



BUILDING NATIVE NATIONS

ENVIRONMENT,  
NATURAL RESOURCES,  
& GOVERNANCE

edited by:

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THE Morris K. Udall FOUNDATION  
SCHOLARSHIP AND EXCELLENCE IN NATIONAL ENVIRONMENTAL POLICY

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Building Native Nations  
Environment, Natural Resources and Governance

ISBN 1-931143-20-X

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# p r e f a c e

The Udall Center for Studies in Public Policy and its Native Nations Institute are pleased to bring you the proceedings from the “Building Native Nations: Environment, Natural Resources, and Governance,” Conference in Tucson, Arizona.

More than 200 people, including representatives of some 40 Indian nations in the United States and Canada, as well as federal officials, representatives of a number of nongovernmental organizations, and other interested participants, attended the event. Organized and hosted by the Udall Center and its Native Nations Institute, and the Morris K. Udall Foundation, the conference explored the governance and policy challenges faced by American Indian and other indigenous nations in dealing with natural resources and environmental management issues.

The conference provided an important opportunity for people working on indigenous environmental and natural resources issues to share their experiences and collect new ideas. Over the gathering’s two-and-a-half days, numerous participants commented on how much they were learning from each other. The feedback has been overwhelmingly positive.

The conference organizers wish to thank the following co-sponsors for their generous support: U.S. Environmental Protection Agency; Pascua Yaqui Tribe; Arizona Daily Star; Arizona-Sonora Desert Museum; Bureau of Land Management, Department of the Interior; Cocopah Indian Tribe; Navajo Nation, Division of Economic Development; Red Lake Band of Chippewa Indians; Troutman Sanders LLP; Tucson Water; Arizona Business Bank; ERDAS; Fort Mojave Indian Tribe; Bahti Indian Arts; and Salt River Pima-Maricopa Indian Community.

Thank you to everyone at the Udall Center and its Native Nations Institute who assisted with the planning and execution of this event: Kim Abraham, Monica Agar, Manley Begay, Anne Browning-Aiken, Emily Chiles, Stephen Cornell, Kylie Dickman, Jennifer Huff, Stephanie Joseph, Colleen Loomis, Asya McCarther, Robert Merideth, Denise Moreno, Raymond Naito, Donna Sloan, Joan Timeche, Robert Varady, Kathleen Veslany, Meagan Cahill, Michelle Hale, Allison Davis, Tara Deubel, Nathan Pryor, Ian Record, Jen Shepherd, Leah Stauber, Megan Fernow, Lisa McLaren, Matt Lensch, and Lani Murphy.

The conference organizers also thank the National Advisory Committee for their invaluable input and expertise in shaping the program. Members included: Manley Begay, George Bennett, Butch Blazer, Randy Brant, Stephen Cornell, Jean Gamache, John Goes in Center, Sky Houser, Beth Janello, David LaRoche, Virgil Masayeva, Robert Merideth, Jaime Pinkham, Merv Tano, and Joan Timeche. Additional advisors included Terrence Bracy and Christopher Helm of the Morris K. Udall Foundation and Robert Varady of the Udall Center.

Thank you are also extended to the conference moderators and facilitators, whom we couldn’t have done it without: George Bennett, Stephen Brimley, Vernon James, Willie Kasyulie, David LaRoche, Elsie Meeks, Robert Merideth, Gerald Sherman, Steve Stevens, Ron Trosper, and Jessica Walker.

Finally, thank you to the speakers and panelists whose presentations are included here and to the wide range of individuals who attended and participated in the conference. The conference provided a great starting point for conversation and exploration into tribal environmental issues.

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**BUILDING NATIVE NATIONS**  
**ENVIRONMENT, NATURAL RESOURCES, & GOVERNANCE**  
**DECEMBER 11-12, 2001**  
**TUCSON, ARIZONA**

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## WELCOMING REMARKS

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## OVERVIEW

*“Leaders  
should  
not only  
lead,  
but also  
manage.”*

– SOPHIE PIERRE



*focus*INDIGENOUS LESSONS FROM  
THREE TRIBAL LEADERS

## S T . M A R Y ' S F I R S T N A T I O N

Sophie Pierre (Kootenay)  
Chief, St. Mary's First Nation  
British Columbia, Canada

**Complexity of Change**

Tribal leadership must cope with change and not worry about the complexity of the process. Presently, long-term planning is encouraged, but only the short-term plan is budgeted for. If this is so, how are First Nations going to be truly autonomous?

**Organizing and Staffing**

Leave management to the managers. The Lower Kootenay Indian Band has experienced tremendous expansion. I have worked for the Tribe for 22 years. Groups should form and align to deal with the challenge of such explosive growth. Leaders must be encouraged to

look to traditional teachings and beliefs. These can be passed on to our people as a source of inspiration.

**Three Critical Lessons**

First, an effort by leaders to include people on all levels is essential, as is sharing resources and communicating well. Good results then come more easily. Second, it is crucial to take every opportunity, no matter how insignificant. Each leads to enhanced power, which is the important thing at the end of the day. It is better to build slowly so that one knows one is building strong.

## C O C H I T I P U E B L O

Regis Pecos (Cochiti Pueblo)  
Governor, Cochiti Pueblo  
New Mexico

The Cochiti Pueblo is one of 19 Pueblo Nations in the middle Rio Grande and functions under the old traditional system. Spain colonized the area; the Pueblo forefathers were forced to embrace Catholicism so that their own religion could survive.

**Cochiti Government**

The Cochiti Pueblo also embraced a theocratic form of government. My role, then, as leader, is one that not only encourages a spiritual way of life, but also retains responsibility for governance. I am chief judge, or peacekeeper. I must bring those who violate community standards back into good standing.

The Cochiti government includes a council comprising 40 members, each with one-year appointments. As the government is consensus-based, there are no votes, and it is inclusive of all perspectives. Business is conducted in the native language and maintains strict adherence to the language policy.

Some say that one-year appointments are a disadvantage because there is no continuity, but shorter-term appointments protect against the building of a power base. In this system, politics mimic those of Republicans and Democrats. The strength of the Cochiti government is derived from adherence to principles of spirituality and thinking of the community first. These principles sustain contributions to build strong nations.

#### **Economic Development and Cochiti Lake**

In the 1960s, the Cochiti had one of the largest man-made lakes in the world. Initially authorized for flood and sediment control, it was later expanded for recreation. Unfortunately, the lake was located in the Tribe's most sacred place of worship. The Cochiti were forced to accept the situation, and the lake became justification to use government funding in the way of public works money.

Though the elders begged federal officials to save Cochiti altars from desecration, when they walked the area years later, they discovered it was never the intent of the U.S. Army Corps of Engineers to protect the sacred place. Brothers and sisters from Hopi to Taos shed tears for the sacred place. It was destroyed by dynamite, as it was purported to be the only place they could build the mouth of the lake, the only piece of land that could withstand the pressure. This was one of the most painful times in history.

As the civil rights movement progressed, many business programs were created. Indians had their first opportunity to pursue such programs, and many were subsequently encouraged to demonstrate that Indians with

MBA's could create sources of stable revenue to support their governments.

Thus was born the replication of economic development models, which generated revenue and created employment. Yet these models were designed for industrial parks, retirement communities, and hotels, many of which failed, rather than for Indian communities.

As more research was done, a "golden triangle" was discovered in New Mexico. The idea to build a large water-recreation facility for the "golden triangle" culminated in the creation of the Town of Cochiti Lake. The Cochiti sought to secure protection from this kind of development. They opted to have statutes amended and initiated a 99-year agreement that allowed non-Indian individuals to sublease land and own homes to encourage economic development in the area. Poor decisions were made under incredible pressure.

As a result of Cochiti Lake development, the 2,600-acre reservation was decreased to 1,300 acres. The rest went to a tribal master plan that included hospitals, schools, and a college. forty-thousand non-Indians came to reside at Cochiti, and a wedge of bitterness divided the Cochiti and non-Indian communities. A strong agricultural community was disintegrated. The elders asked, "Is this the price we pay?"

A few years after a dam was completed, seepage began. In the first five years, a foot of water had settled and most (95%) of Cochiti agricultural land was under water. The Cochiti attempted to chronologize these events as part of a strategy to sue the U.S. Army Corps of Engineers.

Ultimately, it took the Cochiti 15 years in the court system to hold the U.S. legally accountable for the destruction of their agricultural land.

### **Cochiti's Legal Action Against the United States**

During the Reagan/Bush Administration, the Cochiti were promised that there would be no destruction of wetlands. Despite this promise, however, the U.S. Army Corps of Engineers was able to override wetlands protection. The Cochiti hired lawyers, feeling that they were being forced to take monetary compensation, which they ultimately resisted. Finally, a three-part settlement was reached. The terms included reducing the water table and providing money for operation and maintenance of the system. Furthermore, rather than benefiting individuals, the trust fund would be dedicated to community well-being.

The Cochiti hired a world-renowned hydrologist at a cost of more than \$90 million. They decided on an open-drain system and sent water to the Rio Grande. Triumphant, fields were plowed and the first seeds planted.

The legal system eventually caught up with the City of Cochiti Lake. A decision prohibited non-Indians from owning property on the reservation, which halted further development of the 40,000-person town.

The Hunt brothers who built the City also built Sun City, Arizona. They were also involved in monopolizing the silver market and began divesting. The master plan allowed the Cochiti to find another developer, should such an event occur. Subsequently, the Tribe created Cochiti Development, which was legally named "landlord." This gave the Cochiti the opportunity to reduce development to less than 1,000 acres. The non-Indians returned the land, thereby reducing non-Indian land from 13,000 to 600 acres. The core community never grew beyond that.

Recently, the Army Corps of Engineers issued an official apology for the desecration. They

closed the area to public access and plan to revegetate the area. The agreement delineates the Cochiti as caretakers. The Corp of Engineers wanted recorders and photographers present to witness the event. For the Cochiti, their recorders and photographers were the children, who witnessed by observing and remembering.

### **Cochiti and the Hydro-electric Plant**

Seeking an alternative energy source, Los Alamos proposed to build a hydroelectric plant that could potentially endanger Cochiti sacred sites. A private hearing was granted to the Cochiti.

"Secrecy" is paramount to Pueblo religion. A tribal member can be banned for divulging any secrets, yet the Cochiti had to present evidence of the site's sacredness to the court. This would require that Cochiti members show sacred sites to the non-Cochiti involved. Ultimately, desecration was allowed, because no one was willing to divulge the secrets of the sacred sites.

Bill Richardson and Ben Nighthorse-Campbell, who had worked together to prohibit the hydroelectric plants, then came into the picture. The Department of Public Works expressed concern that a dangerous precedent was being set, giving Indians the power over such projects.

### **Lessons from the Cochiti "Master Plan":**

- Ask the community about its needs and wants.
- Ask the community what it wants to become in the next 100 years.
- Ask what kind of care the community wants its children to take of the landscape and resources.
- Ask all concerned to what degree they are willing to take personal responsibility.

What the Cochiti people determined their goals to be (elders and youth were in agreement):

- To ensure safety for children and elders
- To be alcohol, drug, and violence free
- To sustain traditional forms of governance
- To return to agriculture
- To minimize development
- To return to a traditional life

**Current Initiatives:**

- Find alternative financing for home construction. HUD homes have destroyed the community with “sub-divisions,” and a return to “traditional” streets and roadways is preferred.
- Reconnect to traditional knowledge: an intergenerational farm, lessons on songs and dances, and lessons about raising children.
- Restore community herds of cattle and buffalo.
- Return antelope to natural habitat.

**T O H O N O O ’ O D H A M**

Edward Manuel (Tohono O’odham)  
 Chairman, Tohono O’odham Nation  
 Arizona

We must look at nation-building holistically.

Challenges at Tohono O’odham:

- Water Problem: The reservation’s groundwater level is low.
- International Boundary: The Nation was not consulted when the international boundary was drawn, which cut its land base in half.
- Land-base Maintenance and Protection: They have the second largest land base in the country.
- Flyovers: With Air Force bases in Yuma, Tucson, and Phoenix, planes fly over Tohono O’odham land frequently, and occasionally crash. A Memorandum of Understanding regarding flyovers was just recently signed with the Air Force.

*keynote address*  
 COMPREHENSIVE NATURAL RESOURCE  
 MANAGEMENT IN INDIAN COUNTRY

Charles Wilkinson  
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The modern tribal sovereignty movement has been one of the most successful political and economic movements in post World War II America and can be compared to the civil rights, environmental, and women's rights movements. Despite some grievous setbacks, progress has been deep and permanent. Because this movement has largely been created and carried out by tribal leaders, I have great hope that these leaders will gauge what has happened in the past.

I dedicate this talk to the young Indian people present. We have never had a generation like this one, with so much potential and enthusiasm.

Focusing on Indian country as it was in the early 1950s is helpful in measuring the degree of progress we have made since then.

**Red Lake Example (Chippewa)**

Red Lake is the largest freshwater lake in the United States within the boundary of a single state. I visited the Red Lake Chippewa this year and spoke with the elders who recall the 1950s. Except for the offices of the Bureau of Indian Affairs (BIA) and mission school, there was no electricity and people lived in shacks.

The Tribe had limited economic and commercial opportunities in sweet-fleshed walleye, Red Lake, and logging for BIA. Much of the time, 50% unemployment existed. Tribal members depended on government rations. Poverty and political suppression typified the time period—the phrase “tribal sovereignty” was not in use. Suppression of culture, language, tradition, and religion was the norm. Missions had been in

place for a full century and were manipulated according to favors that were handed out. Young children were indoctrinated in reservation schools, and parents were pressured to send children to boarding schools. The ramifications of these conditions have been profound: How can you keep your traditional knowledge of the natural world alive if people are forcing assimilation?

**The American Indian Movement (AIM)**

Allotment had a significant impact on the living conditions of American Indians in the 1950s. The amount of allotted Indian lands was comparable to an amount of land the size of California. Eighty to 90 percent of the Indian population (5-7 million people) was lost to European diseases.

In the late 1950s and into early 1960s, two key groups of American Indians began a movement. Young intellectuals, such as Vine Deloria, Jr., Hank Adams (who went on to lead fishing wars in the Northwest), and Mel Tom from Walker River worked closely with tribal leaders, such as Roger Jordaine from Red Lake and Pete Homer from Colorado River Indian Tribes. These people were articulate, angry, and knew their stuff. Together, they began to put together an informal agenda to:

- enforce the trust relationship,
- re-establish/protect sovereignty,
- protect natural resources,
- reform BIA, and
- protect religious freedom.

Tribes have had important allies in Congress (Morris K. Udall and others), but fundamen-

tally the tribes put forth their own agenda and pushed it through. Their goal was to have policy created in Indian country and ratified by the U.S. government. AIM captured important front-page headlines and brought Indians into the foreground of public policy.

### Indians and the Supreme Court

In the late 1960s, the 1970s, and the 1980s, the Supreme Court was supportive of Indian claims and tribal interest. There was one exception, however: *Oliphant v. Suquamish Indian Tribe* (1978) tackled the issue of whether or not tribes lacked jurisdiction over non-member Indians. Now, there are more Indian law cases than others, such as security and international law. The Supreme Court handed down tribal victories on between two-thirds and three-fourths of cases involving Indian rights. Some were historic land cases such as the one at White Mountain. The Tribe's ability to tax energy companies was also an issue, as were hunting and fishing rights.

### Tribes Bring Their Bills to Congress

Today, tribes have a good working relationship with Congress. Some key legislation that has facilitated this relationship includes the Indian Child Welfare Act (more than one-third of Indian children had been adopted at time of legislation), the Self-Determination Act, the Religious Freedom Act, the Self-Governance Act, water settlements, and natural resource legislation. Termination was overturned with Menominee and other restoration acts. Hundreds of statutes have been passed on the federal level. For the first time in U.S. history, there is a significant Indian presence on Capitol Hill.

The recent case of *Atkinson Trading Post v. Shirley* (2001) struck down Navajo tax on non-Indian land within the Reservation. As well, the *Nevada v. Hicks* (2001) case presented a number of broad statements on state jurisdiction. In 1962, the courts used language such as "tribes as part of states." We do not know what language will be used in the future. Justice Scalia stated, "Ordinarily, Indian tribes are considered to be part

of the states where they are located." Such a view could pose threat to our natural resources. The court's opinion has produced general outrage in the Indian community and initiated a bill to overturn legislation with the support of National Congress of American Indians (NCAI). This shows that tribes are willing to challenge decisions and push their agenda.

