

AN ABSTRACT OF THE DISSERTATION OF

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Abstract approved:

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This research effort examined Traditional Ecological Knowledge (TEK) of Siletz tribal members of the environment they live and/or lived in, and how both Western societal beliefs and land reduction to the initially established reservation location affected and altered how the area TEK has been maintained and passed down. The theory being tested was that "The knowledge gathered by Tribal members was significantly altered by the influence of Western societal beliefs and land reductions." Confederated Tribes of Siletz tribal members older than eighteen years of age were interviewed, and these interviews were analyzed. Identification of tribal members' information, experience, and corroboration with Western scientific validation was examined and illustrated the validity of juxtaposing TEK application and information with existing Western scientific methods. Tribal members' utilization of TEK showed a routinely employed system of identification as well as selective collection and natural management of resources for future replenishment

based on natural ecological patterns and behaviors rather than Western scientific principles. The conclusion of this research effort was that the system of TEK has been employed in a predictable and consistent manner that operates in relation to the environment and gathering information from environmental changes, reflecting human adaptation rather than Western scientific ideology.

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Traditional Ecological Knowledge of Siletz Tribal Members

by

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I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Samantha Chisholm Hatfield, Author

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TRADITIONAL ECOLOGICAL KNOWLEDGE OF SILETZ TRIBAL MEMBERS

I. Introduction

There is a saying that Native people walk in two worlds: their Native indigenous communities, sometimes referred to as “Indian Country,” and the mainstream American society where they routinely interact with non-indigenous populations.

Growing up as an Indian student, much of the information I learned at school was set aside as just that: information learned for school. Arriving home after school meant observation, interaction with the land, and comforting traditions which, looking back, had been established long before I arrived in this world, and which have been maintained by current generations. I also realize some of the traditions that have been longstanding and remain part of our identity as a People have been forcibly removed, or oppressed, to the point of having to be abandoned for the time being.

Over the years I have been entrenched in the Native community in various ways, and have been privy to conversations that have occurred, describing and discussing the ways of our People and the knowledge and the manner in which traditions continue. These conversations are not included here, because they were not intended to be heard outside the realm of the situation in which they occurred. It was with great trepidation that I went forward with this project, knowing that our information as a People would be exposed to scrutiny and criticism from non-

indigenous individuals who do not understand us and seek to academically nullify our world experience. I also knew, however, that documenting who we are as a People, and validating our world experience and our knowledge by showing its soundness and the careful manner in which it is garnered, would bring about a path with which we could assist our future, one which did not make sense in the mainstream non-indigenous way of living.

We are the people who have traversed the rivers and the oceans, the hills and the valley, caressing the lands with our hearts, our minds, our songs, and our ways. We have been a proud and strong people, whose ways have been maintained through atrocity, through travesty, through sadness, through terror, and through recognition. We walk in the ways of our ancestors, and we walk proudly in that which we maintain.

We hear the songs of our ancestors in the songs of the rain and we believe in the earth and its ways, showing us the right ways to live. Our footprints caress the earth with grace and kindness, with love and with the utmost respect. We watch that life which surrounds us, in the hills, in the streams, in the trees and in the sky. We honor those who have fallen, and those who have come before us, making this path for us to walk.

Within the following words are stories which have brought us to this place in time. Within this knowledge we build our lives; we establish a stronger foundation for ensuring our future for our children's grandchildren. Within the words are the teachings of all those who knew the ways, from those who touched

the land and were able to learn and pass on the beauty of the lands in which we live.

Within these words are contained the strength and honor and dignity of our

ancestors who honor the lands in which we have been placed.

Come Gather and Listen

The story comes from far to near
 And through this vision we wish you hear
 The sounds, and see the sights
 That have brought us light
 From the long dark nights

We lived within this coastal paradise
 With others like ourselves
 Living, loving, sharing natures gifts
 And battling with what was and “what ifs”

There came into our land
 Those of whom we had been warned
 They smiled with extended hand
 Then turned against us till we mourned

We were desecrated, wounded, then slain
 Driven as if dust before the rain
 Out of our land and into others
 Forced to accept us as themselves

Along the coast many were lead
 Better Red than dead
 From mountain top, river valley,
 Driven, we came
 Tribes of many became the same

SILETZ

Taken away from our great estate
 Held behind an invisible gate
 Learned to live with new rules
 Before it was too late

We planted, farmed, logged

As if we had always been White
Working adapting, but kept in sight
Hope to restore our culture, religion, and our communal source

Discrimination, hatred, alcohol, Disease
We struggled to join their culture
Fought in their wars, as we fought ours
Past the sickness of loss and into hopeful sobriety

They said they welcomed us
No Dogs or Indians Allowed
They made their point
They told us we were as if animals only

Relocation, Allotment, and Termination of the Tribe
Not annihilation of our people or our will

We bent like tall grass
We gave like the weep of a willow
We lay still, alive, yet fallow
Watching time pass

Rekindled from the embers
We arose like a fire
Grew taller ever higher
With each vision shared as an elder remembers

Restoration

Of self, of our ancestors spirit, of our communal soul
We wish to wash ourselves of the pain of the past
Our struggles have taken their toll
We care for each other

We have businesses, health care, and a Casino too
But much remains for us to do
Regain our lost, outlawed cultural belief
We reunite in our effort for mutual relief

Dream drops from Ancient eyes
Fall softly amidst the pasts anguished cries
Moistens new born sense of self
Lift our spirits from dusty graves
We stand against the odds

And once again under the flag
Siletz

Listen to the voices as the tales are told
Our ancestral rights take hold
Learn of our languages
Keep alive our past
This is our effort ...Make the dream last

We are the people forced to join this Tribe...one name...from Coast, River,
Mountain and Valley...we came. Now whole, now one...our future has
begun
We Are the Confederated Tribes of Siletz Indians
United in our efforts to keep our Culture alive

John L. Roe Jr.

1. TEK and Siletz Members

There is clear evidence Traditional Ecological Knowledge (TEK) is in existence, not only nationally, but globally (Berkes, 1993:1-3). The application of this knowledge is an issue which is separate from whether there is knowledge or not. This research study examines the knowledge itself, and separates the knowledge from the application, only examining the application and utilization as a basis for understanding and continuing to pass along the knowledge itself. Resource management and cultural management practices dovetail into TEK, but is an entirely different issue to be looked at through the lens of a Native American perspective. Native belief systems revolve around living with the land as a part of it, rather than having dominion over it.

TEK itself has been addressed in many ways, most often in the realm of existence and application. The philosophical approach of identifying a body of information has been skirted, and certainly not upheld in many Western scientific endeavors. The practical application and cultural management process (Fluharty, 2007:106, Sloan 2007:3-4) have been venues which have validated and proven the existence of TEK. In some ways, however, they have put the “cart before the horse.” Indigenous peoples will usually acknowledge that informational systems are in place. Depending on the tribal group, information may or may not be disclosed, regardless of whether the system is utilized. It becomes obtuse, however, when groups of Natives such as the Confederated Tribes of Siletz Indians (CTSI) are addressed in terms of their longstanding attachment and identity for the lands they have resided within for generations. It is also convoluted as to the knowledge itself, as the tribe has been forced to become a confederation of multiple tribes and bands, and thus a complex tribal entity whose bands are no longer distinct and segregated. It is acknowledged in Siletz history, that “While the US Constitution recognized our native people's right to our homelands (Aboriginal Title), the United States also participated in constitutionally contradictory political practices & subscribed to the same European concepts that permitted colonization of foreign lands & peoples and empire building by European nations.” (ctsi.nsn.us., 3/1/09)

The Confederated Tribes of Siletz is a confederation of a multitude of tribal bands that existed throughout western Oregon. Because of the forced assimilation that has occurred, TEK has been lost and diminished for tribal members. Due to

the loss of resources and drastic reduction in land base, informational systems are not being implemented fully, and direct application and passage of knowledge cultivation have become virtually impossible for some areas of knowledge.

TEK has not been addressed adequately, or acknowledged within the CTSI members as something that exists, but is clearly evident through their practices. The members regularly engage in these traditional activities and discuss them. I chose to focus my research on this knowledge, after becoming keenly aware through multiple conversations with other Natives, as well as non-Native people, about the environment. There was a clear indication, when I discussed the implementation of ecological information and environmental cues that could be “read,” interpreted, and then applied, that others lacked the understanding of what I was attempting to discuss. It became evident that, while it seemed very commonplace and logical to me, having grown up with learning such information, this knowledge base was not something everyone possessed. I started listening to tribal members more closely. How members talk about their lives, how they explain the areas, what occurs within cultural systems, and their daily routines are all intertwined with an understanding of our tribal homelands, what we have endured, and what occurs for us in the contemporary sense of time. Not every person articulates this knowledge or sentiment with clarity, but references to areas and/or activities that involve TEK abound.

2. Loss of Siletz TEK

While the automatic assumption may be that the tribe's history is irrelevant, or that information pertaining to TEK is only adhered to according to the standards that have been in place since the tribe was restored in 1977, it is a grossly erroneous assumption. The information on which the traditional ecological knowledge is based comes from long-standing tradition as well as a long and laborious road. This process must be acknowledged in the depth and breadth of the history which has taken place since the beginning of the tribal people's struggle to maintain and survive in their lands, and then subsequently lands which were not indigenously held geographic areas to their respective tribal bands. This applies to those Siletz families who were not native to the original reservation area, and not moved from another part of western Oregon. "From region to region too, ways of living and different cultural practices were in use. The coastal people's diet and economy was quite different than that of the inland valley people. Sea lion, whale, shellfish, ocean fishes, salmon, etc. being staples for the coast, while some inland people found deer and elk (along with salmon and acorn soup) to be their common food. The north coast and many of the Willamette Valley and lower Columbia people, practiced intentional head shaping (pressing a padded board, which was attached to the cradle board, against a baby's forehead - eventually forcing it to slope back & upwards). It was considered a distinguishing mark of beauty and status among the tribes who practiced it, but was usually not so admired by others." (ctsi.nsn.us, 03/18/09)

This complex and rich history is what builds a strong foundation for the tribe's TEK information systems. The attempts at reclaiming and restoring the information which the members often do not acknowledge as important and relevant information, but rather simply state as "the ways things are" have been difficult statements to ascertain. This information has been passed on, and has become such a natural evolution in the manner of familial and tribal existence, that most members do not recognize the importance or the relevance TEK systems have for the tribe, or the environment.

Because of the enormity of the composition of the bands which are enveloped into what has become the Confederated Tribes of Siletz (ctsi.nsn.us, 8/16/08), it is nearly impossible to delineate in detail the origins for the current members' ancestry. "Compiling a list of tribal groups that became incorporated into the Confederated Tribes of Siletz Indians as a tribe, or who had individual members who became incorporated into the Confederated Tribes is in itself a daunting task. The easiest way to accomplish it is to mention only the more general term for the language group or larger tribal affiliation, rather than getting down into the specifics of village based identity. However most of the old time people and many tribal members even today prefer to identify their tribal ancestry with as much detail as possible. Some examples of more general terms would be "Tillamook Tribe" rather than "Salmon River, Siletz, Nestucca or Nehalem Band of the Tillamook Tribe" or "Kalapuya Tribe" rather than the "Yamhill, Yoncalla or Luckimute Band of the Kalapuya Tribe.'" (ctsi.nsn.us, 03/18/09)

For the purposes of this thesis, general terms will be acknowledged and adhered to, as the Siletz tribe has set forth these delineations within tribal bylaws and ordinances (ctsi.nsn.us., 8/16/08).

Within the Confederated Tribes of Siletz, as of February 2009, there are 4,549 members (Loraine Butler, Tribal Enrollment, personal communication 4/2/09). These members are descended from various groups and bands which have encompassed a wide geographic area of the western Oregon region (ctsi.nsn.us, 2/7/09). Traditional homeland areas were vastly different, and providing a framework for understanding the differences and the evolution of a Traditional Ecological Knowledge base is thus important, illustrating the differences that arise, as well as the congruency that has emerged over time.

There are so many various groups and bands which cannot be delineated that, for the purposes of this thesis, general categorical references will be adhered to as utilized by the tribe along with the terminology with which members themselves identify their ancestry and specific bands when applicable.

The Confederated Tribes of Siletz Indians (CTSI) is a tribe that is currently federally recognized. The CTSI, however, has had a long road, resulting in the dynamic and epic history that has evolved into the strong and viable tribe that currently is in existence and fully operational. To fully illustrate the evolution of the tribe and its continual adaptation, as well as Traditional Ecological Knowledge which has been applied and transferred through generations, the history of the tribe is relevant. Examination of basic tribal history is important to more fully

understand the dynamics of the variance that presently occurs and which has melded into the commonwealth knowledge that exists among tribal members today. The dynamics and variances have brought about changes in the policies and focus that the tribe has been adjusting and adapting for, within the scope of the time frame addressed.

Collection of traditional resources has been a very clearly documented and noted aspect for survival, as well as traditional cultural means for Confederated Tribes of Siletz members (Downey et al. 1996). The tribe strives to keep these rights for resource collection intact (ctsi.nsn.us, 8/16/08), because the continuance of traditional means is vital for tribal cultural viability. These rights that the tribe has striven so valiantly to maintain were mutilated and dissected into minimalistic sectors as an appeasement, thwarting aboriginal rights and the use of traditional areas which have been utilized for centuries.

Indigenous geographic areas which were traditionally managed and collected from have been altered significantly since the time of termination. Such alteration conditions include, but are not limited to: overgrowth of underbrush, clearing large tracts of land and vegetation on the land (Downey et al., 1996: 48, 58, 72), logging practices (Downey et al., 1996: 41, 46, 48, 52, 55, 57, 58, 62, 70, 72), stream materials such as brush and snag trees blocking waterways (Downey et al., 1996: 36, 41, 44, 52, 70), riparian zone erosion (Downey et al., 1996: 41, 60, 72), and various pollutants (Downey et al., 1996: 36, 41, 43, 44, 46, 57, 58, 70) .

This significant land-base alteration has caused some areas to become stagnant and continuously have prevented tribal members from caring for and utilizing the TEK techniques they have been taught. Members have expressed this idea themselves and some would like the tribe to manage these areas again, if given the opportunity to access these traditional sites.

Traditional knowledge is a direct application of observation, as well as an intricate system which is applied and directed at close interaction with the surrounding environment. This knowledge system operates from an intimate understanding and interaction with the environmental surroundings as ecosystems change and evolve (Berkes, 1999:8). Direct participation in the surrounding environment has decreased significantly and rapidly in recent years. Increased reliance on the mechanistic and automated world around us has separated humans from our experiences and divorces current generations from the elders who maintain information systems useful for continuing traditional knowledge (Cajete, 2000:71).

In this manner, TEK must be actively cultivated and acknowledged. Adaptations have changed within the Western scientific field. Likewise, information system adaptations in TEK have evolved (Berkes, 1999: 159-161) into an applicable system which conforms to the current land base conditions. The areas in which tribal members are allowed to care for and practice exacting knowledge are just one example of this evolved system.

Just as the Darwinian school of thought has evolved from its simplistic straightforward view of the world and characterizations of various species (Bowler, 1992: 337, 357-358), likewise TEK system approaches have been evolving. They have developed and are acknowledged as intricate systems which have long been established as functioning, effective systems (Cajete, 2000:94). TEK systems have developed as landscape and ecosystems have drastically changed since the initial placement of tribal members onto what is now considered the Siletz reservation. Because of these ecological changes, adaptations not only in cultural traditional methods apply, but also in collection methods, and in the overall interaction within the environmental surroundings. Finding a quiet place in a city may be a difficult task, but is seen as a necessary and integral facilitation to adhering to cultural traditions. More and more cities are increasing the amount of synthetic space, such as asphalt, concrete, Astroturf, even metal grates that are surrounding trunks of trees, so that touching the earth in a very direct, authentic, and traditional manner is physically impossible. This causes the TEK understanding to be broken because of a lack of understanding by Natives as well as non-Natives. TEK is a very applicable and directed system, and indigenous knowledge systems rely heavily on the experience and internalization of such experiences as being in constant contact with the earth and its continual modulation.

There has been insufficient incorporation and acknowledgement of TEK regarding geographic areas that are traditional homelands of the CTSI nation. Various reasons have led to the exile of Siletz members from indigenous

geographic regions, and allowance of TEK has been excluded from policies and implemented management procedures. Additionally, the pollution and resource depletion has created a staggering dilemma for tribal members who wish to practice TEK tenets, but cannot do so due to the loss of resources or the high amount of pollution.

In 1997, the Devils Lake Rock Company was fined for allowing turbid storm water to enter into and pollute the Siletz River. This infraction is but one example of the contaminants that cause the pollution that members have been identifying and attempting to address through the utilization of both the tribal Natural Resources department, and Cultural Resources department. The turbidity caused by the storm water runoff can cause damage to fish and other aquatic organisms. Sediment smothers fish eggs, abrades fish gills, making breathing difficult and impairs the ability of fish to locate food. Unpermitted storm water discharges impede ongoing public and private efforts to improve water quality in Oregon's coastal streams and protect salmon and steelhead.

(<http://www.deq.state.or.us/wq/nonpoint/nonpoint.htm>, 8/15/07)

Because there are many anthropogenic causes, addressing the solution for reducing and removing pollutants must be a multi-systematic approach. The widespread causes and avenues by which pollutants enter into the river systems across western Oregon have widespread effects on the traditional collection of resources that the Siletz tribal members maintain. This pollution problem may appear superficially as a topic which is entirely separate from the issue of

Traditional Ecological Knowledge, but in fact is closely interlinked with how TEK is utilized and performed. Tribal members have routinely addressed problems which transcend far into various Oregon regions.

The Oregon Health Division has issued fish consumption advisories for nine water bodies (<http://www.deq.state.or.us/wq/nonpoint/nonpoint.htm>, 8/15/07), including the entire main stem of the Willamette River. This includes over 400 miles of river waters. These waters are a part of the regional Traditional Ecological Knowledge system and traditional collection of resources from these river systems is ongoing. These advisories thus would drastically affect the TEK collection. This pollution and alteration of the river organisms also affects the understanding of TEK systems because of the drastic alteration of the river's natural processes and the resources which strive to maintain a balance in a situation where pollutants are constantly altering patterns and ecosystems. The effect is to throw the balance into chaotic and unpredictable patterns, which has a ripple effect throughout every system which relies upon the balance of this process, humans included.

The Siletz-Yaquina subbasin includes the Salmon, Siletz, and Yaquina Rivers. Nitrate nitrogen is the primary limiting factor on water quality throughout the Mid Coast basin. High levels of nitrates accompanied by increases in total phosphates, total solids, and biochemical oxygen demand appear during periods of heavy precipitation. Nutrient-rich erosion products deposited during storm events place a high demand on available dissolved oxygen in the water. These products

may be naturally occurring, but are more likely the result of non-point source pollution (Cude, 2007).

The Oregon Department of Environmental Quality (DEQ) addresses nonpoint pollution:

A large source of water pollution comes from a pipe, such as from factories and sewage treatment plants. But the largest source of water pollution in Oregon's rivers, lakes and streams comes from surface water runoff. This type of pollution is sometimes called "nonpoint source" pollution because it comes from a wide variety of sources, not from a single discharge pipe.

[<http://www.deq.state.or.us/wq/nonpoint/nonpoint.htm>, 8/15/07]

The sources of non-point pollution are addressed through natural changes in landscape, specifically addressed through the decrease of riparian zone areas, which affect the level of nitrogen, as well as through the decreased supply of oxygen which can drastically alter the habitat for riverine organisms. This has been addressed through the study of salmon and salmonoid declines in recent years (<http://www.deq.state.or.us/wq/nonpoint/nonpoint.htm>, 8/15/07). The issue was also addressed through the study which was done regarding the eels, wherein Downey et al. interviewed tribal elders, focusing on the decline of eels in the Siletz River (Downey et al, 1996: 36, 41, 43, 44, 46, 57, 58, 70).

Many members interviewed for this research project have addressed environmental issues as well, and included the information that many other riverine species are disappearing with the appearance of more environmental degradation.

Their concern is well-founded, even as they are unaware of the specific pollutants that cause this disappearance.

II. Purpose and Significance of Research

Western scientific methods of analysis and measurement have little bearing or relevance in TEK systems, but each can benefit and complement the other greatly. Vine Deloria, a highly acclaimed author and scholar regarding Indigenous matters, has been a long-standing supporter and proponent of Indigenous ways of knowing. Deloria eloquently juxtaposes Western science methodology with what he terms tribal knowledge, regarding the issue of locating buffalo herds in the following passage:

Let us compare tribal knowledge and Western scientific in one instance to demonstrate the relative predictability factors that each view of nature contains. If we were to raise a buffalo herd on an exceedingly large tract of land, we might one day discover we did not know where they were. Turning to Western science, we would scamper through reports on buffalo behavior, we would get a map and try to pinpoint the location of streams and watering places, and we might organize a search for the herd. The data we have would be in every way comparable to the information that the Plains Indians possessed regarding land and buffalo behavior, and there would not be too much difference in the manner in which we approached the problem of locating the herd. In addition to everything that we can reasonably determine as valid data in locating the buffalo, however, the tribal tradition has a few bits of information that would make our task easier. The buffalo loved sunflowers. At times they would gather in a draw where the sunflowers grew and frolic among them, uprooting the plants and tossing them over their heads onto their backs so that they were virtually decorated with these colorful flowers. So we might look more closely at sunflower patches. Grazing buffalo frequently had flocks of blackbirds among them. The birds would sit on the backs of the buffalo and when the animals grazed and disrupted the insects, the insects would give themselves away, making them easy prey for the birds. We would then narrow our search to locations with sunflowers and many blackbirds.

If we were really sophisticated, we would know that on top of many of the buttes and hills on the northern plains lives a dun beetle that has two antennae on its head. These antennae always point to the nearest buffalo herd, whether that herd is in the next valley or fifty miles away. All we need do is pack a picnic lunch and move from one group of beetles to another until we locate the herd. These additional bits of knowledge came as a result of the many other ways Indians gathered information. Some facts might have come from dreams, others from communication with beetles, and other facts from knowledge of birds that would include their relationship with the buffalo. This information is not extraneous to the knowledge of buffalo, and it is not simply and ad hoc observation. It is included in the teachings of the tribe regarding these animals. And it can be used to predict buffalo, bird, insect, and flower behavior. Within Western science framework, according to which the natural world is lacking intelligence and personality, it would be exceedingly difficult, if not impossible, to discover these kinds of relationships. The idea that nature is mindless and insensate would have precluded the scientist from observing the proper kinds of behavior and drawing the obvious conclusions. (Deloria, 1999: 69-71)

Western science applications can be forms of science which are ineffective and tell about the landscape in a narrow, detached point of view and only for that brief amount of time during which the sample was taken. There is a great deal of beneficial information that can assist in the short term logistical sense that Western science can offer, and it can blend with TEK (Berkes, 1999:10). Siletz tribal members are aware of the surrounding environment, rather than ideologies and theories, watching the land base and the resources for changes that convey information. Cajete states:

From a phenomenological viewpoint, all sciences are earth-based. Western science must acknowledge this common foundation, this rootedness in the same physical world as Native science, and for its continued evolution, it must integrate and apply the collective lived experience of human participation with nature. (Cajete, 2000: 25)

Application and holistic information is relied upon within Native science and TEK systems. All information considered by TEK must be in forms that rely heavily upon the dominant system of oral transmission, combined with careful and lengthy observations. Ecological interpretations vary from person to person. Nevertheless, a baseline can be established in the same manner as in Western scientific methods, from the recurring patterns drawn through the accounts given by observers.

Cajete makes the point that all sciences are earth-based, and that direct, subjective interaction with the environment produces an objective stance from which we as humans can analyze and bring about further investigation and understanding, regarding whatever scientific or earth topic is relevant.

Understanding and continuing the Traditional knowledge which has been passed from previous generations to subsequent generations is a tenet of Native life which is highly respected and culturally appropriate. Unfortunately, the Boarding school era delivered a devastating blow to culturally held knowledge, and forced many families to be forever broken. The cataclysmic effect has been felt throughout Native communities across the nation (Deloria, 1999: 162-163, 165; Noriega, as cited in Jaimes, 1992: 381-383). This devastation has brought about an awareness that traditional knowledge and cultural survival is imperative for individuals as well as Native communities to embrace. Further cultivation and promoting the imparting of remaining information from elders to the younger generations is vital for continuance.

