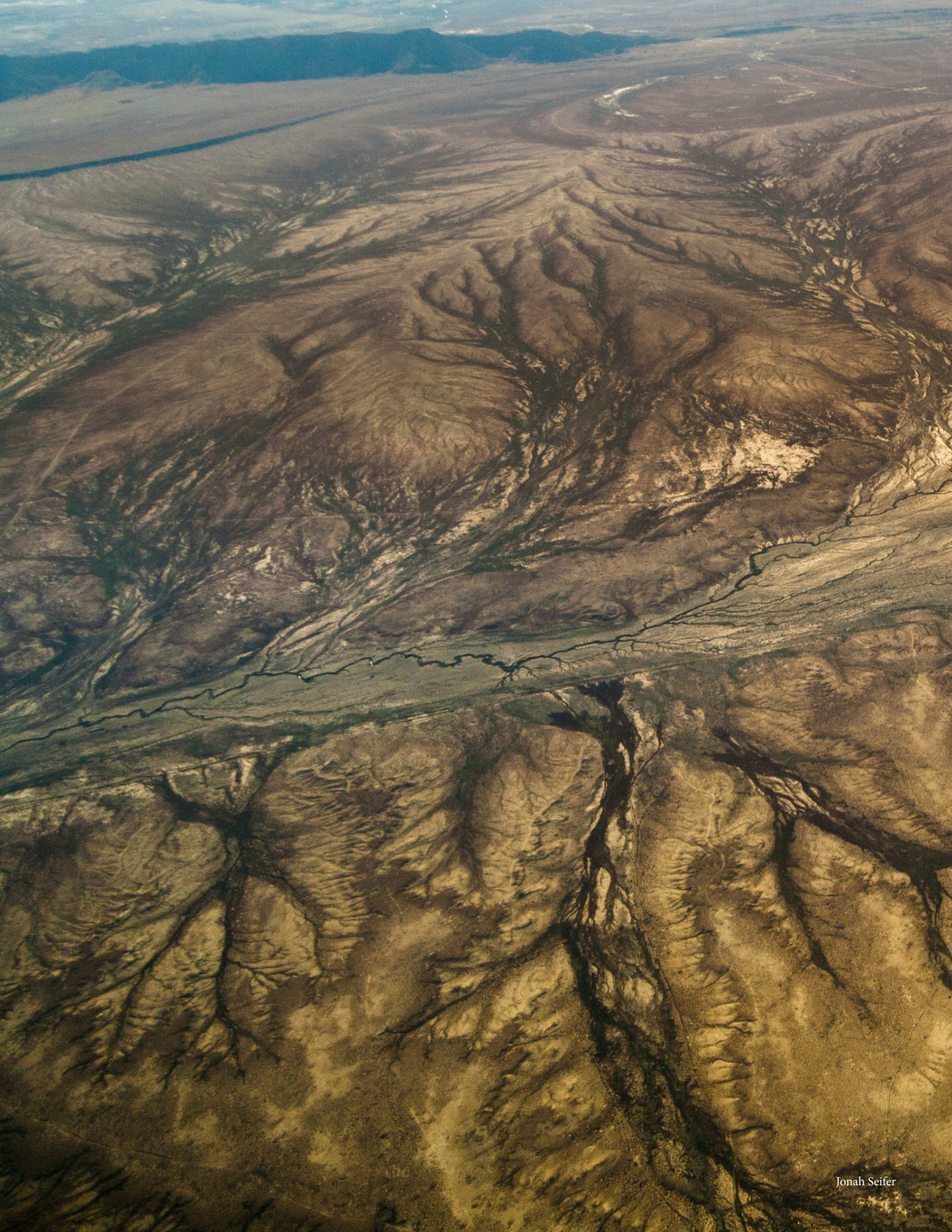


Jonah Seifer

Native American Water Quality Rights

How the EPA's Treatment as a State Program can Strengthen Tribal Sovereignty in the Southwest

by Jonah Seifer, 2015-16 State of the Rockies Project Fellow

The prior appropriation system of water rights used in the western United States does not properly account for the diminishing quality of water as it flows towards the ocean. Native American tribes are often disadvantaged by this dynamic, and until recently, were relatively unable to protect themselves from the potentially hazardous discharges of upstream appropriators. Today, the Treatment as a State program administered by the US Environmental Protection Agency is allowing tribes to seek approval of authority to regulate the quality of water that enters their reservation. This new state of primacy over environmental regulations can help increase water security for all users, develop critical water infrastructure for tribal members currently without it, and promote an environmental ethic more consistent with a particular tribe's traditional values and practices. All of these results amount to strengthened tribal sovereignty. The Treatment as a State program is imperfect, however, and the EPA's implementation must be fundamentally modified to fully recognize the congressional intent behind the Clean Water Act.

Introduction

Conflicts over water in the arid western United States almost always center on the question of quantity: how much water is where, what beneficial uses it will satisfy, and where it will flow afterwards. This pragmatic approach is largely the result of the prior appropriation system of water rights, a legal means of allocating quantities of this precious but scarce resource to those appropriators who diverted and used the water first. Prior appropriation is a product of its time, its design catered to an era when the settlement and development of the west were top priorities. This was a sensible method in the late 19th century, but over a century later, the prior appropriation system is slow to adapt to the highly industrialized reality of the 21st century. Here lies one key oversight of prior appropriation in a modern world: it does not account for the varying quality of water.

Not all water is created equal. One gallon of pristine snowmelt is substantially more valuable to an appropriator than one gallon of downstream water that may have become silted or polluted in its journey towards the ocean. Native American tribes are all too familiar with this dynamic and are often faced with the effluence of their upstream neighbors. Despite this inequality, all water rights are administered as if water of the utmost quality had flowed into reservations. It will be a challenge to justly administer this system of water rights if the quality of the water is ultimately insufficient to meet the needs of a downstream appropriator.

Addressing this hydrologic dynamic helps tribes maintain their status as sovereign governmental entities. The United States Environmental Protection Agency (US EPA) recognizes that, "water quality management serves the purpose of protecting public health and safety, which is a core governmental function, whose exercise is critical to self-government…environmental self-regulation is critical to tribal sovereignty" (Sanders 2009). In other words, becoming the foremost environmental regulatory body within a particular jurisdiction is a powerful tool for enhancing tribal sovereignty. "By specifying the quality of water that may enter the reservation, [Native Americans] can more directly control the quality of their water resources. This is a major step and a valuable tool…in [tribes'] efforts to improve the reservation environment" (Chandler 1994).