### Multi-faceted Changes

The size of the average tribal population has increased dramatically in the past two generations. For example, in Pierre, the tribal population has grown from three to 63. At Nez Perce, even "mom and pop" stores have turned into full-sized supermarkets.

Other significant changes include:

- Tribal governments are now real governments (not BIA). On most reservations, BIA interference is now minor.
- Tribes are taking ownership of housing and healthcare.
- Tribal courts have a more established presence.
- Tribal colleges are increasing in number and expanding academically.
- Education has come under greater tribal control. More tribes have established elementary schools and language programs. At Washoe, the Tribe has K-6<sup>th</sup> grade taught on tribal land.
- Language preservation programs have become more widespread, initiated by over 100 tribes.
- Solid economic infrastructure is recognized as necessitating a strong tribal government.
- Land acquisition/tribal land ownership has increased by one-third since the 1950s. In the 1950s, tribes held 48-million acres (compared to 65-million acres today).
- Tribal budgets have more of an emphasis on the elderly, young people, and natural resources.
- Natural resource offices were a rarity until 1975. Navajo Nation now has a natural resources office that employs 650 employees.

Smaller tribes without many resources are making improvements.

- Intertribal organizations or councils such as CERT (Council of Energy Resource Tribes) have been established that increase tribal leverage in Congress, which is an important part of the sovereignty movement. These allow tribes to pool resources. Other examples include the National Indian Education Association, fish and wildlife federations, and the Inter-tribal Timber Council.

### Tribal Activities

Areas where tribes have been particularly active:  
*Environmental Pollution*

Tribes (not Congress) have begun to amend statutes to mandate treating tribes as states in regard to environmental pollution. For instance, the Isleta Pueblo in New Mexico determined that it could set its own water quality standards.

### *Fish and Wildlife Management*

In terms of fish and wildlife management, tribes have become significant players in the natural resources arena.

### *Timber Management*

A number of extremely damaging, excessive timber cuts occurred on a number of reservations when the BIA was in charge (White Mountain and Yakama). At White Mountain, the Salt River Project pressured the BIA for a higher cut to increase water flow. In 1990, the National Indian Resources Management Act was written in Indian Country and presented to Congress. Regulations were then negotiated with the BIA. Today most tribes have taken over timber management, despite inadequate funding.

### *Entrepreneurship*

In mineral production, tribes used to receive royalties from production and sale of minerals. Such patterns are likely to expand.

### *Traditional Knowledge*

An effort is being made to establish an institutional capacity for traditional knowledge (in courts like the Navajo Peace Making Court, in medicine, etc.). Tribes are trying to preserve their traditions.

Northwest coast fishing rights activist Billy Frank said, "All that we will talk about here depends on the Indian worldview, an elaborate philosophy of human beings' relationship to other human beings and the natural world, ecology in its deepest and fullest sense." Arrested 50 times, Frank's gear, fish, and hand-carved canoes were often destroyed. In the *Boldt Decision* (1974), tribes had their tribal fishing rights upheld. Frank eventually became a statesman.

Frank says, "I don't believe in magic; I believe in the sun and stars, the water, the tides, the floods, the owls, the hawks flyin', the river runnin'. Their measurements tell us how healthy things are and how healthy we are. That's what I believe in."

### Discussion

**Q:** Why must the EPA be involved in tribal natural resource management?

**A:** If a tribe wants to take over regulation under specific federal statutes (Clean Water Act, Clean Air Act, Safe Drinking Water Act, etc.), it must apply to the EPA just as states must do.

**Q:** How do you interpret Norton's latest efforts to remove trust management from the BIA?

**A:** I wish Bruce Babbitt had done a better job as well. Norton came in facing a difficult chore, yet has not apparently done much. The BIA entangled themselves in a bit of trouble, although their predicament has been in place for a century or more. The lack of consultation is unacceptable and their strategy unfortunate. Bureau reorganization is very sensitive. When dealing with the BIA, care and time must be taken.

**Q:** What is your opinion about the state of Alaska land management/sovereignty?

**A:** The Supreme Court has recognized that tribes are corporations. Alaska Natives will not be denied in this matter and will keep fighting for sovereignty. The *Alaska v. Native Village of Venetie Tribal Government* (1998) opinion was a loss. However, their wildlife efforts are steadily increasing.



SCIENCE AND TRADITION

*“How much global warming  
will there be and at what rate  
will that warming  
occur?”*

– JONATHAN OVERPECK



C L I M A T I C   C H A N G E S  
A N D   L O N G - T E R M   I M P L I C A T I O N S   F O R  
N A T U R A L   R E S O U R C E   M A N A G E M E N T

Jonathan Overpeck

Director, Institute for the Study of Planet Earth  
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Tucson, Arizona

### Global Warming

How does the environment vary and consequentially affect people? Where do we stand on the global warming issue, an issue that is unseen but nevertheless a problem that everyone must deal with, an issue that is so subtle that it may prove too late to repair once we see the full effects? Global warming is a problem that was created by humans. We deal with the consequences every day; for example, it has been 10 degrees above normal in Tucson. Other consequences are not as easy to monitor; they are more subtle changes that we can neither see nor smell. By the time we do feel the full effects of global warming, it will be too late to do anything about it. Our research indicates that future global warming could be large (3-4 degrees C) by 2100. However, variables exist that make it difficult to ascertain exactly how global warming will progress, since the climate system can change in highly unpredictable ways. Future warming could accelerate unexpectedly, prompting surprise shifts in extremes (e.g. drought and storms). Even modest warming could trigger a major Arctic meltdown.

### Global Surface Temperatures

If we focus just on global records, the 1990s have been the top 10 warmest years, October 2001 being the warmest month on record. Data taken from global surface temperatures and trends in temperature changes from 1976-1999 shows that the entire earth has warmed (with the greatest increases occurring in high latitudes, but less so in the tropics). Surprisingly, however, from 1946 to the 1970s, a large part of the earth actually cooled.

### The Intergovernmental Panel on Climate Change (IPCC)

In 2001, The Intergovernmental Panel on Climate Change released its third assessment report. The panel included hundreds of authors from around the world. The report concluded:

- The earth is warming.
- Most of the warming in the last 50 years is due to human processes.
- By the end of the century (1990-2100) a projected warming of 1.4-5.8 degrees C (2.5-10.4 degrees F) is expected. The same amount of warming occurred between the last Ice Age and present day.

The size of the temperature range is the source of trouble for resource managers, as the wide range makes it difficult to take definite action.

The big question that remains is this: "How much global warming will there be and at what rate will that warming occur?"

### Climate Change from Records of the Past

The paleoperspective from tree rings, coral samples (to reconstruct past temperatures of the ocean), ice cores, and lake sediment cores suggests that the degree of warming could be large.

Data from the past 500 years from ice cores in Greenland shows concentration levels for various gases on earth (i.e. carbon dioxide, methane, and nitrous oxide). Carbon dioxide concentrations, for instance, increased from 280 to 370 parts per million during that time.

Tropospheric aerosols from volcanic eruptions are known causes of climate cooldown.

Tree rings show that since 1900, when the Industrial Revolution began to take place, there has been a significant rise in temperature. Put all of these paleoperspective factors into the climate model, and a steady warming trend due to trace gases becomes evident. Sources of paleoclimate data exist around the world, and data from the last 500 years shows that observed and simulated climate models look the same. Like the observed model, the simulated model shows a 4.2-degree C (7.5-degree F) increase, with the greatest increases occurring at high latitudes (i.e. locations farthest from the equator).

Warming is likely to be closer to the higher end of the range (a 4-degree C versus a 2-degree C increase).

The National Academy of Science reports that warming caused by natural responses has rarely been linear. Warming has gained speed in the last decade. Temperatures might increase faster than is expected.

Changes in lake levels measured in fossil plankton show that throughout time, droughts lasted decades or centuries. The climate system passed through modes in which droughts were common, then shifted to modes in which droughts were less common, shorter, and non-linear. A major non-linear shift occurred around the year 1200. Droughts became short and far less frequent.

**Key Points:**

Paleoperspective reveals that the climate can yield a surprisingly fast (non-linear) response.

Prediction is not yet possible, as our understanding of abrupt climate changes is very poor. We are not equipped to accurately predict megadroughts.

Recently, open water was found at the North Pole. This is usually a natural process, but it concerned some scientists. They found that the ice is retreating, melting steadily, at a rate of 2.9% per decade. The ice has thinned 30 – 40% over the last 40 years. Sea level is now 13 – 20 feet higher. As soon as the melting begins, it is too late to stop it. During the last interglacial period (130,000 yrs ago) global temperature was 0.5-1% warmer. This suggests a serious potential climate change.

Sea level rise may be larger, more non-linear, and more unpredictable than many think.

What does this mean for natural resource management? How will this change affect our natural resources? In a process called expansion/contraction, vegetation will move according to the climate it is accustomed to. It will move up the mountain and eventually off the mountain. For example, on a Yellowstone map there exists an ecosystem that lends itself to certain pine species. This ecosystem may eventually be dominated by oaks rather than pines, as pines move out and oaks move in. Obviously this has a great effect on wildlife.

If the “preferred climate” for particular forests moves hundreds of miles, trees will be more stressed and therefore, more susceptible to disease. Dying trees will become more common, making fire a great threat. Plant and animal biodiversity threats will be compounded by possible unprecedented rates of climactic change and reduced genetic flexibility of most species. Many species that had a genetic variability that allowed an adaptability to change have been killed off, thus destroying much of that gene pool. Hence, there is a threat of heavily fragmented landscapes or habitats. Additionally, there are many other anthropogenic stresses such as depleted water tables, pollution, poaching, and introduced invasive species.

**Conclusion**

In conclusion, it is quite possible that by the end of the century, global warming could occur on a very large scale (3-4 degrees C), rather than small (less than 2 degrees C). The climate system can change in highly unpredictable ways, since future warming could accelerate unexpectedly, bringing surprise shifts in extremes like droughts and storms. Even modest warming could trigger a major Arctic melt-down, a greater than 4-meter sea level increase, and a serious biodiversity crisis. These are real threats, yet society doesn't realize this. We "solved" the ozone problem by stopping production of harmful chemicals, but those chemicals have a lifetime that far exceeds our own. We must fix the problem before it is too late, leaving us with a legacy of global warming affects to contend with.

**Discussion**

**Q:** What will change in the Southwest as far as seasons and precipitation are concerned?

**A:** Tucson will warm up a lot, to resemble Phoenix. There will be more precipitation in the summer; however, we still cannot predict winter precipitation levels. Warming will change the landscape considerably. There will be more hydrologic extremes, such as frequent and larger floods and more frequent and larger droughts; in a nutshell, there will be more extreme weather.

**Q:** What types of human activities contribute to adverse climatic change?

**A:** The burning of fossil fuels. Instead of burning coal and oil we should burn natural gas. We should consider conservation efforts, such as installing double-paneled windows in the winter to save energy, or driving a more fuel-efficient car.

ENVIRONMENTAL PROTECTION  
IN INDIAN COUNTRY AND THE U.S.  
EPA'S TRIBAL INFORMATION  
MANAGEMENT SYSTEM

Jeff Besougloff

Acting Director, The U.S. Environmental Protection Agency's (EPA)  
Office of American Indian Environmental Programs (AIEO)  
Washington, DC

The groundwork for the EPA's Indian Program was based upon a 1984 policy that recognizes tribes as the primary party to establish standards on reservations as is applicable to the reservation situation and sees each tribe as an individual entity, although policy could cover more than one tribe.

The ultimate goal of the EPA is to protect human health and the health of the environment.

To effectively implement its Indian policy, the EPA's Office of American Indian Environmental Programs (AIEO) must:

- have commitment from EPA staff on the policy;
- train EPA staff, e.g. "Working Effectively with Tribal Governments" (bring in tribal elders);
- provide resources (individuals to do the work and funding) for staff and reservation policy implementation (the 2002 budget provided no increase in funding on the reservation, inflation means fewer resources, 2003 could potentially be worse; current budget allocates \$220 million for tribes); and
- offer structure.

As a tribal advocate within the EPA, AIEO:

- acts as program manager for \$52-million General Assistance Program (GAP),
- distributes money to regions,
- acts as a liaison to all major program offices within EPA,

- works with advisory groups such as the National Indian Work Group and the Indian Law Group,
- works on macro level on policies that will effectuate Indian policy, and
- works with the Tribal Caucus and the Tribal Science Council.

**The Baseline Assessment Project**

The Baseline Assessment Project is a response to the need for data on the conditions of tribal environments. The program has a significant effect on the delivery of services and prioritizing of actions, and as part of this process the EPA interacts with tribes (providing a type of information not easily available before). The program includes (and will increasingly include) interagency work such as that of the federal geographic data committee and tribal data subcommittee. It not only works with specific application of data but also utilizes an interactive, real-time GIS format and can access federal data for each reservation land area. The program provides a framework for AIEO decisionmaking and working with other Indian agencies. Additionally, a mechanism for receiving feedback is now being developed within the program.

**Tribal Information Management System (TIMS) History**

TIMS is a part of the EPA baseline assessment of environmental conditions in Indian Country. EPA funding for such tribal programs has grown exponentially since 1994. TIMS is designed to show the progress of pro-

gram development and on-the-ground results. One concern surrounding TIMS is that it reveals information to the general public that tribes would rather not be released. However, the project intends to control the public release of information by granting different levels of access to TIMS users. Furthermore, TIMS would not require tribes to share their data. TIMS provides a profile for each tribe, but there are data gaps.

TIMS is a Web-based tool that, using Bureau of Indian Affairs' boundary guidelines, provides a wide range of regularly-updated federal information about environmental conditions for Indian tribes. For example, to aid in the implementation of a risk management plan on hazardous waste sites and for pollutants of concern, planners can use TIMS to pinpoint the location of pollutants and provide information regarding facilities at street level.

For the EPA, TIMS tracks strategic mission goals according to the Government Performance and Results Act, thereby demonstrating accountability. This includes a Tribal Accountability Tracking System. Other agencies can use the data as an alternative information resource. TIMS' educational applications can provide a clear view of environmental needs in Indian country, assess risk, and efficiently

access information. Finally, TIMS can potentially be used in economic planning and development.

#### Discussion

**Q:** Is the EPA doing aerial photography of native corporate lands in Alaska?

**A:** EPA doesn't carry out such work on its own but can obtain this information, which will be available in a few years.

**Q:** Are agencies listed on the Web site?

**A:** Information is drawn from 27 federal agencies, which are identified as sources.

**Q:** Are there other types or layers of information, e.g. on land use?

**A:** Yes, and these will be more robust in the future.

**Q:** Is TIMS user-friendly or does it require training?

**A:** There is a plan to do training and outreach, although this is currently not budgeted for. People already trained in ArcView will not have a problem.

**Q:** Can you download the information?

**A:** Not as of today; it is part of an internal server.

## THE U.S. EPA'S TRIBAL INFORMATION MANAGEMENT SYSTEM

Ed Liu, Environmental Scientist  
Jeff Besougloff, Acting Director  
U.S. Environmental Protection Agency (EPA)  
Office of American Indian Environmental Programs (AIEO)  
Washington, DC

### The System

Information is a powerful tool, and access to comprehensibly organized information can have a dynamic role in understanding issues and in developing potential solutions. The U.S. Environmental Protection Agency (EPA) is working to create a new database that incorporates information from a variety of governmental agencies, including data from the EPA, the Bureau of Indian Affairs, tribal governments and members, and other agencies. The EPA-Tribal Information Management System (TIMS) organizes information into a structure revolving around tribal lands, tribal issues, and tribal demands. This tool aims to help users better understand issues that affect Native Americans and their tribal lands. For example, the TIMS can realistically assess the impact of environmentally-hazardous facilities on tribal lands as well as assist myriad other decisionmaking processes.