To better understand how the break occurred, and how it was maintained throughout generations, so that TEK and cultural local knowledge was broken very effectively, a brief overview of the boarding school forced education of Native American children must be examined.

The removal of Native children from their homes in the guise of educating them brought about a domino effect. The government could then effectively divorce the traditional cohesive familial life Natives have been known to uphold and attempt to maintain. Vine Deloria Jr. elaborates on how this began:

The first period of intensive federal involvement in Indian education began in about 1873 and lasted until World War II. Its chief features were the establishment of day schools and off-reservation boarding schools such as Carlisle and Hampton. The year 1873 is important because Congress repealed the old provision that allocated \$10,000 annually to the “civilization” of Indians. In place of this fund, Congress made a special appropriation of \$100,000 for Indian education. . . . This system was designed to provide education for each and every Indian student who could be enticed, compelled, or convinced to attend school. When the system was finally in place, the reservation agents then used whatever means they had to force the parents to enroll their children. (Deloria, 1999:162).

With Deloria’s explanation in mind, it is easy to envision how children lost valuable traditional time and learning with family members.

“The Western science view and method for exploring the world starts with a detached ‘objective’ view to create a factual blueprint, a map of the world. Yet that blueprint is not the world. In its very design and methodology, Western science estranges human experience in favor of a detached view” (Cajete, 2000: 285). This is the blueprint which was enforced through the school experience.

In this manner, then, being involved with modern day systems, the objective nature of Western science lends itself to the disconnectedness and misunderstanding of the systems within which the earth functions and operates. The holistic system of TEK can then be best understood as being involved and directly relating to repeated connectedness and a complex understanding of the areas where native people routinely mentally document information. This link was deliberately broken, not only for children, but also for families, and was effective in the sense that being able to connect in traditional ways was forcibly eradicated from children's lives. Societal pressures of assimilation through various means, along with overt discrimination, caused tribal members to suppress information and traditional ways (Hoxie and Iverson, 1998, 221-222; Robbins, as cited in Jaimes, 1992:93; Deloria, 1999: 197).

Through the holistic and time-tested manner of analysis, TEK can bring forth valuable information and assistance to various agencies and individuals, as well as to society, regarding how best to ensure the sustainability of our local geographic ecosystem environments. The members of the Confederated Tribes of Siletz understand that the environment and its components are composed of a delicate balance, and to ensure the health and well being of the environment, that balance must be acknowledged, understood and respected.

III. Research Questions

1. How Is TEK a Vital Aspect for CTSI members?

TEK culturally transmits information which becomes part of an individual's identity. Tribal members routinely address the surrounding areas and environment in terms of what is or what is not possible, and all are aware of the struggle that has occurred to regain the rights and access that is available currently. TEK provides a sense of identity and a sense of community for tribal members.

The Traditional Ecological Knowledge that is observed and practiced is knowledge that seems to come from an intrinsically comprehensive knowledge about what occurs environmentally and what does not. An inability to articulate that knowledge has been revealed throughout interviews specifically conducted for this research. The innate ability stems from a cultural cultivation from generations who have witnessed and carefully observed the patterns and behaviors of ecological/environmental aspect which have transformed the local manner of life for the Siletz members throughout the years of residing in areas which have become their principal homelands respectively.

The initial aboriginal land base included all of western Oregon from the Pacific Ocean coastline to the Cascade Mountain range, areas which spanned close to twenty million acres (ctsi.nsn.us 8/16/08), and housed multiple tribal entities of varying information systems. As the reservation was established, the land base was whittled down considerably, but maintained an area which gave members varying geographic opportunities to maintain their traditional lifestyles within.

Having the land base drastically reduced and the land access being restricted meant there would be a natural evolution of altering the knowledge systems that had been in place and actively used. The information for collection did not subside, but rather took the form of familial stories and anecdotes as the impossibility of access became reality.

In one of the articles featuring information regarding the Siletz history, Cultural Resources Director and tribal historian Robert Kentta writes:

Compiling a list of tribal groups that became incorporated into the Confederated Tribes of Siletz Indians as a tribe, or who had individual members who became incorporated into the Confederated Tribes is in itself a daunting task. The easiest way to accomplish it is to mention only the more general term for the language group or larger tribal affiliation, rather than getting down into the specifics of village based identity. However most of the old time people and many tribal members even today prefer to identify their tribal ancestry with as much detail as possible. Some examples of more general terms would be "Tillamook Tribe" rather than "Salmon River, Siletz, Nestucca or Nehalem Band of the Tillamook Tribe" or "Kalapuya Tribe" rather than the "Yamhill, Yoncalla or Luckimute Band of the Kalapuya Tribe.

Kentta continues to explain why the vast difficulty of delineating the tribes and specifying tribal history becomes so complicated:

Going by the preferred method stated above, the following is what I generally consider to be an inclusive list of "our tribes": Clatsop, Chinook, Klickitat, Molala, Kalapuya, Tillamook, Alsea, Siuslaw/Lower Umpqua, Coos, Coquille, Upper Umpqua, Tututni (including all the lower Rogue River Bands and those extending up the coast to Floras Creek and down to Whales Head), Chetco (including all of the villages from Whales Head to the Winchuck River), Tolowa, Takelma (including the Illinois Valley/mid-Rogue River and Cow Creek peoples), Galice/Applegate, and Shasta. Each of these tribes has a unique individual history, culture and legal relationship with the federal government, which was brought to be

incorporated into the Confederated Tribes of Siletz Indians. (Kentta, ctsi.nsn.us, 3/20/09)

Ecological interpretations obviously vary from person to person, and with so many varying tribal groups covering vast territories, environmental interpretation was complex and extremely diverse. However, an informational nucleus had been established through the members of this community as a result of the forced assimilation and accommodation into a landscape which was not indigenous to many of the bands. “Ironically, the forced relocation of the area’s Indigenous population brought the people together who remain in the area today.” (Merrill, Vol. 35, No.5, May 2007)

This forced assimilation initiated an alteration of traditional methods, initiating alterations that included patterns of use, and a new information core from which members operated their traditional practices. This new core was established throughout parts of western Oregon that were designated as available through treaty agreements and approved federal policy, and remained accessible. This accessibility changed rapidly and has become a very serious issue in recent years, due to development and private land ownership both by individuals and companies. The demolition of the reservation area into the size of a few acres severely impacted the tribe and traditional practice methods. This remains an issue for the tribe’s members, as collection, hunting and fishing are issues that are continuously addressed through various meetings within the tribe, as well as with various local, state and federal agencies (ctsi.nsn.us, 8/16/08).

Native practices and ceremonies that specifically help people to remember and act on their responsibilities to the natural world and help perpetuate the harmony with the universe . . . Native science applies the principle of being true to all of our primal responsibilities, compacts, and alliances with our natural world. All of these reflections of relationships require our constant attention and participation. (Cajete, 2000:74).

This responsibility becomes more and more difficult as territorial homelands and geographic traditional sites are being blocked, and Native people are being evicted and barred from their homeland areas, including their permanently reserved lands.

Studies that are empirically Western science in nature cannot fully evaluate TEK in an effective manner, and thus fall short in ability to provide results that conform to Western scientific methods due to the rigid categories and delineation that is laid out. Because TEK is multidisciplinary, most often it is solely addressed through management systems, or anthropological contexts. For example, in the study Downey et al conducted, Nellie Orton describes the conditions for eeling and situations that have transpired to directly impact eel populations, without relying on scientific information:

Well, generally it is about this time of year, like June and July. It has to be a hot day and the eel is going to run good you know. Since they have been plugging up the water ways, the eels can't go up to spawn. So they just don't come in any more it seems like. Or they are putting too much chlorine into the water. It just kills them. (Downey et al, 1996:65)

2. What Role Oral Tradition Plays in TEK

One of the most sacred avenues of conveying information and knowledge is in the manner of oral history, and telling “stories.” Oral history is very much

associated with Native American culture, and while oral history occurs within the framework of other ethnic cultures, it is most often linked to Native peoples across the United States. Through orally transmitted information, members have been processing and applying information systems in the same traditional manner they have been taught. This system is not always addressed in an obvious manner; many times the most instruction is that which occurs in combination with observation, exhibition, and stories (Cajete, 2000:94-95). This manner of teaching is a more holistic and an explorative technique (Deloria, 1999:38-39), allowing members to fully experience the natural setting, and to interact and note the changes in the immediate geographic environment they are striving to live in and with. By being forced out of indigenous areas and excluded from traditional management techniques, members are being isolated from the very areas for which they have the rights and knowledge. This causes a great deal of stress and anxiety regarding their cultural and traditional roles as stewards of these areas. Generations prior to these individuals, instructed them to care for these geographic regions, which remain intrinsically culturally significant to current tribal members.

Oral tradition is a very integral aspect of Native American culture. Oral tradition information is passed along, to other family members and tribal members, as it has been for many years. Listening is a key component of Native communication as well as cultural norms which are adhered to. Often, the most striking aspect is knowing, and being able to explain orally one's familial ancestry with detailed depth and clarity. This is not done with maps, and genealogical charts,

but rather from memory and understanding of who they are, and being proud of who their ancestors are.

Vine Deloria Jr. makes the point that

Indian knowledge is designed to make statements that adequately describe the experience or phenomenon. That is to say, they include everything that is known about the experience even if no firm conclusions are reached. There are many instances in the oral traditions of the tribe in which, after reviewing everything that is known about a certain thing, the storyteller simply states what he has said was passed down to him by elders or that he marveled at the phenomenon and was unable to explain it further. (Deloria 1999:147-148).

The manner of passing down information via an oral traditional method is a manner which most Native people understand, and functions in a cultural sense of relativism. Speaking about the world and how they interact within demonstrates a very profound and important sense of who they are as individuals and as people. It is within this importance and understanding that the application of TEK is relevant. It is justifiably one discipline that deserves to be examined more fully, to the extent that its application and worthwhile information systems are applicable in any environmental and ecological sense that is apparent in the world. In Western scientific methods, knowledge can only be verified if it is written and logically based in experimental and methodological patterns performed in laboratory experiments. Experiments of close observation have also been allowed into acceptance; however these observations are closely documented through field notes and a multitude of written texts as well, thereby complementing the manner in

which Western scientific methods are appreciated and considered verifiable information (Berkes, 1999:14).

The members of the Confederated Tribes of Siletz have a long and rich history which contains many details about the environment, its changes, and matters of ecological stability occurring between species. This information comes from an in-depth analysis and a lengthy observation base. This study seeks to address the knowledge itself, as it could be broadly applied to the environmental systems which are used to address policies, formulas, and management plans. Because the tribe has instituted TEK within various departments relating to elders' knowledge, this study attempts to assist the tribe and other entities in providing information that cannot be garnered solely through Western scientific methods.

History is yet another example of the exclusion of Native information that has been primarily oral through generations. Within mainstream American society, history has been considered a verifiable and reliable source of how the country has been established, the policies that have evolved and taken shape, along with the people who have established it. This widely held account of written history is evident throughout the classrooms in school systems across the nation. While scholars such as Perks and Thompson, as well as Takaki and others have addressed this imbalance of historical representation. It has only been in recent years that these widely accepted beliefs that history has relied upon have been recognized as inaccurate at best, in mainstream society, carefully crafted to benefit a select few who were involved in the nation's establishment. Various ethnic groups have come

forward to explain that their people's struggles and contributions to the history of this country have long been undocumented and discounted as baseless stories. The evidence of oral tradition is not only within Native American tribes of North America, but in fact within many cultural groups which hold oral information systems close, utilizing these systems for transference of important information. Information systems have occurred throughout history, with the underground railroads, immigration and emigration, and covert military excursions. These cultural groups have given as much time and effort establishing this country as other groups, and yet have not been accounted for in the same manner as the Euro-Americans. Credit is long overdue for many ethnic groups as well as individuals who have taken great effort and made strides in establishing the country we have today (Takaki, 1993). It is through this rich history that Siletz tribal members contribute not only to the historical information, but also to the environmental information through the TEK which is both continued and remembered.

There have been multiple stories of various historical events, verified through many different people. However, when history books have been written, much of the oral history which historical fact was based upon has been left out of the account. Over time, this information has been largely disregarded, judged as tall tales, created fiction, hearsay, or recounted so often it is not considered proof because it was not presented in a written, documented format. The fact is that only selected information has been written into books and relied upon as information that is verifiable and accurate (Hoxie and Iverson, 1998:1-2 Ortiz, Introduction).

This is not the case, however, when one examines the historical information which has been occurring in many of the various formats. Even in present times, orally transferred information is relied upon in many situations such as telephone conversations, newscasts, class lectures, and employment training.

Because the preponderance of mainstream American values has infiltrated cultural norms for Native Americans, continuing the traditional value of stories and oral traditions has been a struggle to maintain. This struggle has ironically been assisted in recent years by the academic interest which has emerged surrounding Traditional Ecological Knowledge. Since TEK utilizes and is based almost solely on oral history information, scholars and tribal members are finding themselves delving into traditional manners of recollection and reviewing traditional information which has been idle from lack of interest and evolving societal pressure to adapt to mainstream assimilation techniques.

Oral traditions remain as vibrant as ever through the elders and select tribal members who strive to maintain this cultural treasure. It is without argument that this is the minority of the tribal population, however, and that a great deal of effort is exerted into the maintenance and prosperity of such traditional endeavors.

Because the intrinsic values have been broken through assimilation techniques, Native American tribes across the United States have been witnessing and discussing the devastating decline in being able to maintain cultural traditions, as well as expressing interest in maintaining cultural traditions in younger generation members (Deloria, 1999:317).

Coupling this with the declining health of tribal elders, TEK suffers great blows when its information is not utilized, nor can it be applied and passed along in the manner in which oral traditional methods have operated for thousands of years. It is at this juncture that the tribe and its members find new avenues for sharing and preserving our cultural heritage and traditional information systems, whether this information documentation is through a public means, or through documentation which only the tribe and its members have access to.

TEK stories are usually passed generationally, through oral means, although sometimes information is passed between groups of people, such as close friends or families which have formed a tight bond during several generations. Many times, these information systems are recorded, only to be discounted by outside entities and individuals. They have been considered stories in the same manner as fairy tales, only later, in many instances, to be validated by Western scientific research.

In American mainstream society, the very word “story” carries with it a connotation of make-believe and falsehood. “Story” has come to mean something that conjures the idea of sub-par entertainment. The word “story” also carries with it the aspect of entertainment, which is directed at fictionalized accounts, most often depicted by the increasingly popular entertainment business. Many Native American storylines and plots have Indigenous knowledge, further promoting the basis for “story” to be linked with TEK’s being a fantasy or false account (Cajete, 2000:44; Basso, 1996:47).

Replacing the word “story” with the word “language” brings about an entirely different connotation and lends credence to whatever information systems have remained that same over time, whether regarded as “story” or as “language.” The use of the word “language” is also designed to appear more acceptable and marketable to the general American public. Stories have the connotation of being immature, children’s vignettes, whereas language is geared for an adult audience, with the connotation of seriousness and mature subject matter.

In Native societies, talking story is also seen as entertainment. The weight is placed on the information and the message that the story conveys, however, rather than on the mind-numbing entertainment factor that mainstream America has become accustomed to. Adults often are in attendance for storytelling events, and have been known to sit around and “talk story.” Storytellers themselves are highly respected individuals, with gifted techniques that bring forth the information, culture, and value that stories carry within Native societal norms. Some stories are considered sacred, a cultural icon of what being Native means. Within stories lie longstanding wisdom, knowledge, power, and teaching techniques. Stories are used in situations or circumstances to illustrate, educate, and maintain societal expectations and norms. To a much lesser degree, stories are used to entertain in the midst of teaching, informing and transferring knowledge. The entertainment is to maintain interest, whereas education in mainstream America is viewed as needing to be serious, tedious, without students being entertained, and falling within strict parameters.

Often the lesson or information is not directly stated, but inferred through a series of events and or reactions through the story, leaving the Native audience to apply the story's relevance, internalizing and personalizing the information for utilization to the individual's optimum analysis. This benefits Native communities by the individual's bettering himself or herself, as well as then contributing to society, whether for societal gain or as a means of adjusting the individual's behavior so that the he or she conforms to the standards which are expected (Cajete, 2000:74-75).

There are many levels to stories in Native society, and the most intimate are familial stories which are utilized in the home. These stories contain personal information which may or may not be used in social settings in the same manner, but contain information and teachings which are utilized in the same manner. Stories are not considered false or concocted, but rather these familial stories are widely accepted and honored, being told and retold through many generations, binding and nurturing family lines and building the basis of who we are as a People. These stories then extend to surrounding friends and families, providing for the tribe a basis of interconnected paths on which we walk, seek, find support and from which we derive information.

Stories in American mainstream society are often a little tradition for non-Native people who engage and participate in the societal norms of American mainstream society. Many stories have been written down, and have been kept mentally and transferred throughout years of the family's record. Examples of

stories that are continually perpetuated are those that are entered into baby books, familial anecdotes of humorous situations, lullabies, and common fables and tales. Many of these mainstream stories are told and retold just as in Native families, at familial celebrations such as birthdays, barbeques, family reunions, and holidays. Stories also accompany pictures, and much of the time the information accompanying the picture is maintained only mentally, then transferred orally, in the same manner that Native information systems and TEK operate. These pictures and oral anecdotes teach in ways which cannot be taught in a structured, managed classroom manner, even if unconsciously acknowledged. These oral narratives are ingrained in the fibers of who we all are, as each person has them, and these illustrate family “ways” of being and living.

Talking story is a vital aspect of Native culture, and remains active within oral history, as well as in informal circles as compared to the formal gatherings that were seen and documented prior to terminations and assimilations practices that began and continued through the mid and late 1900s.

The meaning and significance of stories hold a value which is largely unable for Western mainstream society to relate, and is blatantly disregarded in Western scientific realms. Stories do, however, hold a very special and intricate balance when it relates to environmental occurrences. The images which are conjured through accurate storytelling accounts of ecosystemic changes and modulations provide a visual picture and representation of the environment and what is occurring, while incorporating an understanding of the ecosystem’s balance

and change. “Native science is a story, an explanation of the ways of nature and sources of life, embedded in the guiding stories of a people and the language and way of life that conveys their stories” (Cajete, 2000:74).

Within various documents, there have been referrals to TEK accounts, but they have been passed off as stories that are simply entertaining and coincidental. Each story which is told, typically revolving around a place, and the geographic area which is described within said story, contains information which would be unattainable in any other format in such vivid description.

Because of the vast volume of information contained in oral history, it is nearly impossible to filter through and analyze stories which have evolved and have transformed the information regarding the environment illustrating TEK, particularly in the Northwest Coast tribal entities. These stories are a conglomeration of data which has been passed between tribal entities through the travels among the neighboring and distant tribal groups that line the coastal areas and inland toward the present day Northwestern states. Within various documents, there have been referrals to TEK accounts, but passed off as stories that are simply entertaining and coincidental.

In native oral traditional stories, the falls are the remains of the dam built by the five Swallow Sisters to block salmon from returning upriver. Coyote tricked the sisters, destroyed the dam, and the resulting flood left the falls and the rocky, contorted riverbed downstream. As punishment for keeping salmon from the people, Coyote ordered swallows to fly up the river each spring to announce the return of the salmon.

(<http://www.nwcouncil.org/history/CeliloFalls.asp>, 08/05/07)

It is within numerous accounts like this that evidence is clearly illustrated for a traditional information system. Information was passed along when an individual was not out actively participating in the observation or facilitation of the environmental conditions, or as a preparatory measure. Stories such as these are difficult to verify, and the sheer volume of stories and accounts that are passed along as folklore or anecdotal accounts are impossible to account for and analyze in a study such as this.

There is a new approach that takes into account the varied information that is evident, although it is emerging in the field, and the information that is known has been attributed largely to the study of Ecology as a whole, rather than TEK specifically.

These new approaches to science are consistent with deep ecology's call for a new metaphysics. They are based on a different set of assumptions about the nature of reality than mechanism – wholeness rather than atomistic units, process rather than rearrangement of parts, internal rather than external relations, the nonlinearity and unpredictability of fundamental change, and pluralism rather than reductionism. (Merchant, 1992:100)

It is in the same vein that we realize how the TEK information system can be both understood and at the same time criticized for the lack of concrete sequential processes that are entrenched in the Western science tradition. Merchant likened this to Taoism, stating:

Taoists emphasize changes and flows within the whole, observing patterns within the cyclic ceaseless motion of going and returning expansion and contradiction. Human intellect can never fully grasp the Tao, but people can observe nature to discover its ways. Its non-analytic, intuitive, scientific approach achieves insights into

transformation and change, into growth and decay, life and death through observation of the natural world. (Merchant 1992:101)

And as Cajete so eloquently puts it:

Native practices and ceremonies that specifically help people to remember and act on their responsibilities to the natural world and help perpetuate the harmony with the universe . . . Native science applies the principle of being true to all of our primal responsibilities, compacts, and alliances with our natural world. All of these reflections of relationships require our constant attention and participation. (Cajete, 2000:74)

This responsibility becomes more and more a difficult dilemma as territorial homelands and geographic traditional sites are being blocked, and Native people are being evicted and barred from their homeland areas.

Listening is a key component of Native communication as well as cultural norms which are adhered to. Often, the most striking aspect is knowing, and being able to explain orally one's familial ancestry with detailed depth and clarity. This is not done with maps, and genealogical charts, but rather from memory and understanding of who they are, and being proud of who their ancestors are.

Oral history keeps the archives of tradition alive, and TEK continuing on its course. The ancestors who invested so much time and energy developing the ways and maintaining traditions, live on through the utterances and are kept alive for tribal history through each and every story that is told and retold. Information regarding the ancestors themselves, respecting their work or the manner in which they hunted, fished, and collected very precious resources which nourished their hearts, minds, bodies and souls to allow the people to become the tribal entity they

are today, is vital. Information which they pass along through stories tells the tales of how they collected resources, when they collected, and where they collected. The ancestors' stories were not meant to be lost or forgotten. The silencing of the stories means the silencing of the People, along with the traditions which we all as tribal people strive so desperately to maintain and uphold in various ways.

The Traditional Ecological Knowledge that is observed and practiced is knowledge that seems to come from an intrinsically comprehensive knowledge about what occurs and what doesn't, but with an inability to articulate that knowledge. This innate ability stems from a cultural cultivation through generations who have witnessed and carefully observed the patterns and behaviors of ecological/environmental aspect which have transformed the local manner of life for the Siletz members. This ability has formed throughout the years of residing in areas which have become their principal homelands respectively.

Much of the traditional knowledge that has been passed along through generational lines has been discarded as useless information and baseless storytelling by outside entities. Modern information systems, even as seemingly basic as tide books, as compared to GPS systems, computer generated programs and internet relayed information, encroach on the traditional use of reliance on traditional knowledge application. Elders even today do not remember how the "old ones" garnered such information, and have only vague recollections and clearly remember that the ancestors engaged in TEK activities, even as they were witnesses to the firsthand application of such environmental information systems.

It would appear that during childhood the base is established, and once adolescence and, later, adulthood emerges, the actual application of TEK is put forth, and then actively taught. This cycle has been broken, however, so while much of the base is available for transmission to younger generations, the bond which transcended childhood into adolescence has become virtually impossible to apply. Many of the Elders that provided interviews had recollections of grandparents' activities and appliance of TEK. They cannot remember the specifics, however, once they were required to go to school.

Applied and utilized TEK systems have a very profound effect on the manner in which gathering, hunting, or fishing is carried out. However, many of the tribal members do not realize this is the case, just as requiring a person to explain how to walk, the individual is not always fully cognizant of how he or she walks, if asked to explain. There are details and aspects that become second nature to members. Information comes as secondhand knowledge. It often is utilized through a system of mental networks where the members do not realize they are accessing information systems, but rather apply them very generously in a manner which they have witnessed other family and tribal members effectively applying them.

These systems have a way of infiltrating into unconscious thoughts and behavior patterns, so that articulating their uses, methods and the steps taken to apply them is almost impossible because of the integration that has occurred. These traditional methods have become second nature to tribal members who utilize them.

IV. Methodology

Ethnographic methods (Creswell, 2003:14) utilizing oral interviews with tribal members aged 18 and above, and oral history have been the main tenets of methodology for this research project. Because the research required qualitative methods for analyzing the information systems, quantitative methods were not utilized for the purposes of identification of TEK information systems within the Confederated Tribes of Siletz members interviewed population sample. The methods utilized are based upon generations of accounts that witnesses have been documenting through oral and visual accounts of environmental changes and the adaptations needed to persevere through these changes.

