoples by following Indigenist ethical standards that will help to empower our mutual goals. Above are some of the key concepts, major themes and stories shared by our panelist and will be retold to communities and political leaders by the witnesses of the First Stewards Symposium.

[25] Younker, Tom, Former Vice Chairman of the Coquille Indian Tribal Council