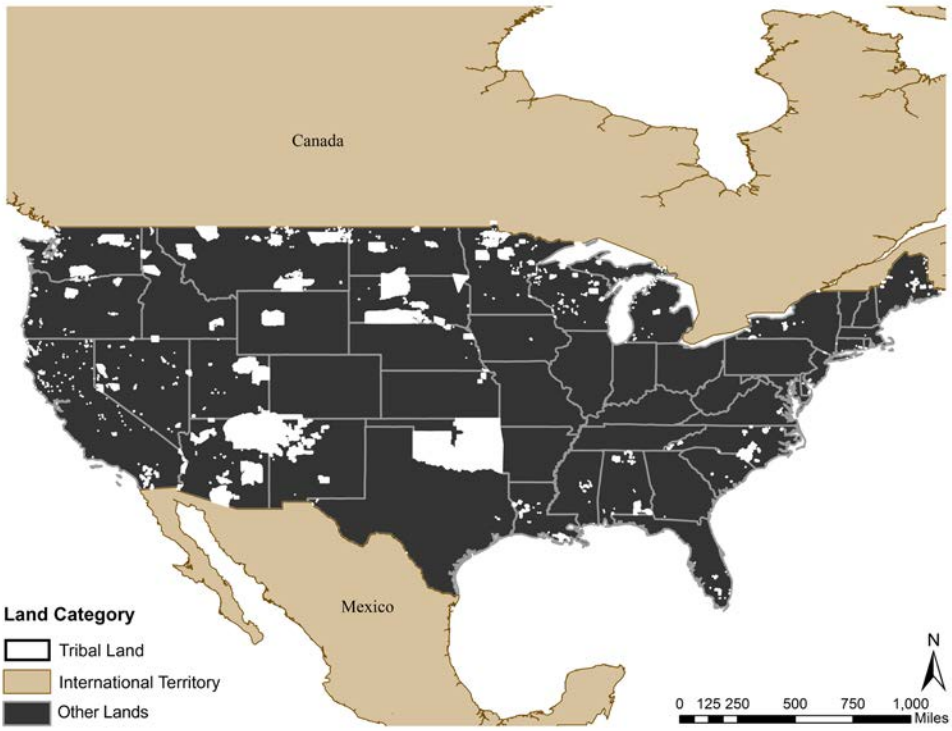
This report will focus on an EPA program known as Treatment as a State (TAS). I will demonstrate the costs and benefits of TAS through the analysis of two distinct case studies: the Navajo Nation and the Pueblo of Isleta. These tribes have successfully navigated the TAS program to produce outcomes that ultimately enhance tribal sovereignty through the assumption of environmental management duties such as water quality regulation. Especially in the Navajo Nation, an expansive and rural region, TAS is also helping to break the chronic cycle of poverty by stimulating water infrastructure projects that will eventually provide domestic water supply and catalyze economic development. TAS is not just an environmental law either; it allows tribes to regulate water according to their traditional ethics and spiritual practices, which further affirms tribal sovereignty. The Pueblo of Isleta used TAS to this effect when setting water quality standards that extended beyond the boundaries of their reservation to affect upstream dischargers who had a negative effect on Rio Grande water quality.

Jonah Seifer is a Fellow for the 2015-2016 State of the Rockies Project. Born outside Boston, Massachusetts, Jonah's interest in environmental science was inspired by many years hiking and skiing around Vermont, as well as recent semester spent wandering around New Zealand. He plans on focusing on Native American water rights for the 2015-2016 State of the Rockies Project. An Environmental Physics major planning on graduating in 2016, he plans to build off his experience with the Rockies Project and further explore the state of water policy in the West. In his free time, he likes to climb, ski, photograph and slackline.

Background on Tribal Sovereignty

Tribal reservation lands were not created as absolute sovereigns. In the 1831 Supreme Court case Cherokee Nation v. Georgia, Chief Justice John Marshall described, "the relationship of the tribes to the United States resembles that of a 'ward to its guardian'" (The Cherokee Nation v. The State of Georgia 1831). **Figure 1** shows the distribution of tribal and state lands across the United States.

Figure 1: Tribal Lands in the United States



Source: Esri and Bureau of Indian Affairs.

This relationship has resulted in tribal governments and their lands being referred to as "domestic dependent nations." While some interpret this to be a derogatory label, it is relatively on par with the other state entities. State governments are also "domestic dependent nations" according to the 10th amendment; they hold powers not explicitly elucidated in the Constitution. The same is also true of the federal government; its powers are derived from the consent of the people and its duties are defined in the Constitution. As a result, the federal, state, and tribal governments are all constraining each other's sovereignty, and are thus "dependent" on each other to maintain this triangle of local power, states' rights and federalism.

Despite this seemingly elegant arrangement of "parallel sovereigns," equal political power does not exist in practice. Tribal governance is tightly constrained by state and federal law more so than state and federal governments are constrained by tribes. All parties are vying to maintain the clearest and most senior jurisdiction over their waters; however, tribes tend to have the disadvantage of possessing less expertise, management capabilities, and capital than non-Native governments.

Further compounding this, tribal water rights are usually senior on paper, but their seniority is not yet fully recognized on the ground. This is largely due to the Winters Doctrine established in the 1908 Supreme Court case, Winters v. United States. This case concluded that, when the federal government created the reservation system, they implicitly reserved sufficient waters necessary to practically irrigate the acreage of that reservation. These reserved rights are retroactively dated to have a priority date based on the establishment of that particular reservation, so in the case of the Navajo Nation, their federally reserved water rights have a priority date of 1868. That being said, the doctrine recognizes an implicit reservation of water rights, not officially decreed paper rights.

The decades following the establishment of the Winters Doctrine was the golden era of diversion and dam building. In a frenzy to quench the growing thirst of the rapidly expanding west, the Bureau of Reclamation erected over 30,000 dams, impounding much of the water that may have flowed into reservations (Reisner 1986). This benefitted the new non-Native populations, but potentially prevented tribes from developing their own water resources. Water security (that is, the reliability of a community's water source and their access to it) is a zero sum game in the arid west because that water must ultimately come from someone else so, "jurisdictional battles make environmental regulation in Indian country difficult [because] no sovereign—federal, state, or tribal—wants to relinquish any of its authority" (Sanders 2009).

While the US EPA regularly delegates management authority to state EPAs, the tribal relationship to federal environmental regulation is more nuanced. Through the practice of cooperative federalism, states are delegated management duties outlined in major environmental laws such as the Clean Water Act (CWA) or the Clean Air Act (CAA), but the same is not always true for tribes.

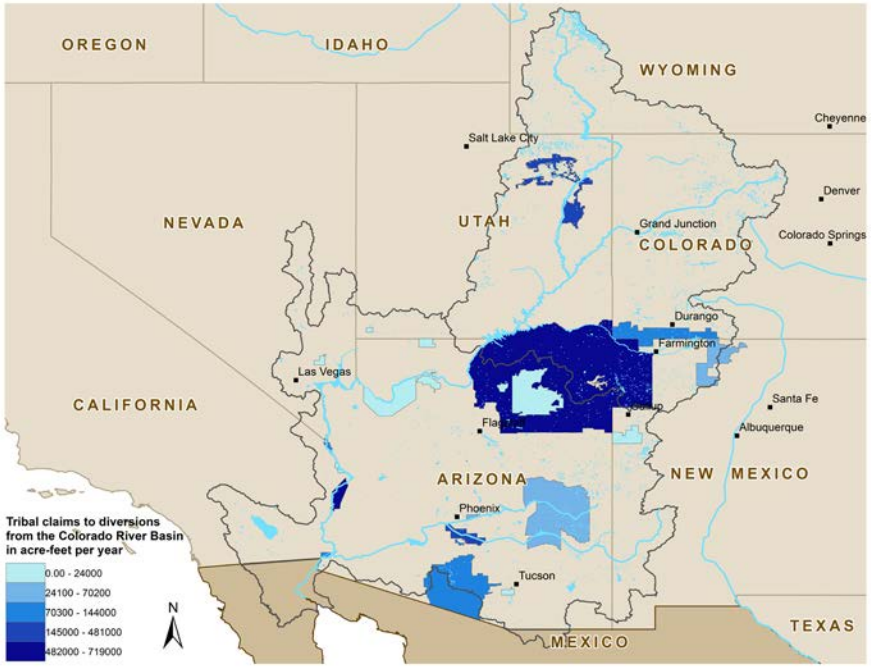
If tribes desire to regulate their own water under the CWA, they must first seek approval of their authority to do so under a US EPA program known as Treatment as a State (TAS). This need to seek "approval of authority" before authority is delegated will be examined in depth later, but the outcome is that tribal governments are not being treated as states under the Treatment as a State program. "Since a state has the power to require upstream states to comply with its water quality standards, to interpret the statutes to deny that power to tribes because of some kind of formal view of authority or sovereignty would treat tribes as second-class citizens" (Rodgers 2004).