There is a matrix of complexities within the Traditional Ecological Knowledge system which has been in place and utilized for the management and implementation of knowledge which has been addressed through tribal members' interviews and recollections. These information systems have been an integral aspect of the physical environmental landscape and environmental knowledge, which can be traced through generations, and specifically related to place and time, specifically in terms of the seasons and the changes which are inevitable in the environment.

The insights and perspectives presented in the following sections come from a variety of methods, most predominately being ethnographic methods from personal interviews between Siletz tribal members and the researcher. Other information was derived from former studies with the tribal members and tribal

newspaper articles. Information that has been continued and transferred through generations is a vital aspect of the identity of tribal members. It is through this identification and knowledge that it becomes evident that ethnographic methods are the most effective method of extracting information.

One important aspect of beginning research within Native communities or with a tribe is contacting the tribal offices and obtaining clearance to proceed. This process begins with filling out the Clearing House application that the Confederated Tribes of Siletz has established for the safety and wellbeing of tribal interests and submitting it. The application is then processed, and submitted to the Tribal Council for denial or approval. The Clearing House application is separate from the Institutional Review Board (IRB) of Oregon State University requirements. The Tribal Clearing House is focused on protecting and managing Tribal interests and information. Oregon State University IRB policies are focused more on the protection of individuals participating in the study, and following the protocol of established research procedures. Having both research interview applications approved is mandatory before beginning the research process, both through the tribe and Oregon State University.

Applying for the Oregon State University IRB involves filling out the application, as well as compiling statements regarding the cultural and information adherences that tribal members relate and adhere to regarding TEK, as well as cultural norms which must be addressed and respected. Listing questions which are clearly stated and are, of necessity, addressed in a culturally sensitive but relevant

manner are imperative. Once both these applications are approved, a license/permit is given to begin conducting research with participants. Seeking these participants occurred in several manners, the first being the Siletz tribal newspaper.

The Siletz tribal newspaper which is published and sent out monthly to each tribal member was an avenue I chose to target potential interviewees with. I submitted a letter to the editor asking for individuals who were interested to contact me. In the letter, I included my contact information and a brief description regarding my research project. This avenue proved to be of assistance, reaching a wide audience of members who were interested in being interviewed. From this newspaper article, a member from Maine contacted me, although this person had never been in Oregon and was not aware of personal or relevant information regarding tribal indigenous Oregon territories. This individual was thus not suitable for the criteria which had been established for the study.

I also employed the snowball sampling research technique (Bernard, 2002:185-186) in conjunction with the published newspaper article. I began with individuals I personally had heard recount information and called them, asking if they would be willing to interview with me. After interviewing these individuals, I asked them who they would recommend I interview, and each individual offered names and contact information.

Additionally, I composed a list of known individuals, and contacted the tribe's Cultural Resources Director, Robert Kentta, for further suggestions. Mr. Kentta responded expediently, offering a suggestion of names of elders and

prominent members whose testimonial information would be useful to document, not only for the research project, but also for historical tribal purposes as well. These individuals were contacted through phone calls, and the effort was made to personally speak to each, even after messages were left. Speaking personally to an individual, most particularly an elder, is a matter of respect that is acknowledged, although the difference between generations is dramatic. Messages left for younger generations were acknowledged and also returned at a higher rate, or comments were made recognizing that I called, instead of expecting a personally returned call. This difference was notably generational, and particularly only one generation removed.

Additionally, I contacted the Tribal Enrollment Department for suggestions and contact information for individuals who may be interested. Not all tribal members' contact information was obtained, and I searched through resources such as phone books, as well as online resources and Internet search engines, such as Google, in an attempt to obtain information to contact these individuals. I also asked fellow tribal members regarding individuals, and often was referred to their whereabouts, or to relatives who could forward messages to those individuals.

I also attended important cultural events, and sought out individuals whom I was aware retained information, and asked if they would be willing to interview with me. This proved to be a valuable experience, albeit time consuming. Waiting for individuals to be available, and then approaching them, is polite and culturally appropriate.

Interviews were established through phone conversations, and all individuals' schedules were taken into consideration and given priority. Many of the interviewees participate in committee and cultural events and maintained familial obligations. These agendas are vital to the well-being of the culture, as well as identification of being a Siletz tribal member, and were acknowledged and worked around. Interviews often took place in the individuals' homes, with additional information and cultural relevance of personal items being shared after the interview concluded, and thus not recorded. The information offered by individuals when initially contacting and or establishing the interview was additionally not documented or recorded. The personally recounted and offered information was not included into the study in any form.

Interviews were conducted personally, either in person, or via the telephone, with all being tape recorded for documentation purposes. Individuals who chose to conduct a phone interview were sent appropriate paperwork ahead of time, and all protocol parameters were strictly maintained. For interviews conducted personally, the interviewees were presented with the appropriate paperwork, and given copies of both IRB and Clearing House approval permits, with the Tribal Council's approval documentation. Adherence to the Oregon State University IRB standards were followed, as well as the Confederated Tribes of Siletz standards. Interviewees were asked if they understood, and upon agreement, they could then sign the consent forms. All participants did sign voluntarily prior to beginning the oral interview.

Because of cultural norms, acknowledging the person while conducting the interview became more important than originally conceived, and so relevant notes were not taken during most of the interviews, despite being stated as a possibility in the IRB paperwork. Notes that needed to be documented were made after the conclusion of the interview. None of the notes were imperative to the writing of this thesis, as all notation of information was documented orally during the interview process. The few notes that were taken were made for the sole process of composing thesis material and consisted of lines of thought for thesis composition.

Interviews were conducted orally, and tape recorded through a small handheld cassette tape recorder. Upon conclusion of each interview, cassette tapes were then documented with identification of date and the interviewee's name. These taped interviews were then randomly numbered, from one (1) to thirty (30). The tape safety tabs were punched out to prevent accidental erasing of interview content. In one instance, erasing of information occurred briefly over the span of a few minutes while materials were being secured into the bag immediately following an interview, and listening to the interviewee during individual "wrap-up" conversation.

Interviews were then transcribed by the researcher, using basic transcription methods, for the sole purposes of analysis of information regarding TEK and cultural adherences rather than speech, language, or other information not pertaining to TEK or environmental issues. Transcriptions were composed through individual efforts, rather than any outside agency transcription services.

Transcription involved listening to each tape and typing the interview delineating interviewee and researcher. Full transcription was documented for all taped interviews, so that no portion of the interview was omitted. Interview inflection, verbal, and nonverbal cues were included into interviews on a basic level. The intent for the research interview was the content of TEK held by Siletz members, rather than a language-focused research project.

Identification of cultural norms and adherences by Siletz members can be a daunting task, since the tribe is a confederation compiled from various tribal entities, each having a distinct individuality which has been brought through previous generations to the present. This then creates a need for the researcher to be flexible and cooperative, maintaining professional decorum, yet identifying the interviewees' willingness to proceed with certain lines of questioning. Cultural norms varied from individual to individual, and were not easily identified through simple or intermediate conversations regarding scheduling and conducting interviews. Often the individual would simply avoid the question or phone call. On one occasion, an interview was set, and I traveled several hundred miles, only to have the person change their mind at the last minute. This person was then removed from the list of persons I considered interviewing.

Elders need to be addressed with respect and given time allowances should they have more to say than what is expected. Most of the interviews I scheduled took a minimum of two (2) hours, regardless of what was recorded for the interview itself. Honoring Elders' wisdom and making the time to be with them is a

vital aspect of culture, and allowing for the time discrepancy, is imperative. In the same vein, food consumption is also to be expected if a potential interview is to be successful. This is not always the case, but more often than not an interviewee would offer some food or beverage, and consumption is not only polite, but expected. Along those same lines, many individuals would expect to be brought a gift of some type. The personal choice I made was an offering of tobacco for each individual. Offerings are usually customary for any individual or group; however, they sometimes do not occur and are not always expected by younger generations. There were individuals who were younger who were partially unaware why I was offering gifts to them. Only two (2) individuals refused the tobacco upon having it gifted to them.

V. Situating the Study

There has been an evolution of the term Traditional Ecological Knowledge, that, arguably, began with the study of ecology. Both researchers and individuals searched for a personal and spiritual element within the field of ecology, because there was no element found within the scientific ecology realm. Many scholars began analyzing Eastern religions and Native American tenets for a broader perspective for the environmental discipline of ecology (Berkes, 1999:4). Early studies of TEK occurred within the field of ecology and anthropology, and complementary studies were conducted by the field of ethnoecology as well. Ethnoecology is a subset of ethnoscience, and studies concepts of ecology which are held by a people or a culture. Most of the earliest ethnoscience studies (Berkes, 1999:39) focused on folk taxonomies, with much of the information being focused on botanical taxonomies.

Traditional Ecological Knowledge is, by definition, indefinite and difficult to define. Fikret Berkes has identified much of the TEK issue and has been a forerunner in the advancement of the TEK information being utilized in manners that are scientific instead of addressed solely as cultural system information.

The philosophical approach has been widely distributed by disciplines such as sociology and anthropology, but in scientific realms has largely been ignored due to the holistic approach it addresses within ecological territories.

Consistent within Western scientific communities, a clear and concise definition is often required for any thought or product which is to be applied or

broadly approached within an analytical or academic framework. Berkes makes the point that the very concepts of “change” and “tradition” are contradictory, making addressing them in a framework of intellectual verifications. Berkes states: “There is no universally accepted definition of traditional ecological knowledge. The term is, by necessity, ambiguous since the words *traditional* and *ecological knowledge* are themselves ambiguous” (Berkes, 1999:5). Berkes additionally points out that for some, “traditional” does not mean an inflexible adherence to the past; it simply means time-tested and wise. In particular, for many groups of indigenous people the word tradition carries many positive meanings. For example, when the Inuit (Eskimo) participants in a 1995 conference were asked to describe traditional knowledge, there was a consensus on the following meanings: practical common sense; teachings and experience passed through generations; knowing the country; being rooted in spiritual health; a way of life; an authority system of rules for resource use; respect; obligation to share; wisdom in using knowledge; using heart and head together (Emery 1997, Berkes 1999).

Traditional Ecological Knowledge is defined by Berkes as:

A cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generation by cultural transmission, about the relationship of living beings (including humans) with one another and with the environment . . . is both cumulative and dynamic, building on experience and adapting to changes. (Berkes, 1999:8)

Berkes further states:

The term *ecological knowledge* poses definitional problems of its own. If ecology is defined narrowly as a branch of biology concerned with interrelationships in the biophysical environment in

the domain of western science, then *traditional ecological knowledge* becomes a problematic term. If, on the other hand, ecological knowledge is defined broadly to refer to the knowledge, however acquired, of relationship of living beings with one another and with their environment, then the term becomes tenable. It is what Levi-Strauss (1962) has called the *science du concret*, the native knowledge of the natural milieu firmly rooted in the reality of an accumulation of concrete, personal experiences, as opposed to book-learning. (Berkes 1999:6)

In another publication, Berkes tell us how important the “sense of place” is to the Native peoples:

To arrive at a definition of traditional ecological knowledge, it is necessary to sift through the various meanings and elements of the concept through the development of the fields of ethnoscience and human ecology. The study of traditional ecological knowledge . . . proceeds to consideration of peoples’ understandings of ecological processes and their relationships with the environment (human ecology). Implied in the concept is a component of local *knowledge* of species and other environmental phenomena. Here is also a component of *practice* in the way people carry out their agriculture, hunting and fishing, and other livelihood activities. Further, there is a component of *belief* in peoples’ perceptions of their role within ecosystems and how they interact with natural processes. (Examples) illustrate the idea that purely ecological aspects of tradition cannot be divorced from the social and spiritual. Stories and legends are a part of culture and indigenous knowledge because they signify meaning. Such meaning and values are rooted in the land and closely related to a “sense of place.” (Berkes, 1999: 6)

This sense of place is the same identification that Basso identifies and addresses with the Apache. Basso states “... Apache constructions of place reach deeply into other cultural spheres including concepts of wisdom, notions of morality, politeness and tact in forms of spoken discourse, and certain conventional ways of imagining and interpreting and interpreting the Apache tribal past” (Basso, 2000 xv).

Keith Basso's interviews, which illustrate the actual physical connection with the land as he researches area geography (Basso, 1996), comes close to the knowledge of the people rather than being about the people. This is physically impossible in some instances for the people of CTSI, but nonetheless hits at the heart of knowledge versus the application and implementation of theoretical approaches as well as agency rhetoric that address management and historical information alone.

Within these areas, one of the main disagreements is the terminology which is used. Traditional Ecological Knowledge, Indigenous Knowledge, Local Knowledge, Native Science are all labels for the information systems which this body of knowledge is directed at addressing.

Cultural information addresses the philosophical approach of knowledge in a manner that is an encompassing and holistic viewpoint. Much of the information comes from bodies of work that are seeking to address other issues, but have components of TEK interspersed or intertwined within these other topics.

Most of the information that has been published regarding TEK has been in formats regarding geographic and management strategies. These are useful and very insightful for how the conveyed information is applied, and how the information is related into scientific information systems that can then be applied and utilized for the information that is contained. This information is helpful, although limited in the scope which it covers, because of the broad geographic

boundaries, and the varied local knowledge which affects various regions of the country. This wide discrepancy is the very basis which TEK prides itself on because of the ecological diversity that is found within various regions, and is constantly changing throughout environments. These wide discrepancies affect how TEK is gathered, cultivated, and utilized throughout the nation and Canadian regions as well as internationally (Basso, 1999:18-19).

TEK is acknowledged as occurring in much of the southern territories, with Indigenous peoples in Mexico and South American countries abiding by traditional homeland rituals and rites of indigenous TEK information systems. While these systems have been documented, molding and conforming this information to the Pacific Northwest can be difficult because of the differing land formations and the local ecological makeup of the areas.

While there is much information regarding the scientific observational matter of TEK, and the application of its utilization, much regard is also given to the philosophical aspect approach which dominates the ambiguity of this new area of study. Berkes states “The James Bay Cree worldview, as emerging from this chapter, is consistent with Colorado’s (1988) characterization of native science as a holistic and religious perspective grounded in empirical observation” (Berkes, 1999: 91). It is in this manner that the basis of TEK is addressed, and the difficulty of dissecting and extracting aspects which have become intrinsic on multiple levels of a social construction is illustrated.

TEK is very much an application process which occurs over a lengthy period of time, and most often outdoors within the environment, in a specific ecological setting. Keith Basso illustrates the land-place name relationship which is most evident through his study of Apache place-names. Basso addresses the importance of names and cultural relevance of the land and its impact on Native societal norms and how cultural assimilation alters the knowledge and forces an adaptation to the local surrounding areas which have been utilized and operated in.

Societies must survive, but social life is more than just surviving. And cultural meanings are epiphenomenal only for those who chose to make them so. I would like to witness the development of a cultural ecology that is cultural in the fullest sense, a broader and more flexible approach to the study of man-land relationships in which the symbolic properties of environmental phenomena receive the same kind of attention that has traditionally been given to their material counterparts. (Basso, 1996:67)

Ethnobiology, botany, and ecology are the common factors relating to TEK most closely in established principles. Biosystematics, and quantum physics also have been addressed as being pertinent and relevant informational systems that feed into (Bohm, 1993; Merchant, 1992: 80, 92-93) by addressing the holistic aspect of systems. Because of the discussion regarding the broad nature of varying ecosystems, it is difficult to prove without discrepancy that these systems are a relevant aspect of the scientific field and deserve further consideration rather than dismissing them solely as social science issues. The preponderance of information has come from outside the scientific arena, with social science predominating in the information regarding and surrounding TEK, and regional information systems.

This information, while helpful, can be construed as unscientific in nature, and is often viewed as either subjective or simply historical information rather than validated observations. Most of the pertaining documented information has been housed in areas that are multidisciplinary in approach, or which are geographical in terms of the issues they address. Much of the literature which has been clearly documented on Traditional Ecological Knowledge has been from a social science standpoint. This perspective has been heavily dominated from the anthropological discipline, which has been evidentiary in terms of illustrating the approaches which have been culturally relevant. Culture has been the primary focus for much of the research which has been ongoing and documented through publications.

Because of the vast volume of literature regarding oral history, it is impossible to filter through and analyze stories which have evolved and transformed the information regarding the environment illustrating TEK, particularly in the Northwest Coast tribal entities. Within these stories is a large conglomeration of information which has been passed back and forth through the travels along the neighboring and distant tribal groups that line the coastal areas and inland toward the present day Northwestern states. Within various documents, there have been referrals to TEK accounts, but these have been passed off as stories that are simply entertaining and coincidental.

In numerous accounts, evidence clearly illustrates that within the traditional information system, the information was passed along when an individual was not out actively participating in the observation or facilitation of the environmental

conditions. Stories such as these are difficult to verify, and the sheer volume of stories and accounts that are passed along as folklore or anecdotal accounts are impossible to account for and analyze in such a study. This provides a basis for a social scientific standpoint, but information has been largely devoid from the Western scientific standpoint of TEK and its applications in the actual environmental system in which it is operating.

Berkes acknowledges that taxonomic features (Berkes, 1999:37-41) provide a framework for the application and identification of ecological systems, from which TEK information is based upon and expanded. This expansion brings a dimension into light which cannot be duplicated, replicated, or created in a laboratory setting.

Studies that are empirically Western science in nature cannot fully evaluate TEK in an effective manner, and thus fall short in ability to provide results that conform to Western scientific methods due to the rigid categories and delineation that is laid out. Because TEK is multidisciplinary, most often it is solely addressed through management systems, or anthropological contexts. The published information falls short in scientific fields, only to be upheld by Berkes, who attempts to illustrate the very scientific nature that has been clearly documented through careful observation and time-tested documentation.

Bohm (1993) and Merchant (1992) address the holistic nature of the environment, bringing into account the quantum physics view of physics as well as philosophical consciousness. These perspectives, which can very well be classified

as controversial, have also been viewed as a new direction in which various disciplines can be addressed through a lens which provides alternative worldviews.

The concept that areas and lands are sacred, (Knudtson and Suzuki, 1992: 151 – 168; Berkes, 1999:153; Deloria, 1999:55-56, 76-77, 234, 295, 326-327; Cajete, 2000:65) is a consistent and indisputable theme throughout the literature. The area where this fails miserably is the incorporation that there is a very consistent ecological perspective being utilized and addressed in a very narrative manner. Understanding the scientific points of a cultural meaning, in addition to the scientific points of a cultural relevance, meaning, and perspective, provides a wider understanding. The values of a culture often arise from very basic scientific reasoning, which provide the avenue for survival and continued evolution on both a scientific and cultural scale. This holistic and encompassing perspective, however, is not found in most documents that relate to scientific issues.

The difficulty with most of the current literature revolves around specific instances, or geographical areas which are vastly different from the Northwest Coastal and inland areas of Oregon. This presents a difficult dilemma, because areas that are being analyzed for TEK are unique unto themselves, and cannot be juxtaposed easily without substantial argument and gaps of information that are specific to either the Pacific Northwest, or the Confederated Tribes of Siletz, or both. Generalities can be addressed and identified; however, the landscape and the ecosystems are impossible to gauge from one place to the next, as geographic areas differ. While the information is helpful in guidance, it lacks the specificity of

information that is relevant in areas which could be translated into replicating research projects for garnering information in the same scientific manner.

There is a limited amount of research done regarding Traditional Ecological Knowledge based on the knowledge itself. Most of the literature addresses the implementation and management issues mainly, and the knowledge base itself is in support of a management approach. Management and implementation issues are very relevant and dovetail into the topic of TEK. However, they are addressed as an issue which can be formulated with specific implementation plans instead of the paradigm of addressing the body of knowledge which is present within a given group of people.

From an entirely different viewpoint, scientific standpoints can be validated through Dr. Gregory Cajete's published works. Dr. Cajete is one of the forefront scholars in the area of sociocultural studies as it relates to Indian education and native science. Dr. Cajete's book, *Native Science: Natural Laws of Interdependence* (2000), makes a compelling argument for the validity of Traditional Ecological use and the role it plays within Native cultural systems. This operating system has been employed by tribes across the United States and by international Indigenous nations as well.

Cajete often describes the indigenous philosophical view from a perspective of general and overview terminology. This perspective, while helpful, does not always accurately describe the view of specific indigenous traits held by individual groups. This overview is helpful in many aspects, however, providing a

groundwork upon which a basic understanding of generalized Indigenous fundamental values are often based. Each individual tribe has general fundamental belief systems that are operated from, and this can be beneficial for identifying the fundamental values that are found to be commonly linked throughout tribal systems nationally, as well as internationally. Identification of belief systems plays a very vital and important role in identification of tribal systems and cultural verification of systems which are in place for various tribes. It also is important in the association and dealing with and between tribes: intertribal and intra-tribal relations.

Cajete states “Native science builds on our innate sense of awe of nature’s majesty, the core experience of spirituality. From this sense of awe flow the stories of creation, the philosophy of living, the foundation of community, and ‘right relationship’ with all aspects of nature” (Cajete 2000: 98).

It often can be a confusing and foreign exchange when Natives are addressing their local environment. This occurs for Natives and non-Natives alike. Only those who are actively involved and participate in caring for places within the realm of TEK know intimately the intricacies of the ecological conditions and changes which are required, or have occurred. This also can be confusing and distancing for younger tribal members who have not learned the TEK information that would have occurred naturally from elder generations.

Stated more exactly, the outsider must attempt to come to grips with the indigenous cultural forms that the landscape is experienced *with*, the shared symbolic vehicles that give shape to geographical experience and facilitate its communication – its re-creation and re-presentation - in interpersonal settings. For it is not the case, as some

phenomenologists and growing numbers of nature writers would have us believe, that relationships to places are lived exclusively or predominantly in contemplative moments of social isolation. On the contrary, relationships to places are lived most often in the company of other people, and it is on these communal occasions – when places are sensed *together* – that native views of the physical world become accessible to strangers. And while attending to ordinary talk is always a useful strategy for uncovering such views, it is usually just a beginning. Relationships to places may also find expression through agencies of myth, prayer, music, dance, art, architecture, and, in many communities, recurrent forms of religious and political ritual. Thus represented and enacted – daily, monthly, seasonally, annually--places, and their meanings are continually woven into the fabric of social life, anchoring it to features of the landscape and blanketing it with layers of significance that few can fail to appreciate. (Basso, 2001:109)

This intimate awareness of being connected to a way of life of dependence upon each other, and in which there is an awareness of being connected in a larger sense, has been a vital part of the knowledge upon which Native science operates. This knowledge seems very practical, and like a common-sense approach to most Native people. When approaching this perspective and asking Native individuals to discuss it, the impression is one of disbelief that an explanation needs to even occur. The researcher has witnessed laughter erupting after mention of the recent green movement or the “think locally, act globally” mantras that are becoming a vogue statement as mainstream Americans realize caring for the environment must be a priority. The mockery occurs because this knowledge has been around for hundreds of years. Indigenous peoples understand that they must care for the areas they are in, and assist in promoting the world view, entrusting that other groups also must care for their local environments for the survival and success of any ecosystems to

continue. The circle is a commonly used icon for the world, and is also indicative of the cultural understanding Native peoples have about the systems in which they exist, participate in, and are cultivating (Suzuki and Knudtson, 1992: 184-185, 155-156; Karson Ed, 2006:89).

One world, one circle, but parts are made up of that circle, and should one aspect of that circular form be broken or destroyed, the circle no longer functions as a circle, faltering and collapsing. A clear understanding of a larger community was necessary, as tribes sent out messengers to contact and bring back information along a super-highway of communication.

This knowledge was vital to them, as it was to all tribal entities which relied on the success and prosperity of their local environment. Because Natives watched the animals and understood a nomadic way of life occurred with animals, they knew that while boundary lines occurred, relying on the neighboring tribes to care respectfully and traditionally for their areas was essential to everyone's survival.

Native life is a primal pathway to knowledge of relationships with the natural world. People establish and reestablish contacts with entities within nature, such as plants, animals, and natural forces. Finding and growing food presented ecological principles that had to be reinforced. Native peoples constantly reminded themselves where their food came from. Every member of the community was responsible for gathering, hunting, or fishing, so each person came to know the intimate relationships humans have to maintain with the sources of their food. (Cajete, 2000:99)

This knowledge was widespread and is found in many TEK application still today.