### The System's Capabilities

Based on EnviroMapper, a tool already publicly available on the EPA Web site, this database incorporates tribal data with the EPA EnviroMapper database. Tribal land boundaries and both tribal and governmental facilities are among the new map features that can be displayed with this system. Data is presented in both graphical and text format. While this database is functional, it is still in an early stage and some errors, such as a facility being represented on the map across the street from its actual location, were noted. In the future, the creators of this database will incorporate higher resolution data from other governmental agencies, Landsat photos, and

data from the tribes themselves. There are also long-term plans to incorporate Digital Orthophoto Quadrangle (DOQQ) technology in the future. The developers also have plans to include data on nuclear containment facilities located on tribal lands, data on plutonium mining on the Colorado Plateau, and endangered species ranges, among other features. While the database is designed to be flexible in its application, data must meet National Spatial Data Infrastructure (NSDI) standards in order to be incorporated.

### User Concerns

In a discussion that followed the demonstration of the database, many issues were brought forward, including the privacy of data, misuse of data, and data standards. The possibility of wide accessibility to private tribal knowledge and information, such as the locations of sacred sites or traditional hunting or gathering areas, which could lead to exploitation by people outside of the nation, generated concern among those present. Subsequently, questions were raised about whether or not the tribal information would be available only to tribal members or to a broader audience. There were concerns about the control of data and about private tribal knowledge potentially being used in the future against the tribes' best interest. It has not yet been determined exactly who will be able to access the database, although the focus of the project is to serve the environmental needs of the tribes. The EPA expects that proprietary information can be aggregated and analyzed without becoming public domain.

There was concern that disparities raised by different definitions employed in various agencies and governments for facilities like “open dump sites” could cloud issues rather than clarify them. Quality assurance and quality control were also among the main concerns, including specific inquiries about how the EPA proposed to receive feedback and implement data corrections. The presenters assured the attendees that there would be a conduit for feedback but explained that the details of this system have not yet been formalized. As geographic information systems (GIS) are a powerful tool for a variety of agencies, concerns about the future of GIS use and about the imminent reorganization of the BIA were also voiced. Inquiries regarding availability of database resources to areas lacking in technological infrastructure were posed, with satellite broadband being suggested as one of the many potential solutions for reaching isolated and/or poorly-served tribal lands. Because the EPA is seeking active partnership with tribal colleges and other tribal organizations, questions about funding and grant availability were also introduced. Questions regarding grants relating to this project should be directed to the EPA’s Lyn Burger at <Burger.lyn@epa.gov>.

#### Goals

Through this project, the U.S. EPA seeks to be a leader amongst governmental agencies.

The EPA intends to manage the information incorporated into the database rather than to claim ownership of the data. Due to the broad spectrum of federal, state, and private facilities located on tribal lands, such as mines and hydroelectric dams, the EPA is also seeking to form partnerships with the Department of Energy and the Department of Defense, as well as with tribal colleges. The database is intended to be free to appropriately-licensed users but will not be publicly available (e.g. it will not be freely distributed on the Internet). An enterprise-wide license for the use of ESRI’s GIS software, ArcInfo 8, proprietary but free to all tribal users, has already been acquired to facilitate the analysis of database resources without additional cost. While the database itself will be paid for with federal money and would thereby fall into public domain, there will be a system initiated to permit only appropriately-licensed users access to proprietary information. Advantages of this comprehensive national system include the capacity for a more complete view of the impacts of proximate facilities on tribal lands and the ability to convince other governmental agencies to provide and utilize high-quality, consistent information. Despite the many questions and concerns about access and use, this system promises to be a powerful tool for native peoples to more effectively manage their natural resources.

*focus*

## MAPPING TRADITIONAL KNOWLEDGE

U S I N G   G I S   A N D   R E L A T I O N A L   D A T A B A S E  
S Y S T E M S   T O   I N T E G R A T E   T R A D I T I O N A L   K N O W L E D G E

Stephen Metzler, GIS Analyst  
 Preston Hardison, Watershed Analyst  
 Natural Resource Department  
 Tulalip Tribes, Washington

Metzler:

The Tulalip are descendants of the Snohomish and live on a reservation north of Seattle. One of the Tribe's main problems is that tribal members own less than half of the land on the reservation. Other problems include the Tribe's narrow focus on salmon and shellfish, and poor decisionmaking and timing among tribal departments. The Tribe's programs do not focus sufficiently on regulations, and traditional knowledge is not always appropriately considered.

The Tulalip's Cultural Stories Project, in which a tribal information system and GIS are being integrated with a relational database, identifies culturally important areas and allows users to access the information needed to make land-use decisions.

Tulalip wetlands are very unique, and though much of the land isn't accessible, the Tribe aims to link all the wetlands as a means of preservation. A GIS system can link a variety of components together. For example, a GIS surveyed plant called the black lily led to a discovery that all black lilies were found on decomposed logs near the forest edge, above the high tide line. The GIS looked at areas between these two for other potential habitat for the black lily, as well as where to find it and where to restore it.

Hardison:

GIS to ICONS (a relations database system) is a stand-alone system with search features that manage a broad range of information. The system can pull the record of a species, also stored on the Arc Info database, to plot the distribution of species and launch a map. The system is also able to link ecological, institutional, and traditional knowledge information. It is compatible with GIS, able to store traditional knowledge, based on open standards, used by multiple user communities (schoolchildren and policymakers, etc.), and freely distributable. Such a mechanism can store information on a wide variety of topics—events, stories, laws, peoples, etc., and each record has transaction tables.

## Why informational policy?

- scale: ecoregional to international
- networks: information flow vs. presentation
- economics: economy of scale
- interpretation: metadata and indexing
- technology: data exchange standards
- archives and warehouses
- ethics and protocols
- focus: language, knowledge, landscape

When completed, this system will be available to any tribe at no cost; the operation expenses are minimal.

## INDIGENOUS MAPPING OF RESOURCE USES WITHIN THE COMARCA KUNA

Bill Threlkeld

Geographer/Administrator

Center for Support of Native Lands

Arlington, Virginia

This project's participatory mapping methodology involves indigenous people making maps with the assistance of professional cartographers. Typically, the maps are low-tech, with the project's focus on teaching both the importance of maps and basic skills in map reading, mapmaking, and fieldwork. The final products belong to the indigenous people, to serve their needs. The project has been implemented in La Mosquitia, Honduras; Darien, Panama; El Izozog, Bolivia; as well as in Cameroon, Suriname, and Brazil.

The complete methodology involves ground preparation; an initial workshop of orientation and training; initial fieldwork that involves gathering data and sketch mapping; a second workshop, in which data is transcribed onto new maps; subsequent fieldwork to verify the data; and a third workshop, which involves correcting and completing the final maps.

### A Case Study

The Kuna of Kuna Yala occupy the northeastern coast of Panama, living on islands yet using both mainland and coastal resources for subsistence. Between 40,000-50,000 Kuna live in 51 communities over an area of approximately 5,400 square km. The *comarca* is a semi-autonomous region of Panama where the Kuna enjoy their own internal laws and system of government. The maximum authority is the Kuna General Congress, led by three chiefs elected by popular vote. The Kuna have a tradition of daily community meetings to discuss concerns and to participate in chants relating Kuna history and beliefs. Threats to the *comarca* are deforestation by invading

landless peasants from other parts of Panama and river pollution by gold miners.

The objectives of participatory mapping in the *comarca* are to resolve conflicts regarding the boundaries of the *comarca*; develop natural resource-management plans; improve social and economic planning with sustainable development projects for agriculture, forestry, and fisheries; document and reinforce Kuna history, culture, and language; and become adept at interpreting and using maps.

The project's final steps include having the maps evaluated by Kuna specialists at the Kuna General Congress; settling other map details—locating legend, finalizing symbolism, adding Kuna artwork; printing the final maps, which is handled by Panama's National Geographic Institute; planning the project's second phase, increasing the number of researchers and including indigenous observers from other areas; developing regional maps at a scale of 1:1,000,000; putting the maps to use; and documenting the process in a short guidebook and in articles and reports.

### Keys to Success

A key to the project's success is focusing on participation in proposal writing, fundraising, and project planning and management. Also important is increased focus on preparation, including:

- establishment of clear lines of communication and decisionmaking authority
- making sure team members share a common vision and values,
- selecting researchers carefully,

- ensuring that time frames are adequate for each stage of the project,
- having money in the bank before beginning;
- keeping communities informed,
- informing/involving government agencies or other interested parties, and
- ensuring access to essential cartographic materials.
- management of activities depends on leadership patterns, group cohesiveness, organizational capacity, individual skill levels, etc.;
- cultural norms influence how project is organized;
- elements can be added or subtracted, and time frames can be expanded or reduced, depending on such factors as the size of the geographic area, the complexity of logistics, and the degree of participation required among stakeholders; and
- some projects may be more “technology intensive” if local participants are already comfortable using the applicable technologies.

As well, adaptation is critical:

- each project must have its own circumstances and dynamics;
- map content depends upon future uses of the map, cultural factors, and both external and internal politics;

## MAPPING HOPI

Gary Paul Nabhan, Director, and  
 Ferrell Sackoku (Hopi), Senior Advisor  
 Center for Sustainable Environments  
 Northern Arizona University  
 Flagstaff, Arizona

### Nabhan:

Our efforts to regenerate or maintain the freshwater springs on Hopi land have been aided by merging GIS technologies with traditional knowledge. The long-term health of the freshwater springs on the Hopi Reservation is being threatened by a number of factors, including increased industry, development, and off-reservation groundwater pumping. These freshwater springs constitute a crucial resource for the Hopi people and their way of life, as many rely on the springs for drinking water, agricultural irrigation, and ceremonial purposes, among other things.

In order to protect against contamination and diminishment, and to preserve the long-term health of these springs, those charged with ensuring their survival are making use of an effective combination of GIS technologies

(which not only assist in the mapping of spring locations but also aid in the tracking and control of invasive plant species and water pollution) and traditional knowledge (many Hopi possess an intimate knowledge of their landscape, including the location and size of many springs not previously known or documented by outside agencies). Traditional knowledge also complements GIS technologies in terms of freshwater springs preservation through the articulation of a variety of cultural uses for the sites which attaches a greater urgency to the protection of these precious water resources. Finally, the traditional knowledge of the Hopi has assisted greatly with the inventorying of archaeological and ceremonial characteristics of these springs and their surrounding habitats, which equips those charged with protecting the springs with an informed knowledge of both nature and culture.

Sackoku:

There is a demonstration project on the Hopi Reservation aimed at revitalizing a specific freshwater spring for the purposes of providing the irrigation water necessary to rejuvenate a peach orchard that once sustained one Hopi community. The effort to revive the spring, still in its formative stages, has integrated traditional knowledge with technology on a “modest scale.” It has been sustained by local community involvement, in particular through the collection and implementation of

traditional knowledge in regards to how the spring was used, how the orchard was maintained in the past, and how any sensitive areas should be respected. The long-term benefits of this project include not only the reclamation of a significant water resource, but also the redevelopment of an important food resource. Just as important, the project has become a way for the Hopi people to relearn their culture. GIS research in Indian Country should be geared toward “giving something back to the community.”

T H E   S A N T A   F E   I N D I A N   S C H O O L ’ S  
C O M M U N I T Y - B A S E D   E D U C A T I O N   M O D E L

Smokey Trujillo, Teacher and Project Advisor,  
Thomas Fragua (Jemez Pueblo), and  
Stephen Teba (Santa Clara/San Juan/Navajo), Students  
Santa Fe Indian School  
Santa Fe, New Mexico

Trujillo:

The Santa Fe Indian School’s Community-based Education Model (CBEM) program is in its fifth year of existence. The program consists of four courses of study (environmental science, math modeling, tribal government, and communications) tied together through particular environmental issues and themes, and through the use of the latest GIS mapping computer programs available (ArcView). A total of 28 students are currently involved with the program, each spending three hours each schoolday working on their individual projects.

CBEM’s specific projects are developed based on the needs of local indigenous communities around the Los Alamos area who “drive the curriculum.” Tribal communities that have participated in the program thus far include Jemez, Cochiti, Santa Clara, Tesuque, Nambe, and San Ildefonso Pueblos. Students typically

work with their own tribal communities. The information garnered by the students assists the respective tribes with current and future legal proceedings concerning tribal rights to land and resources. The students give talks at day schools, attempting to make research on environmental issues fun through hands-on activities.

The CBEM program could easily be replicated in other schools that are in close proximity to indigenous communities.

Fragua and Teba:

Fragua’s project focuses on mapping the ancestral domain of the Jemez people, while Teba’s project aims to map the headwaters on the lands of the Santa Clara Pueblo. DEMS (Digital Elevation Models), flow direction maps, layers with stream channels, water basins, and areas of basin intersection are important aspects of these projects.

## A B O R I G I N A L M A P P I N G N E T W O R K

Kira Gerwing

Central Coast Coordinator

Information Services Program, Ecotrust Canada

British Columbia, Canada

The Aboriginal Mapping Network (AMN) is a project that Ecotrust developed for use by First Nations in Canada. AMN, originated in 1997 to create GIS networking solutions for indigenous communities, is focused on two major programming areas: information services and economic development. The ultimate goal of the program is to enable indigenous peoples to become self-sufficient in tribal efforts that rely upon GIS technologies to manage their lands in ways that are both culturally appropriate and economically productive.

In order to accomplish this objective, AMN operates five major activity areas:

- its Web sites (<[www.ecotrustcan.org](http://www.ecotrustcan.org)>, <[www.nativemaps.org](http://www.nativemaps.org)>), which create a “virtual mapping community” by providing an Ethernet education for indigenous communities about mapping from an aboriginal perspective;
- roundtable workshops, which help to

lower the learning curve on federal governmental GIS data;

- a publication series, which integrates cultural mapping and land use and occupancy research (for example, the book *Chief Kerry’s Moose*);
- professional exchanges, which showcase success stories of and lessons to be learned by indigenous communities; and
- international conferences.

The next steps in the AMN program include practitioners’ workshops, institutional partnerships, and a number of upcoming conferences.

AMN and Ecotrust Canada employ an approach predicated on the idea that GIS research should “improve the lives of those researched.” GIS mapping should emanate from a collaborative approach that relies first and foremost upon the knowledge and expertise of indigenous peoples.

## S T Ó : L Ō N A T I O N H I S T O R I C A L A T L A S

LeAnna Rhodes (Muscowpetung First Nation)

Senior GIS Technician

Aboriginal Rights &amp; Title Department, Stó:lō Nation

British Columbia, Canada

The Stó:lō Nation (“people of the river”) comprises 18 member communities representing 6,500 persons and occupies the lower Frazier River watershed. The Nation has used GIS to defend aboriginal rights and negotiate air quality, land, and water issues.

The “Historical Atlas Project” was started as a resource book for treaty negotiations.

Over several decades, researchers gathered community-based knowledge that was consolidated in 1999 into a book linking science with community knowledge. GIS was critical

in producing maps for this atlas. For example, traditional-use studies aimed to document types and ranges of traditional activities, such as fishing and gathering. These studies were motivated by legal requirements for aboriginal land claims, and the subsequent maps were useful in identifying areas for land-selection in the treaty process. Another example is the

family-owned sites studies, in which interviews with elders identified family-owned sites that were passed down and inherited through generations, identifying who did what on which lands. This helps to solve conflicts by establishing an historical context (for example, fishing sites, etc.), especially pertaining to individual and community lands.

*focus*

## LINKING TRADITIONAL KNOWLEDGE WITH SCIENCE

### TRADITIONAL ENVIRONMENTAL KNOWLEDGE (TEK): A NATIVE PERSPECTIVE

Gregory Cajete (Santa Clara Pueblo)

Professor of Education  
University of New Mexico  
Albuquerque, New Mexico

TEK is one of the newest and most promising areas in environmental research. Tribes are finally seeing a renewal of animals and plants long disappeared in other places. TEK looks at aspects of indigenous perspective and how they translate into scientific knowledge. In order to adequately understand the environmental crisis, environmentalists and earth scientists must look seriously at what is meant by TEK. TEK is a major base of knowledge and a way to interact with the natural world. It is embodied in “life ways” in the environmental-human interface. When indigenous leaders are questioned about their TEK, they will first want to know how this knowledge will be used and how tribal goals of achieving better control over natural resources will be promoted.

TEK is a research mindset, and has come with knowledge of inter-relationships, a tapestry of connections between life forms and the material world. It is a complex adaptive system. TEK is about understanding these complex environmental relationships. Native peoples’ task is finding a way to come to terms with this complexity.