Further complicating this issue, it is essential to recognize that tribes are not states. Similar to states, they have an inherent authority to regulate their own environment but unlike states, they have not been participants in the cooperative federalism model that enables the transfer of duties from the federal level to the state level. While tribes are parallel sovereigns with respect to state and federal governments, the nature of their sovereignty is not the same. Native American tribes were independent prior to the colonization of

North America and were not involved in the formation of the United States. Their regulatory authority over their own lands, regardless of the trust responsibility of the federal government, is inherent in their existence as a people and occupation of those lands. Thus, the TAS program, "diminishes tribal sovereignty…[by] maintain[ing] that [tribes] must fix water quality standards as a state, rather than as a nation, in accordance with federal laws" (Rodgers 2004).

This is the essence of how the nature of tribal sovereignty is dissimilar to state and federal sovereignty. Tribes are not a part of the cooperative federalism partnership made between states and the federal government, so they should not be forced to conform to the legal frameworks of another nation. While it brings potential for great benefits to tribes, TAS does so in a way that is inconsistent with the modern political reality. This is why TAS somewhat diminishes tribal sovereignty; it perpetuates the erroneous system of incorporating tribal governance into the larger governmental partnership maintained by the states and federal governments.

Figure 2: Tribal Water Claims in the Colorado River Basin



Source: Esri, Kaye LaFond and Brett Walton (originally published by Circle of Blue).

The Current State of Tribal Water Rights

This debate over approved delegations of authority versus the assumed devolvement of authority (that is, assuming tribes have primacy[1] from the start) seems much less peripheral when we consider that tribes hold massive, unquantified claims to water in the Southwest (see **Figure 2**). This key detail makes tribes the perfect parties for negotiating creative water settlements in an increasingly water-scarce region. "Combined, the 29 recognized tribes [in the Colorado River Basin] hold rights to a substantial portion of the Colorado River's flow: roughly 20 percent…which is more than Arizona's total allocation from the river" (Walton 2015).

In addition to this, "river flows could decrease by nine percent by 2060 because of climate change" (Walton 2015), so the potential for a system-wide upheaval of the status quo is considerable. Fortunately, tribes have a lot of water and neighboring communities tend to have more capital than tribes. Each has what the other wants, so the potential for cooperation and mutually beneficial solutions is also considerable. "Tribal involvement will be critical to any solution regarding future supply imbalance in the [Colorado River] [B]asin" (Vigil 2013)

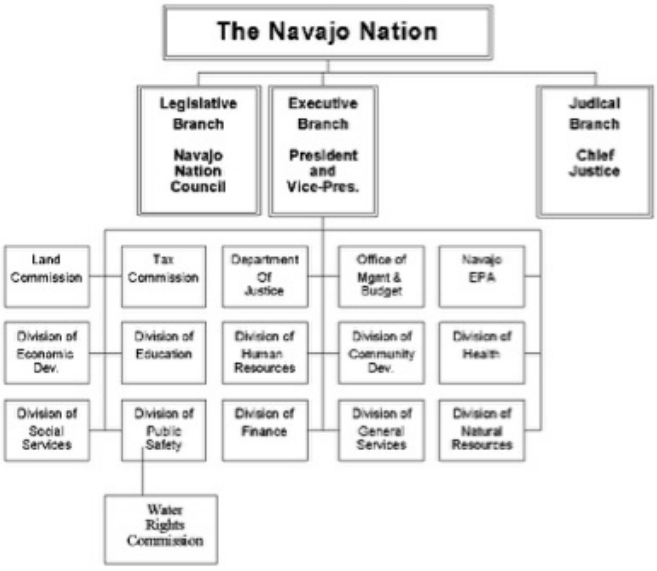
Case Study Background: Navajo Nation

Navajo Nation is the largest Native American reservation and hosts a correspondingly large tribal government, making it an ideal candidate for the TAS program. The tribal government is structured similarly to the United States federal government with executive, legislative, and judicial branches (see **Figure 3**).

The land of the reservation itself is roughly the size of West Virginia and contains complex hydrology that connects the nation to 33 different watersheds and five major aquifers (see **Figure 4**). About 90% of all water supplies are obtained through groundwater wells because most of the reservation is situated on the Colorado Plateau and has limited surface water supplies (Water Resources of The Navajo Nation 2014).

The Navajo Tribal Utility Authority serves water to about 130,000 people every day, but tribal membership is over 300,000. Even after accounting for secondary operators of public water supply systems such as the

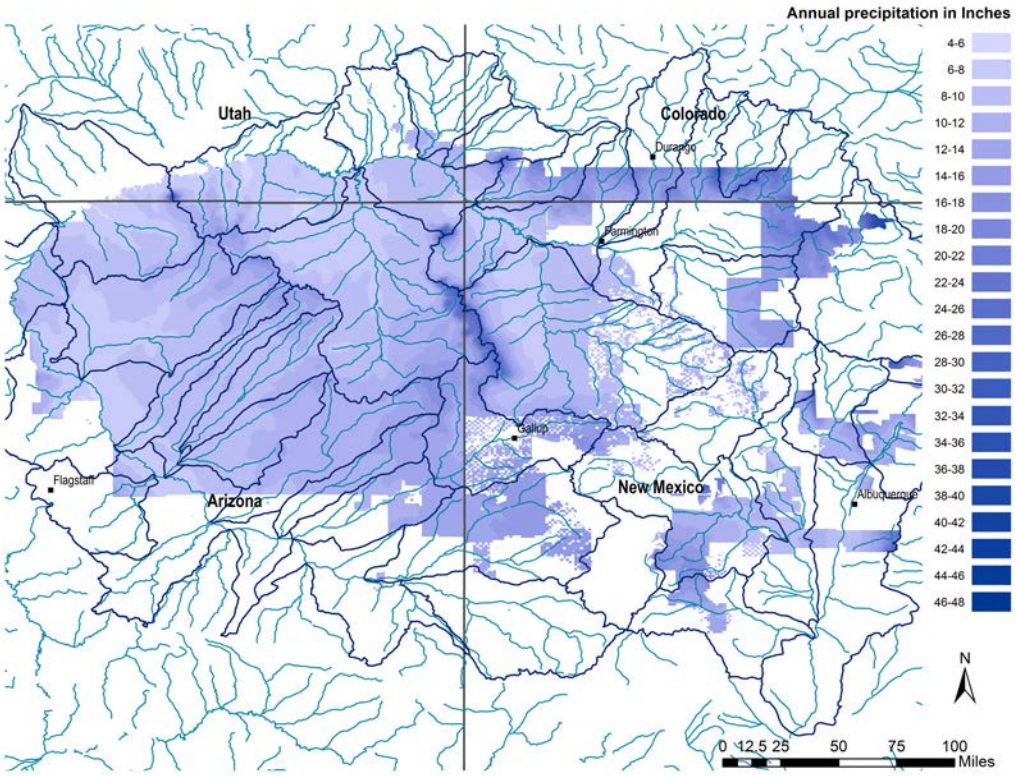
Figure 3: Navajo Nation Tribal Government



Source: Navajo Nation Department of Water Resources.