Cajete further explains this regarding how an individual would be brought into a community that revered an ecologically sound world-view perspective that would be continuous and community-minded:

Ecological communities revolved around practiced relationships at multiple levels of personal, family, and community life. The child is born into his web of relationship first experienced the ecology of tribal community with the mother, father, and extended family: later, this learning extended to include clan and tribe. In the natural environment that formed the backdrop for all relational possibilities, the child learned multiple roles of family, clan, plants, and animals, and the special place in which he lived. These roles were not haphazard; they mattered to the survival of the community and to continuation of the special relationships the community had established with its particular part of the natural world. (Cajete, 2000:98)

This individual approach, while being entrenched in a community-minded and community-based society, is one which many Native people employ and maintain roles within. This like-minded, communal approach serves to connect and foster the cultural ideals which have been established and cultivated. This long-standing practice remains in the underlying psyche of many individuals. They are unaware that many aspects are even acted upon and continued, having adopted and cultivated this knowledge from prior generations, so that it becomes an intrinsic and integral aspect of native life and cultural understanding of being a Native person.

Native people experienced being at home with and in nature. Being in a community in natural places that brought forward this sensibility further engendered this connectedness. The concept of biophilia – the idea that human beings have an instinctual understanding and need for affiliation with other living things – reflects what Native people have always known: affiliation is a part

of being human, as well as that which underlies the transfer of knowledge from one generation to the next. (Cajete 2000:99)

While there are the criticisms that Indigenous nations left the environment depleted and chaotic from rampant resource use and pillaging, the opposite seems to be the situation from accounts and dispersal of information systems which have been in use for centuries. While it is difficult to ascertain exactly what the systematic resource use of cave men of the Pleistocene era was (or any other era for that matter), Callicott states:

Until recently, it may seem, human material culture – human technology – was powerless to affect seriously the natural environment for better or for worse. Preindustrial *Homo sapiens* is not thought to have posed a significant threat to the natural environment. It has therefore been argued that the indigenous and traditional environmental ethics have alleged to exist probably did not, because they would have been unnecessary. (Callicott, 1994:7)

Callicott's book presents a good hypothesis which some may find interesting. However, there are well-documented facts that the environment itself as well as resources within the environment, were well-established and thriving until foreign populations began the system of implementation which neither regarded nor appreciated the natural system which TEK had established and which continues to this day. Had TEK systems been applied by everyone, indigenous and non-indigenous, it is probable, given the facts, that the environment would not be in such a disastrous state. Many of the issues we are facing would have been eliminated, and may never have existed in the first place. TEK bases its information in relying on the cues and information the local environment exhibits, rather than

the information which has been dissected and is presented in a manner which has been seen a few times rather than analyzed through generations. Taking into account the manner of the ecosystem changes, the influence which has been brought about by outside entities and the shift in natural occurrences are all mentally noted.

Events such as earthquakes, nature-initiated fires, and floods cannot be blamed on humans as bringing about a depletion of resources. Even though fire was a traditional tool used for the promotion of environmental soundness and encouragement of re-growth in geographic areas, the careful initiation of this tool was utilized as other practices were. Atmospheric and weather conditions were relied upon, as was planning during the growing season which would provide the best scenario for the resources that would be affected. Frank Lake addresses this issue specifically through his dissertation, stating:

In the Pacific Northwest and California, many indigenous cultures utilized fire for millennia as a management tool to facilitate the production of goods and services (Anderson 2005, Gottesfeld 1994). Natural and cultural fire regimes have influenced many ecosystems (Bonnicksen et al. 1999). Cultural fire regimes which historically affected the composition and characteristics of particular habitats have distinguishing features which include: seasonality, frequency, intensity/severity, specificity, topography/fuels (Bonnicksen et al. 2002), and ignitions. (Lake, 2007)

Cycles of nature were very carefully respected and honored, and taking out of a cycle was taboo. There have been strict admonishments for such careless actions documented throughout indigenous groups nationwide, as well as worldwide.

Callicott continues to elaborate:

A reexamination of human history and prehistory also reveals the existence of culturally evolved and integrated environmental ethics that serve to limit the environmental impact of preindustrial human technologies. A more systematic discussion of representative indigenous and traditional environmental ethics is the central subject of this monograph. Suffice it to say for now that in many indigenous cultures nature was represented as inspirited or divine, and therefore the direct object of respect or reverence; that in some traditional cultures nature was the creation of God, and thus was to be used with care and passed on intact; that in still others human beings were thought to be part of nature, and a good human life was therefore understood to be one in harmony with it. Consistent with the limits to the practical efficacy of ethics discussed earlier . . . such environmental ethics evidently did not prevent environmental degradation in the pre-Columbian Americas, the ancient Levant, or medieval China, but it may have tempered such degradation. (Callicott, 1994:8)

Callicott's contradiction provides an opportunity to view the manner in which Western science has brought about the predominant thought process for the way in which the environment and environmental conditions are viewed through current societal norms. This common assumption that all indigenous societies rest within an either-or situation, and that groups are either good or bad, has brought about a subconscious process by which all standards are measured in the United States. Within American mainstream societal values, the mindset remains that there cannot be unexplained answers, mystery voids, or any results which are contradictory in nature.

There is a great deal of evidence which supports the fact that various indigenous communities found themselves keenly aware of their reliance upon the earth and its resources for their survival, rather than the intentional degradation of

the environment as Callicott suggests. Various groups have shown art forms which depict hunts and gatherings as well as feasts and commonly held behavioral traditions. These do not show savagely hunted items, but rather an indication of selected resources taken for the betterment and survival of the group. Paintings depicting buffalo hunts show quantities taken, and the remaining herd left to replenish and revive for another season's gathering. This type of information also would help indicate the reproductive numbers and assist with TEK for analyzing environmental resource patterns.

This resource use understanding is reflected within the Confederated Tribes of Siletz's continual relations with entities. It is exemplified in the Memorandum of Understanding with the USDA Forest Service –Willamette National Forest:

. . . we shall, as we always have, live in balance with the land and never use more of our precious natural resources than can be sustained forever. We shall, as we always have, give respect to all persons; acknowledge the special wisdom of our elders and our religious leaders; nurture the bright hopes for the future that reside within our young people; and accept full personal responsibility for all of our actions, as our basic religious teaching is that we are fully accountable to the Creator for our conduct . . . (MOU, CTSI and USDAFS-WNF, 2003)

Ames and Maschner discuss the technological advancement among the Northwest coastal people, and the salmon they relied upon:

Increased production of salmon did not occur in a vacuum. Northwest Coast societies made use of a wide range of resources. If salmon alone were sufficient to sustain Northwest Coast populations and to support their social systems, we would expect to see widespread specialization in salmon production. While there are

may have been specialization at a local level here and there, what we see more often are economies geared to exploit a wide range of resources and habitats. We also witness considerable variation from place to place and time to time in which resources were crucial. It is at the regional level that there is economic uniformity: salmon are important regional resources, though not at every locality (and not necessarily in every region). Increasing levels of production appear to be linked to storage, to larger populations, and to sedentism. Once again, the crucial events appear to have occurred across Cascadia. Efforts to increase production appear to have begun as early as the Late Archaic, and continued throughout the Pacific period, particularly during the Middle and Late Pacific periods. (Ames, Maschner, 1999:143)

The increased production of salmon would indicate then, as Ames and Maschner stated, that populations were increasing and food was a vital resource to be gathered and maintained for the community. The storage of food also was utilized for trips, being dried and reconstituted later with a variety of materials, or was utilized for trading and economic pursuits to gather and exchange materials from neighboring bands and tribes. This by no means indicates that the exploitation that occurred was at the level of extinction or degradation as Callicott indicates.

Berkes has done much in the effort to bring TEK to the forefront of science, both with discussion and his insight on how to illuminate the aspects of TEK which have previously seemed more like a narration or storytelling rather than exemplifying efforts which are applicable. Berkes illustrates useful oral documentation from generations of long term understanding regarding how the environment and observation of changes occur (Berkes, 1999:26-28). These important beginnings of TEK have brought Berkes' work into the forefront and

have propelled many scientists to acknowledge the aspects which cannot be dissected and aspects which are stronger as a whole than the analyzed parts.

In a similar fashion, Gary Nabahn's book, *Singing the Turtles to Sea* (2003), has detailed the Mexican tribe Comcaac's (Seri) indigenous and traditional use of reptiles along the Mexican coastline, until resource depletion forced an abandonment of virtually all of their stock indigenous food caches. This type of depletion has been witnessed virtually worldwide. They are documented in studies which promote the management of resource, along with careful protection of species and the areas which are geographically important. The TEK system of information has a base component for detailing this information, and although many of the technical aspects cannot be categorized, this information must be acknowledged to force adaptation by current Western scientific methods. This combination of factors can adjust appropriately the methods which are in place, maximize features of landscapes, aspects of resource management, and optimize geographic areas for wildlife in manners which have not been attempted previously. The difficulty is that with studies and written information, much cultural sensitivity must be taken into consideration, and acknowledgement of sacred spaces and areas are rarely divulged. With permission and exacting the locations of such traditional areas, cultural resource use can occur, but with caution and risk of damage from outside visitors. Non-indigenous people can easily become fascinated and engrossed in the lore of traditional cultural geographic areas, without understanding the holistic and important resource use of the said area.

This fascination can cause trampling of new plant shoots, damage to areas which are not meant to be entered into, vandalism, intentional desecration of trees, plants, animals being killed or scared away, and destruction of animal habitats. Such disruption causes a systematic imbalance and balance is vital to any ecosystem. Small disturbances can cause significant alterations to an environmental system.

Callicott presents a seemingly plausible analysis that does not appear to reflect stewardship of the environment. During a certain period of time, indigenous societies contributed to the environment that they depended upon. Modern conveniences were not available, and thus tribal bands and groups had to rely on collection from the local ecological resources that were available to them. If survival meant taking plants and animals, it can logically be concluded that they collected for survival, rather than continuously collecting for the sake of collecting. It is possible to surmise that the patterns which occur now within our atmosphere and weather that affect the earth occurred during that period of time as well, similarly affecting the earth and its resources. It would seem, however, that the point would be brought up within related literature, regarding particular archeological evidence found showing mass caches, to the point of multiple items seldom used or worn, in all indigenous groups. The evidential proof that subsistence was not the focus, but also mass consumption and accrual of resources as material items would be shown in elevated proportions within caches.

While there are the criticisms that Indigenous nations left the environment depleted and chaotic from rampant resource use and pillaging, the opposite seems to be the situation from accounts and dispersal of information systems which have been in use for centuries. While it is difficult to ascertain exactly what was the systematic use of cave men of the Pleistocene era or any other era for that matter was, Callicott states:

However a re-examination of human history and prehistory from an ecological perspective reveals a long-standing pattern of anthropogenic environmental degradation. Paleolithic hunter-gatherers armed with stone-tipped spears and arrows, snares and traps, and (not least) fire may have caused local extirpation – and may even have played a key role in the global extinction – of other animal species, and in any case probably profoundly altered the character of biotic communities. Neolithic, ancient, medieval, and modern agriculturalists caused soil erosion, siltation of surface waters, deforestation, salinization of arable lands and fresh waters, and desertification. (Callicott, 1994:7)

Callicott's analysis can seem very reasonable and acceptable if it were not for the preponderance of information which has been presented otherwise. The information also largely ignores TEK directly, and generates information which has been presented routinely and thoroughly through published materials and oral methods in a variety of means. This information has been disclosed and is public information, not sequestered away in communities and hidden from public.

While there have been multiple researchers who have brought this theory regarding Indigenous degradation to the forefront and proposed such a concept, there has been a significant body of information which shows the enhancement and promotion of environments that Indigenous peoples live within. Nancy Langston, a

professor of environmental studies, discusses the changes that have evolved in the Blue Mountains of Oregon. This passage shows the ideology which has been an ongoing issue for many tribes and Native individuals:

The story of the landscape change in the Blues is, in the simplest version, a story of the land's transformation into commodities that could be removed and taken elsewhere. Indians had certainly altered the landscape, but when whites showed up they set in motion changes that far outpaced any past ones. The critical difference was that the Blues finally became a source of resources – timber, gold, meat, and wool – to feed the engines of market capitalism. Yet before whites came, the region had been connected to outside markets. Local tribes had extensive ties to trading networks that spread west to the Pacific Ocean and east to the Great Plains. Indians did extract elements from the local ecology to meet their needs. But their needs did not include removing large quantities of wood fiber for fuel, fertilizer, or construction. . . . it is fundamentally different from the land use that whites instituted . . . (Langston, 1995:43)

The concept that Indigenous people have a worldview that rivals the Western worldview has long been documented and commented on. Indigenous groups have been a longstanding thorn in the side of Western activists who are eager proponents of change, especially accelerated change to environmental systems as well as whatever newest, latest technology or idea has been conceived. Tribes have also been at odds with various entities regarding reasons to change practices and engage in environmental enhancements. In the same vein, environmentally extremist groups often promote an agenda of no human use in various wilderness areas.

Indigenous groups have been very well-documented as being proponents of patience and watching the ecosystem's reactions, rather than boldly rushing into

a plan which has not been applied nor studied long-term. Fikret Berkes points this out, stating:

In contrast to scientific ecology, TEK does not aim to control nature, and is not primarily concerned with principles of general interest and applicability (i.e. theory). TEK is limited in its capacity to verify predictions and it is markedly slower than scientific ecology in terms of the speed at which knowledge is accumulated. (Berkes in Inglis, 1993:4)

This environmentally-hurried, rush in and exploit every resource possible ideology hardly seems as if it can be the kind of a systematic approach that our Indigenous forefathers applied. It would seem that since TEK has been a founding tenet for Indigenous systems around the world, that these systems would have long been exploited rather than revered. Alternately, inadvertent degradation as a result of indigenous practices does not appear to be a plausible outcome either. For example, it has also been well documented that when non-indigenous people arrived on the East Coast of the continent, they were amazed and appreciative of the landscape and the beauty of what seemed to be a wilderness to them (Deloria, 1999:78-79). They commented on the abundance of wildlife and resources which they had easy access to, rather than having to forage and scavenge as they had prior to their arrival. This was found to be the case all across the United States as these groups foraged west, finding new pristine wilderness areas, and a plethora of resources, to their amazement. It is also documented that chiefs and Indigenous leaders rebuked the newcomers, and denounced their consumption practices which led to population declines and to the decimation of resources in areas which had been able to thrive amidst moderate human use, with their proper use even

enriching the local environmental systems. During the 19th century, mass slaughtering of buffalo occurred (Stiffarm with Lane as noted in Jaimes, 1992:33), and the animal carcasses were left to rot, unused, creating a situation of near-extinction for this resource.

It hardly seems likely that such rampant exploitation by hunter-gatherers would warrant some situation in the present. For hunter-gatherers to survive, they were forced to find food, whether that meant roots, berries, bulbs, nuts, seeds, seafood, river foods, shellfish, or meat. It is a well-known fact that many indigenous peoples ate meat, but the limitation that many find argument with is that hunter-gatherers ate a wide variety of proteins, not solely the basic meat stocks about which today's society makes assumptions. As resources changed and settlement patterns increased, consumption patterns also changed. Non-indigenous families should have been consuming the products they were growing and raising, instead of hunting and gathering from areas which they moved into or squatted on. However, during periods of economic stresses, clear indicators were that these non-indigenous families turned to more subsistence-type lifestyles (Brown in Hoxie and Iverson, 1998:24-25) and followed methods of collection from the surrounding environment. The overloading of ecosystems from individuals who did not respect and did not act upon the ecosystemic principles of TEK, initiating overloads and depletion of the system and its resources, brought about the very change of which Callicott's analysis suggests the role of Native groups. This theory is convenient, since Indigenous groups are not fairly represented in his book as continuing the

respectful and limited manner in which natural resource collections are gathered. It has been widely stated that Indigenous life was difficult and required the cooperation of the entire group. This group effort was possible at that time because of the need for assistance and cooperative efforts. The danger of disasters also was a constant threat to survival and maintenance of population: animal attacks, consumption of poisonous plants and foods, and warfare.

Much documentation shows infant mortality was high, so reliance on the group's support for resources as well as being aware of sustainability issues would have meant survival for the entire group. This was vital, since reliance on one another was essential, as well as survival of the resources for simple continued existence. The depletion of resources would have meant extinction of groups, which would have then relieved the ecosystem of the burden of being exploited in the manner that Callicott claims. The ecosystem is very adept at regenerating and replenishing itself quickly, and resources would have expanded to the point of being nearly full, or completely regenerated again, even if the TEK system was not in effect and utilized. While this may have occurred in some areas of the world, it certainly does not seem to have occurred within the United States, and certainly does not seem to have occurred until recently in the Northwest within the coastline where the Confederated Tribes of Siletz bands have existed for millennia. The areas have been known to be pristine and unhampered with the local TEK implementation of resource use and enhancement. The resource depletion began

with the squatters, who were unable to adequately fend for themselves and had to rely on other sources of food.

It would seem unlikely that gathering massive quantities of food for a small group, without adequate storage for such an amount, and to the point where resources were depleted, could have occurred as Callicott proposes. This argument that over-harvesting and thus environmental degradation that Callicott asserts occurred by Indigenous groups presents a fatally flawed aspect: the over-harvest would also more than likely have brought about over-consumption practices. There have been arguments presented that the consumption of food was cyclical, as the collection of food could not always be guaranteed, especially in winter months when animals were more likely to be able to escape or were hiding or hibernating. Over-consumption during these months would have meant an entirely different food cache, since common resources which would have been available during spring and summer would not have been available during later fall and winter months. And while this may have been the case, small bands of natives would not have been able to collect the wide variety of food sources to deplete systems so dramatically that it could not recover, nor does any traditional oral history support this theory.

The rock art and petroglyphs (Cajete, 2000:230) that are representative of Indigenous bands throughout the world also support the point there was an abundance of food, and a small number of individuals who were able to capture and collect that food. Depletion would have meant virtually committing suicide, and I

find it difficult to believe that survival was ignored to the point of over-collecting resources. Here in the Northwest, trees, bushes, shellfish, and riverine resources would have been exploited to the point of calling on the state and wildlife for intervention long before they began issuing limitations on such resources. It was widely asserted that a few Natives were over-harvesting, and thus creating a deficit of resources for others to collect. This argument also ignored the fact that the Natives who were harvesting distributed the resources throughout the tribal population, which was a cultural norm, and again a Traditional manner of employing the knowledge which was passed down to them. The resources actually were spread evenly with a few Natives collecting for the group.

1. TEK Systems and Technology

Cultural environmental management practices (CEMP) are defined as: “Practices employed by indigenous people often mimicking natural disturbance processes in the management and utilization of natural resources” (Lake 11/2003). CEMP are also referred to as indigenous land use practices, Native American land management or traditional land management by other authors (Pullen 1996; Bonnicksen et al.. 1999; Anderson 2005). Cultural environmental management practices are based on long-term experience with local environments. Through various experiences Native Americans learned to work with the “natural” conditions of the local environment across many different habitats of various ecological scales (Anderson 1997, Peacock and Turner 2000, Anderson 2005). As experience accumulates with members of the community, so does their ecological literacy. Ecological literacy defined here is: The ability of an individual or community to observe, understand, and predict ecological processes and phenomena. When a high degree of ecological literacy develops through specialization of social roles, tribal people were and are able to foster biodiversity and productivity of various ecosystems through the application of TEK and CEMP (Karuk Tribe 1996;

Peacock and Turner 2000; Turner et al.. 2000; Anderson 2005; Karuk Tribe Draft 2007.) (Lake, 2007)

As this experience is fostered and cultivated, TEK applications are utilized and adapted as needed to fit into the environmental surroundings. The decisions of which TEK systems to use are based on this cultural knowledge and ecological literacy that Lake so efficiently describes. Many of the Siletz tribal members have been effectively applying this information, as indicated throughout various interviews, in stating, “Well, it depends,” illustrating that TEK application and utilization is not a blanket approach, but rather an approach of sophistication and carefully interpreted skill based on the situation they were encountering at the time. Weather conditions, resource conditions, previous gathering caches, all are factored into the application of any given TEK application, at any given time:

When used with a high degree of ecological literacy, CEMP can potentially buffer against extreme ranges of natural variability by distributing the harvesting pressure over multiple resources and not placing any single resource at additional risk. The scale of such disturbance affects were generally short term impacts on individual fungi, plants, and animals, with longer-term benefits at the population and genetic fitness level (Peacock and Turner 2000, Anderson 2005). The refinement of TEK and CEMP by native people over generations led to the maintenance and/or enhancement of ecosystem diversity and productivity (Anderson 1997, Turner 1999, Turner et al.. 2000, Anderson 2005). (Sloan 2007)

It can be argued that there are differences between technology and science, and that in the same manner as TEK and Western science, they can complement and enhance each other, as well as be lacking in other areas (Suzuki and Knudtson, 1992: 223). Technological advancements have produced amazing results in limited amounts of time, enhancing and improving unequivocally the knowledge that can

be harnessed and accessed for improvements in areas which have been previously untouchable.

These improvements and relatively immediate information have definitely improved conditions within society, and provided unlimited opportunities for advancement in other areas of research. Without them, the compounded effort expended would have been much more costly in terms of time, energy, monetary expense and, quite possibly, disease.

It is evident that technology and science are intertwined, and to some extent reliant upon each other for points that are lacking in each one's approaches to what can or cannot be advanced. It is within the realm of technology that TEK has also evolved. Things such as time-tested methods of information, reliable proven data amassed through centuries, and such things cannot be debunked with systems which use much shorter methods of proof (Cajete, 2000:209). Technological advances such as microscopes, telescopes and seismographs also provide information that can contribute to advancing the knowledge about earth systems and diseases.

One of the most common is the advancement of penicillin. TEK would address the infection holistically, observing and administering natural remedies which would enhance the body to counteract the infection. Observation for improvements or declines would be imminent, and adjustments would be made in either case. The focus would be in the system, and its ability to adjust and utilize environmental elements for the purpose of healing itself (Cajete, 2000:121-122).

Western technology is able to pinpoint the cause of the infection, and address the system's infection by administering an antibiotic such as penicillin. The administration of penicillin is able to address the microbial infection, and directly rid the body of the cause of the infection. The drug makes the time period for recovery far shorter than the holistic method, and advances the person back into his or her life more rapidly, ensuring a safe alternative to rest and recuperation. The drug also assists in prevention of the spread of disease, and maintains societal contact that can continue with decreased infection outbreak, and prevents the panic about disease that was prevalent in widespread epidemics of the past.

Peter Bowler (1992) makes the point that during the 1960s and 1970s, some scientists believed that improved education would bring about removal of traditional ways of thought, and leave technocratic materialism in charge of society. The creationist revolt against Darwinism was the first sign that even in the world's most technically advanced society, Western science views were being challenged. Environmentalism has evolved from a different line of philosophical thinking that may draw support from everyone who sees the harmful effects occurring from the over-exploitation of the earth's resources. Radical environmentalists promote the agenda that the earth should be treated as an organic entity that nurtures all life. Some science disciplines follow a model that examines individually based outcomes that offer little support for harmonious inter-species relationships. The broad endorsement of science is one that is competition based, as showing the mechanism of progress within species. Bowler states that as a society, we may be

entering into a time where a clash is imminent between the values of society and that of scientific advancement. The point is made that ordinary people may revolt against scientists, and blame them for the technological advancements that have enabled and provided the tools and moral military-industrial complex for destroying the earth. The utilization of Internet, immediacy of information through mobile phones, satellite stations, and information accessibility all contribute to the information that had not been widely accessible until this point in time. The technological boon that allows immediate accessibility of information can be criticized as much as applauded. Technology seems to have advanced science in many ways, but also may be science's downfall, through enforcement of modern societal values. It seems apparent that we can no longer consider science as a value-free source of information that society can use in whatever way it chooses.

VI. The Case Study

1. History

The historical view of the Confederated Tribes of Siletz is a complex and intricate history, one which has yet to be fully explained and comprehensively addressed through the legally as well as the culturally relevant important nature of the history. Professor Charles Wilkinson will be addressing tribal history in his forthcoming book. For purposes of this thesis, tribal history generalities are outlined.