Thousands of animals are embodied in Pueblo stories, and storytelling reveals traditional environmental knowledge. Elders give advice by saying, “Look to the mountain.” The mountain is recognized as the watershed and therefore, the supporter of life. It also serves as the physical guide of territory, a boundary. The mountaintop represents perspective, which is necessary in order to understand that everything has a history as well as a present.

The Pueblo people settled in different places. They learned agriculture. They gained an understanding of ecology. They came together in larger communities, creating a new ecology: social ecology. They built many villages and came to understand the landscape. Many of these ideas involve the concept of “pathway”: to pick up and leave things behind as part of the learning process. This common theme is also known as “roadway.”

Outsiders come to the Pueblo looking for TEK, which is embodied in a physical relationship such as in architecture and art. For example, there is an Anasazi ceramic bowl decorated with a figure that is both a human and a crane. The figure demonstrates one-

ness—one cannot see where the crane ends and the human figure begins. In this way, TEK is embodied in designs. A good Pueblo example is Kokopelli, a creative spirit that moves throughout the landscape in semi-human form. Kokopelli has become a universal symbol of the Southwest in modern days. However, for the Pueblo people Kokopelli is very sacred, symbolizing the power of nature, natural creativity, and the procreative energy of the natural world. It is said that Kokopelli plays a certain kind of music that represents its creative spirit. The Pueblo people look at the world through these teachings.

- How are we going to teach our children to build relationships with each other and the natural world?  
We must mimic the natural world when structuring our communities and our relationships with plants and animals.
- How to plant?  
The embodiment of Pueblo TEK is the belief that success with crops and in the hunt brings myths and stories to the community. This is the TEK social ecology.

The answers to these questions are illustrated in the corn dances that take place in July and

August. This tradition is embodied in metaphors within the language, such as “we are all kernels of the same corn cob.” This adage signifies both unity and diversity. All corn kernels are different, but they lean on each other. All people have a relationship with each other in the hands of the Earth Mother, and as we come into elderhood, we pass our traditions on. Each of us exists only in our ability to pass our culture and knowledge on to the next generation, to plant these seeds in the minds of the young. Elders are teachers. The African saying “it takes a village to raise a child” is also true in Indian Country.

The Pueblo term *bingyeho* means “split mind.” It embodies cultural schizophrenia and the paralysis of not feeling whole. When Native societies view change as being pulled between two opposing realities, they feel split and paralyzed.

The Pueblo people worry about whether or not they will be able to carry on as a distinct people, thus are reluctant to allow others into their world. TEK celebrates complexity, of which modern changes are a part. Traditional environmental knowledge is the heart of indigenous culture.

## T H E H E I L T S U K C U L T U R A L L A N D S C A P E A S S E S S M E N T

Kelly Brown (Heiltsuk)  
Cultural Landscape Assessment Coordinator  
Heiltsuk Tribal Council  
Waglisla, British Columbia, Canada

**The Heiltsuk Traditional Territory**  
The Heiltsuk Traditional Territory, which lies 350 miles north of Vancouver, comprises 37,000 kilometers (15,000 square miles) of land and sea. The community of “Bella Bella,” the Spanish name for Heiltsuk, is the largest Native community on the West Coast, consisting of an amalgamation of five major tribes.

“We own the whole of this country.”  
—A Heiltsuk elder, 1913

The Heiltsuk people have never sold nor surrendered any land. They have no legal control over their resources except through cooperative management of (at least one) reserve(s). Section 35 of the Canadian constitution (1982)

protects aboriginal rights of titles. The Heiltsuk Tribe must prove that they have the rights of title, but unfortunately, the government is often unwilling to accept that proof. Meanwhile, there is continued use and occupancy. The Delgamuukw Decision gives usufruct rights (continued use and occupancy rights) to tribes on their traditional (but public, unowned) territory.

The Heiltsuk Tribe has the right to sell herring roe to the Japanese – the only such right in Canada.

#### Priorities for Land Use

- conservation first
- Heiltsuk traditional uses
- Heiltsuk licenses for resource extraction

Who has access to resources? Third-party license holders often get the last crack at reare a conservation-based development plan, an information base, an economic development studies program (85% of the Tribe is unemployed and the average annual income is \$8900), creation of a community-led process, a system to monitor the long-term health of the ecosystem, and joint fundraising efforts. All aspects of these goals will ideally be led by the community.

#### Conditions of the Economy and Health System

The Heiltsuk community of Bella Bella is socially unstable due to the lack of a developed, sustained economy. In the last 10 years, the Heiltsuk community has been moving toward a healthier existence. There is a need for a long-term look at community health, and the effort to improve health should be jointly funded and monitored.

#### Methodology

One of the first steps in implementation was a June 1999 methodology conference in which the following priorities were identified:

- focus on rights and titles
- build local capacity
- conduct quality research

- make decisionmaking processes community-led
- fill research gaps
- work within a current context
- use ecosystem-based science
- use tools for planning

The planning group includes an internal working group and an external advisory group.

From June 1999 to May 2001 the following were studied:

- guiding principles
- tenure assessment
- historical harvest, cut, and stumpage calculation
- fish and fish habitat
- restoration priorities
- forest profile
- NTFP assessment
- referrals
- Traditional Use Study (asked every single tribal member over 18 how they used the territory)
- tourism (tourists love the Great Bear Rainforest, which Bella Bella lies in the heart of)
- economic development

#### Examples of Findings

A Geographic Information Systems map was used to plot wood harvesting by private contractors on forestland within their traditional territory. There is an accelerating trend of “high-grading” cedar in the central coast. The Heiltsuk people rely on cedar for cultural reasons. Currently, 65% of the current growth is being harvested. At that rate, all old-growth cedar will be gone in 50 years. The Heiltsuk First Nation now recognizes its important role as the last keeper of the cedar forest reserve.

#### The Conservation Development Plan

The Heiltsuk Cultural Landscape Assessment is working on a conservation-based development plan, which will provide a tool for decisionmaking to conserve resources. This will not be a government plan, but a Heiltsuk plan, based on Heiltsuk values and grounded in a Heiltsuk cultural context. The goal is not

to make money and maximize profit but to find better ways to create jobs based on Heiltsuk values. The planning document should include principles, goals, and objectives, as well as the history of the Heiltsuk people, and an atlas of the territory. The data should incorporate multiple land-use zones with strategies for implementation.

### Results of the Plan

Consultation will no longer be an afterthought to the government when dealing with the Heiltsuk people. This plan and the assessment program forces outside developers to consult the Heiltsuk from the beginning and allows for collaboration with other First Nations. The Heiltsuk Cultural Landscape Assessment should collaborate with other First Nations and create partnerships with other environmental groups.

## INDIGENOUS SOCIAL CONDITIONS THAT ENCOURAGE ADAPTIVE ECOSYSTEM MANAGEMENT

Ronald L. Trosper (Salish-Kootenai)  
Director, Native American Forestry Program  
Northern Arizona University  
Flagstaff, Arizona

Pacific Northwest coast tribal societies have been uniquely successful at adaptive ecosystem management. The factors allowing this success are important to learn, in particular, the characteristics of the economic and political systems of the Pacific Northwest coast and of the Cree in the James Bay region that support their utilization of science in managing their resources.

Adaptive management (AM) is the idea that managers should employ social learning in managing resources. Fikret Berkes, in *Sacred Ecology*, writes that AM is a “nonlinear, multi-equilibrium concept of ecosystem processes and its emphasis is on uncertainty, resilience, and feedback learning.”

### Six Characteristics that Support Social Learning

#### *Proprietorship*

Proprietorship is the ability to exclude others, manage, and assign usage, but *not* to sell. In the Pacific Northwest there has been a long history of several types of proprietorship, for

example, over streams. Trespassing could be a capital offense on the third transgression.

#### *Contingency*

Titleholders were trained by their elders, which ensures continuity and social memory.

#### *Environmental Ethics*

Humans are a part of nature, though nature as evolutionary is uncertain. Lack of hubris allows learning. Stewardship is the standard for leadership. Reincarnation beliefs create longtime horizons.

#### *Reciprocity*

In potlatching and feasts in the Pacific Northwest, shareholders share surpluses with each other, resulting in a new scientific ethic of sharing (i.e., “invisible colleges”). The costs of learning are often less. There is an immediate return in a reciprocity system because all share costs as well as benefits.

*Facilitating Leadership*

The adaptive management literature consistently emphasizes involving the public and all stakeholders in leadership decisions. Native leadership emphasizes consensus in decisionmaking. A consensus-based system of learning promotes learning.

*Public Accountability*

Potlatches were public ceremonies. Gifts were publicly announced and in plain view for others to count. Today public accountability continues: The Nisga'a include in their new constitution the right to information about the government's part of the bill of rights.

**Other Mechanisms of Resilience**

- Buffering disturbance  
Contingent proprietorship  
(buffers leadership errors)
- Reciprocity
- Facilitating leadership
- Ethics
- Self-organization  
Feasts recognize titleholders

**Evidence of Success**

The Pacific Northwest's system of housing, titleholders, and potlatching has lasted for more than 2,000 years. The Cree culture in the boreal forest shows a long record of success. For instance, they adapted well from moose to beaver as their basic means of subsistence (and were able to survive the crash in the fur trade). Some fishing tribes who lost their subsistence base are now making a comeback.

**Discussion**

**Q:** What is the definition of titleholder?

**A:** A titleholder is passed through lineage, usually from father to son. Title-holding families tended to marry into other title-holding families. Responsibilities are passed on from generation to generation. Proprietorship, on the other hand, is a clean title to particular pieces of land, an ownership of knowledge. The crucial distinction between the two is that a title-owner is able to sell to the highest bidder. A proprietor is very different from an owner; "people" own land, and therefore can sell it, while a proprietor can only give his land away.

**Q:** Is this an ethnography that you are introducing to link traditional knowledge and science? What is the definition of science, and how is it different from indigenous understandings?

**A:** The distinction between traditional and western science is along the lines of process: Economists tend to believe that northwestern tribal resource management success is the result of the logical application of quantitative principles, leaving out any social component. Such assumptions must be refuted. Selling is what gets in the way; the modern concept of "proprietorship" is very different.

**Q:** Is the difference that tribal knowledge is evolutionary ecology? Most indigenous people tend not to homogenize animals, seeing them instead as individuals. It is a different concept of rights. Western knowledge functions on an industrial level and not as an "organism."

**A:** Finding methods of controlling nature is a new idea.

*“In the Navajo Way,  
the Earth is our Mother,  
the mountains part of her sacred body,  
the water courses through her veins and arteries.  
When the Earth is injured, the resultant  
instability, imbalance, and disharmony  
bring illness to the life on Earth  
including humankind.”*

– DERRITH WATCHMAN-MOORE

INSTITUTION BUILDING



**I N S T I T U T I O N B U I L D I N G :**  
**O R G A N I Z I N G F O R E F F E C T I V E M A N A G E M E N T**

Joseph P. Kalt

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 Harvard University  
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Looking at natural resource management through the lens of nation-building is critical.

Tribes commonly have three goals:

- political sovereignty;
- social sovereignty; and
- physical, psychological, and economic well-being.

Tribes succeeding on their own terms have similar profiles:

- De facto sovereignty.  
 Successful tribes are marked by the drive to make their own decisions and create their own institutions.
- Sovereignty must be backed up with capable institutions of self-government.
- A cultural match must exist between institutions and underlying values and ways of doing things.

**De Facto Sovereignty: Implications for Resource and Environmental Management**

- Ending the horror stories (i.e., continued leasing of grazing lands at less than fair market prices, as experienced by the Hopi and Navajo).
- Improving accountability. For example, when tribes take over forestry, they receive 11 cents more per log, on average, because accountability is improved.
- Building true government-to-government relations (tribes can stand as peers with neighboring governments).
- Ending malevolent and benevolent stereotyping and racism (i.e., in the Macah situation in which people had issues w/ Native Americans harvesting whales, and in the Jicarilla Game and Fish situation). The *New York Times* view of Native America is benevolent.

**Capable Institutions of Self-government**

Tribal organizations/institutions do best when they are:

- organizationally effective  
 The number one predictor of a successful tribal housing or forestry program is whether or not there is an independent tribal court in place that can resolve disputes. Tribal courts do not have to model the U.S. court system, but they must be independent. Lawyers are necessary in negotiations, especially in extractive sectors (mining, timber, etc.).
- technically sophisticated
- economically viable  
 Indian Country is a model for sustainable development occurring in other parts of the world, such as in Africa and Latin America (e.g., elk and sheep hunting at Hualapai, in which revenue cycles back towards protection of resources).
- supported by the community  
 Management, from its style to its substance, must be supported by the people.

**Cultural Match**

- Where: Toward what values do we manage?
- How: How do we implement and enforce?
- Why: There is no “one size fits all” approach. A tribe must support natural resource management decisions for them to succeed. Sovereignty is crucial from a research perspective, as one size does not fit all.

**Payoffs to Self-Governed Resource and Environmental Management:**

- environmental and endangered species protection
- sustainable economics (ex. The Yukaana Development Corporation)
- employment and training
- experiences in self-government
- recognition of sovereignty
- community pride in self-determination

**Leadership**

Reaching people and expressing wisdom is a very individual and delicate process. Leadership is a powerful tool, and can lead people right off of a cliff. The challenge is to combine personal strength with a vision of where the tribe is going.

IMPLICATIONS OF SUPREME COURT RULINGS  
ON NATURAL RESOURCE MANAGEMENT

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**Role of Negative Stereotypes in Recent U.S. Supreme Court Cases**

In recent cases, the Supreme Court has consistently denied the right of tribes to exercise jurisdiction over non-Indians and non-member Indians, ignoring prior precedence. The “Renquist Court” has a problem with allowing Indians to exercise jurisdiction over any non-Indian on the reservations. In the State of Nevada, the driving factor and the most important implications are a set of negative racial stereotypes justices have about Indians, the same as those that are pervasive throughout the majority culture.

**Power of Stereotypes**

Negative racial stereotypes help to construct the social reality all of us live in from an early age. They are a part of the hot-wiring of the way we see the world.

*Negrophobia and Reasonable Racism*, a 1998 book by Professor Jody David Armar, discusses the phenomenon where stereotypes about African-Americans are picked up by African-Americans as well as by Whites and other groups. The book illustrates the influence of stereotypes in constructing social reality from early development with the example of a three-year-old white child in the park with her mother who points to a black baby in a carriage and says, “Look mommy, a baby maid.” Stereotypes are assimilated quickly and early.

Since September 11<sup>th</sup>, 2001, the concept of negative racial stereotypes is particularly important. Many Arab-Americans experience heartache, trouble, and other issues when they try to fly. Subsequently, they feel they must hide

or blend in. How would you feel if someone in a turban got onto your plane? You would most likely feel uncomfortable.

Military tribunals often involve aspects of racial profiling and negative stereotypes as well, as seen in WWII Japanese-American internment camps. At that time, the U.S. Supreme Court affirmed the internment of the Japanese on the west coast. The government defended the relocation and camps by citing a host of negative racial stereotypes. An official government order included mentions that Japanese were “emperor worshipers,” lived in small cliquish communities, refused to assimilate, and could not be trusted. According to Congressional records on *Korematsu v. United States* (1944), the government explained that it knew these things because it had spies and did not see any activity, so they “must be up to something.”

*Negrophobia* also includes discussion about the stereotype of the young, African American male being violent. Even Jesse Jackson expressed fears of encountering young, African American males in urban settings while walking. Negative racial stereotypes order and construct the world we all live in.

**Stereotypes About Indians**

A *Far Side* cartoon pokes fun of the myth that the Manhattan Indians sold Manhattan in the 1600s merely for some beads and trinkets. The cultural mindset about Indians that grew out of and is perpetuated by such a myth may be unintentional, but it is still widely known and accepted in the majority of society. The stereotype that lingers as a direct result is the

notion that Indians don't understand the value of land, allowing them to be easily duped in treaty negotiations. Negative stereotypes about treaty relations between Indians and Whites have significant consequences for modern federal Indian law and the way the Supreme Court approaches it. There is a mentality that Indians are not as sophisticated as Whites.