[1]Primacy is defined as being the foremost regulator within a jurisdiction. Obtaining primacy means that the regulatory entity has the power to set standards, implement appropriate programs, and enforce those standards.

Figure 4: Hydrography of Navajo Nation



Source: Esri, US Environmental Protection Agency, Bureau of Indian Affairs, and US Geological Survey. Precipitation data is taken from an EPA report that also included data from nearby tribal lands that may share a watershed with Navajo Nation.

Bureau of Indian Affairs, between 30% and 40% of Navajo people do not have access to clean water in their homes. This population must either haul water from a dedicated tap, often an average of 5.4 gallons per person per day obtained an average of 14 miles away, or have water trucked to their home (Draft Water Resource Development Strategy for the Navajo Nation 2011). This situation contributes to the high poverty rate of 38% found in Navajo Nation, a rate that is nearly twice that of the most impoverished state, Mississippi. In addition to this, one third of Navajos are minors and 44% of those minors are under the poverty line (Arizona Rural Policy Institute and Northern Arizona University 2015).

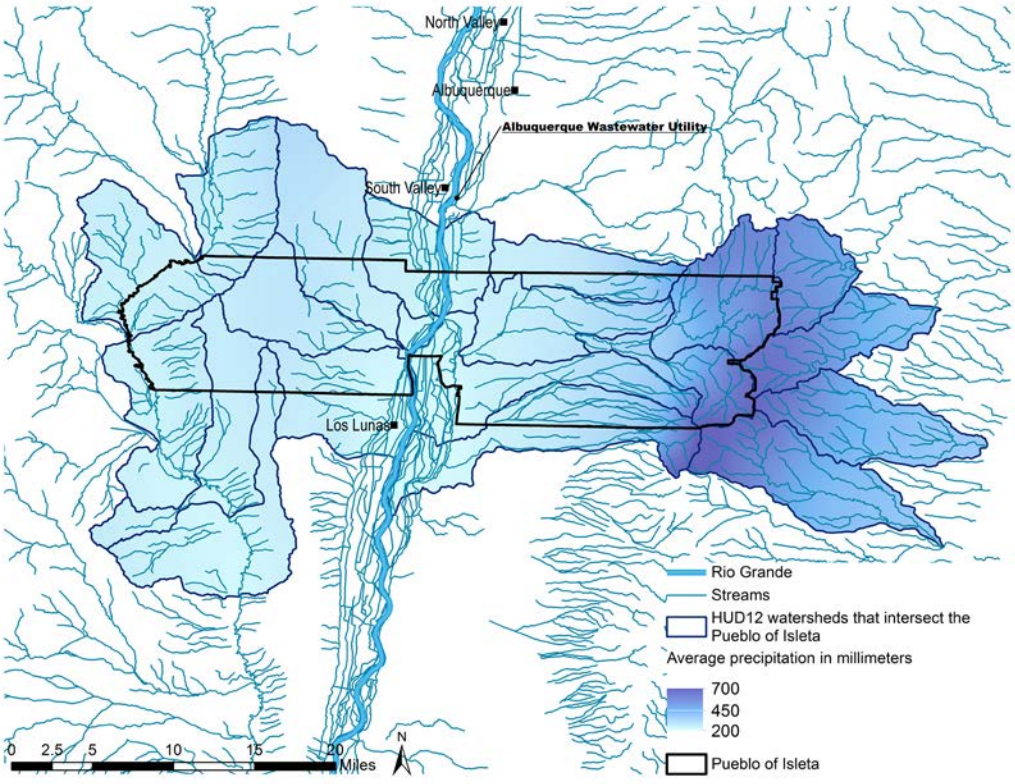
These poverty rates are partially influenced by limited access to water infrastructure, which in turn limits the potential for economic development and perpetuates further poverty. TAS's greatest benefit to Navajo Nation is its ability to aid in the exchange of water rights for critical water infrastructure.

Case Study Background: Pueblo of Isleta

The Pueblo of Isleta is significantly more compact than the Navajo Nation, yet it still stands to benefit greatly from the TAS program (see **Figure 5**). The pueblo is about 83 times smaller than Navajo Nation and about 5,000 members reside there. The government has a similar system of three branches, but is sized proportionally to the reservation and therefore does not have a dedicated agency for environmental protection. Instead, the Department of Public Services handles environmental duties such as water quality regulation, fire management, and trash collection among others. The Public Service Department also manages a drastically different hydrology than Navajo Nation. The Pueblo of Isleta covers 17 watersheds, most of which converge on the Rio Grande River that flows down from Albuquerque through the pueblo.

As a result of this geography, the Pueblo of Isleta faces different challenges than the Navajo Nation.

Figure 5: Hydrography of Pueblo of Isleta



Source: Esri, Natural Resources Conservation Service, PRISM Climate Group, and Bureau of Indian Affairs.

Unregulated stock watering warning. Source: US Environmental Protection Agency.

Contamination and discharges from upstream users in Albuquerque flow into the reservation and threaten human health and welfare, as well as serve to interrupt traditional practices in the river. TAS's greatest benefit to the Pueblo of Isleta is that it enables them to set water quality standards that are enforceable outside of the reservation. This extra-territorial effect frees the pueblo to potentially challenge and enforce against harmful effects of upstream discharges, thereby aiding their assertion of tribal sovereignty.

Negotiated Water Settlements: Right-for-Infrastructure Exchanges

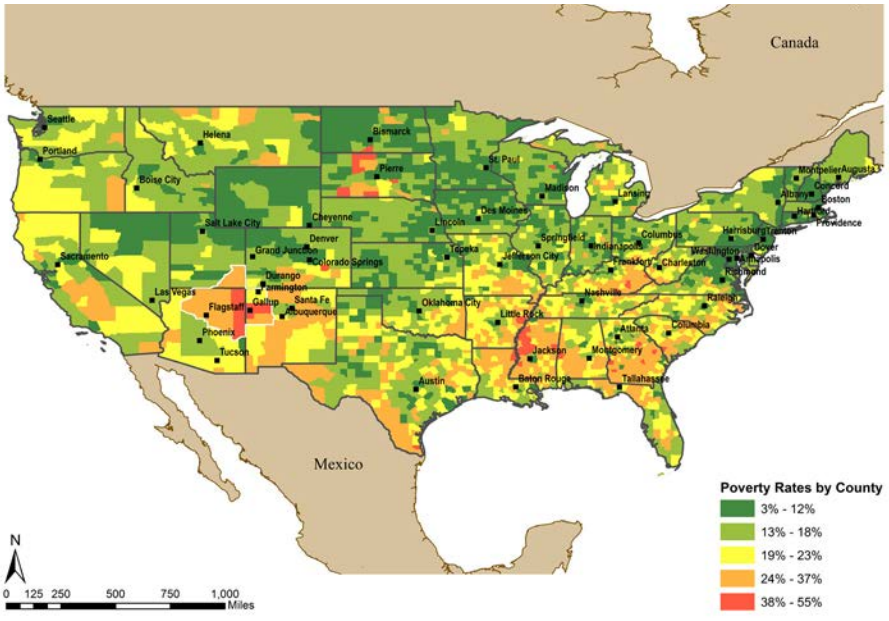
"In pursuit of their water rights, tribes have been the basin's dealmakers" (Walton 2015). While this may sound frightening to upstream appropriators at risk of losing their water rights, negotiated tribal water settlements appear to be paving the way towards a future where all parties have secure access to the water they need. Negotiated water settlements enable novel agreements that, "recognize tribal water rights, provide the tribe with money to utilize the water, allocate money for other economic development purposes, and allow the exchange of tribal water to growing urban areas" (Gerlak and Thorson 2006). In addition to this, upstream appropriators are able to safely make investments in water infrastructure or water-dependent projects without fearing that, "the exercise of Indian reserved rights might destroy or undermine their investments" (Anderson 2015). This added benefit of water security, that is the reliability of the supply, makes negotiated water settlements mutually beneficial to both tribes and non-tribal users.