The entire classification of peoples was dependent upon the waterways that surrounded them and their Indigenous homeland areas. The sea was included for some, but not all of these groups of Native tribes. Salmon was a heavily prized and utilized item, and included cultural religious practices which honored the first catch at the beginning of every salmon season. Additionally, rivers provided a wealth of food which supplemented the nutritional needs of Native tribal members. Eels, steelhead, trout, crayfish, river mussels, sturgeon, catfish, and similar items were relied upon as food staples in tribal members' diets (ctsi.nsn.us, 8/16/08, Downey et al, 1996:4).

There were several treaties regarding Oregon Indian welfare that the U.S. government established, and which have been in regular active discussion, regarding the current relevancy and application. Many of the treaties which have been established under a good faith effort by the members and governmental bodies

of the Confederated Tribes of Siletz Indians have been undermined, eroded in their strength, and eradicated over the years by various outside governmental agencies.

Federal laws and Federal Indian Policy were in place in the 1850s, purportedly protecting Native groups as well as others residing in western Oregon during that time period, but Indians found themselves persecuted and harassed from the aggressive and punitive nature of settlers, gold miners, and trappers. Natives found themselves often persecuted under the auspices of stolen foods, stolen or vandalized livestock. These acts often were created to steal lands which were then squatted on, and impeded traditional Indigenous geographic areas from being traversed and utilized in the manner to which the Siletz ancestors had become accustomed.

Federal laws were enacted to assist in protection of the rights of Native people, but by the time trappers, settlers, and gold miners had entered into Western Oregon, situations were causing great strife. Wars ensued because of the infringement and blatant disregard of Indigenous rights. This pressure increased until an extermination agenda was clearly exhibited throughout the non-Native peoples residing in western Oregon. Robert Kentta explains further:

In June of 1851, two incidents preceded the negotiation of treaties. The U.S. Army (for the first time) fought our people when they attacked our villages along the Rogue River near Table Rocks (killing about 50 & taking 30 women & children prisoner). At about the same time, Captain Tichenor landed a group at what is now Port Orford with intentions of establishing a town-site near the main village there. About thirty of our people died at "Battle Rock" in the conflict that followed. There had always been tension & skirmishes, but now, our people were threatened by an all-out **Extermination** movement growing among the settlers - which was especially

popular among the miners, who were now invading formerly secluded areas of SW Oregon & NW California by the thousands. (Kentta, ctsi.nsn.us, 3/5/09)

Between the years of 1851 and 1855, tribes were pressured to cede all their lands to the United States, with the government eventually promising a permanent reservation, an area which would be selected by the President of the United States (ctsi.nsn.us, 8/16/08). Robert Kentta explains this complex process that transformed the history of the tribe:

During the late summer months of 1853, the Rogue Valley around Jacksonville & what is now Medford was the scene of open warfare & brutality. Our people, seeing their lands and resources overrun, & their rights being invaded in every way, had resorted to open conflict. Palmer, was able to effect a cease-fire and hold a meeting on Evans Creek to discuss having treaty negotiations. The headmen wanted time to gather the people, who were scattered from the Rogue/Umpqua divide to the summits of the Siskiyou.

On September 10, 1853 treaty negotiations were held at the base of the cliff of Lower Table Rock. The treaty negotiations nearly came to a halt when a tribal member came running into camp, sweat streaming from his body, threw himself upon the ground, & after getting his breath announced that a headman from down river had been tortured and hanged by some miners. But good-sense and calm eventually prevailed, with promises being made that the men responsible would be properly punished.

This treaty is called the "Treaty with the Rogue River" although it represented three distinct language groups, the Takelma, Shasta & Applegate River people. Under the 1853 Rogue River Treaty, our ancestors agreed to cede (relinquish to the United States) title to the entire upper Rogue Valley. Our people reserved, however, the right to remain on a temporary reservation within that ceded area, until a permanent reservation was selected & made "by the direction of the President". A few days later, another treaty was signed with relatives of the Rogue River Takelmas who lived in the Cow Creek drainage of the South Umpqua. They also ceded all their territory and reserved the right to stay on a temporary reservation within their home territory, until the President selected a permanent reservation.

These first two of Palmer's treaties went together through the full process of being ratified (sent to the Commissioner of Indian Affairs, who forwarded them to the President, who in turn forwarded them to the U.S. Senate for ratification, after which they were then proclaimed law by the President. (Kentta, ctsi.nsn.us, 3/5/09)

Kentta continues to explain:

Over the next two years, our ancestors would be forced to sign a total of seven treaties – which ceded the entire area between the Columbia River & the summits of the Siskiyou and from the summit of the Cascades to the summit of the Coast Range (approximately 15 million acres). Six of these treaties were for actual cession of lands and reserving temporary reservations and one was for the specific purpose of giving the U.S. Government permission to confederate other tribal groups with the original Rogue River Treaty Tribes. (Kentta, ctsi.nsn.us, 3/5/09)

Because of the wide region that the bands indigenously occupied, it is clear that assimilation and cohesion was not an easy, nor was it a simple process. Many of these bands had been warring for generations, and were forced to assimilate into a group for survival purposes.

“In the 1850s the tribes were made up of people from the Rogue River (Takelma, Chasta, and Applegate), Umpqua and Calapooia of Umpqua Valley, Cow Creek Umpqua Band (Takelma), Chasta, Scoton, Grave Creek (Takelma, Shasta, Applegate River, Galice Creek, Chasta-Costa), Chinook, Kalapuya and Molalla tribes of the Willamette Valley and southern Molalla area. Many other tribes, like the Alsea, Yaquina, Tillamook, Nehalem, Nestucca, See-la-gees, Salmon River, Yoncalla, Lukiamute, and Santiam already were living in the area around the coastal range from time immemorial.” (Merrill, Siletz News, Vol 35, No.5, May 2007)

Many of the languages were vastly different and individuals were unable to communicate, much less make sense of the chaos that had been brought upon their

worlds in such a relatively short time period. Chinook Jargon took hold as a form of unified language which facilitated communication on a rudimentary basis.

By the 1860s, only a few years after the forced relocation, the population on the established Siletz reservation was counted as 3,000 people (Merrill, Siletz News, Vol 35, No.5, May 2007) .

The actual power of the President of the United States with relation to tribal entities is confusing and often misinterpreted. Deloria and Wilkins state very clearly: “The Constitution gives the president no direct responsibilities for Indians. In his capacity as primary actor in the diplomatic process of treaty making, however, the chief executive very clearly became involved with American Indians in supervising treaty negotiations at the direction of Congress and in administering the provisions of ratified treaties.” (Deloria, Wilkins, 1999:34)

President Franklin Pierce signed an Executive Order on November 9, 1855, creating what was then deemed the “Coast Reservation.” This initiated the removal of all area bands which resided within aboriginal homelands, from the twenty million acres which spanned from the coast to the Cascades and from the Klamath River to the Columbia River. During the cold, snowy winter of 1855, the forced removal of all western Oregon Indigenous people from these millions of acres was ordered. Over the next few years, Native peoples were either taken by steamer ship from Port Orford in southern Oregon, to the area deemed a “temporary camp” at what is now known as the Grand Ronde Reservation, or were marched on foot north through the Willamette Valley or the central part of the coast of the Coast

Reservation area. Two-thirds of the Upper Rogue Tribes of southern Oregon and all the coastal tribes which had been housed at Grand Ronde were moved to the new Coast Reservation by May 1857. President Buchanan then signed an Executive Order in June, declaring the Grand Ronde temporary camp a reservation area also (ctsi.nsn.us, 8/16/08).

The Coast Reservation that was signed into place systematically was reduced during the next 20 years through an Executive Order and an Act of Congress, neither of which had been approved nor discussed with the confederated tribes. The mass of the reservation, areas which the Siletz people relied upon for subsistence and traditional resources, was reduced by over three-fourths of its land mass, without allowances of any treaties, compensations, or agreements with, for, or to, the Siletz members. Discussions and decisions were made solely by the federal government, without consent (ctsi.nsn.us, 8/16/08).

George Thompson remembers his grandfather's story regarding the relocation trek.

It was summer time. We were all herded down to the edge of the ocean at Port Orford by the soldiers of the government. Some people were crying, others were just quiet. Nobody talked. Each person was allowed only one package or pack, generally made up in a basket. The Indians took mainly something to eat, as they did not know where they were going. The only clothes were what they wore; later the government gave us a blanket apiece. We left behind many fine canoes, homes, tanned hides, belongings. . . . All of us were heartsick. (Siletz News, George Thompson, Vol. 35, No 6 June 2007)

The journey took nearly nine months before Thompson's grandfather finally reached the reservation. The people were placed on a ship, which took them on a five-day journey the entire length of the Oregon coast, to the mouth of the Columbia River, and then delivered them at Portland. They were then led by ox team from the Portland piers to the fields of Dayton. Tribal families were split, some being moved to Grand Ronde and some were led to Salmon River.

The reservation lands were drastically reduced during the years of 1865 to 1892. The Siletz reservation, formally known as the Coast Reservation, originally consisted of more than 1.1 million acres. Between 1875 and 1892, a mere 225,000 acres were left from the more than 20 million acres which tribes had originated from, after reductions had been effected by the governmental systems (ctsi.nsn.us, 8/16/08).

This confederation as it stands today is a force to be reckoned with, operating successfully at its potential, with its flourishing self-governance which began with its restoration November 18, 1977. President Carter deemed the tribe restored to federally recognized status, paving the way for the tribe to re-establish and create its nation once again. This act, known as the Confederated Tribes of Siletz Indians Restoration Act, Public Law 95-195, re-established government to government relations between the people of the Confederated Tribes of Siletz and the federal government (Siletz News, Vol. 35, No. 5, May 2007).

This Act is monumental, not only because the tribe was the second in the nation to become fully restored, but also in terms of the impact it brought to not

only the Confederated Tribes of Siletz, but also to other Native tribes in Oregon, as well as throughout the nation. Art Bensell, who was Chairman of the tribe at the time of restoration, stated: “In the long difficult process of working for restoration, there has been a rebirth of the tribe’s spirit and of the people’s own sense of value as an Indian tribe” (Siletz News, Vol. 35, No. 5, May 2007).

This renewed sense of self fueled the tribe and its acting Council to direct and concentrate efforts into self-governance, producing results for the members, which had been displaced into areas far from the reservation. This emigration was a direct result from allotments being relinquished or foreclosed upon, taxations, and job scarcity. Many of the members who remained in Siletz traveled for work, and were not allowed to continue traditional practices of collection and harvesting foods and resources. This strain caused a great deal of broken knowledge, and many of the elders active in the tribe today have TEK information pieces which are incomplete and shattered. Those that remain intact are deeply affected by the laws and regulations which have been enacted through federal and state means. Because of the massive efforts to halt traditional collection, fishing and hunting, the current elders were not always able to learn the TEK information as their parents and grandparents would have traditionally taught them. Laws were enacted and stringently enforced, causing disruption in Native communities throughout Oregon. Hunting and collecting was done stealthily, and teaching the information and manners of collection became a low priority in comparison to being able to gather enough food.

Many of the Native children who experienced firsthand the direct impact removal had on the families became the elders who fought so hard for tribal restoration. These individuals were forced to attend boarding schools, being ripped from their homes and roles in the Native communities, and those who chose to return found disarray and separation from the areas and customs which they had known. This period of time, commonly known as the boarding school era, caused more panic and fear among Native people, as assimilation and enforcement of education of all natives became the practice that was focused upon in Oregon. Many of the religious Christian denominations, along with the federal government, had deeply vested interests in the education of Native children. The perceived depravity of the culture, along with the natural resources that Native tribes held onto, made settlement more difficult. Assimilation practices were addressed and encouraged, from 1890 until 1920. This focused assimilation period had direct and long lasting effects, many of which remain evident within the current generations, and which can be clearly witnessed through the alteration of information systems of TEK.

Honorable Chairwoman Delores (Dee) Pigsley eloquently states: “It is our tradition and therefore our legacy that we learn from our elders and that they be respected and honored, we are passing that legacy on to our children and they will pass it on to their children. This is our way of life. We are **all** family” (Siletz newsletter, vol. 35, no 6, June 2007).

The traditional ways that have sustained the people of Siletz have been maintained and upheld by the tribal members who are aware of its value and the context in which it must be maintained. Ignorance and abandonment of practices, norms and traditions would mean the death of the culture, the erosion of a people who have been able to survive and succeed through struggles which have decimated many other tribal entities. The sheer determination of the tribal members within the Confederated Tribes of Siletz is a testament to the groups' and bands' accomplishments and the value of the collective whole for survival, an acknowledgement of who they are, what they represent, and the goals they need to strive for to sustain future generations.

2. Restoration

“I have witnessed few events as satisfying as the powwow hosted in November 1977 by the Siletz Tribe of Oregon. It was timed to celebrate President Carter’s signing of the Siletz Restoration Act, which reversed termination and recognized tribal sovereignty. In the grand entry, the opening processional, a hundred or more colorfully garbed marchers from the Siletz and other Northwest tribes strode in to the beat of many drums. Those ancient, sharp sounds, pounded out on tautly drawn rawhide, had not resounded on the Oregon coast in more than thirty years. The setting was humble, just the worn-out building at the county fairgrounds, for the penniless Siletz tribe still had no facilities of its own – and the heating had gone out on the dank, near-freezing evening. But the spectators in the packed gym looked on in respect and wonder, savoring the pageantry, the rhythms, and the revival of a tribe that termination nearly hounded into extinction.” (Wilkinson, 2005:358)

Restoration has been a particularly difficult process for the Confederated Tribes of Siletz Indians. Despite their eventual success at being the second tribe federally restored, the upheaval Federal Termination caused for CTSI has been

devastating. This catastrophic impact has affected the livelihood that CTSI members have known, culturally, spiritually, as well as economically.

Indigenous areas and boundaries which had been traversed for centuries were lost, as was recognition of fishing, hunting and gathering rights. Because the treaty obligations were nullified and expunged from the Federal Government's perspective, members were unable to successfully argue in legal realms for the re-establishment of rights of gathering in usual and accustomed places. This acknowledgement would have meant making existing areas which tribal members were affected by and barred from, to be opened and to allow tribal members their use and traversal into. Much of these lands became usurped from the Siletz tribe through a series of governmental actions: disposing of them as excess lands through allotment dealings, and eventual turnover of lands becoming private properties, which then the Federal government had no jurisdiction in dealing or managing.

As the Siletz tribe attempted to re-establish boundaries and treaty rights for their people, it became exceptionally clear through court records and memorandums that the government had no intention of restoring federal recognition to the level at which Termination had occurred in 1954, or equal status. Land holdings, rights that pertained to fishing, hunting and gathering accessibility to indigenous geographic regions, all became issues that were viewed as contentious, and barriers for the tribe as they attempted federal recognition to be fully restored.

Because of the complex nature of the initial Executive Order through which the reservation was established, identification of specific rights and responsibilities which were granted to, or reserved by, the members of the Siletz Tribe were eradicated or drastically diminished. Many of the rights which are in existence today have been in large part due to the overwhelming dedication and unwavering perseverance of the Tribal Council and other dedicated individuals.

The Restoration process required years of non-compensated dedication by a team that understood the necessity of the tribe's future being in place and restoration of federal recognition. This dedicated Tribal Council gave many long hours of their time freely so that the tribe could become established and once again flourish and care for its People. Their steadfast dedication to the tribe has been a cornerstone upon which the Confederated Tribes of Siletz have been built and it exists today.

Because of the large diversity of the composition of the bands which are encompassed into what has become the Confederated Tribes of Siletz, it is a complicated feat to detail the origins for the current members' ancestry. For purposes of this thesis, general terms will be acknowledged and adhered to, as the Siletz tribe has set forth these delineations within tribal bylaws and ordinances.

Within the Confederated Tribes of Siletz, as of April 2009, the most recent tribal enrollment posted, there are 4,549 members (Lorraine Butler, Tribal Enrollment, personal communication 4/2/09). These members are from various groups and bands which have encompassed a wide geographic area of the western

Oregon region. Because there are so many various tribal groups and bands, for the purposes of this thesis, general categorical references will be adhered to as is utilized by the tribe. Traditional homeland areas were vastly different, and providing a framework for understanding the differences and the evolution of a Traditional Ecological Knowledge base is important, illustrating the differences that arise, as well as the congruency that has emerged over time.

Understanding and continuing the Traditional knowledge which has been passed from previous generations to subsequent generations is a tenet of Native life, which is highly respected and culturally appropriate. Unfortunately, the boarding school era provided a break in the cultural knowledge, and forced many families to be forever broken. A cataclysmic effect has been felt throughout Native communities across the nation as a direct result of this era. This devastation has brought about an awareness that traditional knowledge and cultural survival is imperative for individuals as well as Native communities. Embracing and further cultivating the gathering and promoting of the remaining information from elders who are able to impart the knowledge to younger generations to continue, is vital.

To better understand how the break occurred, and how it was maintained through generations so that TEK and local knowledge was broken so effectively, a brief overview of the boarding school forced education of Native American children must be examined. This era brought about a domino effect, so that the government could then effectively divorce the traditional cohesive familial life

Natives have been known to uphold and attempt to maintain. Vine Deloria Jr.

elaborates on how this began:

The first period of intensive federal involvement in Indian education began in about 1873 and lasted until World War II. Its chief features were the establishment of day schools and off-reservation boarding schools such as Carlisle and Hampton. The year 1873 is important because Congress repealed the old provision that allocated \$10,000 annually to the “civilization” of Indians. In place of this fund, Congress made a special appropriation of \$100,000 for Indian education. . . . This system was designed to provide education for each and every Indian student who could be enticed, compelled, or convinced to attend school. When the system was finally in place, the reservation agents then used whatever means they had to force the parents to enroll their children. (Deloria, 1999:162)

There has been an obvious prejudice that has run rampant regarding the issues which directly affect the fishing, hunting, and gathering rights of Native American people. This started being illustrated with the highly publicized “fish-ins” (Iverson, 1998:146-148) on the Columbia River beginning in the 1960s, as rights began to become into play in courts of law, and treaties were being recognized and utilized by Natives across the nation. For the Siletz people, this prejudice has been most notably evident in the ratification of the treaty rights during the 1980s. There has been an obvious judicial bias when treaty rights and Indigenous areas are concerned.

The tribe’s members are operating their TEK on a limited and constrained geographic basis. They attempt to apply parts of cultural practices that have occurred since the beginning of the tribe’s people’s struggle to maintain and survive in their lands, then subsequently on lands which were not necessarily their

own through aboriginal right. For many bands, some of these lands had been likely promised as a permanent reservation in fulfillment of treaties from the government. Connecting with the environment has become increasingly difficult in traditional ways for tribal members.

The annual tribal reenactment event of the Run to the Rogue is a prime example of the tribe and its people acknowledging its rich and tortured history, and the traveling back through the aboriginal lands which were once accustomed and usual gathering areas. This is a three-day event where tribal members participate in a relay run/walk from the current reservation area in Siletz, Oregon to indigenous homeland forced removal areas in southern Oregon. There is a feeling of camaraderie and cohesiveness through the event, recounting horrific events and continual enduring of injustices throughout history of the tribe. Connection through this primarily outdoor event contains a great opportunity for members to environmentally unite with the indigenous homelands. During this event, attention turns to recollection, and ancestors who endured paths which led to the present day. The stories of ancestors, manners of hunting, fishing and collection, the pieces of ways which have been brought through generations, and the horrors of resettlement are relived and better understood by the direct experience of once again being allowed to traverse in ancestors' paths. The passing of information down to family, and among fellow tribal members in the midst of this event, is a way of reconnection which cannot be forced, removed, or broken. Witnessing the very

lands, sharing the stories, and connecting to the aboriginal areas of the people is yet another example of TEK in its finest form in a modern day scenario.

The Siletz people have been both exceptionally tenacious and consistently patient while rebuilding their cultural identity as a confederated group, as they work cohesively to rebuild their reinstated status as a tribal entity.

This longstanding history, as well as events such as the annual Run, recall the active participation in areas that ancestral TEK was established upon, and which builds the basis for the tribe's information systems currently. The attempts at reclaiming and restoring the information, which the members often do not acknowledge as important and relevant information, are thought of rather as the ways "things are." This information has been passed on, and there has been such a natural evolution in the manner of familial and tribal existence, that most do not recognize the importance or the relevance TEK systems have.

This sense of place has been forever altered within the Confederated Tribes of Siletz, and the continual adaptation is captured through interviews conducted for research purposes. Siletz tribal members have been forced to undergo drastic and extreme changes, not only to their environment, but also to their cultural and ideological processes, personal identification, and traditions. These changes have been the direct result of geographic displacement. The forced adaptation and assimilation practices into which the Siletz have had little input, regarding the changes to their tribal lands and cultural practices, have caused dramatic effects on members. The remarkable adaptation of so many tribal members is a heartwarming

and positive aspect of who the Siletz tribal people are as a group. For the multitude of these bands to become cohesive and collaborative has been a long and arduous struggle in the short period of history which has transpired. Many of the bands were known for being antagonistic toward each other, and in-fighting became apparent once forced to remain as a cohesive unit. The agents neither understood, nor cared, that the tribal entities were autonomous, not a conglomeration within the state. These different tribal entities lived in very separate and sovereign manners, and acknowledged the other tribal bands, but remained separate until the forced removals in the mid 1800s (csi.nsn.us, 8/16/08). The stress and enforced closeness to peoples that were foreigners brought about a change which would forever transform and alter the path of the Siletz people and their history. It is this transformation of identity and forced removal of sense of place that Basso addresses in his preface:

What do people make of places? The question is as old as people and places themselves, as old as human attachments to portions of the earth. As old, perhaps, as the idea of home, of “our territory” as opposed to “their territory,” of entire regions and local landscapes where groups of men and women have invested themselves (their thoughts, their values, their collected sensibilities) and to which they feel they belong. The question is as old as a strong sense of place – and the answer, if there is one, is every bit as complex. Sense of place complex? We tend not to think so, mainly because our attachments to places, like the ease with which we usually sustain them, are unthinkably taken for granted. As normally experienced sense of place quite simply *is*, as natural and straightforward as our fondness for certain colors and culinary tastes, and the thought that it might be complicated or even very interesting seldom crosses our minds. Until, as sometimes happens, we are deprived of these attachments and find ourselves adrift, literally *dislocated*, in unfamiliar surroundings we do not comprehend and care for even less. On these unnerving occasions, sense of place may assert itself

in pressing and powerful ways, and its often subtle components – as subtle perhaps, as absent smells in the air or not enough visible sky – come surging into awareness. It is then that we come to see that attachments to places may be nothing less than profound, and that when these attachments are threatened we may feel threatened as well. Places, we realize, are as much a part of us as we are a part of them, and senses of place - yours, mine, and everyone else's – partake complexly of both. (Basso, 2001: xiii-xiv)

Descriptions of place become more apparent when one brings forth memories and recalls the places which formed their perspective of their world. The views, smells, landscape, all contribute to the very core of who that person is as an individual, and moreover who the person is as community member, whatever community they identify with. The logical community that almost everyone can identify with is being affiliated with a certain high school. Even individuals who moved frequently associate closely with one school over others, because of a sense of place; perhaps they liked the school's architecture, or were more accepted into a group of peers, or found solace in a park while ditching classes during the school day. These markers identify people and classify them in a manner which is impossible any other way. Imagine identifying individuals solely based upon the math scores they earned during high school. I find it highly unlikely that many people would remember their testing scores long after high school, much less individuals who tested in similar percentiles. When meeting others who attended the same high school, however, whether in the same graduating class or a year closely related, people find a camaraderie which is linked and intrinsically based in the sense of place they both experienced. Stories usually begin to emerge, details

regarding sense of place and identifying markers regarding the individuals' experiences *with* that place, that high school, which brought them all together into a unit, whether they chose to attend that specific school, class, rally, or athletic event, or not.

Likewise for Siletz members, sense of place is intrinsically linked because of the long-standing history that has been evolving and developing for generations. Stories are more powerful and important in Native societies and hold value more strongly, in manners which are culturally relevant, than stories told in mainstream non-native society. The very word "story" is a word that implies there is information which cannot be imparted in simple talking format. Stories convey a sense of place, sense of self, a sense of community as well as imparting values, morals, and expectations. Stories can also give guidance and provide entertainment for the listeners, as well as transmitting a variety of points, whereas a lecture or straightforward manner would be culturally offensive and disrespectful. Even within mainstream American communication, techniques are used, such as humor, to broach sensitive or important subjects tenuously and with caution.