There is an Indian mythology or stereotype that Indians thought about land differently and negotiated with Whites on an uneven playing field. However, the old chiefs knew what was going to happen: They couldn't beat the armies, the guns, and the railroads. When the U.S. government approached the Sioux after gold was discovered in the Black Hills, the Tribe had a good sense of what the land was worth when they said, "The Black Hills are not for sale." A dialogue between Sioux warriors and peace chiefs and Whites occurred in 1875 about sale of the Black Hills:

*Little Bear*

"If a man owns anything, of course, he wants to make something out of it to get rich on. You gentlemen were sent from our great father's house. You are looking for something good, of course, and we are the same and we are glad to speak to you. There will be persons like myself, Indians, on the earth as long as the Whites live. I want you to feed them and give them rations and annuities every year."

*Spotted Tail*

"As long as we live on this earth, we will expect pay. We want to leave the amount of the principal as interest bearing forever. By doing that I think it will be so that I can live. I want to live on the interest of my money. The amount must be so large that the interest will support us. Part of this each year I can trade for something to eat. I will trade part of it for enough annuity goods to go around. I'll trade some of it for stock to raise cattle. If even only

two remain, as long as they live they will want to be fed and clothed just as they are now."

*Spotted Bear*

"Our great father has a big safe. And so have we. This hill is our safe and, as long as we live, I want our great father to furnish us with blankets and things that we live upon. We want \$70 million for the Black Hills. Put the money away some place in interest so that we can buy stock. That is the way that white people do."

The Sioux were way ahead of the 401K plan; they understood annuities. But even Indians themselves believe the stereotype that portrays Indians as historically unsophisticated in treaty negotiations. That is why they talk about their treaties so often.

At the Albany Treaty Conference in 1754, the English colonies called tribes together because the French and Indian War was occurring. The Crown instructed the colonies to try to make peace with the Indians so that it could be the English and Indian War rather than the French and Indian War. Indians sided with the French because the French were interested in trading furs and the English wanted Indian land. The colonists immediately turned the conference into negotiations for the sale of land.

There is also a negative stereotype about Indians living only for today rather than focusing on the future. This can be refuted simply by looking at the words of the famous Iroquois chief Hendrick. Hendrick agreed to sell land only on the condition that when all of the Whites involved in the negotiations were dead, their grandchildren could not cite the sale of the land as a reason to remove the grandchildren of the Iroquois. He explained that eventually there would be nothing to show for the land and no advantage to the sale. Part of the sale agreement he proposed mandated that the Whites and Indians involved

always treat each other as brethren, even when there would no longer be a benefit from the land bought and sold between them.

Often in treaties, chiefs tried to negotiate for enough land to be kept in perpetuity so that they could live the way they were used to living. They wanted to get the best deal possible when they realized they could not continue to refuse the sale of their land.

Because of the negative stereotypes portraying Indians as unsophisticated and focused exclusively on the present that can be traced back to the colonial period and still affect the way Indians are perceived today, society denigrates the status of Indian treaties. Subsequently, so does the Supreme Court.

### The Effects of Stereotypes

I give a test to my students at the beginning of each course to see how polluted their minds are with racial stereotypes. Most students have no clue who Wilma Mankiller is (by picture), nor can they name five Indian tribes other than the famous Hollywood tribes (Apache, Sioux, Navajo, Mohicans [though all of the latter died]). They can't name five contemporary tribes or contemporary tribal leaders.

The stereotypical image of the "stoic" Indian is seen in the team logo of the Washington Redskins. Use of Indian images in sports deters the cause of Indian self-government. However, these images persist in society when its members are unfamiliar with modern leaders.

How is it that most people know about Indians? Many still think we live in teepees. My Indian students say "double-wides." This culture has frozen images of Indians as savages in buckskins and the stoic, noble Tonto or Washington Redskins mascot, but knows nothing about what goes on in Indian Country or the daily struggles, or what the Supreme Court or the presidential administration is doing to Indian rights.

A cultural group that has a groovy reputation and got out of fighting wars is the Quakers. Bring to mind the image of a Quaker—it is likely a benign, smiling image. So when the Quaker applies for a draft exemption, as opposed to when an Indian applies, it becomes evident the way that stereotypes play with the draft board.

Stereotypes mutate over time. The Fighting Irish of Notre Dame is a source of pride now and preferred over the stereotype of days past of Irish as "coming off of the boat fighting."

When one tries to come up with a positive image of Indians that is pervasive in today's culture, one is hard-pressed to find even one.

**The Supreme Court in Early American History**  
Stereotypes are even more pervasive on the Supreme Court.

In 1783, after the United States received the land between the Appalachians and the Mississippi River from Great Britain in the Treaty of Paris, George Washington made the single most important doctrine of early federal Indian policy when he said about the "problem" of the Indians: "We should make treaties with tribes, attempt to purchase rather than drive them by force out of their country." He likened doing so to "driving out wild beasts of the forest," and predicted that land expansion would render Indian peoples a "doomed race of savages."

The first great case on federal Indian law embodied the stereotype of Indians in its policy as "savage as the wolf." This is evidence that with the power of the military and the Supreme Court behind it, stereotypes can become reality.

In 1823, Chief Justice Marshall claimed that Indians are savages and have no rights. In *Johnson v. Macintosh*, the origin of the Doctrine of Discovery and the Congressional Plenary

Power Doctrine, the inferior rights of Indians became embedded into law based on stereotypical notions about their character and religion. Today this case is still cited. Imagine citing *Plessy v. Ferguson* in today's courts.

At one point in history, a treaty between the Cherokee and the U.S. government was being ignored by the State of Georgia; the Cherokee wanted to prevent this. The Tribe legally challenged the State of Georgia in the Supreme Court on the grounds that the Tribe was a "foreign nation" and therefore possessed the right to challenge another sovereign state. Marshall disagreed, explaining that there was no jurisdiction for the Cherokee to sue a state. He based his finding on the idea that the Cherokee and the U.S. government existed in a ward/guardian relationship, meaning that the Cherokee had no sovereignty to sue as a "foreign nation." Marshall's finding set precedence for 150 years, rendering tribal nations unable to sue states to protect their rights without the permission of the federal government.

All stereotypes reached a zenith in the 19<sup>th</sup> century. For example, the Major Crimes Act resulted when Congress imposed federal criminal jurisdiction over Indians. The Supreme Court supported the justification of Congress in passing the act by insisting that Indians were savage and wards of the government.

#### The Supreme Court in the 20<sup>th</sup> Century

In 1955, when faced with the question of whether or not Alaska Natives have a right to land, the Supreme Court dismissed the enforceability of treaties between Indians and the U.S. government. The Court claimed that treaties were, in essence, merely a way to quiet the minds of the Indians and not legal documents.

In the 1960-70s, however, an era of heightened racial sensitivity in the United States and particularly in the courts, the language of savagery

began to disappear. The stereotypes began to fade in their blatancy, but when the "Rehnquist Court" came to power, the language of savagery was reintroduced with a vengeance.

It is thought that tribes never had a system of justice prior to the settling of the United States, so the Congress never intended to allow Indians to exercise jurisdiction over non-Indians. By virtue of status under *Johnson v. Macintosh*, tribes were divested of criminal jurisdiction over non-Indians.

In *Montana v. United States*, tribes were given the authority to regulate hunting and fishing on the reservation if Whites own an allotment. Whites don't belong to tribal government, only to states.

In the 1997 *A-1 Contractor's* case, Ginsberg refused to allow tribes tort jurisdiction over traffic accidents that occur on roads running through the reservation.

In *Nevada v. Hicks*, the Supreme Court ruled that tribes could have civil jurisdiction over Whites only if Whites voluntarily agreed to tribal court jurisdiction. This ruling sent the message that Indian systems of government and justice are not as good as western systems and that westerners would not likely be treated fairly in light of the idea that Indians intended to seek vengeance against Whites.

#### Conclusion

Confront people with stereotypes; shame them. We must do this, because no one else will. Confront the courts. Start early. This must be as much a part of nation-building as any daily activity by Indians and non-Indians. Act against stereotypes. Tribal courts must engage in important interfaces with the white community. Many tribal courts are poorly funded and uncooperative with larger society. Tribal courts must operate with dignity and be willing to explain traditions.

Jesse Jackson dissented against the government's attempts to lock up Japanese-Americans in the *Korematsu* case. He explained that when a judicial opinion accepts stereotypes to show it conforms to the Constitution, or rather, rationalizes the Constitution

to show that the Constitution sanctions such an order, the Court has validated principals of racial discrimination for all time, embedding them into law and into thinking. Jackson continued, "It lies about like a loaded weapon."

*focus*

## EDUCATION AND TRAINING

## MANIILAQ ASSOCIATION

Francis Chin

Environmental Justice Coordinator  
 Native Services, Maniilaq Association  
 Alaska

The Maniilaq Association is a nonprofit organization that was started as an environmental assistance program for villagers in northwestern Alaska. This program is funded by an IGAP (Indian General Assistance Program) grant, which nine tribes currently have.

The Collaborative Alaska Tribal Air program was established in Alaska. Partners include the Maniilaq Association, the Institute for Tribal Environmental Professionals, the Tribal Air Monitoring Support Center, and the State of Alaska Department of Environmental Conservation. Nineteen tribes are currently participating, and 68 others are on the waiting list (as there is not enough funding and personnel to accommodate all entities that want to participate). Tribes have come to realize that they do need environmental assistance and training.

The most serious environmental problems in Alaska are DDT and dioxins. Factors in the dangerous levels of dioxin include the cold climate, the Hadley Effect, and the use of Alaskan lands as a dumpsite for toxins. There are 633 army sites in Alaska as well as the largest lead and zinc mines in the world.

**Training and Education**

Most Alaskan villages are small (200-300 people), making it difficult to find qualified people who are willing to stay and work in the villages. Staff turnover is usually high, and salaries are not competitive enough to draw people from outside the area. Those professionals who do remain often do not have a high level of education. A solution to the employee shortage is a two-to-three-year contract aimed at retaining personnel in rural areas for longer periods.

For assistance in addressing air pollution, tribes have approached the Department of Health. Technical training institutions are needed. The EPA and other federal agencies do not currently fund this technical training transfer. Training should ideally come from tribal institutions.

Environmental research is largely conducted without tribal involvement. Scientists and researchers must be made aware of and acknowledge the value of tribal experience and knowledge. Including tribal input with needs assessments is a new trend.

**Changing Tribal Needs: Current Issues to Address**

- more funding for training institutions
- effectiveness of continuous funding of tribal IGAP
- reality of the constraints faced by small tribes
- incorporation of tribal knowledge into Western science
- need for more effective collaboration with tribal, state, and federal agencies
- sustainable economic development
- tribal subsistence in Alaska (store-bought food is a luxury)
- mineral/oil extraction in the Arctic
- climate change
- risk assessment of subsistence food in Alaska (cannot replace food that tribes depend on with a lump sum)
- reassess the term “Indian Country” (Alaska’s “Indian Country” is where Alaska Natives live, work, and subsist)

**I N S T I T U T E F O R T R I B A L  
E N V I R O N M E N T A L P R O F E S S I O N A L S ( I T E P )**

Annabelle Allison (Navajo)  
Institute for Tribal Environmental Professionals (ITEP)  
Northern Arizona University  
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ITEP helps tribes across the country to build strong foundations.

**Programs Offered by ITEP:**

*Air Quality*

Air quality workshops provide training in management of air quality. The goals of these workshops are to enhance tribal capacity in air-quality management, acknowledge Native American values and context, and provide high-quality training with a “training-by-doing” approach.

Courses are developed based on the needs of tribes. Twenty workshops were offered in FY 2001 (in contrast to four in 1994) and 700 individuals have been trained from 1994 through 2001. Workshops involve several different instructors; post-workshop evaluations help to monitor effectiveness.

*Professional Training*

The professional training and assistance sector was initiated in FY 1997, comprising professional assistance and exchange (5-10-day

trips to host sites) and professional development (National Tribal Forum Series).

*Tribal Air Monitoring Support (TAMS) Center*

The Tribal Air Monitoring Support (TAMS) Center is located in Las Vegas, Nevada, and offers technical workshops (193 individuals have been trained), a training and evaluation platform constructed for hands-on training, and instrument verification services. TAMS succeeds because it is driven and designed by tribal priorities and input, and by a tribal/EPA partnership.

*Environmental Education Outreach Program for K-12*

Future directions for ITEP include the development of outreach training for criteria pollutants other than particulate matter and the promotion of indoor air quality education and monitoring services.

**Points of Contact with ITEP:**

- Tribal Environmental Resource Center
- toll-free number to receive calls

- workshop information
- technical questions
- tribal environmental staff networking
- Web site, library of technical documents
- newsletter
- National Emissions Inventory (NEI)
- database collaboration with EPA
- software development for emissions inventory

- Alaska Solid Waste Management Project
- Summer Student Internship Program

ITEP continually strives to enhance its tribal environmental management capacity, identify training needs, expand training opportunities, and refine training methods and delivery.

LAC COURTE OREILLES COMMUNITY COLLEGE

Sky Houser (Ojibwa)

President

Lac Courte Oreilles Community College

Hayward, Wisconsin

The Tribal College Act was the first legislation written and passed by Native Americans. Planning for Lac Courte Oreilles Community College (LCO) began in the late 1960s and early 1970s, and the charter was granted in 1982. Tribal leaders saw the need to connect tribal and formal educational systems in order to provide technical skills, analytical abilities, and grounding in spiritual traditions of the Tribe. LCO is in the far northwestern part of Wisconsin and serves two reservations.

The college's current budget is less than \$2 million per year. There is a Geographic Information Systems lab at LCO, and the college is now capable of offering distance-learning courses.

The Lac Courte Oreilles Tribe has a variety of concerns about the environment. Climate change is of particular concern, as tribal income depends heavily on winter tourism activities such as skiing and snowmobiling.

Additionally, one-third of the reservation is underwater. Cadmium deposits in the lakes are problematic in that they can become airborne as the lakes' water evaporates. Furthermore, tribal subsistence is traditionally based on wild rice, venison, fish, and waterfowl.

Future plans for LCO include a degree program offered in sustainable community development that will incorporate cultural aspects of development, linguistic analysis of the tribal language, and Ojibwa studies courses.

LCO aims to promote community education within the Tribe and to build tribal institutions and sovereignty. The college must think of long-term continuity and work with other tribal institutions (such as tribal government). LCO will evaluate community concerns and issues over the next five years and incorporate these into training or degree programs at the college.

*focus*

ENVIRONMENTAL PROTECTION OFFICES

NAVAJO NATION ENVIRONMENTAL  
PROTECTION AGENCY

Derrith Watchman-Moore (Navajo)  
Executive Director  
Navajo Nation Environmental Protection Agency (NNEPA)  
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**The Navajo EPA Experience**

“In the Navajo Way, the Earth is our Mother, the mountains part of her sacred body, the water courses through her veins and arteries. When the Earth is injured, the resultant instability, imbalance, and disharmony bring illness to the life on Earth including humankind” (Navajo Nation Council Resolution, CAP-47-98).

Navajo EPA has been in existence since the 1970s. In April 1995 Navajo Nation Council created the Navajo Nation Environmental Protection Agency (NNEPA) to replace its former office/program designation. As a result, this regulatory agency gained a cabinet level political appointment, and the Navajo Environmental Policy Act integrated the preservation of the Diné culture into its responsibilities. With this inclusion, more Navajo professionals have come back to work for the Nation.

NNEPA has approximately 17-million acres of land to administer, including a checkerboard area within New Mexico. There are four departments within the NNEPA: the Air and Toxics Department, the Water Department,

the Waste Department, and the Enforcement Department.

A total of \$8 million constitutes the NNEPA budget. Funding sources include Navajo Nation (20%), the U.S. Environmental Protection Agency (66%), and the U.S. Department of Justice (14%). With this in mind, it is strongly suggested that more funding be made available from the U.S. EPA.

There are 70 NNEPA personnel involved in a variety of activities, including compliance inspections, monitoring of compliance activities, technical assistance, and community education and outreach.

There have been seven Navajo environmental laws enacted within Navajo Nation. These laws include the following: Navajo Nation Pesticide Act of 1990, Navajo Nation Environmental Policy Act of 1995, Navajo Nation Air Pollution Prevention and Control Act of 1995, Navajo Nation Solid Waste Act of 1997, Navajo Nation Safe Drinking Water Act of 1998, Navajo Underground Storage Act of 1999, and Navajo Nation Hazardous Substance Act (pending).