What is most exciting about these settlements is their potential for positive impacts on tribal water quality and how the TAS system can amplify this effect. As mentioned earlier, water settlements enable lower-risk investments in water infrastructure for upstream users. The same is true for tribes; quantification and settlement of tribal water rights allow tribes to invest and control their own pipelines and distribution infrastructure. This is highly valuable for two main reasons: water can be delivered to those who did not previously have access to it, and more importantly, the delivery of safe, high quality water can be ensured.

Just as surface waters and ground waters are inseparable pieces of the same hydrological system, water quality and quantity are also inseparable pieces of water management. As the previous discussion has suggested, quantification through negotiated water settlements is conducive to infrastructure development, which in turn is responsible for delivering known quantities of water of known quality. In this way, issues over quality and quantity are best solved in tandem. This is especially true considering the popular dictum, "the solution to pollution is dilution." Because the discharge of contaminants becomes less harmful when diffused throughout a large body of water, it is sensible to manage water quality in the context of known quantities of developed water rights, thus they are inseparable.

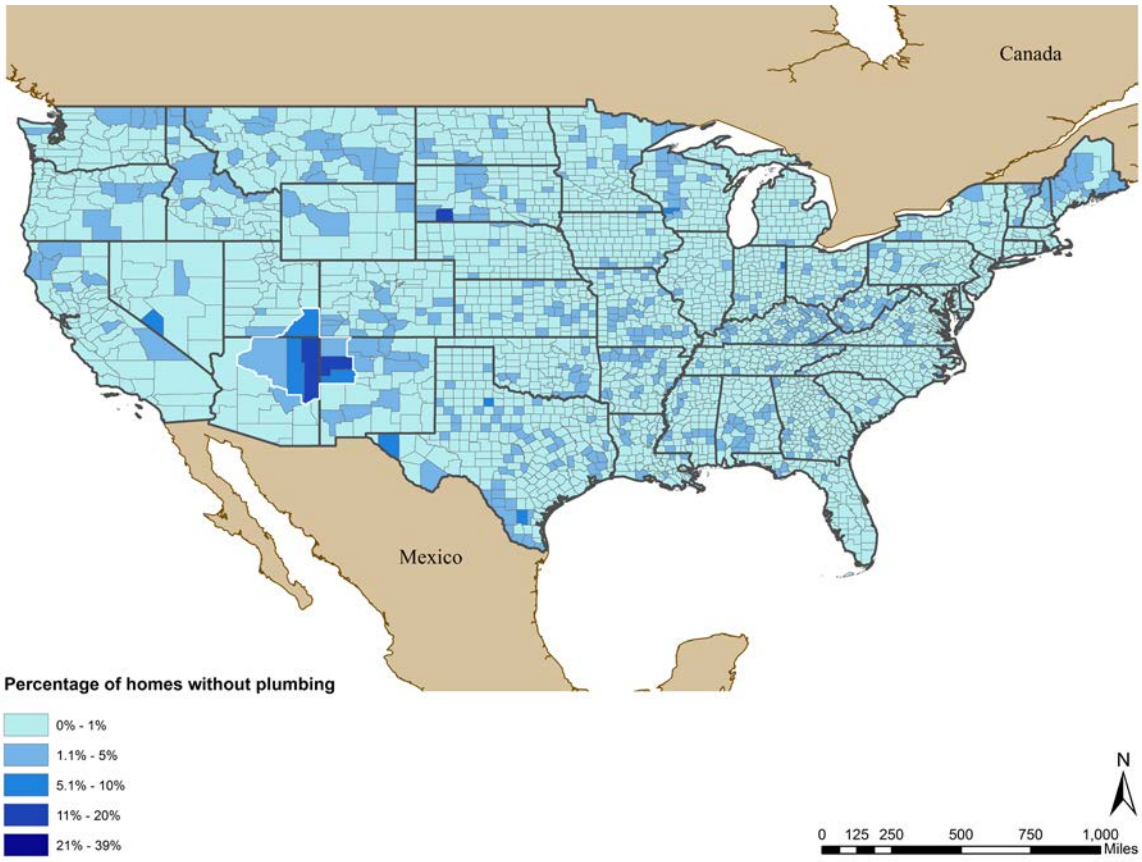
Lack of access to clean water on Navajo Nation is not only commonplace but also carries with it dangerous, long-term implications. As with water infrastructure, all economic development rests on access to water. Tourism industries like backcountry tour guiding, rafting outfitters, and fishing guides, as well as accommodations, casinos, agriculture, restaurants and residential water use, all depend on a secure connection to clean water. Without it, these businesses simply cannot exist. "The fact that the mean income of Navajo families is below the poverty line can be attributed, in large part, to the lack of water supplies within the reservation" (Draft Water Resource Development Strategy for the Navajo Nation 2011). **Figure 6** shows how poverty rates in the Navajo Nation compare to

Figure 6: Poverty Rates in the United States



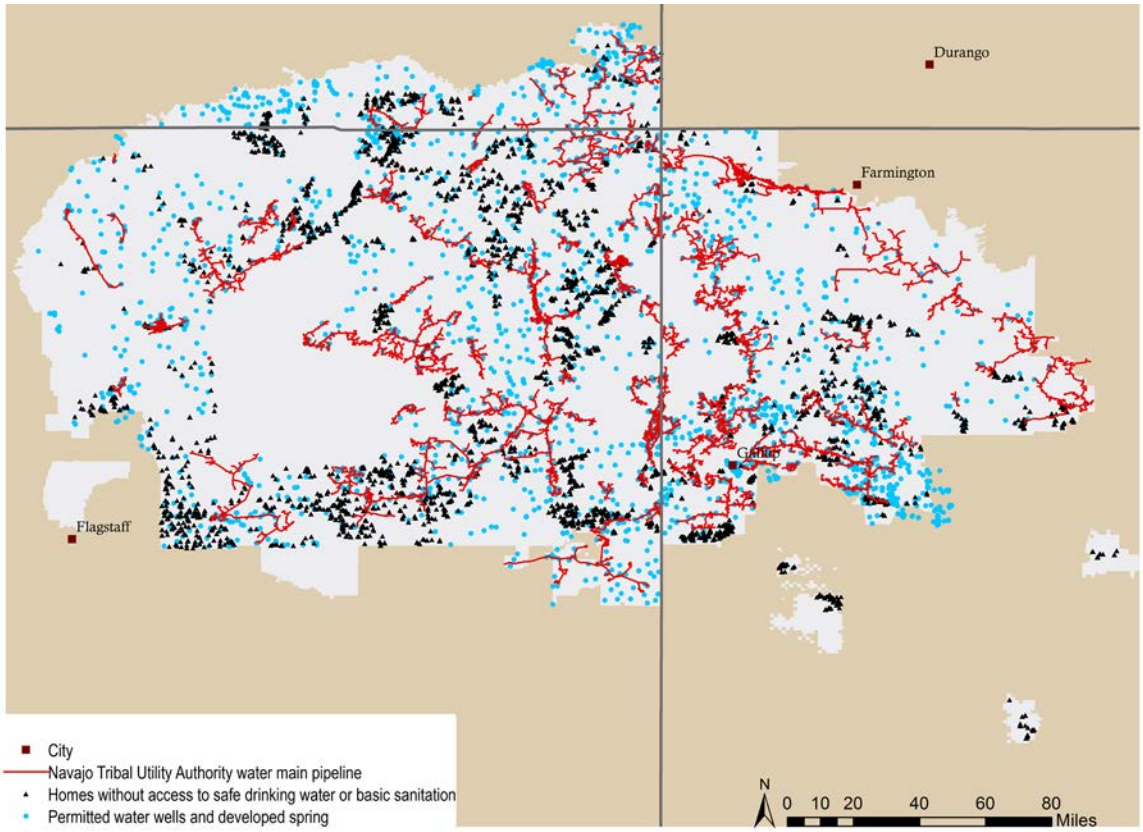
Source: Esri, US Census Bureau.