It is in this manner that TEK come into view more clearly than when it is described in any other manner, in my opinion, Places are vitally important for our sense as individuals, and even more so as a group. Our collective identity and identifying with a place which grants us a historical view and continuous information which we rely upon, brings forth a cohesiveness and sense of self which cannot be reproduced or initiated in any other manner. The ecological

viewpoint from which we describe who we are and where we come from has been brought to life in terms of changes as well as aspects which remain the same. This sense of place is intrinsically linked then, with sense of self, both as a group and as individuals.

Too often the mistaken assumption is made that identification and association with Native ceremonial beliefs and customs were something from long ago and the contemporary Indians of today have replaced the Indians which utilized and maneuvered the environment and traditional customs which are so prevalent within mainstream belief systems of Western society. These assumptions are bolstered by the erroneous representations of media and societal ignorance regarding contemporary Indigenous patterns and methods of adaptation.

Societal assumptions such as these, however, run the risk of being erroneous for several reasons: Adaptation has been evident, with the Siletz tribal members evolving through and with mainstream American society, maintaining customary practices which involve the utilization of TEK.

VII. Results

1. TEK As a Vital Aspect of Community, Identity, and Culture

While many contemporary researchers will argue that customs have passed with previous generations, it is clearly evident that many of the members with whom the author conducted interviews maintain these customs and practices clearly in their memories, and make attempts to continue utilization. Many attempts were made through assimilation techniques to force the interviewees to abandon these practices. However, the knowledge has survived and is maintained and apparent through objects such as weirs, hooks, nets, poles, baskets, toys and carvings, as well as the stories and information which is shared and cultivated through a variety of techniques. Traditional oral history has become integrated into modern-day lifestyles, and information during gatherings has become instrumental. Family time has also brought about an opportunity in which many people identified hearing information, as it has replaced family dinners and evening gathering times that regularly occurred during the Elders' experiences growing up.

These memories are not even a generation separated from the current generations, and there still is the ability to maintain them and have them survive for future use and perpetuation of cultural practices. These members are willingly able to maintain and pass on this knowledge base, and are the foundation for the cultural adhesion which cultural success is based upon. While many of the apparatuses commonly used, such as fishing poles, rifles and improved archery mechanisms, have changed through the benefit of technological advances, the evolution of

understanding how to best gather resources has been retained and remains steadfast, as well as understanding how to exploit synthetic resources from the environment when unable to secure the traditional ones like certain woods and areas.

One of the most evident technological adaptations is found in the practice of eeling, and the transition from using hooks made from steel, to car antennas bent into the shape necessary to best adapt to the environmental conditions.

“ . . . they had one spot that they eeled in the wintertime, and that was up at Rock Creek, and that was because it was small enough creek and shallow enough that you could get your poles to the bottom in the high water, so he always caught a few eels, not very many, you had to feel for them and that took a special, a special knack in order to feel one, they didn't wiggle very hard on the end of that pole, those stiff poles were made out of cedar . . . oh I dunno eighteen (18) feet long, twenty (20) feet . . . flat on one side, the side that the hook went down on they shaved it flat so when you had it in your hand you could tell when the hook was pointed down so you could tell where it was at . . . everybody made the same kind, just a barbless hook on the end, made out that either or a pitchfork tine . . . ”

[Oscar Hatfield interview, October 8, 2006]

Another example is Ed Ben's account of eeling practices: “. . . they'd go and, and get set up for hooking eels originally, when they used to hook eels off of that canoe, . . . they'd build a firepit right in the middle of that canoe so it'd make light, then you stand in the back, well first you'd anchor your canoe off a long rope and, eventually we, we ah, progressed and gathered telephone wire . . . I say gather

telephone wire because I don't know where they got it . . . and ah, some somehow they'd carry a, an old Model A, model T engine, or, one of the small engine blocks, put it in the head of the ripple, attach this wire to it, telephone wire, and they knew what length they wanted it, and then they'd tie a big stick of wood on it so they could find it when came time to hook the canoe onto it so then they'd get that, that ah, end of that wire, and ah, attach it to the rope on the front of the canoe so you could just move one side of the river to the other and, and originally, when they first started hooking, using that particular boat anyway, hooking eels, built, built a firepit across the center of the canoe, and, all full of sand, and ah, and then they'd ah, build a fire in there and that'll give you light, and you can stand back at the end of the canoe with your long pole and eel hook and ah, the eels would come up, you could see em come up in the light like that and they'd, they'd come up and then they'd dash out away from the canoe usually when they got up by the canoe. . . and ah, use that firepit, most generally they'd get the ah, go out and cut the pitch, pitchy wood from the, from the old growth ah trees, you know the scraps and ah, use that for fire, but ah I remember my uncle Benny he ah, decided well it's a lot easier to gather old car tires, car tires burn (laughs) and so he had, burning car tires to make the light . . . but then we progressed, and my uncle would put a board, put a board up in the center of the canoe, and then brace it and then he bought ah, a gasliner, so hang a gasliner on there, and where you're standing, with the, with the lantern behind you, it formed a shadow down the river like that and those eels would come up in your shadow and get up there and they'd duck, dash out there, away from the

boat and you'd hook lots of times you could see em coming way over from the boat, and you take the pole and get that canoe moving and go clear across the, clear across the river there to, to ah, hook eels coming up on the river and sometimes we'd ah, get out there and ah, before the eels eel runs started and piled enough boulders along the, that one bank across the river from us that we wouldn't have to chase clear over, to hook those eels. . .”

[Ed Ben interview, November 14, 2006]

The use of pitchfork tines, lanterns, then fires, carrying of small engine blocks to attach the boat to so that eeling could occur while the entire river was being traversed from side to side are amazing accomplishments and adaptations, that take effort in effectively utilizing TEK. The currents, the depth of the water, knowing where to place the engine block, as well as understanding the patterns of the eels which were running all are examples of TEK. The modern adaptation of TEK allows gatherers to put TEK to maximum benefit, being involved with this process. This is one example of the multifaceted information which is harnessed to adapt in the best manner to the environmental conditions. This evolution was not a simple-minded occurrence which was happenstance, but rather a very calculated and carefully crafted adaptation for the purpose of gathering resources in the most efficient manner possible. This effectiveness optimizes the quality that Siletz members have long been known to possess, but are rather humble about when speaking of the application of TEK and the environment they are so closely tied with.

Maintaining identity through the physical objects such as poles, nets, hooks, and baskets, as well as the representations of physical objects has evolved into a traditional and cultural norm. This awareness of the contribution would most likely have been overlooked and taken for granted, had it not been for the abrupt manner in which hunting, fishing and gathering rights have been halted. Various oppressive techniques over the years since termination, and subsequently restoration, have taken full effect in terms of the acknowledgement and cessation of treaty obligations as well as usual and accustomed places that tribal members, as well as the tribe as a sovereign entity, are allowed to utilize.

Physical objects that were used for assisting TEK in some aspect bring the representation of the customs which have been an integral part of identity for Siletz tribal members. These objects are the representation of the customs, philosophies, and traditions that cannot be fulfilled in the manner to which many tribal members have become accustomed. Adaptations and possessions thus facilitate a piece of identity which is now relied upon more heavily than in previous generations. The material possessions that assisted many of the individuals have been treasured possessions, much in the way of being a representation of the old traditional ways that were utilized for TEK purposes, and helped tribal members in gathering resources.

There is a distinct TEK aspect of these physical objects which were routinely used. Even the remembrance of items which have been identified and traditionally utilized have become a part of the conscious acknowledgement by

tribal members, even if these items are no longer in use, due to either inability to facilitate and master the apparatus, lack of ecological resource or geographic availability, or lack of knowledge in specific utilization. The acknowledgement, though, remains.

These representations have almost become a catalyst for the TEK which has been utilized, but cannot be fulfilled or utilized. The tribal members who have these items from past generations, along with the stories that accompany their usage, have great pride in the information that is conveyed, as well as how the apparatus was utilized.

Specific physical representations are a link to an era which cannot be facilitated, and which in many instances have been blocked, and/or forced to be abandoned or are not longer feasible to utilize in the manner they once were. The material possessions that assisted many of the individuals are treasured possessions, much in the way of being a representation of the traditional ways.

Here in the Pacific Northwest, trees, bushes, shellfish, and riverine resources would have been utilized to the point of only taking resources that satisfied caring for needs of families. “Everything was plentiful and bountiful way back when because we took care of everything and we didn’t over harvest and nothing was commercial at those times, it was just . . . we took what we needed.”

[Frank Simmons interview, May 23, 2006]

Tina Retasket stated, “You shared with everyone in the tribe, what was collected was shared in a manner of survival for the entire group, not solely one family or one individual.” [Tina Retasket interview, August 29, 2007]

Gladys Bolton shares the same ideal that has been lost: “Indians used to do that, they used to give whatever they had they’d share – they shared it with other people . . . they don’t do that much anymore . . .” [Gladys Bolton interview, July 10, 2007]

The autonomous manner in which Western science and Western values operate is often a very foreign manner of thought for Indigenous systems, and the Western approach to collection and environment seems very disrespectful and greedy to many Indigenous people. It seems very egotistical and self-centered, which can be supported by many in the present-day societal values. One only need look at the media presentation of items and “news” material to find promotion of oneself and individualism being at an all-time high. This is highly contrasted with Native societies, with the focus being on the whole; the individual is a part but a representative of that whole.

The very clear world view that Siletz members routinely articulated, is that a person does not take more resources than is necessary, continuing a practice of environmental sustainability.

There has been a very real and tangible desire to understand the ways in which elders were taught, and likewise in the way which younger generations

acknowledge TEK and strive to relearn customary ways. Members are attempting to regain knowledge. At the same time, they maintain traditional life in the best and most efficient manner they can. TEK is integrated into the very real aspects of life, and how TEK relates to what it means to be a tribal member culturally, geographically, and personally. These considerations have been brought forth in interviews that show how members are aware of their status, the loss they feel, and the adaptations which they continue to strive for. TEK has an impact daily for most of the tribal members, in the way they manage their lives and the activities which they choose to engage in.

Kendall Logan stated “. . . you learned more by living than you ever learned in school.” [Kendall Logan interview, July 11, 2007]

Jessie Davis articulates the differences in health that has rapidly occurred: “So ever since I ever knew, that was the way of life, that was how we ate and I guess that’s why we were so . . . I’d say healthy . . .” [Jessie Davis interview, October 9, 2006]

Tribal Elder Gilbert Towner discusses environmental learning: “Well we more or less learned firsthand, about the environment, living in the environment and instead of reading it out of book we ah, we experience those things in life and ah, I don’t know what the kids learn these days, but ah, after I was in high school and got into sports, and I found out what girls were all about, well I ah . . . began to like it there at Chemawa, I tried to learn everything that I could, and I did the same in the Marine Corps, I tried to learn everything that that the Marine Corps had or

me, and a lot of guys didn't look at it that way . . . they just wanted to do their time and get out, but I was lookin' at the Marine Corps as a career, because I loved it; ah, it took care of me, took care of my mother, and my little brother and that's one of the reasons why I joined, cause there wasn't much going on here. And a lot of the young guys did the same thing, they joined the service to help their families out . . . so environment . . . I don't think enough attention is paid to . . . to ah our surroundings, and that's the reason why everything is like they are . . . y'know everything is not plentiful anymore, we have to make do with very little now, and we had plenty then . . . and . . . the greed of man, ah caused that – the only thing I could see that cause it was greed – makin' money, and it wasn't necessary in those days, there wasn't a great need to take *all* the logs out of the mountains . . . they found it's worth, so they decided they needed to rape the land y'know, and that's sad . . .” [Gilbert Towner interview, August 11, 2007]

Tribal systems are typically focused on family unity and cohesiveness. This is very evident for the members of the Confederated Tribes of Siletz as well. It then goes without explanation, that familial units are a large aspect of identity, and a large part of cultural relevance with the Siletz tribe. “We grew up with that . . . we all went . . . we went with Thompsons, um we went with um, all my uncles, Frank Lane, Scott Lane, Archie Lane, (laughs) there was always a lot of people there was others too, can't remember exactly their name . . . but there was always a group . . .” [Gladys Bolton interview, July 10, 2007]

“When I was little we lived in Siletz, so it was just natural, they did it all the time . . . fishing and eels and clamming, all that . . .” [Clementine Hartt interview, October 9, 2006]

Learning how to hunt and fish and gather is a clear example of the TEK that is being utilized within and among tribal members. Within the interviews it was clear that these activities were based primarily within the family. Interviewees repeatedly identified learning to hunt through family members, and that family units went out hunting or fishing together. “It was just something families did, just, someone always knows how and you follow them . . . this is something you did together . . .” [Shirley Walker interview, September 27, 2007]

It was the norm throughout the interviews to hear sentiments about excursions with family. Oscar Hatfield recalls one of his first memories: “When I was about five I used to go fishing with Amos and then I used to go with them when they’d set net, and I’d ride in that old dugout canoe, that was my job and Amos’ job to row that thing, to paddle it while Grappa pulled the net. . .” [Oscar Hatfield interview, October 8, 2006]

Frank Simmons discusses his memory of hunting: “I was probably five or six years old when I’d go with my Dad and hunt and at those times we could hunt with dogs . . . and I would sit up on the hillside with Dad and I didn’t have a gun but he did, and we would wait for our party of hunters to come cross country through the Fern flats, and then you could hear those dogs start to barking, and that was, meant the dogs were on the trail of a deer, and um, and the fern you could see

the tops of the fern start moving and shaking like that and all of a sudden you could see that deer a coming and I'd be asking my Dad ten thousand questions and he'd try to tell me to keep quiet and I wouldn't keep quiet because I was all excited . . . and ba-dow, he, ba-dow, ba-dow . . . he'd shoot and hit about three deer and knock 'em down and we would stay right there where we were at until the hunters came along and they would holler 'Hey Fritz you got em?' and he'd say 'yea, right over there by that snag' or 'right over there by that one bush or whatever it is' and they'd come along and field dress the deer, make packs out of them put them over their shoulders and they'd come right towards us and we'd go back down the road and put em in the truck and everybody'd laugh and giggle and it was a good day! Cause we brought meat home for a lot of people, families to share." [Frank Simmons interview, May 23, 2006]

Jessie Davis discusses her early memories of collection: "Well they did go back cuz I was little, and go back with Minnie and Pas, and get those things off those rocks, . . . sea roses. And then Grandpa would go back and get oysters, all of the shellfish type stuff, but then he also brought like that seaweed too and I remember us kids would have to have tub and washboard out there and we'd have to wash that, look like sea grass I guess, and then wash I and wash it and take all the sand out of it Grandpa'd put it up there on those screens up on top of the roof, and let the sun bake it and I guess dry it out or cure it and then later on when he went to eat it, well they'd put it, baked it in the oven and he put butter on it." [Jessie Davis interview, October 9, 2006]

Family activities were a foundation for the information that was shared and passed along. The family foundation is still a strong unit within Indian Country, and the Siletz Tribe currently. The yearly Culture Camp that the tribe hosts is another manner in which the tribe strives to maintain cultural awareness, family cohesiveness and encourage furthering knowledge. Much of this camp is held outdoors on the tribal grounds, and experiencing the environment and resources which are utilized for traditional practices is a very clear example the tribe is active in its role of continuing knowledge and, specifically, TEK.

2. Restoration, and Awareness of How TEK Is Affected

The tribe's restoration has brought about a resurgence of optimism, but has also presented difficulties for members. The areas which have been cordoned off have been abundant with resources that traditionally have been gathered and remain culturally relevant. "ah . . . you can't go out and ah, the restricted the number of clams you get, ah, they ah, you can't go out and get mussels anymore, and we never did clear a rock clear off, ah we would take only the big ones, and take only what we needed and they would be forever more replenished, but not now, it's ah, it seems like all the things the Indians did back in those days, the white people do now, and they don't conserve, they just go out and clean em out, just like they did with the trees – they take 'em all out. I guess I'm, rebellious about that – I don't like that. We did in moderation, and we took things ah, only what we needed, I say we hooked 68 salmon, but there was so many salmon in those days you could see

their back across the river or the creek they'd be so plentiful, and at Thompson Creek Falls, there used to be a windfall right down the middle of the falls, and I'd wade out there and straddle that windfall, and that's how I got my salmon when they jumped up I'd hook em out, ah there was one huge, huge Chinook- he come up and couldn't get up over the falls to begin with, he would just about make it and he'd fall back, he would start on the left side, and he'd work his way over, then swim back and he'd come back again, so I watched him for about an hour, and so I knew if I set my hook in him he'd flip me right off that log and I did, I set my hook under his jaw real good and he just flipped once, and off the log I came! (laughs)" [Gilbert Towner interview, August 11, 2007]

Additionally, the influx of people who are populating these traditional areas create a very real barrier and oppression for tribal members who wish to engage in cultural practices. Many of these non-Native individuals are ignorant about collection and rights, and it has been recalled many times how the police were called to supervise and thwart collection activity. Frank Simmons explained about attempts of tribal members wanting to gather and consume sea anemones: "Some people do . . . but they don't like to go down, harvest, because there's so many people on the beach they come over and ask them a whole bunch of questions about what do you do, and the eels, and why you eat that, and it's ugly and all kinds of stuff . . ." [Frank Simmons interview, May23, 2006]

The understanding of how seasons and cycles operate has been a way of life that has evolved. The basic understanding of a system relates to the present, but

also the past and the future. Adaptation is vital, but so is the recollection of detail. Noting the change and noting the differences brings about an awareness that is built upon.

Tina Retakset explains “. . . some things come into season, for example the little wild blackberries? Um, are different, and a lot of people don’t know what those are um, and they have a season, and you can almost smell them, and it’s generally in July, but they only last about three (3) weeks so you have to be on top of it and pay attention, there’s the sun, when the sun hits is a big deal, they ripen or *over* ripen based on that, so you kinda track what the sun has done, and it’s not always at the same time . . . um, and then other berries, the Himalayas, and the evergreens and some of those others come on in August, um . . . we had certain things, my mom always had some general rules like getting crawdads and things like that, um . . . the months always had to have an “R” in them, otherwise you risk worms, or um they’re shedding their shells, whether that’s crabs or crawdads or and, and, so there are some foods – seafood in particular, you didn’t eat unless the month had an “R” in it , and so, things like that we had you know, I don’t know if that tribal or not, but . . . it’s just kinda a rule of thumb, but um . . . and again hunting was when you . . . when the freezer got empty. But um, they certainly ah, in the fall, and there are some things you can just feel, the temperature, the humidity, um, and so you watch for those things.” [Tina Retasket interview, August 29, 2007]

The understanding of change and how it affects the areas and the knowledge is an intricate balance of understanding that is taken into consideration without acknowledgement.

Ed Ben recalls the environmental conditions “. . . back when I was a youngster like that, ah, you know, it wasn't like it is now, heck every one of those little creeks had salmon coming up to spawn, and matter of fact there was a little creek right there, ah, ah where, about where Toledo, no, up river a little bit from where Toledo ah, ah, gets their water . . . there was a creek that runs along there, clear up to, to ah, to ah where Fred Taylor road is now, ah and there was salmon that would come up in there to spawn, but it isn't like that anymore so lots of times it was really high water, people could catch fresh salmon out of the creeks they didn't have to have a net, they would catch fresh salmon out of the creeks . . .” [Ed Ben interview, November 14, 2006]

Tribal members during interviews routinely juxtaposed the past with the present and the future, all exhibiting an understanding of how TEK was operating, how it was for Elders and previous generations, and how it was being affected and would be affected.

Frank Simmons gave an eloquent example of this: “You could feel it, you could feel it in the air, and if you're gonna fish you gotta watch the river too, and the height and water; the water cannot be too high because the fish aren't running and like ah if ah the wind comes from the east, the fish don't bite for some reason more something to do with the humidity and the air, and the dryness or if it's a wet

air, you watch the height of the water, because in the springtime, first came the eels and the spring run Chinook came with the eels, then after that, came the summer run Steelhead and after that was the fall Chinook and the fall, what we used to call, long time ago, was silverside . . . they don't call them that anymore, they call em Coho . . . so then after that was the winter steelhead, it wasn't seasons, you just learned the runs and the times and the fish came and, and it all depends on the water too cause when the water's real low there's no fish but there are crawdads, that was another thing, get crawdads. The river used to be just loaded with crawdads until people started harvesting commercial . . . and they're kinda getting less and less too . . ." [Frank Simmons interview, May 23, 2007]

3. Adaptation

The understanding of how things were and how they have altered has been shown throughout the interviews. The information that was passed to them was recounted and taken into consideration. Most all of the members can recall a story or information about "the way things were" in some form, whether it is the resource itself, or the area.

Dave Hatch explains the story that was told to him: "The only area that was really important to us was just the settlin' in right there at the North fork of the Siuslaw because that's where Grandpa's boathouse was, and that's where so many of his stories were, but his stories only go back to um, oh, probably the mid-twenties, um, and he was always telling me stories about how different the Siuslaw

was from the way it was when he, from early on . . .” [Dave Hatch interview, August 20, 2007]

Adaptation to these changes, geographically, ecologically, environmentally, culturally, is a survival technique which has been integrated into daily life for members and their families. “I can remember Grandpa always had a smokehouse there. We lived in Buena Vista . . . he actually cut it in strips, he’d filet the fish and let it hang over those rods or put them through the dowel-type looking things, and you know smoke the salmon, but that . . . whereas some people that used old refrigerators would cut it in chunks and start their fire and smoke the salmon that way, but Grandpa did it in the old, I think the way the Elder Indians did and I like that better anyway. Us kids would come home from school and run out there and grab a piece of smoked salmon.” [Jessie Davis interview, October 9, 2006]

Tina Retasket explains about a traditional behavior that is maintained in her family: “. . . I get this huge urge when, when it’s time, when it’s starting to get time, and I’m sure that there’s environmental factors I’m not even aware of - when it’s time to go gathering berries or time to go do this or that, I, I think I probably feel it more than I even realize, I think it’s just ingrained and you just do it, and I’ll be calling up my kids and my nephews and saying: ‘it’s time – we need to go’ and so they gather all the kids and the great nieces and nephews and we all pile into the cars and go lookin’, and sometimes it is, or sometimes it’s close, so I think probably there are things, factors that I don’t even realize that are going on . . .” [Tina Retasket interview, August 29, 2007]

Unfortunately, some of the information has been eroding from lack of being able to access or practice the activity which has been handed down.

Shirley Walker gives a clear example of this: “I’ve forgotten most of the stories I was told . . . but I’ve been away from it for too long.” [Shirley Walker interview, September 27, 2007]

Tina Retasket explains another aspect of this occurrence: “I think there’s probably things I watch and probably don’t even realize it, because they’re pretty ingrained, things just happen . . .” [Tina Retasket interview, August 29, 2007]

Altering patterns for collection and resource use has become inevitable, not only within the environmental aspect, but also within laws and ordinances which govern these environmental systems.

“You know the seal were here longer, managed very much by the Native population, and that more or less continued because early folks realized that the seals were hammering the fish populations, and so they put bounty on the seal. But then the ah, ah Environmental Protection Act passed and folks couldn’t do that anymore, and now we’ve seen seal gangs take over the ecosystems.” [Dave Hatch interview, August 20, 2007]

This alteration has deeply affected the tribe on many accounts, not just the seals. It is in this manner that watching the environment becomes so vital, not only for a clear understanding of what systems are changing, but also how to best collect resources without endangering and overharvesting.