**Waste Regulatory Compliance Department**

This Department encompasses an array of programs that aim to safeguard the environment from the degradation attributed to hazardous waste. The EPA Superfund program resulted in the first U.S. federal monies given to Navajo Nation, which were directed towards environmental waste compliance issues. The Superfund Program within the department has two National Priority List Sites close to Navajo Nation, as well as a Brownfields site. The three other program areas and their responsibilities are as follows: the Hazardous Waste Program, responsible for 171 hazardous waste generators in the region; the Underground Storage Tanks/Leaking Underground Storage Tanks (UST/LUST) Programs, with the responsibility of maintaining 530 identified underground storage tanks; and the Resource Conservation and Recovery Program, responsible for 504 open dump sites.

The most prevalent issue the Department currently confronts is open dump sites. There are approximately five acres of land devastated by open dump sites. This includes waterways and arroyos within the territory. At the same time, industrial waste from battery processes also poses a threat to the environmental landscape above and below the surface. The Brownfields Act does not allow for the cleanup of hazardous waste but only the assessment of the problem.

**Surface and Ground Water Compliance Department**

This Department enforces environmental laws established to preserve the quality of water within reservation limits. The department's staff is responsible for such programs as: Water Quality/National Pollutant Discharge Elimination System (NPDES) Program, which encompasses 377 national pollutant discharge systems and a non-point source pollution program; Public Water Systems Program, which oversees 237 systems; and Underground Injection Control Program, which makes use of 503 wells within the region.

**Environmental Law Enforcement Department**

This Department was established with funding provided by the Department of Justice. These monies have been utilized to support criminal investigations, civil/criminal enforcement of Navajo Nation environmental laws, administrative enforcement that includes an administrative hearing process, and nine commissioned environmental law enforcement officers, with the U.S. Department of Justice's Community Oriented Policing Services (COPS) program funding the training of six more officer positions and equipment. Environmental law enforcement officers are rigorously tested and trained using standards similar to typical U.S. law enforcement.

Criminal investigations are carried out in cooperation with the U.S. EPA Criminal Investigation Division. The U.S. attorney prosecutes any offenders of Navajo Nation environmental laws. Currently, there is one case before the federal grand jury and three cases pending.

**Air and Toxics Department**

This Department manages the Navajo Air Quality Control Program, which is responsible for emission inventories, air monitoring, and monitoring levels of different pollution sources. Major sources of air pollution within the Nation's territory include coal mines, coal-fired power plants, and asphalt plants. Agreements have been made with several plants and mines in operation, and rights to air control have been relinquished as the result of a 1960s law. Violations include, for instance, a plant with no scrubbers located on trust land in the Four Corners area in New Mexico, a coal mine's open pits posing a particulate matter problem, oil and gas production in the Four Corners area, and flaring for a 24-hour time period in close proximity to private homes.

The Navajo Pesticide Program deals with agricultural pesticide use, worker protection, and

restricted pesticide use. Under the program's jurisdiction are such issues as household pesticides, human compliance, and large-scale application of fertilizers.

In terms of the indoor air environment, the Air and Toxics Department considers two of its programs especially important. The Indoor Radon Program conducts radon testing in pre-schools. Although asbestos is a current problem within Navajo Nation, the Asbestos Program has been cut due to a lessened national (U.S.) priority for this issue.

**NNEPA Major Goals 2000-2002**

Goals set by the Navajo Nation Environmental Protection Agency include strengthening the four environmental program areas within the agency through the protection of tribal sovereignty and technical capacity building; incorporation of cultural values in environmental laws; development of a permitting program; and consolidation of implementation of federally mandated programs without funding such as Advanced System Technologies (AST), solid waste, and asbestos (utilizing cooperative agreements).

**S O U T H E R N U T E E N V I R O N M E N T A L P R O G R A M S**

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**Air Quality Program**

The Southern Ute and Southern Mountain Ute are located in southwestern Colorado. The checkerboard settlement is spread throughout 308,000 acres and, rather than residing on trusts land, is treated somewhat like a municipality. Approximately 378 acres of Southern Ute and Southern Mountain Ute land lies within National Forest land boundaries.

Established in the early 1980s, its air quality program handles air quality issues, including ambient air monitoring. Today the Program has expanded to include hazardous materials and response, air, and water quality issues.

**Clean Air Title 5**

One issue embraced by the Southern Ute Indian Tribe is the regulatory component of Clean Air Title 5. Economically, the area is sustained by natural gas and coal reserves. Environmental problems resulting from these industries are being balanced using a holistic approach. The regulatory Clean Air Program

is the only entity with ambient air quality data of the region.

The main sources affecting air quality within the Southern Ute territory are attributed to oil and gas development (specifically, compressors). Approximately 30 of the 100 air issues are found within tribal boundaries. As a result of the air-quality issues, there are a total of three ambient air-monitoring stations.

In the early 1990s, the Clean Air Program produced emission inventories, climatologic reports, and data management. The Program eventually expanded to regulate permits in and outside Indian lands. Within the state, Indians have jurisdiction on outside land and air quality issues. There are a total of 70 feasibility studies that have been or are being conducted in the region. The technical portion of the Clean Air Program focuses primarily on the review of federal and state air regulations, and at the same time, it reviews draft permits that could potentially affect air quality in the

region. The Program is currently working to establish a permit program within reservation boundaries.

Negotiations surrounding air quality are being made with the State of Colorado. As a result of this being primarily a jurisdictional issue, the negotiations have led to the idea of a joint commission with the state, including three state-appointed commissioners and three tribally-appointed commissioners. There is an intergovernmental agreement with the State of Colorado that supports this type of relationship (Public Law 98-290).

**Conclusion**

The main focus of the environmental protection agency of the Southern Ute Tribe is air quality. A comprehensive air-quality monitoring program is viewed as the solution to long and costly legal battles. The special relationship that has grown from the intergovernmental

tal agreement signed between the State of Colorado and the Southern Ute Tribe must be emphasized. This intergovernmental agreement, in turn, has provided air-quality programs that have standards similar to those of the State, which, in the long run, emphasize the importance of consistency. This agreement was signed on December 13, 1999, between the State and tribes, yet U.S. Congress must ratify this understanding. The Clean Air Act will not be affected by the agreement. This ensures that a local commission will oversee air-quality activities that affect the Southern Ute Tribe.

When it comes to fees for applicable air-quality violations, the State's jurisdiction in terms of enforcement and judicial review is limited to non-Indians. Yet, when the commission is implemented, it hopes to incorporate planning and assessment, emissions regulation and control, and enforcement.

**ONEIDA TRIBE ENVIRONMENTAL HEALTH AND SAFETY**

Jeff Mears (Oneida)  
 Environmental Health & Safety Department  
 Oneida Tribe  
 Green Bay, Wisconsin

*Oneida Tribe of Indians of Wisconsin*

The 65,000 acres that make up the territory of the Oneida Tribe of Indians is found in the northeast corner of Wisconsin. The Tribe has 5,000 members on or near its boundaries, with a total of 14,000 enrolled members.

**Environmental Health and Safety History**

The Environmental Health Department was established in 1980 with just one person on staff. In 1985, the Conservation Department opened its doors, and in 1992, the Occupational Safety Department was established to answer the demands of work-related environmental concerns. The Industrial Hygiene and the Environmental Planning Departments were created in 1994.

**Environmental Health and Safety Activities**

The Environmental Health and Safety Department is concerned with environmental and industrial health within the boundaries of a checkerboard reservation. This Department enables the Tribe to exercise its sovereignty while simultaneously working in conjunction with the local county on activities that affect the health and safety of the people and land. Areas include: industrial hygiene (deals particularly with Indoor Air Quality (IAQ), asbestos, lead, radon, and chemical waste); tribal air quality; solid waste and recycling (a technical assistance component for both industries and private residences); environmental health (encompasses food safety and injury preven

tion); and occupational safety (Occupational Health and Safety Administration (OSHA) inspections and investigations).

Environmental quality also falls under the jurisdiction of the Environmental Health and Safety Department. Two specific programs were established for the protection of water assets: the Water Resource Program and the Fox River Natural Resource Damage Assessment (NRDA). Other programs include the EPA General Assistance Program (GAP), UST program, National Environmental Policy Acts (NEPA), and the Solar Power Program that deals specifically with the promotion of this alternative energy source. The Solar Power Program is funded by the Department of Energy and also makes use of state funds.

Conservation activities, also under the Environmental Health and Safety Department, give the Oneida Tribe of Indians the funds to hire wardens and carry out conservation projects within tribal lands. More specifically, the Oneida Conservation Corps Program was created to restore and safeguard the natural environment. Additionally, hunting and fishing regulation and enforcement fall under this category.

Eco-Services, within the Environmental Health and Safety Department activities, was formerly known as the Environmental Planning Department. It is responsible for ecological restoration projects. At the same time, it has taken a watershed approach to its hydrological resources and created a watershed project that focuses on protection activities.

### **Funding**

Sixty percent of the monies within the Environmental Health and Safety Department is contributed by the Tribe. The U.S. Environmental Protection Agency provides funding for air, water, and environmental justice programs. Indian Health Services has a compact with the Oneida Tribe of Indians that provides money for environmental health and injury prevention. The Bureau of Indian Affairs grants the Oneida Tribe funding specifically for self-governance and water resources. Lastly, cooperative contracts have been made with the U.S. Geological Survey, Natural Resources Conservation Service, and U.S. Fish and Wildlife.

Funding is also provided by the State of Wisconsin through various agencies. The Department of Transportation provides money for safety conferences. Both the Department of Agriculture and the Department of Natural Resources provide money for watershed priority initiatives. At the same time, the Department of Natural Resources supports municipal recycling programs. Meanwhile, Public Services, in conjunction with the Department of Energy, provides money for solar energy activities.

Employees of the Oneida Department of Health and Safety are usually tribal members, primarily due to the cultural component that is very much a part of environmental issues. This is not an issue of race, but of citizenship. With this in mind, it is not always necessary to search for people with an academic degree. The best workers have been those with relevant personal experience, with or without a formal higher education or degree within the field of environmental studies.

*focus*

## CODES AND ENFORCEMENT

DEPARTMENT OF ENVIRONMENTAL QUALITY,  
GILA RIVER INDIAN COMMUNITY

Patricia Mariella

Executive Director, Department of Environmental Quality  
Gila River Indian Community  
Arizona

Gila River Indian Community oversees three industrial parks, which are home to more than 50 businesses and industries, as well as 40,000 acres of agriculture, which will increase to 140,000 over the next 10 years. Additionally, Interstate-10 bisects the Community and is its largest source of pollution.

The Gila River Indian Community Department of Environmental Quality was established in 1995 and employs 32 staff members. The Department is involved in myriad environmental programs: air quality, Emergency Planning and Community Right-to-Know Act (Title III of the Superfund Reauthorization Act), education and outreach, pesticides, planning and policy analysis, waste, and water quality.

**Codes and Ordinances**

Environmental ordinances are significantly more successful than leases in obtaining compliance and conducting enforcement; leases work as a fallback mechanism when ordinances are not in place. The combination of leases and ordinances (*Nevada v. Hicks*) requiring compliance with federal and tribal laws is the optimal approach.

In decisions about siting businesses, which focus on whether or not tribes want a particular industry, the role of environmental staff is to provide information about risks posed by the facility and to determine whether a business should be there in the first place. Policymakers decide whether the risk is acceptable (often based on benefits compared to risks).

Gila River Indian Community Business and Land Procedures, a product of several departments, was approved by council in 1997 to guide land-use planning and zoning, economic development, and environmental quality. Other departments contributed to forming this policy by reviewing and commenting on proposed procedures as well as formalizing and streamlining the existing review process.

**Permits**

Permits provide financial assurance for cleanup (it is necessary to establish criteria for determining amounts) through bonds, letters of credit, and insurance, among other methods. The Department must follow up that bond/letter of credit, etc., ensuring that it is put into and is staying in place. Permits also limit the amount of material/waste stored/air

emissions/discharges into water, which should be made very specific, prohibit significant changes in production processes, and charge permit fees.

**Compliance and Enforcement**

The Department’s first goal is to achieve compliance, the first step in this process being to issue a notice of violation, which reserves the right to move forward with a citation or fee, even if a facility comes into compliance. Modes of civil enforcement for the Department can include citations, administrative orders (which are issued by judges and are a great

but rare outcome), and settlements (which are preferable to long court cases and establish low and high ends of what a tribe would accept).

Administrative procedures of enforcement include regulations (much protocol is required to establish these) and appeals in a tribal court, which involve a hearing officer and an administrative law judge who hears the appeal and makes a recommendation. Policy implications mandate that the final decision must remain in the domain of the executive branch. Final appeals go to the courts, yet are extremely rare.

**S A L I S H - K O O T E N A I G A M E A N D F I S H D E P A R T M E N T**

Brian Lipscomb, (Salish-Kootenai)  
 Division Manager, Game and Fish  
 Pablo, Montana

Game and Fish is one of three divisions in the Salish-Kootenai Environmental Programs and has 55 employees and an annual \$8 million per year budget (from five different sources).

Salish and Kootenai Tribes (two separate and distinct tribes) represent five bands. The Tribes believe that if they lose even a part of their resources, they lose a part of themselves; if they lose too many parts, they will cease to exist as a people. Traditionally, they are hunters and gatherers, with a strong reliance on fish and wildlife resources, which took them down the Columbia River. Their reservation comprises 1.3-million acres, 400 miles of rivers and stream, over 200,000 acres of lakes, over 300 species of birds and mammals, and 25 species of fish.

The Salish and Kootenai created the 1855 Hellgate Treaty 24 years before Montana statehood. The Flathead Indian reservation is the center of Salish-Kootenai original homelands; the Tribes have gone from 30% ownership in the 40s and 50s to 65% ownership to-

day and were the first Tribes to adopt a constitution and form a government.

Ordinance 1A, adopted in 1944, established fishing, hunting, and trapping regulations. Seven of the first 20 ordinances dealt with fish and wildlife. Codes today involve managing the resource and use of the resource to protect and restore fish, wildlife, and wildland recreations resources of the Salish-Kootenai Tribes for use today and tomorrow. Effective management involves educating and regulating users, enforcing regulations, and creating a balance by the effective prosecution of violators.

In 1986, Ordinance 44D established civil regulatory authority over non-Indians. The limitations of this Ordinance include no authority to search and seizure or to stop and detain; the Tribes must rely on voluntary compliance. The options to increase effectiveness involve cooperating with states, with U.S. Forest Service, and with the Bureau of Indian Affairs.

## C O D E S A N D T H E I R E N F O R C E M E N T : M I L L E L A C S H U N T I N G A N D F I S H I N G

Don Wedll

Commissioner, Natural Resources Department  
Mille Lacs Band of Ojibwe  
Minnesota

Mille Lacs Code came about as part of a 1999 Supreme Court case in which the Band learned that it is essential to define fundamental authority first; once this is established, tribes can define regulations, codes, etc. Initially, Mille Lacs struggled with this concept; elders said they didn't need regulations, which brought up the notion of defining need while also respecting gifts from the Creator. Mille Lacs believe that natural resources are not to be wasted or misused, or based on exchange. Three priorities were set: If natural resources were available, they should serve: 1) ceremonial, religious purposes first; 2) subsistence; and 3) tribal rather than state harvests.

Tribes have always had systems for managing resources and enforcing that management, which balances available resources and the tribes' needs. Today, we call that balance sustainability. The tribal view of natural resources is that the resources are here to fulfill your need. Your need is evaluated based on a large number of relationships and the understanding that you are just part of the environment in which you live. You have no control over this environment, but instead you are only a part of it. What you take you must replace. If you take too much, the consequences will be great.

To develop tribal codes, you need to understand the fundamental tribal belief that need controls what you harvest. What you harvest are gifts, and they should be shared and used carefully. These principles are all part of the natural rules that govern our environment. The tribes made conscious decisions to live

according to these principles. The tribes could discipline individuals who violated these principles because their acts could trigger natural causes of starvation. Spiritual, religious, social, and economic concepts have always been integrated into the tribal management of natural resources. Tribes today have to develop their management systems in different ways.