Figure 7: Percent of Homes without Access to Plumbing



The American Community Survey defines "adequate plumbing" as "hot and cold piped water…a 'flush toilet…and a bathtub or shower." Source: Esri and American Community Survey.

Figure 8: Access to Water in Navajo Nation

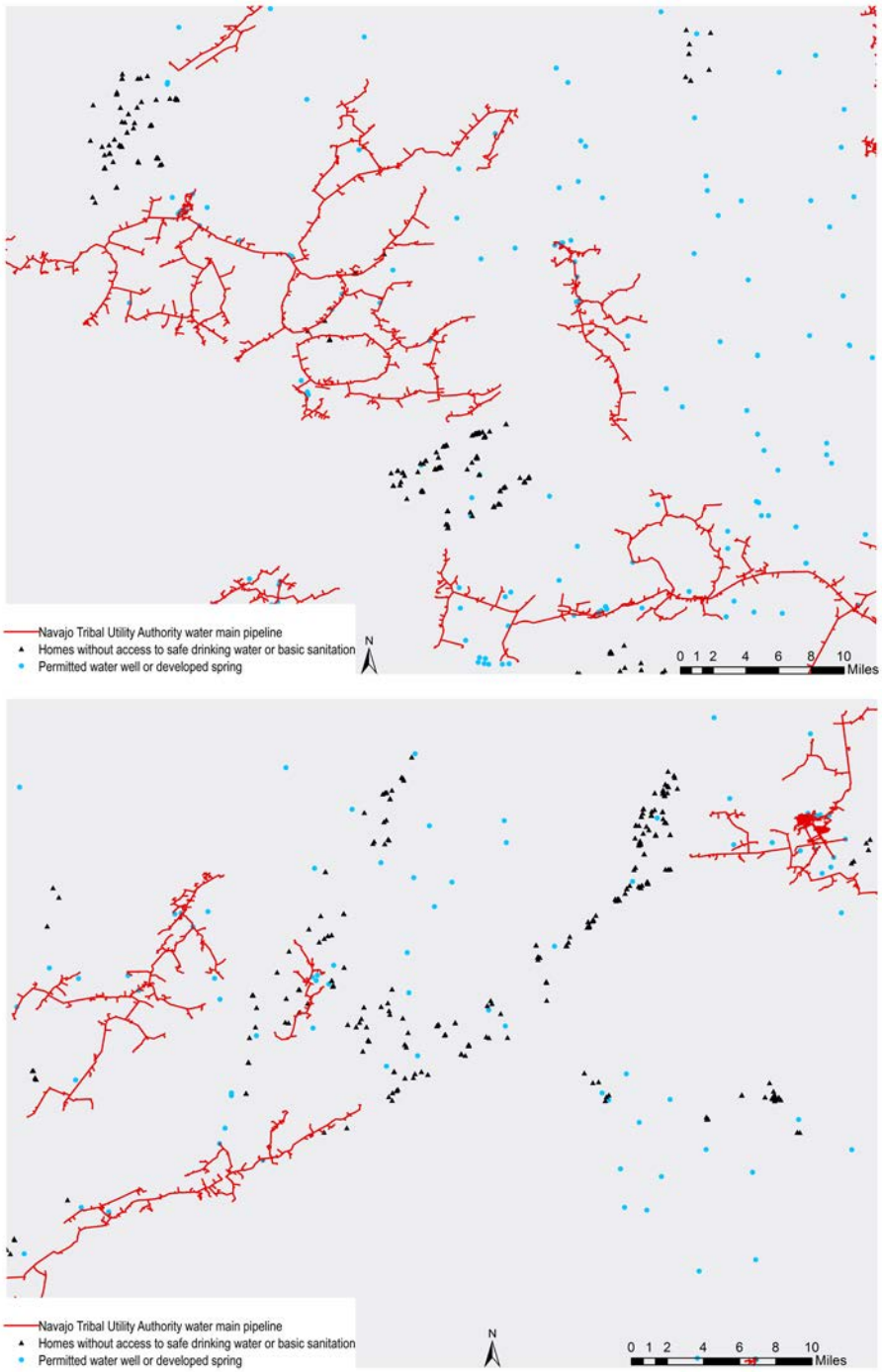


"Safe drinking water or basic sanitation" is roughly equivalent to the American Community Survey's "adequate plumbing," however it only includes water supply and sewage disposal. Source: Esri, Navajo Nation Water Management Branch, Environmental Protection Agency.

counties in the United States. Exceptionally low water access in Navajo Nation also has dramatic effects on the health and welfare of the Navajo people themselves. "No other region in the United States has such a large percentage of its population lacking in such a basic necessity as potable tap water in their homes" (Draft Water Resource Development Strategy for the Navajo Nation 2011). **Figures 7 and 8** show access to plumbing and water on the Navajo Nation. Due to the large area and rural nature of Navajo Nation, somewhere between 30% and 40% of the 300,000 members of Navajo Nation live without access to a public water supply system and must haul water from distant pipelines and wells or have water trucked to their home"(Draft Water Resource Development Strategy for the Navajo Nation 2011; Widdison 2012; Miller 2009; Eco-System Management Inc. 2003).[2]

This is, in part, due to the cost of developing local distribution pipelines in diffusely populated, rural land. "The top 10 of the [Sanitation Deficiency System] projects [will cost] $4,000 per home…providing water supply for the last 20% of homes on the [Sanitation Deficiency System] list increases to $30,000 per home" (Draft Water Resource Development Strategy for the Navajo Nation 2011). As a result of these high costs, the Navajo Tribal Utility Authority, "will not operate a system with fewer than 3 connections per mile," (ibid) so there is an easily broken threshold of population density that impedes infrastructure development in the Navajo Nation as seen in the pockets and bands of residences in **Figures 9 and 10**. This inadequate access to water infrastructure is why water hauling trucks are still viewed as economical. "Natives are 67 times more likely to live without running water or a toilet," so a connection to a public water supply is immensely valuable. Many Navajo draw water from one of the 7,000 unregulated livestock feeding ponds, greatly increasing their risk of exposure to water-borne illness despite public notice of the hazards of drinking from this source. (Water Management Branch 2015; Project Specifics of the Navajo Water Project 2015). One Indian Health Service report from 1974 noted that, "American Indian and Alaska Native families living in homes with satisfactory environmental conditions placed fewer demands on IHS' primary health care delivery system…[those] homes required approximately one fourth the medical services as those with unsatisfactory environmental conditions" (Rogers 2003).