When collecting any resource, analyzing the environmental factors is vital to understanding the game populations and movement patterns. This understanding is an intricate system, and requires a balancing of information, not a quick analysis based on several factors. While the members summarize their understanding and what to base their surrounding conditions and indicators on, there are far more complex underlying factors of reasoning at work prior to these conclusions of what is looked for in environmental factors:

“Weather wise, they would talk about the crops, like the apples and the berries, and how heavy they were and how light they were stuff what kind of a winter it was going to be, and they watched the animals, how much they stored, how early the bears hibernated, that sort of thing to predict the weather with . . . heavy crop gonna be a hard winter, store up lots of food . . .” [Oscar Hatfield interview, October 8, 2006]

“When they went hunting for deer, if it was really fat they’d say a hard winter was coming, because nature’s way of providing for a hard winter . . .” [Shirley Walker interview, September 27, 2007]

“Well they used to say, like the squirrels, if the squirrels were really working hard you know, gathering nuts it was gonna be a bad winter and if they weren’t, it was gonna be good.” [Gladys Bolton interview, July 10, 2007]

“Because there’s going to be animals around wherever there’s the food that they like so you go to those areas and start looking, where there isn’t any you

bypass it, there won't be any tracks or anything . . ." [Oscar Hatfield Interview, October 8, 2006]

Tina Retasket shares her experience of understanding multiple components of smelting: "We'd go get the smelt, because that comes in on specific sands, and ah, you pretty much have to find runners to go down and watch for that, because they come in and the smelt send runners out; smelt will send a set of fish out first, and if they don't come back . . . they wait out there, they don't come in, so they send runners in, so you have to wait, you have to watch those first couple set of runners, of the fish come in but somebody has to be there, the smelt really like the night time, and so um, we did a lot more fishing at night down in the Yachats because they have the special sand, they don't come in on just any sand, they come in on the sand that's almost like little tiny pebbles; that's the kind of sand that they like, they don't like just the white sand that everybody likes at the beaches, they don't like that sand . . . and they come in to lay their eggs and stuff so they, they like, I don't know, maybe it's easier to get through that, I don't know, but they actually send runners out and wait for them to come back before they'll come in . . . and they often will follow the moon, they like the moon . . . which is kinda nice because when you have a full moon it's really a lot easier to catch the fish too because you can see them!" [Tina Retasket interview, August 29, 2007]

There is a matrix of complexities within the TEK system which has been in place and utilized for the management and implementation of knowledge which has

been addressed through tribal members' interviews and recollections. These information systems have been an integral aspect of reality and environmental knowledge, which can be traced through generations, and specifically related to place and time, specifically in terms of the seasons and the changes which are inevitable in the environment.

One of the components of TEK is the very visual and kinesthetic aspect to which it is applied and utilized within any given environment. The experiences garnered from one ecological setting are called upon to base traversing and navigating another foreign environment. Such was the case for the Siletz tribal members who were removed from their homelands, only to be placed on what is now known as the Grand Ronde reservation, and then to be moved to the Siletz (Coast) reservation area. It is often the case that recollection of visual landmarks can institute a clear recollection of a memory. While remembering, many people know things only by sight and recognition of landscape points from the visual aspect of the senses. The verbal aspect is not as indicative or does not draw out recollections as keenly as sight, smell and sound of the local environment and changes does. The mental picturing of any given activity elicited details. Once the interviewees began replaying the routines and behaviors, they began mentally reconstructing the scenario.

Indigenous world view is constructed of not only the most commonly touted cultural norms and aspects which are categorized, but also the local environment, which has been an integral aspect of development of this world view. As Native

individuals learn, it is often through the multi-sensory teaching approach of elders who take the time to facilitate an environmental multi-sensory experience, allowing the child to experience and spend time exploring and integrating these teachings. These children readily absorb the environmental cues and subtleties, building onto the teachings as a foundation, and allowing the world to share their experiences and knowledge in a more complete and holistic manner than can ever be garnered through a classroom experience.

Dave Hatch talked about knowing the tides' cycles and how it related to the moon: “. . . you just know where the moon is and you knew what the tides would be like . . . a new moon and the full moon you get real low tide in the morning, and then you can kinda figure out where it is by where the moon is where the real low tides are going to be and where the high tides are gonna – cause you don't know how high they are or any. . . you just kinda have an idea, and you remember what it was like yesterday, so you know what it's gonna be like today.” [Dave Hatch interview, August 20, 2007]

Gladys Bolton discussed the same: “My Grandma and them they used to watch the ah, moon and everything you know to see what was gonna happen, I don't really know what they did but they I know they used to be, ‘a good day for . . .’ something they were going to do” [Gladys Bolton interview, July 10, 2007]

“We just knew . . . someone would say they were in, some were almost year round, like the perch . . . in the fall when it started to rain, it was the flounder would come in to spawn, and of course you'd get the salmon runs . . . and then of

course we knew the trout run and we'd fish trout up the river . . ." [Ken Hatch interview, September 6, 2007]

The environment itself was the teacher, the model and the example from which all information was learned. The system of knowledge changed and evolved as did the environment, and as did the resources which lived within the environment. Understanding the change was vital to understanding the area, and to survival. Ken Hatch discusses collection: "Things like the berries we'd gather huckleberries and blueberries when they were ripe . . . chitam bark was only a certain time of the year, the bark is loose because you can . . . the sap's flowing, and you can . . . a lot of that stuff is season. Mushrooms are very seasonal . . . when it starts to rain in the fall, why suddenly . . . you find them . . ." [Ken Hatch interview September 6, 2007]

One of the most common examples that was routinely offered during interviews was that of the "eel ants" or carpenter ants as a predictor of the eel runs. "I've heard some of the stories from other folk, about when the carpenter ants, the termites fly, then you know the eels are comin' . . ." [Dave Hatch interview, August 20, 2007]

"These big black ants would come up out of the ground, you would see them down in the field . . . if you saw the ants come out like that, they'd say the eels are running . . . so then the guys would go up . . ." [Shirley Walker interview, September 27, 2007]

“They did pass on was eel bugs, and everybody knew about the eel bugs . . . soon as they came around, you knew that the eels were running, so . . . it was time to go get eels. . . about May or so. . . .” [Gilbert Towner interview, August 11, 2007]

“ The hot sultry weather, the carpenter ants, when the carpenter ants would come out and would start crawling around that when it was time to go eeling they always said – always worked, there is a run of eels that goes up the river in the winter time, when the water’s high and stuff” [Oscar Hatfield interview, October 8, 2006]

“Yeah, people claim that you know, ah, you watch for the flying ants to the beginning of the eels . . . it was said that when the flying ants are out, it’s time to eel” [Ed Ben interview, November 14, 2006]

Traditional Ecological Knowledge is an exceptionally clear example of how interdisciplinary the science of ecology truly is, with the holistic manner being firmly in place, one aspect being vital to the others. A true ripple effect occurs when the aspects are off balance from the ecological system, and dysfunction is evident within the environment and among the species. Siletz tribal members have repeatedly documented this phenomenon, through their generations of narrations and careful, meticulous observations regarding the landscape they traversed on a daily basis, and who that landscape changed, and thus how they changed with the

landscape. However, Bowler would argue some that branches of ecology are highly reductionist, while others are more holistic.

a. Evidence of how TEK has been transferred through generations

Systematic implementation of knowledge is applied through application of stories and utilization of the environment. This information has been integrated in such a way that it has become almost a fundamental aspect of members' lives. Stories and information regarding specific activities have been integrated into common everyday activities and the normalcy of information passage has become almost second nature, so that members are not always aware of the wealth of the information they retain. Even younger generations have a system which has been taught through a variety of means, mostly oral transference, and this is exhibited through the information participants offer in the interviews.

Extracting or isolating an ecosystem from the surrounding identified systems would cause the surrounding dependent systems to falter and suffer irreparably, clearly disrupting this natural pattern of progression, and risks destruction of that particular system, forever altering the environmental landscape. This was addressed in a variety of ways by tribal members, clearly understanding the delicate nature and balance which must be maintained environmentally, for sustaining healthy ecosystems to survive. Various tribal members addressed impacts on different species from destruction or degradation to the ecological systems they were most familiar with, and could identify other geographic areas where they had witnessed the same impacts. This transference of knowledge was

evident, although they were not actively involved in the direct care or maintenance of some geographic areas, or species they addressed.

“[The area’s] getting overpopulated . . . I live in Lincoln City, and we have deer and raccoons and once in a while I spot a cougar and stuff right in the city limits, and I assume that they are learning too that they are more safe in the city than they were out in the wild where they are hunted and you’re not allowed to discharge firearms in the city limits anymore so . . .” [Frank Simmons interview, May 23, 2007]

4. Adaptation and Loss

The adaptation that has occurred is accompanied with a profound sense of loss and comes at a very real price, not only intellectually, but physically as well. Through stories there is a sense that this loss has often been a forced adaptation that has occurred through force and intimidation by state and local agencies.

Change is inevitable and within any system there is an evolution of place and the manner in which change is brought about. For tribal members, change has brought with it difficulties and struggle. The members who are Elders remember the area of Siletz and surrounding areas with a keen sense of abundance and livability. Loss has obviously occurred on many levels.

David Goodell describes the Siletz area and the amenities it provided when he was young:

“ . . . like I say used to walk back to Government Hill . . . used to have a hospital and a meeting hall and they had six cabins built up there used to have a cannery, and ah, they run water from right behind the house here right now, and gravity took water down there to a cement reservoir where they’d catch the water and they’d run the water all the way down to Government Hill there, to the cannery . . . salmon or deer meat or whatever you wanted to can I think they charged them a half a cent a can, they furnished the can, they could use the cannery, and ah, it was wonderful place when I was a kid around here.” [David Goodell interview, October 16, 2006]

It appears that adaptation and loss often seem to exacerbate each other. Members have discussed transgressions experienced or witnessed, and relate these to present day situations. These experiences continue to illustrate having to endure unwanted assimilation and genocidal acts.

“[There] was that fellow that used to go fishing all the time, and ah, he would ah, they’d pick, he’d fish on the Indian land when he got out on the, on the county roads they’d pick him up and arrest him, in my time I can remember . . . he’d be on Indian land, but when he’d get out on the county road I guess . . . they would ah, arrest him and took his fish! I think there was (other people), but this one I know, this one was our good friend we used to go visit him at the jail. He gave them away, he always was giving, he gave everybody fish . . .” [Gladys Bolton interview, July 10, 2007]

“ . . . white people have bought the lands there and they fence it in and you can't get in there. Dewey Creek is a real good place for salmon . . . ah even when we had the right to hunt and fish, I used to go to jail quite often, they would take my animal or they would take my fish . . .” [Gilbert Towner interview, August 11, 2007]

“Most of it's private land now . . . a lot of the areas I know they fence off . . . I haven't gathered anything in the last twenty or thirty years on the coast but I know we get complaints from people who go somewhere to gather and it's either posted or fence prevents you from, or gate prevents them from getting to those areas . . .” [Delores Pigsley interview, October 18, 2007]

William Mura backs this sentiment up regarding hunting elk: “They tell ya certain areas, and these farmers and stuff you can't go into their areas, that's where the elk are but it's private property . . .” [William Mura interview, July 11, 2007]

“We can't gather our supplies that we need for, um, the basketry to and that probably doesn't seem like it pertains to the food source, but it absolutely does, because we used all kinds of weirs and different things to gather with, and we can't get the materials to make the baskets and the locations where we had them have been logged, they're also in private ownership, it . . . I'm so frustrated, this has been my complaint to the natural resources committee for a long time, to, um address with the state, but not just with the state, but the timber owners, they've um, gated up all the roads, you can't get anywhere, they're trying to protect their asset, but at the same time, their practices have eliminated or hampered the growth of the

natural materials that we need to make our baskets with and the bows and the arrows, and all the other things that we use – there were many many things that we got out of the forest. Um, we can't go berry picking, because we can't get access to it, and some of them have improved because some of them are now opening their gates, at some times on the weekends, so if you can go on the weekends you can go, but they lock it up during the week so you can't get access to it. The logging practices have had a big impact on the natural materials in this area and their – I'm not faulting them . . . but their need is different than our need. We've not been able to go we've been as a terminated tribe in particular, and a restored tribe, we were forced into a hunting and fishing agreement that prevents us from being able to go out and gather and hunt like we used to do , and we're bound by the state's rules and the state's decision, and we found clearly, that the agreement that we signed, number one was forced on us, and that's, I can't stress that enough – it wasn't something we did voluntarily it was either sign the agreement or not get restored, and that was decision they had to make at that time as far as I'm concerned it should be null and void; secondly, the pittance of fish and tags that were allowed clearly were not enough, it equates to about one pound of fish per person per year and it also . . . allows the state to determine for us when our fishing season should be and it doesn't work, there's no water on the river, the fish can't come, and so by the time the fish can come up, the season's over, we can't get tags we can't get fish, they also will not allow us *on* the Siletz river, we have to fish on the tributaries, we can't fish on the river, we can't hunt, except for the tags that the state gives us, the

one thing that's positive about it is, one of our tribal members can hunt for us, because I no longer hunt, so my nephews do it for me if I get a tag they do it for me, um, but the number of tags is certainly not enough to feed the people that are there”
[Tina Retasket interview, August 29, 2007]

The acknowledgement of loss is a complex issue, and overlaps into areas which cannot be easily defined through the lens of Western ideology. The Native American holistic worldview must be addressed and understood, even on a basic level, to be able to comprehend that all of these areas which members have addressed come into play for members' lives in ways that most non-indigenous Americans cannot fathom. Most members have a sense of rights and legal arenas, even in the most general sense. Elders who were actively involved with Restoration, and felt the devastating effects of termination have a more vested view and deeper understanding of how the aspect of TEK and loss are intertwined:

“ . . . they never thought very much of it because . . . back in then, water was plentiful, here on the western Oregon coast water, there's always water, water available because there wasn't hardly any people around here and more and more people uses more and more water and ah, it's becoming a scarce commodity and when water rights are issued out by the state, the state is issuing water rights to municipalities or farmers or ranchers or whatever it is . . . and those rights belong to the Indians, those rights were never taken away . . . and way back when they would say that was a right to live, that was why the Creator put Indians on places where they had a chance to live where there was plenty of game, and plenty of

fishing, clean air, and shell fish, and water rights . . . and it's a habitat thing no matter if you were in the desert or where you lived, people lived where they had subsistence, a way of life, but those ways were needed by other people as they came westward, Native American Indians were in the way, they were like animals or ants, or bugs, they were a nuisance, they called them Rogues they were enemy in their own land, and so the land was taken . . . more and more and more . . . and a lot of this land from our tribe, was taken illegally thousands of acres was taken without compensation. Someday, within the near future, I hope, there'll be enough people on Tribal Council to feel the way of our ancestors and know what they gave up and we receive *so* little for, from the United States Government the rent is due on this land that was taken, we want our land back, we want our water rights back, we want our hunting and fishing rights back, and we were taught by our ancestors to conserve these things, that nature provides for us, the sustenance that feeds our bodies, and we will go on and on and on . . ." [Frank Simmons interview, May 23 2006]

VIII. Discussion

There is a bond that transpires between tribal members and the land that is “home” or addressed as traditional geographic areas. The knowledge that is accepted, then, becomes a part of that person’s identity and life way.

“I used to live on the Siletz River . . . catching Steelhead, Chinook” [David Goodell interview, October 16, 2006]

Living on the Siletz was clearly metaphorical, but also very literal. His life, and other members’ lives, operated in terms of being connected with the traditional areas of being, of understanding and collecting as they had been taught and maintaining the knowledge of continuing to facilitate this information. The loss that has been experienced has been felt to the depths of their souls, into the reaches where non-indigenous people who have no experience or baseline for understanding, can fathom. It is then difficult to bring about a sense of understanding between agencies and entities who have no clear recollection of a geographic homeland, no understanding of tragic loss, have no Trail of Tears that can be recounted and relived, no bond with any geographic area or place, physically, culturally, intellectually, or spiritually.

The Confederated Tribes of Siletz have endured a tremendous amount of opposition and argument regarding the re-establishment of the tribe. The efforts toward re-instatement of rights has been long and difficult, ending with displeasure and many treaty right and access areas being lost or denied, as a result of being forced to sign a treaty agreement which is not in the best interest of the Siletz

people. There is also little accordance with the aboriginal lands and traditional areas from which the multiple bands of Siletz people were removed.

The continual indignation has a direct affect on the Traditional Ecological Knowledge, along with traditional hunting, fishing, gathering and collecting practices which have been affected. These practices have been an intrinsic aspect of tribal and cultural life of the Siletz members. It is in direct relation to this removal of specific treaty rights that TEK has been affected most stringently.

The Hunting, Fishing and Gathering Consent Decree was adopted into effect June 2, 1979, and approved by the Secretary of the Interior June 13, 1979. This ordinance is an agreement between the State of Oregon, the United States of America, and the Confederated Tribes of Siletz Indians of Oregon (ctsi.nsn.us, 8/16/08). This ordinance attempted to establish, permanently, tribal hunting, fishing, and gathering rights of the Siletz members that declared and outlined within the final judgment and decree of the United States District Court for the District of Oregon. These are also delineated through the Hunting, Fishing and Gathering Ordinance, Siletz Tribal Code §7001 (ctsi.nsn.us 8/16.08).

Native American identity is often tied into the landscape into which the members are intertwined. The land is considered “home” just as intrinsically as houses are. This identification cannot always be articulated, but is evident through stories, information and a distinct and unilateral sense of place. Identity is complex and often fleeting. Current trends, assimilation, and generational gaps, along with traditional information which has been lost or altered, contributes to the identity

crisis within Native American populations, which therefore, by default, contributes to the loss of traditional information systems among tribal populations.

For many Native Americans, being displaced into an strange environment has left them feeling disconnected, and misunderstanding the intrinsic relationship of many who retain and practice TEK techniques. Anger, resentment, a great feeling of loss, and loneliness are often expressed out of frustration that information has been lost and cannot be learned or passed along in any manner that they are aware of. Many members are not even aware of the information they do not have, but this is exhibited in a general sense of loss and misunderstanding, as well as the cultural discord of everyday life, compared to the known information of what occurred as a regular part of tradition in the past.

One of the interesting observations is that while all of the interviewees acknowledged certain aspects which they were familiar with, in relation to some form of hunting, gathering or collecting, there was such a broad scope of natural resources that many items were omitted because of the vastness. When asked about specific items, almost all were acknowledged positively as having been consumed or utilized at some point either by the individual, the individual's family, and/or other tribal families that they were aware of. Nuts, bulbs, greens, and other items were acknowledged, but only after my direct inquiry. These items additionally were not discussed, and the perception was that these things were not as important as the items interviewees wanted to identify.

Some of the commonly documented items were not addressed and did not come up readily at the forefront of the interviews, and this may bring rise to the question as to why. It is my sincere belief that these resource items were not addressed simply because it is nearly impossible to collect them. As the interview progressed, and the focus turned to collection and rights, it became abundantly clear that there is a deep loss felt by tribal members that is directly tied with the land.

The interviewees' mindset during the taped interviews seemed to be focused on the items which were readily available currently, or in the recent past, instead of the items which they were unable to collect. Even when asked pointedly regarding items that were once collected or consumed, the question was addressed only briefly in comparison to the discussion of foods and items which readily are taken. This type of response from tribal members strongly coincides with the fact that adaptation is evident through the course of altered landscapes and the destruction of rights. Along with these reasons, focusing on the items which are able to be collected and used are prized because of the erosion of rights for Indigenously used resources, along with the difficulty of being able to gather and consume items which have been a traditional aspect of life. Negative thought processes are a culturally addressed issue which is not promoted, and as such, focusing on the negative aspect of being denied access and use to traditional foods, resources, and environmental landscapes fits in to the cultural adaptation and evolution that is evident today. It certainly goes without saying that hope remains

to be able to return to the collection of these items. The focus remains throughout the interviews, however, on what is possible at this point in time, and accessing culturally appropriate materials to maintain a traditional and culturally relevant way of life, as much as possible.

“Tribal aspirations to care for the land run far beyond salmon and forest management” (Wilkinson, 2005:321).

The complex knowledge of the land and the ties with homelands that Native people have, are intricate aspects of TEK. There are many components to addressing management systems in which TEK can be useful. This is not only within the system of mainstream American entities and management, but also within tribal systems. The complex nature of sovereignty causes many administrations to balk and forego putting into place a range of applicable systems which would augment their existing programs.

Because of the sovereignty that tribal nations possess, it is often considered an entity in and of itself, with the power to make laws and enforce them. This cannot always be as successful as it would seem. Vying for jurisdiction and cooperation with land management agencies can be tumultuous and time consuming. There is no edict that states solely because a nation is sovereign that other entities must cooperate with it. Robert Kentta elaborates on this premise: “It is in the recognition or non-recognition of rights that Tribal TEK’s fate rests. The U.S. government does not automatically honor the reserved rights that come with the establishment of a permanent reservation, and even when it does, the States

often sue the U.S. over those issues of Tribal Rights, and then the U.S. is forced into a position of representing Tribes as their trustees . . . There may be MOU's with the Forest Service under which we ensure regular burning and other enhancement activities on camas patches, or clearing of competing brush from huckleberry grounds, etc., but it is more about fish and wildlife that strain and attempts to exclude the tribe enters the picture." [Robert Kentta, personal communication, 4.14.09]

Self-determination provides a very optimistic and broad scope of what might be possible; however, it can also bring about complexities and confusion when exercising that right. Just as many tribes have fought to be recognized, the battle continues to be able to utilize their reinstated powers and self-governance, in ways that are in the best interest for their tribal populations. Tribal Natural Resource Departments have been expanding their options and are in constant discussion meetings with outside agencies regarding the cultural and traditional practices which are clearly defined within tribal documents and governmental policies. These policies have outlined manners in which the traditional ways of processing the land and natural resources taken from the land have occurred for generations, sometimes millennia. Described too, are the indigenous areas and locations where tribal people have long been known to collect and forage, productively caring for the land in a manner which benefits and cultivates further practices and health of the area.

Because of the decreased Tribal land holdings that have been brought about, land ownership and use patterns have changed drastically, as have the perspectives which many Native people hold. "Homeland" does not always evoke the image of the indigenous areas into tribal members' minds. More often than not, members refer to homeland as the area which they grew, up, or the area which they know to be the current-day geographic region of the reservation. The consideration is one of many aspects which removal and assimilation have brought about. Many of the interviewees considered their homeland areas to be where they grew up, not only the Siletz area.

The tribal aspect of governing ourselves has become a way of life which has brought about many changes for the betterment of the people. This manner of dealing within tribal operations causes a positive effect for the members to witness, and outside agencies as well. This form of doing business builds a rapport, indicating very clearly that the Siletz Nation brings to the forefront a positive and integrated sense of who we are as a nation, along with the evident fact that we manage our resources in a manner which benefits the ecosystem, tribal members, and neighboring entities. Branching into business ventures which promote and help sustain our natural resources clearly seems to be an adaptation to modern society, in yet another arena.

There has been extensive research in the Canadian and Alaskan areas with various Indigenous groups from those regions. The information that has come recently from TEK, has been from a social science aspect rather than a

scientific approach, which lends itself to being approached as a non-scientific endeavor. In reality, TEK has many attributes which allow it to be analyzed in a scientific manner, qualifying the substantial information which is garnered from such a knowledge base and applied in various ecological ways, and with scientifically valid mechanisms.

The impact this research has, allows the scientific community to identify and assist in the implementation of management systems, as well as addressing the needs of community members to geographic regions where treaty rights and access use has played a vital role in the ecological landscape. The depletion of resources is often seen when an areas has been closed off to the Indigenous systems of use. The knowledge which is carried and utilized within this tribal group is vital to various agencies, and land use policies.

Being able to facilitate information systems into policies would assist with negotiations, as well as identifying the needs of the environmental systems which have been in place for generations along the Pacific Northwest coastal region, as well as other areas extending out into the Willamette Valley.

As well as having environmental impacts, there are very applicable results from tribal members being able to utilize information which they may have been segregated from, as well as applying the information to existing treaty and access rights for tribal members. This information can assist with the rebuilding of cultural knowledge and emphasize the traditional practices that have been in use

and acknowledged from tribal members, as well as assisting with general information regarding areas and resources of customary use practices.

TEK and Western science have been viewed in drastically opposing terms. This seems to be erroneous however, from the numerous comparisons that both systems facilitate. TEK and western science are both outcome driven, each desiring and predicting an outcome based on previous known factors. Western science proves the theory of testing a model which can be seen and shown to evolve and expand within a certain set of circumstances, is also founded within TEK systems. TEK predicts based on a certain set of known factors, and while controls are not always possible in TEK, they are taken into account and acknowledged, just as in western science, outliers and variations are acknowledged. The information regarding any given data set in western science, which is compounded by previous studies and documentation, is parallel to TEK. Previous information holds a set of key details for the participants who are utilizing that data and needing to filter information to make a prediction and be able to document the outcome. Experimentation and careful observance provides the information to further the prediction and possibly extrapolate the data set.

The holistic TEK method of analyzing a situation, or body of knowledge can similarly be seen within Western science, as variances and situations are taken into account for the randomness and unexplained functions of the information being tested and unaccounted for in the hypothesis stage. Likewise, through TEK

unpredicted situations and conditions may arise, making the observers note the special circumstances.