When Mille Lacs wanted to regulate things, lawyers asked what treaty and legal basis established the Band's authority to do that. This served as its starting point for developing codes. The Mille Lacs Band's Code draws on both ancient and new concepts to develop codes and enforcement functions that protect its natural resources and ensure there will be natural resource for future generations.

To develop and enforce its codes, the Band:

- reviews its cultural and spiritual beliefs about using natural resources,
- prioritizes how harvests should occur (cultural and ceremonial harvests will have the highest priority),
- determines what natural resources are being used and their availability,
- understands what legal authority it has over the harvest of the resources,
- identifies what conflicts will exist on the use of natural resources,
- determines who will be allowed to harvest tribal resources,
- develops the codes necessary to protect and conserve the resources, and
- establishes a system of enforcement activities in concurrence with the code.

From here, the Band developed a natural resources code that is used to protect its treaty rights and implement a system of co-management and enforcement.

The Code's main provisions focus on:

- authority, territory, religious and ceremonial uses;
- permits, restrictions, and scientific investigation;
- enforcement; and
- harvesting regulations regarding wild rice, deer, bear, small game, fish, migratory birds, amphibians, turtles, mussels and crayfish, and wild plants.

This Code meets legal requirements: It has a conservation standard and a public health and safety standard. Additionally, a set of protocols was established to deal with co-management issues related to a shared natural resource. Protocols provide for the exchange of harvest data and scientific information to ensure that a resource is not being overharvested. A committee provides information to policymakers before those policymakers determine what can be harvested.

Completed codes need to have community input to meet the needs of its members. The code's overarching issue is the protection and conservation of tribal natural resources.



*History shows  
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ancestors had.*

COOPERATIVE MANAGEMENT

— BUTCH BLAZER



ENVIRONMENT, NATURAL RESOURCES,  
AND GOVERNANCE:  
CHALLENGES AND SOLUTIONS

Butch Blazer (Apache)  
Mescalero Apache Tribe  
New Mexico

As Indians, we are very fortunate to have always been closely tied to our land. We have been taught to respect Earth and all that she is, and this understanding makes us unique in the eyes of the outside world. For Indians, however, that is just the way we are supposed to be.

Tribal natural resources focus on more than traditional discussion—we leave that to the tribal elders. Instead, this subject looks at other components that impact the ways that Indian managers take care of the land and identifies how to enhance and maximize the benefits from these components. Most importantly, these strategies help with the implementation of tribal land management.

#### Education

History shows that the only way tribal lands will be cared for is by our people. It is so important for young people to learn our history so that they can develop an appreciation for the land that our ancestors had. Both from the traditional and academic standpoint, education is the only way that Indian people will survive and prosper.

Many new ideas for natural resources development are met with resistance, reluctance, and mistrust. Collaborative ventures with outside interests are necessary to make positive things happen on the reservations.

In developing an overall plan for the reservation, the development process is as important as the plan itself. The process allows a group of decisionmakers (tribal council) to work through a plan while educating itself about its true priorities and how those priorities must be ad-

ressed. The wasting of resources and unclear goals and objectives are common problems. It is hard to find common priorities; cooperation and strategic planning are essential to this process.

Maximizing the benefits of tribal scholarship money is critical. Educating students, providing incentives for them to come back home, and employing them may seem a simple plan to create, but it is not easily implemented on the reservation. We lose so many of our young graduates to outside markets. Two students came to Mescalero from the Harvard Project a while back and attempted to formulate and implement a natural resources development plan. However, the tribal council was afraid to try it.

#### Native American Fish & Wildlife Society

The Native American Fish & Wildlife Society was created as a nonprofit organization in the late 1970s and early 1980s to research the tremendous unmet needs in Indian Country. Prior to this effort, most federal funding for tribal natural resource management came from the Bureau of Indian Affairs' (BIA) forestry and soil conservation programs. Little money was earmarked for forestry and wildlife management, as it was assumed that U.S. Fish and Wildlife would somehow meet those needs in Indian Country. In addition to the lack of money, the lack of understanding regarding tribal governments and Indian peoples undermined these efforts. Tribes were forced to share resources. The amount of necessary travel involved was frustrating and subsequently necessitated the development of the Society to solve this and other problems.

The first meeting of the Native American Fish & Wildlife Society was held in Phoenix in 1983. This grassroots organization set out to help tribes address fish and wildlife needs and concerns; gather and disseminate pertinent information, (for example, material on regulatory issues and jurisdictional concerns); provide information to tribal leaders; talk with and educate federal agencies about tribal needs; establish collaborative efforts with these agencies; work with colleges and universities in developing specific training to meet the needs of wildlife professionals working on the reservations; and advocate for the development of effective Indian liaison positions within federal agencies to help with important internal education processes.

Federal agencies may have thought the organization was too successful. These agencies were forced to find solid, meaningful policy statements that Indian people understood and expected adherence to (because liaisons worked side by side with regional directors, making sure that the policy was honored). The system has worked very well and has been taken more and more seriously.

One of the most important components of the Society has been its youth education operation, the organization's greatest success and pride. The National Youth Practicum has been in existence since the early 1990s. Indian and Alaska Native high-school students are brought together to blend traditions and academic teachings in natural resource management. The youth attend the Society's camp in Evergreen, Colorado, at no cost to them and are taught primarily by Native American professors.

The youth are taught to respect and acknowledge tribal elders, tribal traditions and history, and awareness and need for tribal resource professionals, and are introduced to modern technological methods and management tech-

niques. The program also tracks its students, turning potential doctors into wildlife biologists. The interaction between students as they share traditional knowledge and form lifetime friendships, though, is the most rewarding aspect of the practicum according to student feedback.

The national practicum has led to regional practicums with the same curriculum. Ted Turner is a large supporter of these, which will now reach more and more students across the country at the tribal level. At Mescalero there has been little response because there has been little exposure to our own natural resources. Our natural resource professionals have begun to try to garner interest in the schools to change this.

#### **A Final Concern**

The current state of affairs in Indian Country is of great concern in light of recent state and federal Supreme Court decisions, the supposed dismantling of the BIA, and impending budget cuts. According to Billy Frank of the Northwest Indian Fisheries Commission: "As Indian people, all we have to fight with is our history. We are going to have to band together and embarrass the hell out of the federal government." In other words, Indian peoples must reeducate and remind the nation as to what the government has done to Indian peoples and our lands.

We must all stay informed and assist in any way we can in protecting our Indian rights. In a discussion with Tex Hall, chairman of the Mandan, Hidatsa, and Arikara Nation of North Dakota and current president of the National Congress of American Indians, he asserted that the National Congress of American Indians should expand its role to include natural resources so that it can look for and promote tribal leadership on more national and international boards and commissions. Tribes can then create their own opportunities.

*focus*

## COOPERATIVE MANAGEMENT AGREEMENTS

COOPERATIVE AGREEMENTS CONCERNING  
THREATENED/ENDANGERED (SENSITIVE) SPECIES

Cynthia Westfall Dale

Sensitive Species Coordinator

White Mountain Apache Tribe Wildlife & Outdoor Recreation Division  
White Mountain Apache Tribe, Arizona

Cooperative agreements, or Memorandums of Understanding and other similar agreements, do *not* represent co-management in the true sense, but are simply used by tribes to secure funding and PL 93-638 contracts (Indian Self-Determination).

The White Mountain Apache have set a precedent with their agreement, which has since been followed by the Zuni, around an Eagle holding facility.

**Steps to reaching an agreement:**

1. The Endangered Species Act (ESA) does not implicitly apply to tribes. There are concerns surrounding the ESA and the potential for litigation. An agreement must explicitly state the relationship of this law to the tribe entering the negotiation.

2. The tribe should determine the importance of their natural resources. The former chairman of the White Mountain Apache saw the importance of the Arizona Willow and Spotted Owl, and the Tribe developed its own management plan that provided for inventories and data gathering. Because the Tribe was proactive with its own plans, the Fish and Wildlife Office left the forest open for tribal logging despite the presence of both species.

3. Instead of having lawyers present at each step of formulating the agreement, the former White Mountain Apache chairman asked all legal people to leave the meeting. After determining what terms tribes preferred in a relationship, the tribal representatives allowed the lawyers to return and asked for their help in formulating a plan to achieve these goals.

The Statement of Relationship (finalized December 1994):

1. provides for a tribally-planned progress review process,
2. will reduce future conflicts and litigation issues, and
3. opens the door for two-way communication between the Tribe and the Fish and Wildlife Service.

**Information protocol (signed 1998):**

Consultation does not equal notification after the fact; the White Mountain Apache are now consulted before a decision is considered or finalized. The Tribe is advised ahead of time as to what species will be listed on the federal register. A liaison position was created within the U.S. Fish and Wildlife Office (Mary Jo Stegner, who now works with the Hopi, as well). In addition, this protocol facilitates smooth Section 7 consultation.

## E F F E C T I V E T O O L S F O R C O - M A N A G E M E N T A G R E E M E N T S

Julia Gardner

Principal, Dovetail Consulting, Inc.  
British Columbia, Canada

I was invited to share my experience in existing co-management agreements and to present on a report I helped to compile with EcoTrust Canada on the fundamentals and tools for cooperative management of protected areas in British Columbia. This report *First Nations Cooperative Management of Protected Areas in British Columbia: Tools and Foundation* can be downloaded from the Canadian Parks and Wilderness Society Web page at [www.cpawsbc.org/pdfs/first\\_nations\\_comgmt.pdf](http://www.cpawsbc.org/pdfs/first_nations_comgmt.pdf).

Co-management is the sharing of responsibilities and authority for protected areas between First Nations and governments.

Co-management as a principle already exists in Canadian law; many First Nations have entered into cooperative management agreements with provincial and federal governments concerning parks and protected areas. For example, the Tsleil-Waututh sued the provincial government after the establishment of a park on First Nation land. The park was created without considering the ceremonial and other needs of the Tsleil-Waututh in that area. The government settled out of court by establishing a Memorandum of Understanding on shared management.

Five key assumptions underlie the application of tools for the effective cooperative management of protected areas:

1. Protected areas are necessary to conserve biodiversity, and to play this role, they must be managed so as to maintain ecological integrity. This can only be achieved in a cooperative effort involving federal, provincial/state, indigenous, and municipal governments; communities; organizations; employers; industries; and landowners.
2. In many places, First Nations and governments are willing to engage in the cooperative management of protected areas to pursue both separate and shared interests. Cooperative arrangements won't suit all First Nations. A critical first step is to define a shared vision for the protected area and achieve a clear understanding of the goals and interests of those involved.
3. The people involved in cooperative management must choose tools that fit their individual circumstances. Each tool must be appropriately tailored to the unique needs of each case.
4. While cooperative management of protected areas can be enhanced by using proven tools, this must take place in the broader context of decisionmaking for all lands and waters. Protected areas and their surroundings are an integrated whole.
5. First Nations have the right to exercise constitutionally protected aboriginal or treaty rights in a protected area after conservation objectives are met. This is a complex area of law, and readers are cautioned that many important aspects are not included here. Restrictions in protected areas that are based on conservation do apply to indigenous people. Meaningful consultation, as well as consent and/or compensation in some cases, is required to justify "infringement." Formal, meaningful consultation must therefore occur between First Nations and the federal and provincial governments about the cooperative manage-

ment of protected areas on a government-to-government level.

Tools for effective cooperative management can be gathered into five topic areas:

1. *Management Structures and Processes*  
Components: sharing authority, building commitment, trust and accountability, and linking with local and broader communities. Other processes and tools include using consensus-based decisionmaking and alternative dispute resolution processes wherever possible, training in cross-cultural communications and conflict resolution, holding frequent meetings, developing open and effective communication among board members, recognizing logistical constraints, and providing training on board functioning.

2. *Funding Cooperative Management Arrangements*

Tools that secure sufficient resources and tools for involving various parties to the agreement are critical.

3. *Economic Opportunities for First Nations*  
Considerations include capacity building and ensuring the appropriateness of tourism.

4. *Cultural Issues, Traditional Ecological Knowledge, and Interpretation*

Tools for promoting cross-cultural understanding (using Traditional Environmental Knowledge, etc.) must be identified and implemented.

5. *Alliances Between First Nations and Non-governmental and Other Organizations*  
Credit unions, NGOs, and other entities can bring in philanthropic donations. Examples include building respect and clarifying the roles in and purpose of a partnership.

## STANDARDS AND GUIDELINES FOR COOPERATIVE MANAGEMENT

Dalee Sambo Dorough (Inupiat)  
Ph.D. Candidate, University of British Columbia  
British Columbia, Canada

There are two important points to stress about co-management in Canada: It is a major time of emerging co-management regimes, and stereotypes remain despite the best working relationships. Co-management must be an arrangement based on genuine equality.

### Standards

Seven standards in co-management, meant as a guide to ensure equality rather than as a “recipe” for co-management include the following:

1. Co-management negotiations must be guided by tribal self-determination. There must be recognition of the political rights of First Nations and their jurisdiction, rather than land rights alone.

2. Co-management is the management of people and not resources. An important concern surrounds who will manage. Communities should strive for equal consensus between people.

3. Co-management implies equality – an equal degree of authority and a government-to-government partnership.

4. Partners involved should have an equal role in all forms of decisionmaking. An example of an occurrence of inequality is the Arctic Council, which merely included indigenous participation as observers, rather than participants. The Migratory Bird Conference approached indigenous participation in the same way. Agreements

- should be scrutinized to ensure that they meet the standard of equal participation roles.
5. Harvesting activities are crucial to the identities of distinct peoples. This dimension must be considered. The regime cannot be based solely on species' needs, but it must also speak to the spiritual needs of the community.
  6. Indivisibility of rights is the right to equitable development. Sustainable development is not always equitable development. We must look at linkages between human rights and development (economic, social, political, and spiritual). Only bringing the animal rights of seals to the table demonstrates narrow thinking on the part of environmentalists.
  7. Individual knowledge must be seen as equally legitimate. Indigenous knowledge cannot be excluded from discussion on the social, economic, and spiritual needs of those involved.

### Guidelines

Additional guidelines to consider:

- Free and informed consent creates genuine partnership and ownership within a regime.
- Active partnerships must be formed at all levels, from the ground up to the top, rather than exclusively at the EPA level.
- Management language should include the terms and descriptions of territory comprising indigenous land-tenure systems.
- First Nations must be involved at all phases of research and analysis with every issue that is brought to the table.
- Achieving decentralized community-based management is the responsibility of the tribe as well. Ensure that all people are involved

in and understand the procedures.

- There should be a two-way transfer of information.
- There should be a mechanism for the resolution of conflict over terms of agreement, and agreements should be fair.
- Adequate human, financial, and technical resources are the fiduciary obligation of the government.

Questions to ask:

- Who has the main authority?
- Which species are included in the territory, and what are the indigenous interests in the species?
- When will the agreement take effect?
- How long will it last?
- How will it work?
- Who will direct?
- Why is the regime being established?
- What are the major objectives?

### Discussion

**Comment:** Using the term “co-management” in some situations may actually reduce tribal sovereignty – there should be no co-management of tribally owned resources/land. If a resource is in question/disputed, “co-management” can reduce tribal sovereignty.

**Comment:** Tribes with technical knowledge may stand on more solid ground at the bargaining table. Arming tribes with more technical know-how and knowledge is highly beneficial.

**Response:** This is helpful in many cases. However, in Alaska the problems are more political. Technical knowledge does not play a large role in negotiations.

*focus*

## ECONOMIC OPPORTUNITIES IN RESOURCE MANAGEMENT

### YUKAANA DEVELOPMENT CORPORATION

Theresa Clark (Louden Tribe)  
Operations Manager, Yukaana Development Corporation  
Louden Tribal Council, Alaska

Galena, home to the Louden Tribe, is in the interior of Alaska near the Yukon River. A federally recognized tribe, the Louden Tribe has 649 enrolled members. Dependent upon federal and state funding, the Tribe's mission is "to govern ourselves."

The Yukaana Development Corporation, incorporated in 1997, is a government contracting business and a wholly-owned subsidiary of the Louden Tribal Council. Yukaana is involved in environmental remedial services and demolition/asbestos abatement.

#### History

The Louden Tribe allowed the military to build an airport next to Galena in the 1940s, to be used during WWII. Petroleum products were rafted in drums downriver to Galena. Flooding of the Yukon River is common, however, and this flooding and disposal method deposited drums and petroleum on surrounding lands.