Figures 9 & 10: Pockets and Bands of Homes without Access to Safe Drinking Water or Basic Sanitation



Source: Navajo Nation Water Management Branch, Environmental Protection Agency.

The practice of water hauling reflects developing world infrastructure conditions right here in the United States today. Navajo water use ranges from 5 to 100 gallons per person per day depending on locale. The lower figure, 5 gallons per-person per day, is the Navajo Department of Water Resources'

[2]Due to the remote and rural nature of Navajo Nation, an exact survey of members not connected to a public water supply system is infeasible. Navajo Nation Department of Water Resources officially uses the EcoSystem Management Inc. Study, which reports 30%, because it is, "the most intensive effort to date to determine the actual numbers of water hauling household" (Draft Water Resource Development Strategy for the Navajo Nation 2011). Despite this, offices within the Department of Water Resources sometimes report 37% or 40%. Analysis of publicly available statistics on water infrastructure access within Navajo Nation suggests that the number is likely closer to 40% than it is to 30%.

Figure 11: Water Use Per Person Per Day By Country

Source: United Nations Human Development Report.

assessment of the average water use by haulers while the higher figure, 100 gallons per person per day, reflects heavier usage by those connected to the Navajo Tribal Utility Authority's public water supply systems (Draft Water Resource Development Strategy for the Navajo Nation 2011). "By comparison, the average per capita use for 80 neighboring non-Indian communities in the Western United States is 190 gallons per day" (ibid). Its important to understand this number in context, however. The United States has one of the highest rates of water consumption out of any industrial nation, so water usage rates in the United States are not a reasonable basis for comparison (see **Figure 11**). Regardless, the per capita rate of water use by members of the Navajo Nation who haul is below the global threshold for "water poverty" according to the United Nations Human Development Report. This places those populations' usage on par with countries such as Rwanda, Cambodia, or Haiti.

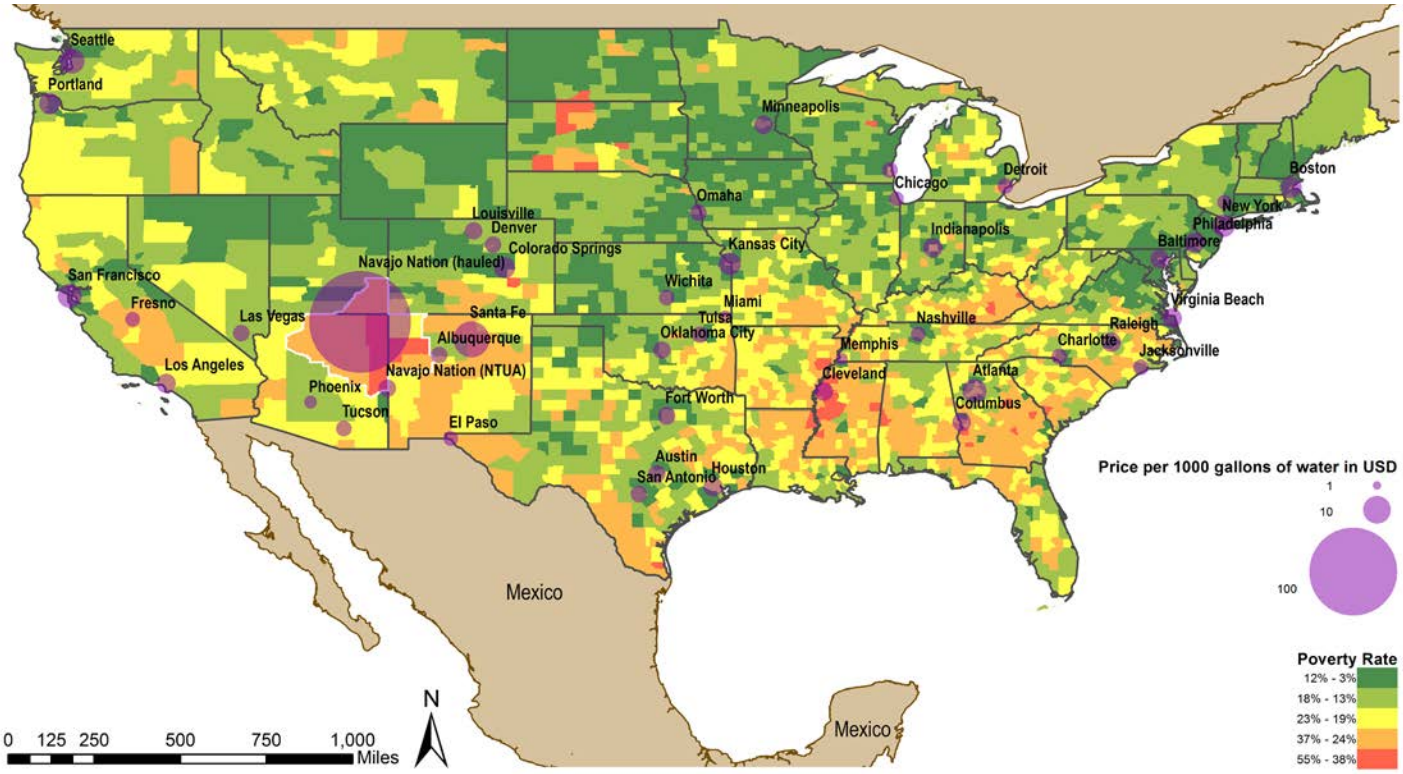
This extremely low level of water use clearly affects Navajo health and welfare, and it also results in the loss of unprecedented amounts of time and money. One study attempted to quantify the cost of water hauling in Navajo Nation and found that, "including purchase, containers, vehicles, and opportunity cost of time, families which haul water for domestic purposes, spend the equivalent of $43,000 per acre-foot compared with $600 per acre-foot for a typical suburban water user in the region" (Draft Water Resource Development Strategy for the Navajo Nation 2011). This is a catastrophic market failure because, as mentioned earlier, even the most rural and remote homes can be connected to a public water supply system for around $30,000 and the average home can be connected for less than a sixth of the cost.

This finding amounts to a cost of $133 per 1000 gallons, a rate over 10 times more expensive than the next highest-priced water, which is found nearby in Santa Fe (Santafenm.gov 2015). One key difference between Santa Fe and Navajo Nation, however, is that 38% of Navajo people live below the federal poverty line. Compared to the current, nationwide poverty rate of 16%, this means that one of the poorest communities in America is using the most expensive water in America (see **Figure 12 and 13**) (Arizona Rural Policy Institute and Northern Arizona University 2015; Draft Water Resource Development Strategy for the Navajo Nation 2011).

Water storage in plastic water barrels. Source: Navajo Water Project.