Western science and TEK are very similar in the manner in which they proceed and search for answers to relevant scientific questions. It is within the similarities that the validity is proven, and throughout the holistic nature that TEK can evoke answers in the same manner that Western scientific methods can, it is just in a different format, and often skewed because of cultural lenses.

Previous studies in this field have been conducted from primarily a social science perspective, which disallows the scientific component to be addressed and acknowledged. This is vital, because much of TEK, which is applicable in social science, is based upon environmental factors which evolve and adapt. The human component of this interaction is not as important to analyze from a scientific standpoint, since the evolution is merely being analyzed from observation and continual, steadfast documentation through oral stories and relevant ecological information.

The utilization of TEK has broadened over the past decade. Tribal acknowledgement of TEK practices and the cultural relevance has bludgeoned the Western scientific methods that had been relied upon for decades for policy implementation. These techniques have proven to be detrimental and worthwhile only to the mainstream population of individuals and administrative entities who benefit from advantageous sectionalization of management systems. Far more individuals benefit from allowing the TEK management to be productive and

optimize landscape formations, as well as natural resources. There is a growing realization that TEK system management brings about a broader scope of awareness to a variety of levels of management and administrative service branches, as well as bringing information and healthier ecosystems into focus for larger groups of society. This compounds the deeper equation however, regarding control of the land and domination over it, which in itself is a philosophical quandary, with most individuals adhering to one side of the issue or the other. Much of the United States has a dominion stance due in large part to the Christian sects which emphasize the control and dominance aspect. In conjunction with this belief system that is widely held, and has been a basic tenet since the land grabbing times, individualistic perspectives continue to be prevailing as ownership comes to the forefront of life in America.

The Native policy of only taking what was necessary preceded the state and wildlife agencies' intervention long before they began issuing limitations on such resources. It was widely asserted that a few Natives were over-harvesting, and thus creating a deficit of resources for others to collect. This argument also ignored the fact that the fishermen who were collecting distributed the resources throughout the tribal population, which was expected, and again a Traditional manner of exacting the knowledge which was passed down to them. This practice of knowledge is a vital aspect to remaining contiguous to the culture and our history. Maintenance and development of a skill requires practice and utilization, much in the same way exercising the skill of a foreign language requires. The application of this

knowledge base does not necessitate the actual cultural management and sustainable practices of a devised plan, but rather assists it, by practicing the knowledge itself. Tribal members have routinely asserted disdain and harsh criticism regarding over-harvesting of natural resources.

My intent is, and has been, to validate the TEK that the members of the Confederated Tribes of Siletz retain, and strive to maintain. It could very well be argued that the TEK the Confederated Tribes of Siletz members have is disjointed and fragmented because of the very nature of being a confederated tribe. It has been an attempt to validate the understanding that we as a people have a knowledge base that needs to be recognized when negotiations and matters of policy are concerned. There has been a pervasive attitude through the court system and dealings with agencies and by the media, that the knowledge we possess as a tribal entity has not been valid. The fact that we are a confederation remains a vital point in this perspective. I believe that the fact that we are a confederation does prove to be a challenge, but that because of this confederation, as members point out, we know very different areas, and as we utilize the oral aspects of communication which are vital to our culture, this knowledge continues to expand. There is a depth and a breadth which cannot be reproduced nor extinguished through the very nature of members discussing areas which they have intimate knowledge about. It has become very apparent that the people are striving to maintain TEK, as well as striving to relearn and utilize it. The cultural relevance of this knowledge can be witnessed on any given day, in the normal everyday routines, conversations, and

explanations regarding who we are as a people, and where we are headed in the future. It is through this exchange of knowledge that we can further empower ourselves as a tribal entity, and as tribal members.

Environmental areas are routinely subjected to policies and management plans of various entities and agencies. Research such as this can be utilized to assist members of various communities to further manage areas optimally. This research can be utilized to further document the areas that have been traversed and utilized in a culturally appropriate manner, and how the Siletz tribal members have historically been continually managing and collection the knowledge of such environmental areas. Research can also be extrapolated for further studies into areas of specification, and can be examples of use from, and by the tribal members, as well as for cultural information for the tribe as an entity itself; such as for the Natural Resources department, or the Cultural Resources Department. It is within research such as this, that entities can be shown how vital environmental awareness and TEK is within Indigenous communities, specifically Siletz. The environmental information can assist and promote sustainability and viability within communities and agencies, as it promotes re-growth of environmental areas which have been lagging because of sole reliance on Western scientific methodology to promote and manage areas.

The ability to be able to provide agencies and entities with founded research and documents which further prove the areas traversed, cared for and a solid depth and breadth of the knowledge base of these environments, can assist not only the

tribal community, but also the local, state and federal agencies which have a vested interest in management and cooperation with sustaining the environment.

As many elder tribal members struggle to maintain the TEK which has been an integral aspect of their lives and very existence as well as the maintenance of tribal identity, they are finding the preponderance and infiltration of Western media and Western values taking a foothold in younger generations. The assimilation which was forced upon many of these Elders and their families is having a very dramatic and evident effect on the younger generations of tribal members. TEK has been a vital part of maintaining who we are as a community, even though it has not been addressed in the specific terminology. The reciprocal history of what the land means, and what members mean to the land, becomes threatened by the very entity which so many young generations rebel against. Without even realizing their support, these younger members argue that non-indigenous communities have stolen from them, and find themselves angry and desperate to reclaim their heritage and their history, all the while buying into the media hype and promotion of high-tech, fast-food, fast-paced, ego-centered individualistic lifestyles. Combining the aspects of being exiled from indigenous lands and geographic regions, non-recognition of Treaty Rights, having assimilation techniques becoming effective, elders not being able to reach out and teach in the manner that is most effective, and the younger generations being so overwhelmed by time constraints, TEK is slowly being eroded. It now rarely is being passed down in the traditional manner.

Many of the interviews contained flowing memories of collection or instances of understanding collection and gathering in some format, with either the individual themselves, or a family member or fellow tribal member. The instances were unanimous that collection and gathering is a vital aspect of the tribe, even if not articulated as such, or performed regularly in the manner that has been longstanding tradition. Most of the interviews reflected the familial integration of knowledge that was passed along and shared through a variety of methods, most often being an elder member leading by example of whatever traditional collection and gathering was identified. Methods ranged from indigenous gatherings and events, to information of being told orally regarding whatever item was being sought. The overwhelming method however was that of observing through example, application, and repetition.

This evidence of information supports the manner in which traditions are continued and validating the issues that members are facing while striving to reclaim and restore TEK, and TEK practices. Members are finding it difficult, as they are realizing and understanding that the restriction of areas and traditional geographic areas has become a roadblock to utilizing the traditional knowledge and implementation of that knowledge.

It was an interesting phenomenon that none of the interviewees voluntarily discussed the consumption or gathering practices of camas, or acorns. Both of these items are known to be staple food supplies, but both were virtually ignored throughout all interviews unless I pointedly broached the topic. Even at addressing

these items specifically, individuals downplayed the importance of them, and readily emphasized other aspects of traditional practices of hunting, fishing and gathering.

Though I initially had intended to conduct fifty (50) to one hundred (100) interviews, this number was capped at thirty (30). My initial intent was to follow tribal familial lineages through generations, and note the gaps that occurred for TEK, and the practices that were maintained. The interviews I secured first were of Elders, and this group is the majority of the research interviews. This proved to be worthwhile, and a data set that juxtaposed the younger generations' responses when approached for an interview. Many of the younger generations did not feel they retained or had learned any relevant knowledge and I was often referred to an Elder for an interview. While some of this response may be cultural, it is also evidentiary that the TEK that is retained remains within the elder populations of the tribal members because of the younger generations' decreased ability to practice and maintain the skills needed for TEK retention. The opportunities for learning and application of TEK seem scarce, as jobs, families and increasing demands on younger members' time is ever-present. Elders also routinely noted the extended family systems remained intact, and families were close-knit, spending mealtimes and evenings together, providing ample opportunities to learn and secure TEK.

The thought process of applying generations' worth of information has become almost second-nature for many tribal members. This application process has become innate for many of the people whom I interviewed, and there was a

common understanding that many friends and relatives behaved under the same principles. The intricate understanding of the area environment, geographic changes and the ecological well-being has evolved through the careful and painstaking observations that previous generations noted about the environment. This observation and adaptation system could easily be construed as trial and error on a rudimentary level; however there was no room for error when the members relied on the local environment for simple survival.

The mechanistic worldview is vital to accurately analyze many subjects within the Western scientific realm, but addressing TEK, as a system within its own right, being able to view the situation at hand in a holistic and complete manner is also vital, and the mechanistic view falls short of being able to address the functions and facets which are our environmental foundations. The ability to look at the holistic view that TEK provides, is vital to understanding how ecology functions for the betterment and efficiency of the species inside and dependent upon that environment. It is also worth noting that no ecological system or sphere is independent and so, again, this mechanistic worldview is inadequate to address the overlapping and contiguous systems.

There is a cyclical pattern found in all of nature, and it is clearly documented in some species, and not so clearly in others, but evident nevertheless. While the never-ending cycle of ecosystems relies on the regeneration and cohabitation of a biosphere that enables its recipients to prosper and thrive, much of the Western scientific methods which analyze specifics aspects of such a cyclical

system do not acknowledge that dissection of a species in such a manner alters forever their production, reproduction and thriving rates. The Nautilus shell is a very clear natural pattern that shows us that environmental conditions rely on patterns of concentricity and repetition for a clear and productive manner. Native societies work in circles, noting the naturally occurring circular patterns in nature, and in all that surrounds us.

It can often be a confusing and foreign exchange when natives are addressing their local environment. This occurs for Natives and non-Natives alike, as only those who are actively involved and participate in of caring for places within the realm of TEK know intimately the intricacies of the ecological conditions and changes which need to or have occurred. This also can be confusing and distancing for younger tribal members who have not learned the TEK that would have occurred naturally from elder generations, but for whatever reasons have not been able or allowed to learn the information.

Tradition and TEK that have been applied and utilized in the Siletz nation by tribal members have been based upon the recollection and application of certain behaviors which have evolved from differing areas of Oregon. Because Oregon is such a large state, and the additional complexity of the removal of vastly differing bands of Native peoples from remotely differing regions during relocations efforts, there is a conglomeration of techniques and practices that have evolved. The varying geographic regions in Oregon have made it difficult for any specificity to occur.

Many of the members are active in the tribe and desire changes, and continue to promote tribal events. Gatherings are a commonplace activity. One of the most known is the Run to the Rogue relay, which occurs annually. Tribal members routinely adhere to the support and continuance of this established run, honoring the ancestors' walk of removal, which designates the geographic locations of the tribal members' heritage, the lands which have been forced from their lives through a series of illegal transactions and discriminatory practices. The members choose to promote this, acknowledging the lands and areas which were once commonplace, but that the People are now barred from. Perhaps it is the sadness that such a devastating loss prevents us from being able to care and honor the land in a manner which we would choose. Perhaps it is the optimism that continues in our veins as we walk and support each other through those miles, looking at the roadside, looking through the trees, feeling the pain and devastation of generations past. Perhaps it is the sense that we must continue, to feel only a minute fraction of what our families did, as they carried babies and children through snow, feet aching and raw, with hearts heavy with despair; the only goal to survive. Watching our tribal women and men care for one another, enduring the pain of such blatant disrespect, our elders who were forced to suffer atrocities far beyond what current members can imagine, know they must carry on, for the survival of our people.

Our words contain depth and meaning and a genuine love of the land and its connection. Our words contain love and agony, history, and most of all: hope for the future. Simple English phrases cannot fully justify and completely explain who

we are as a people, and the interconnectedness we retain, maintain, and continue.
Ours is a living history of TEK. We incorporate all of that which was, into that
which is presently, and cultivate for that which will become.

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Appendices

A.

Research Interview Questions:

Please state your family ties.

When did you start hunting/gathering/fishing?

What is your first memory of hunting/gathering/fishing, either yourself, another family member, or tribal member?

Who hunted/fished/gathered in your family? Please specify Grandmother, Grandfather, Mother, Father, etc.

Who mainly taught you to hunt/fish/gather?

How did you hunt/fish/gather? Were there specific traps/ baskets/ nets/gaffs used for these purposes?

Were/Are there specific areas you hunt/fish/gather?

Why are these areas important?

Did/do you hunt/fish/gather in other areas?

How did you know when to hunt/fish/gather?

Who taught you this knowledge? Did you hear from only family or other tribal members?

How old were these persons when they conveyed this information to you?

Were these people mainly Elders or younger generations?

Were there common tribal stories of weather clues?

Were there common tribal stories of environmental factors that had to be taken into consideration? What were these?

Were there common tribal ecological factor stories that had to be taken into consideration?

Were/Are there any family stories of weather clues?

Were/Are there any family stories of environmental factors that had to be taken into consideration?

Were/Are there any family stories of ecological factors that had to be taken into consideration?

Are there specific geographical locations in Oregon that are hunted/fished/gathered?

Tribally? Familially?

Do any of these places have specific times when hunting/fishing/gathering occurred?

Why did these have specific times associated with them?

Are any of these areas traditionally territorial to any groups or families?

Are there any resources that were traditionally hunted/fished/gathered that are restricted for collecting? What are these items? Where were they originally collected? When (what time of year/season) were these items collected?

Are there any natural resources you would hunt/fish/gather today but can't because of depletion of these resources? When did you stop hunting/fishing/gathering these resources?

How did weather patterns affect hunting/gathering/fishing?

What kinds of weather changes affected hunting/gathering/fishing?

How did you know when the weather would change? What indications did you look for?

Did you notice animal behavior change relevant to weather changes?

Are there any traditional stories that relate to hunting/fishing/gathering that have been told and passed through generations?

Have you witnessed any landscape changes in the areas hunted/fished/gathered in and around?

Have any geographic changes occurred to the extent that the hunting/fishing/gathering is significantly altered in some manner?

How would you describe the changes to the environment?

How would you describe the changes to the natural resources stocks you would normally gather?

How long did you attend school?

Where did you attend school?

Did you learn about science in the school you attended?

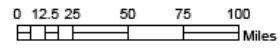
Did you receive information about natural resources that were traditionally hunted/fished/gathered through school lessons?

Did this information coincide with the information you had learned from family and tribal members?

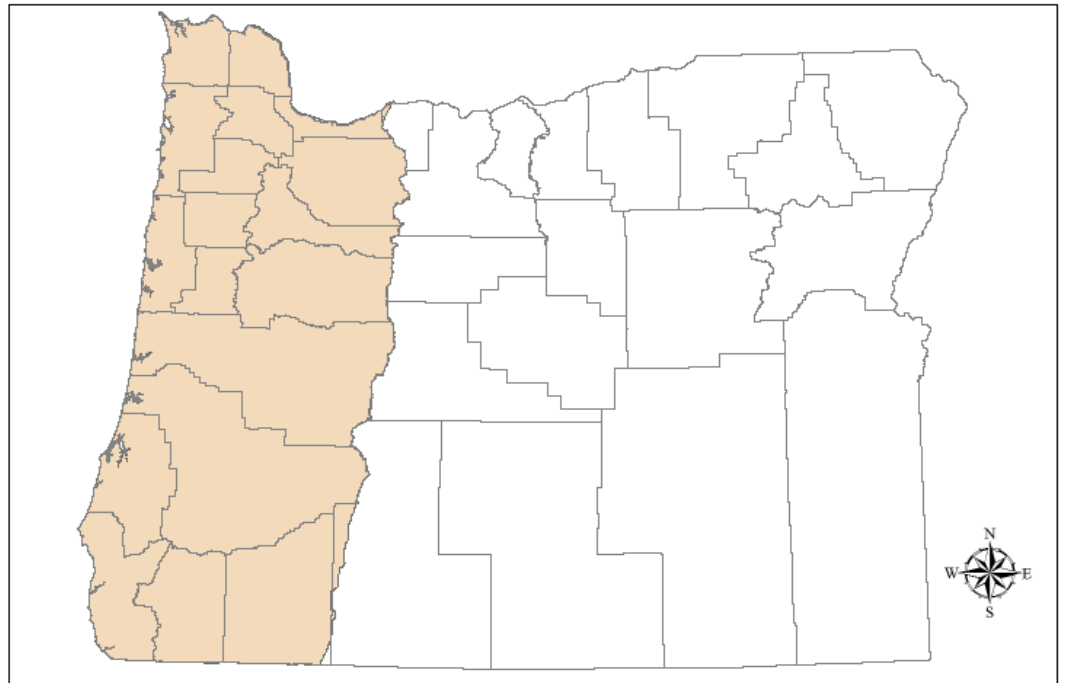
Who else would you recommend I interview?

B.

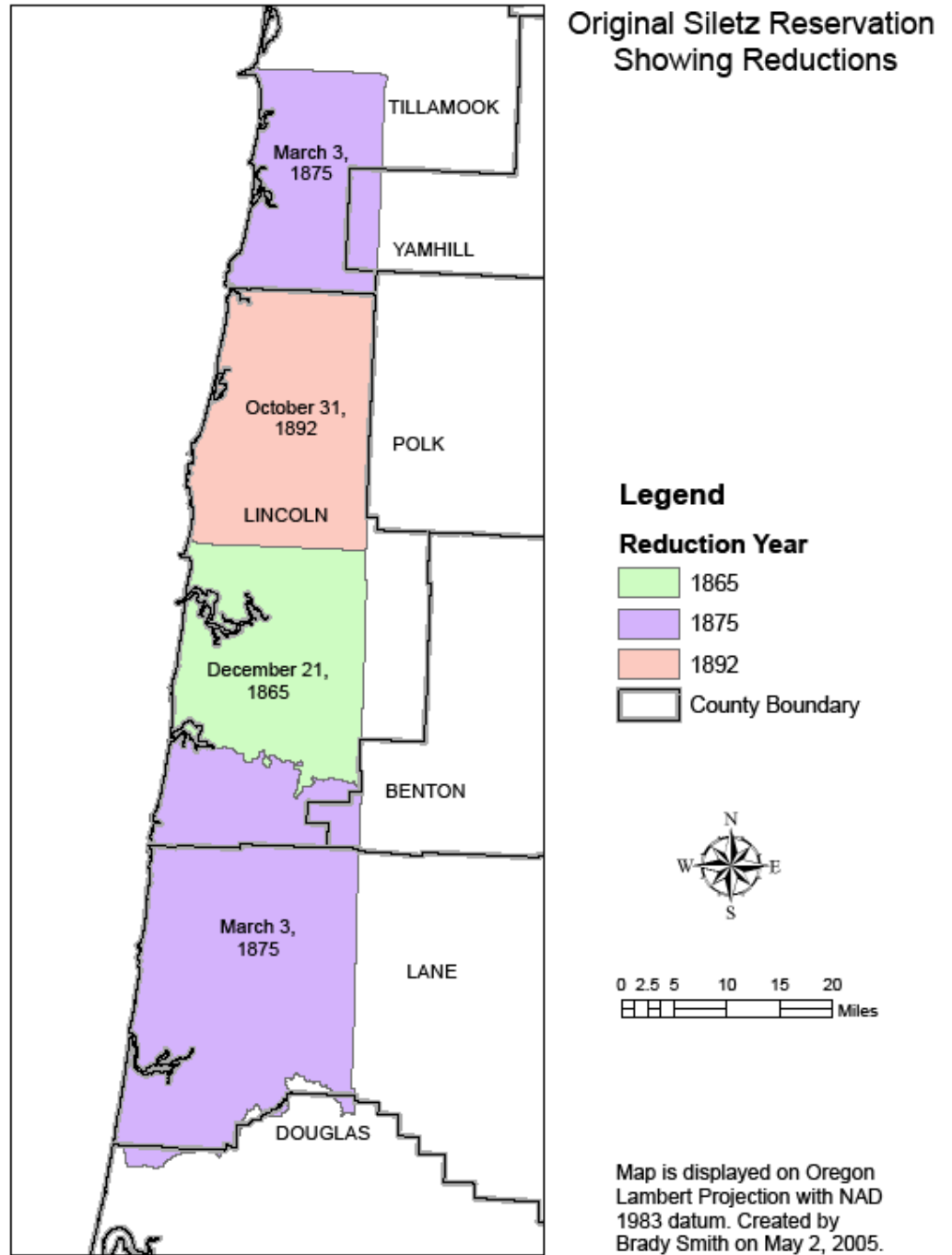
Aboriginal Lands in Oregon



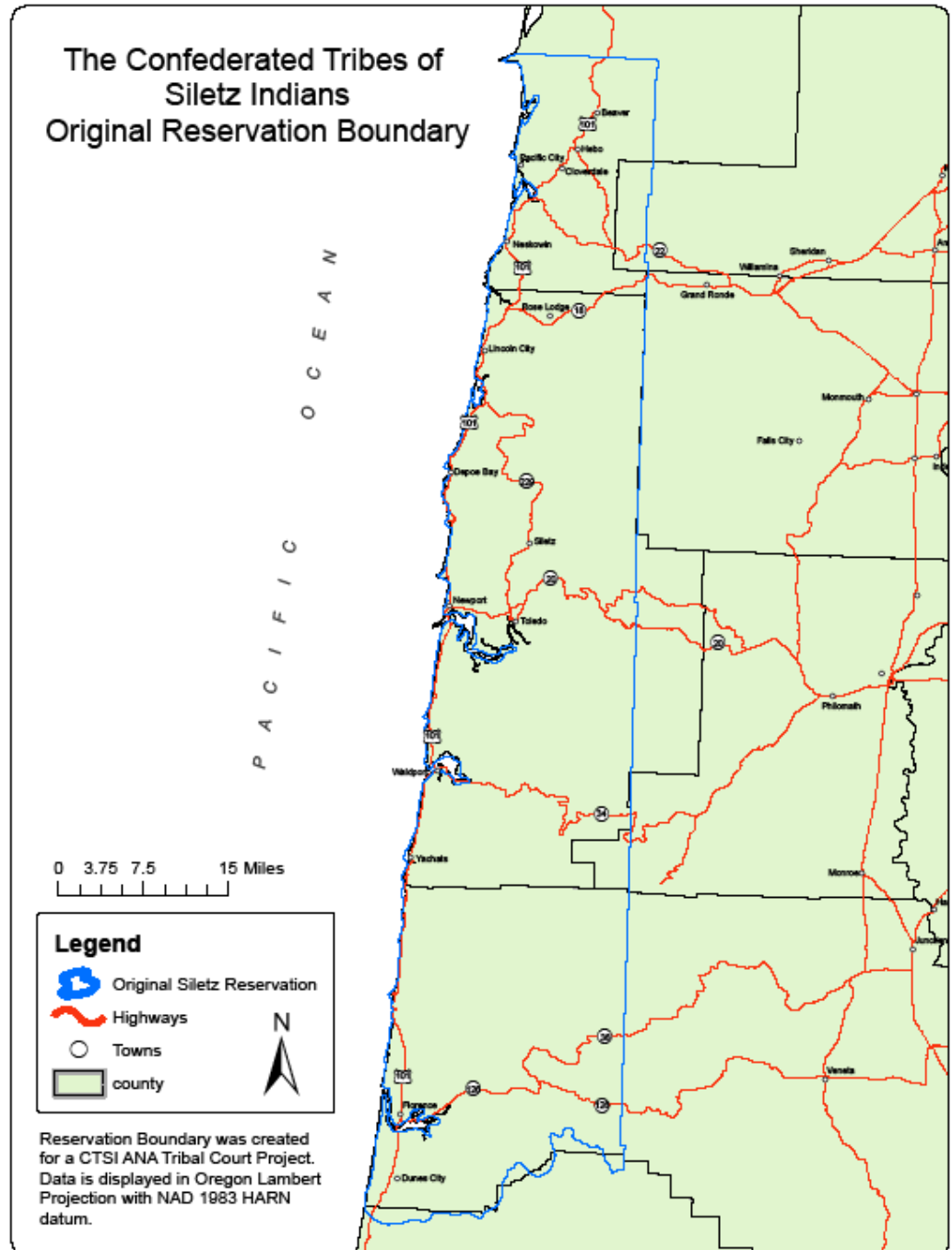
Data was collected from the Oregon Geospatial Data Clearinghouse. Map is displayed on Oregon Lambert Projection with NAD 1983 datum. Created by Brady Smith on May 2, 2005.



C.



D.



E.