In the mid 1990s, the Air Force began to clean up this toxic waste, utilizing 80% non-residents and only 20% Galena residents. In 1996, the Louden Tribal Council declared lands surrounding Galena an environmental disaster area and requested to work with the Air Force

in cleaning up the degradation (without attorneys).

#### Issues:

- environmental degradation
- involving the Tribe/community through Yukaana
- increasing local hires
- utilizing local resources (businesses)
- Louden and the Air Force began the process of addressing the Department of Defense tribal policy
- Memorandum of Understanding signed by Louden Tribe and the U.S. Air Force in 1990

#### Benefits of Networking

Yukaana partnered with local laborers and the operating engineers union to clean up the area. Such partnerships provide:

- training opportunities for tribal and community members,
- added health and welfare benefits to supplement IHS health coverage,
- retirement benefits, and
- additional employment opportunities.

Yukaana also partnered with larger, experienced government contractors, such as Arctic Slope Construction, Inc. Such partnerships

provide mentors to the Yukaana Development Corporation's staff and lessen the risk for failure.

Since Yukaana's inception, the corporation has cleaned up the lands surrounding Galena by removing 43,000 55-gallon drums and 633 tons of tar product. They have also removed three buildings containing asbestos. The com-

pany has reversed the 80/20 ratio of nonresident/resident workers to 20/80.

#### The Future

The most critical goal is addressing groundwater contamination. A plume of petroleum products 1/10 mile from Yukon River is streaming into the ground and groundwater; it is not yet known whether or not the Yukon River is being contaminated.

## RED CLIFF BAND OF LAKE SUPERIOR FISH HATCHERY

Greg Fischer

Natural Resources/Fish Hatchery  
Red Cliff Band of Lake Superior Chippewas  
Bayfield, Wisconsin

#### Background in Natural Resources

The Red Cliff Band of Lake Superior Chippewas, on 6,000 acres and with 4,000 members, resides in northern Wisconsin on the shores of Lake Superior. The Red Cliff Band is directly tied to Lake Superior through its hunting and fishing community; the tribe maintains one of the largest stateside fleet of fishermen.

The Tribe's Natural Resources Department has been in place for more than 20 years. The Red Cliff Band Natural Resources Program, with an eight-person staff, includes fisheries management, fish hatchery, wildlife management, conservation wardens, and cooperative projects programs.

The Department has a success story in their fish hatchery. An initially tiny operation that began in an individual's basement bathtub, this early success gave the tribe the evidence it needed to prove it could succeed with a hatchery. The project evolved from there, becoming an ice shanty on Lake Superior. In 1994, money was acquired to build a large fish hatchery complex, originally intended to raise/supplement Lake Trout. This hatchery's success has yielded economic benefits and allowed

the Tribe to take charge of the operation, becoming self-sufficient.

#### Areas of Hatchery

*Broodstock Area* (raise adult Brook Trout)

Initially raising Lake Trout, once these fish were flourishing, the hatchery gave them to the State of Wisconsin and instead began to raise Brook Trout, which are native to the area. The Red Cliff worked with the Canadian government to get Brook Trout. They spawn fish in the fall, collecting one-million eggs. The Band's goal is to have self-sustaining Brook Trout in streams for fishing. Red Cliff sells eggs to tribal, state, federal, and private hatcheries to support the program (it is the only broodstock in the United States with these eggs).

*Spawning and Stocking Brook Trout*

Fish are raised in the production area and Lake Superior is then stocked with the Brook Trout. Larger fish are also stocked, and the word is spread to fishermen via newspapers when it is open season for these fish. The tribe wants people to catch the Brook Trout, as it raises awareness and encourages kids to become lifetime fishermen.

*Walleye Program*

Tribes legally fought for the right to harvest Walleyes in the spring. Spears are used to catch Walleye most commonly, along with the more traditional methods such as grabbing. The environmental program staff collects the eggs of the captured fish, which are then brought to the hatchery, incubated, hatched, and used to restock waters. Walleyes are fin-clipped to identify which fish survive and return. The Red Cliff Natural Resources Department provides fry to conservation clubs to raise on their own, and Red Cliff provides technical assistance.

*Sturgeon Rearing*

Sturgeon are raised from adult eggs taken in spring, hatched, and returned to local waters. This is done with the Bad River Band of Lake Superior Chippewa.

*Fish Pond/Wetland Complex Inlet*

The Red Cliff believe that aquaculture is agriculture, but they are raising fish. The problem is effluent from aquaculture facilities. They must come up with natural solutions to the manure problems.

*Upwelling Area*

This is a brookstock raising facility that will be implemented in 2002.

*Cooperative Projects*

Twenty-five percent of the Natural Resource Department's time and is devoted to education programs for youth and tribal and non-tribal members. This involves a great deal of outreach and work with other agencies.

W H I T E M O U N T A I N A P A C H E  
W I L D L I F E A N D O U T D O O R R E C R E A T I O N

Jon Cooley

Director, Wildlife and Outdoor Recreation Division  
White Mountain Apache Tribe  
White River, Arizona

**White Mountain Wildlife and Outdoor Recreation Division**

The White Mountain Apache reservation, on 1.6-million acres of diverse habitat, is located in east central Arizona and includes part of the White Mountain Apache homeland.

The Tribe's Trophy Hunting Program was established in the early 1960s as a White Mountain recreation enterprise. This enterprise was a part of the Tribe's creation of a recreation/tourism-based economy and the establishment of a game and fish code program. The Tribe confronted the State of Arizona and Department of Game and Fish to attempt to gain control of authority on the reservation. This attempt included bringing an end to "double permits" that required non-Indians to pur-

chase permits from both Game and Fish and the Tribe, lack of tribal input, and liberal resource-management schemes in place that emphasized quantity over quality. The Tribe filed suit and ultimately gained control of resource management on the White Mountain Apache reservation.

Gaining this control improved the Tribe's sense of self-determination, allowing the Tribe to set its own non-Indian (and tribal) regulations and to employ sustainable resource management.

Recreation enterprise operations comprise an outdoors recreation program and a trophy hunting program, and manage for quality over quantity.

### **The Trophy Hunting Program**

The elk herd on the White Mountain Apache reservation averages 10-12,000 annually, with roughly 65 trophy tags issued per year. The program prides itself on emphasizing quality over quantity, and it is one of the premium big game hunts in the world. The program acts as a full-service outfitter by doing all of the bookings, guides, client contacts, lodging, and meals, generating over \$1 million per year in revenues to support tribal resource management and conservation programs.

### **Marketplace and Marketing**

The Trophy Hunting Program is a high-end market niche and has maintained reliable and consistent product and service quality. The Program's largest marketing tool is word of mouth, but hunting shows/organizations and publications are also utilized.

### **Successes of the Program**

The Trophy Hunting Program's truest success has come from sustaining quality for so long. Its herd and resource management (including tribal member hunts) is efficient and consistent, and the herd has been well-maintained. Marketplace reputation and demand are good. Economic return to the Tribe in both revenue and jobs is high (the program employs 50-60 tribal members per year for the elk hunt alone). Plans to expand into guide training and

development will hopefully spur similar opportunities for tribal members. Further in-house expansion of resource management capability plans to include sensitive-species programs and non-game management.

### **Challenges**

Success in herd and resource management presents challenges as well, particularly in trying to reduce the elk herd. Increasing competition from other hunt programs (primarily from other tribes) also poses a challenge, as does reinvesting in services and facilities and ongoing program administration and control (such as deciding whether it should be a privatized or tribal program).

### **The Future**

The Trophy Hunting Program not only includes hunting packages for elk, but also for Rocky Mountain Bighorn sheep, Pronghorn antelope, and Merriam turkeys. Additionally, the Outdoor Recreation Division is developing an outfitted fishing camp (for Apache Trout found only in the Arizona White Mountains).

Ultimately, the Program aims to balance the harvest of the herd with economic gains through careful natural resources management.

*focus*

## WILDLIFE MANAGEMENT AGREEMENTS

## GREY WOLF RECOVERY PROGRAM

Aaron Miles, Sr. (Nez Perce)  
 Idaho Grey Wolf Recovery Program  
 Natural Resource Department, Nez Perce Tribe  
 Lapwai, Idaho

The aim of the Treaty of 1855 between the federal government and the Nez Perce Tribe was to stop intertribal battles and provide a safer environment for white settlement. The treaty established exclusive rights to fishing, hunting, gathering, and pasturing on the reservation. After several more battles with the United States, the Nez Perce Constitution was ratified in 1948.

The Grey Wolf Recovery Program began in 1995 subsequent to the efforts of the U.S. Fish and Wildlife Service (USFWS). The USFWS first approached the Idaho Department of Fish and Game, who refused to participate. Legislation prohibited the State of Idaho from involvement in grey wolf recovery. With no support from the state, the USFWS turned to the Nez Perce. The program is not actually a true form of co-management, as the Tribe is not a co-manager, but a contractor that was hired and controlled by the USFWS. The project began with much skepticism on the part of the Idaho Fish and Game Department, which had willingly handed the project to the Tribe thinking it would not work. However, the Tribe released 40 grey wolves in its first two years, and now there are over 200 grey wolves in the area.

The project covers the tri-state area, including Montana, Idaho, and Wyoming. All three states have requested 30 breeding pairs of wolves, but Idaho has continued to receive most of the released wolves. As a result, Montana and Wyoming are pursuing legal recourse. However, there has been a perceived lack of support for the Recovery Program by the USFWS.

The National Wildlife Federation, which gave the program a Conservation Award, has recognized the program for its success. In addition, tribal biologist Curt Mack received an award from Top 100 Scientists of the 20<sup>th</sup> Century.

There have, however, been several obstacles to success, including trouble with social acceptance of the wolves and the aforementioned court case brought by Montana and Wyoming. Furthermore, the perceived lack of support from the USFWS is also discouraging.

Differences between the value systems of tribal and non-tribal groups must be recognized. Many Idaho residents are more individualistic, concerned more with ranching interests and general profit than with recovery

of a suffering species. In contrast, the Tribe has a different definition of “natural” than some non-tribal residents. For instance, the Tribe sees agriculture as development. However, there are several ways that co-management can help “repair a broken country.” Addressing interagency concerns regarding the loss of aquatic and terrestrial habitat, and working with landowners to address the continuing degradation of Nez Perce Country are two ways that co-management could facilitate improved working relations. However, Memorandums of Understanding are not the

key, as they provide just another way for tribes to be under the control of both state and federal government.

Some benefits to be gained from wolf recovery include restoring “the West” by diversifying the predator base and consequently improving the health of the elk population. Spiritually, the species’ recovery will benefit the Tribe as well, as the spiritual significance of Himiine (wolf) is restored to Nez Perce people and the perpetuation of the Hunyawaat’s (God’s) natural resources is preserved.

## C A R I B O U M A N A G E M E N T

David Kritterdlik (Inuit)

Beverly-Qamanirjuaq Caribou Management Board  
Nunavut, Canada

The Beverly-Qamanirjuaq Caribou Management Board (BQCMB) manages two caribou herds, numbering 400-600,000 and 300-400,000 respectively. The caribou sometimes mix, though before the Board’s existence, biologists tried to deny this fact. In a 12-month cycle, the herds pass through three territories and two provinces. In the 1960s, many Inuit people starved because there were so few caribou in the area. Many outsiders tried to determine why the caribou populations were so low, but their reasons differed from those of the Inuit. By the late 1970s and early 1980s, the Inuit started talks with the federal government to address the caribou problem and revive the herds. In 1982, the Canadian government provided funding for the Board with a 10-year mandate. Since then, the 13-member Board has seen a great increase in the caribou population, with the animals migrating in all directions. The Board will be renewed for another 10 years starting in 2002.

Traditional knowledge in managing the environment and wildlife is important. Intermixing it with scientific and technical knowledge will allow a solution acceptable to everyone,

which the Inuit have seen. The herds are now growing in number. One continuing source of problems is unchanging regulations, laws, and guidelines that don’t support wildlife management. When these don’t change, nothing can change. Lack of funding is a common problem to which the Inuit, Diné, and Cree are no strangers, and which precludes tribes from organizing.

The Inuit Board also has status as a charitable organization and can apply for funding that way. The Board is contemplating traditional knowledge studies. For instance, through land-claims settlements, there was provision for a five-year Inuit harvest study that involved local hunters. The study led to a viable estimate of the population in different areas in terms of fishing, trapping, and hunting.

In conclusion, everyone must be involved—the local people, the elders, the scientists, and the policymakers—and different knowledge must be considered. So far, most of the governments in the area are recognizing that traditional knowledge and local knowledge are important.

*focus*

## LAND AND WATER AGREEMENTS

## S A N D I A P U E B L O W A T E R Q U A L I T Y

Scott Bulgrin

Water Quality Officer, Environment Department  
Pueblo of Sandia, New Mexico

There are many issues involved in the groundbreaking development and implementation of tribally originated water-quality standards at Sandia Pueblo. Maintaining water-quality for ceremonial purposes is of particular issue, with regard to enforcement of water-quality standards by the Environmental Protection Agency (EPA), the ongoing battle over changing standards, and the often innovative methods employed by Sandia to protect its water resources.

In 1990, Sandia Pueblo received “Treatment as State” status under the Clean Water Act (CWA). The following year, Sandia became the first tribe in the United States to apply for water-quality standards with the specific intention of protecting ceremonial uses of surface waters. In 1993, Sandia was granted EPA-approved water-quality standards. In the interim, Sandia’s Environment Department has been working to delineate comprehensive water-quality standards as well as a host of related habitat-conservation measures, complete with specific implementation and enforcement protocols.

Sandia’s Environment Department is committed to developing tribally originated water-quality standards that address several purposes, including designating existing uses for all sur-

face waters at Sandia, prescribing water-quality standards (narrative and numeric) to protect said uses, imposing the highest “statutory and regulatory requirements” for point sources and “best management practices” for non-point sources, assuring that degradation of existing water-quality does not occur, and promoting the social welfare and economic and environmental well-being of the Pueblo. In addition, Sandia’s drive to assume control of water-quality enforcement is propelled by the Tribe’s desire to protect or regenerate water and land habitats along the middle Rio Grande, which are designated as critical to particular wildlife and plant species native to that area.

Sandia is facing some problems in enforcing its water-quality standards. In summary, the EPA (the permitting federal authority) has been slow to respond to Sandia’s efforts, having yet to enforce the Pueblo’s water-quality standards, having taken little if any action on cases involving noncompliance with the Tribe’s water-quality standards, and having only recently rewritten its permits for the State of New Mexico to incorporate the Pueblo’s water-quality standards. Sandia has engaged in relatively productive government-to-government consultation with other federal entities such as the U.S. Fish & Wildlife Service with regards to riverine-habitat conservation.

## P A C I F I C   N O R T H W E S T   E N V I R O N M E N T A L   S E R V I C E S

Lawrence Wasserman (Swinomish/Upper Skagit/Sauk-Suiattle)  
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There are many jurisdictional challenges faced by tribes in the Pacific Northwest with regards to natural resources such as salmon. Tribal enforcement of treaty-reserved rights to hunt and fish in “usual and accustomed places” mandates interaction with state and local governments, which are typically diametrically opposed to recognizing tribal rights to the region’s natural resources.

Tribes have a historical legal basis for seniority rights to natural resources in the Pacific Northwest, and there is often a great deal of resistance exhibited by state and local governments to enforcement of those rights. Tribes must develop co-management agreements with state and local entities in order to ensure said rights. Ultimately, a tribe’s right to both utilize and ensure the future of whatever natural resource it seeks to preserve must be secured. Tribes must rely on the integration of

the three legs of the “tribal stool”: technical preparedness, legal expertise, and political negotiation.

In order to successfully secure rights to natural resource use and management, it would behoove tribes to gain a superior handle on the technical and scientific data regarding the natural resources at issue, sustain a political commitment on behalf of the tribe, educate non-tribal interests about the legal rights of tribes to said resources, and ensure that parties negotiating on behalf of tribes are empowered to do so. Above all else, tribes must be willing to negotiate and compromise, as the interests of all parties are jeopardized by the lack of a resolution. While tribes must imply the threat of litigation, they must avoid litigation of tribal rights to natural resources, as it subjects them to final authorities that typically don’t have their best interests at heart.





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