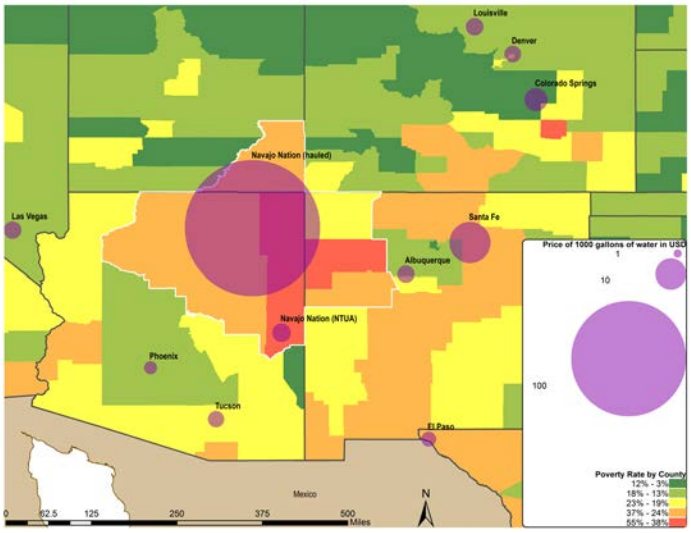
Darlene Arviso and the St. Bonaventure Water Delivery Truck. Source: Navajo Water Project.

Figure 12: Poverty and Water Rates by City



Source: Esri, US Census Bureau, Black and Veatch.

Figure 13: Poverty and Water Rates by City in the Four Corners Area



Source: Esri, US Census Bureau, Black and Veatch.

TAS Catalyzes Right-for-Infrastructure Exchanges

Here is where the TAS program, the system used to grant environmental regulatory authority to tribes, has the opportunity to shine: tribes that are able to obtain TAS status under the CWA become more prominent stakeholders within their watershed. This, in turn, amplifies the volume of their voice in water settlement negotiations. Phillip Kannan, legal scholar-in-residence at the Colorado College Environmental Program, tells me in an informal conversation, "practically speaking, it is the TAS status that gives tribes a place at the negotiating table…without TAS status tribes might be at the table; if they are, they might have bargaining power... TAS changes all of these "mights" to the non-subjective voice. With TAS, tribes will be at the table; they will have bargaining power" (Phillip Kannan, personal communication 2015, italics added for emphasis).

It is critical that states and tribes resolve the bulk of their water conflicts in out-of-court, negotiated water settlements. This method is the preferred alternative to adjudication and the cooperative nature is superior as well. A policy statement from the Department of the Interior to the Federal Register in March of 1990 claims that, "it is the policy of this administration…that disputes involving Indian water rights should be resolved through negotiated water settlements rather than litigation" (United States Department of the Interior 1990). Litigation is slow, expensive, and can only yield limited outcomes, such as civil penalties, injunctions, and damages (Jason John, personal communication 2015; Rodgers 2004; Walton 2015). Litigated water settlements are also phenomenally inefficient because of how time-consuming they can be. Cases have been known to last decades with multiple generations of judges and lawyers working on the case before it is settled (Rodgers 2004; Walton 2015). Arizona v. California, though not a tribal water rights case, lasted sixty-nine years and consumed the careers of four generations of judges (Arizona v. California 1931).

The case, titled State of New Mexico ex re. State Engineer v. Aamodt, was intended to address Puebloan water rights in the Pojoaque River Basin, began in 1966 but wasn't fully resolved until an out-of court, negotiated settlement was approved by congress in the Claims Resolution Act of 2010 (Claims Resolution Act of 2010). Negotiated settlements can be faster, more economical, and can produce cooperative, "win-win" solutions that benefit both parties and penalize no one.

"If you go to court, you get paper rights, not funding. It's a tribal incentive to collaborate…you can't get these compromise solutions through a court order," says Nathan Bracken of the Western States Water Council (Walton 2015). Here, Mr. Bracken is pointing out one of the stronger benefits of obtaining primacy through TAS prior to the settlement process: by giving tribes a louder voice in negotiations, tribes can more easily exchange water rights for funding and infrastructure projects. Doug Kenney, a professor of law at the University of Colorado, says that, "there is a great opportunity for the tribes to be a part of the basin's solutions…a lot of tribes are interested in doing creative arrangements" (Walton 2015).

Clearly, negotiated settlements are superior to litigation. In the century following the establishment of the Winters Doctrine in 1908, only three tribal water settlements were resolved in court (Miller 2009). Compare that number to the twenty-eight settlements negotiated with state and federal governments in the past four decades (Walton 2015; Bovee 2015). Negotiation is the preferred mechanism for resolving water disputes, and as Dr. Kannan said, "with TAS, tribes will be at the [negotiating] table; they will have bargaining power" (Phillip Kannan, personal communication 2015). The following section will show some of the ways in which tribes can use TAS to enhance their sovereignty.

TAS as a Tool to Enhance Sovereignty

Primacy is Sovereignty

Though certainly imperfect, the EPA's Treatment as a State program is catalyzing a new wave of stringent water quality regulations, thereby creating another opportunity to assert inherent tribal sovereignty by codifying tribal values into law. As discussed earlier, the EPA says that, "water quality management…is critical to tribal sovereignty" (Draft Water Resource Development Strategy for the Navajo Nation 2015). This is because sovereignty can be defined as freedom from external control and primacy is the position of being the supreme governing body in a region, so they are mutually inclusive. Achieving primacy over water quality standards necessarily equates to recaptured sovereignty.

Empowering Self-Governance Through Capacity Building

Self-determination and the desire to self-govern are not only products of the long history of injustices borne by Native Americans, but self-governance is also faster and more efficient than external governance. For example, the Pueblo of Isleta was one of the first tribes to obtain TAS status back in 1992. In 2005, the Isletans were issued a 404 dredge and fill permit (authorization to self-issue this class of permit was not included in their TAS application) with the intent to reclaim and stabilize a local channel of the Rio Grande River. The Isletans then proposed modifications to the permit, which would affect water quality in their area (Albuquerque District of the Army Corps of Engineers 2013). The Isletans were the prime regulators for water quality standards in their region and, as such, were able to certify that the modifications to their permit would not violate their water quality standards. In short, the Pueblo of Isleta was able to complete the entire process in-house because they were the proponent and certifier of the project (Cody Walker, personal communication 2015). This process allowed for fast and efficient self-governance that affirms the sovereign status of the Pueblo of Isleta.

The Pueblo of Isleta is unique due to their impressive technical and management capabilities, despite their relatively small size. Not all tribes already possess this expertise, however, so the TAS program is an excellent avenue to empower tribes and build capacity to govern and manage natural resources. One major benefit of obtaining TAS status is that it provides access to a plethora of funds and EPA-sponsored trainings intended to build capacity within tribes.

Gail Louis, a manager from the EPA's Region #9 Tribal Water Program, describes how TAS-status tribes are eligible to receive Clean Water Act funds, Safe Drinking Water Act funds, and State Revolving Funds, all of which are at the discretion of the state. The EPA also has money directly available to the tribes, including, but not limited to, Section 106 grants, which can be used to finance the establishment and monitoring of water quality standards (WQSs), General Assistance Program funds, which can go towards the development of tribal environmental management programs, and Section 319 funds, which can be used towards wastewater system upgrades (Gail Louis, personal communication 2015; Environmental Protection Agency 2006).

In addition to this money, the EPA also provides one-on-one technical assistance, frequent workshops, and quarterly meetings with the appropriate Regional Tribal Operations Committee, an annual conference, and online educational resources. Cody Walker, the water quality specialist at the Pueblo of Isleta's Natural Resources Department, tells me in an interview that, "the Water Quality Standards Academy was one of the best trainings I've ever been to" (Cody Walker, personal communication 2015). All of this training and funding ultimately amounts to skilled tribal regulators who are increasingly capable of self-governance.

Cultural Sustainability Through Environmental Management

Water is sacred to all, but to many Native American tribes in the Southwest water holds a special place in their spiritual belief systems. The TAS program gives tribes a unique opportunity to protect and sustain their traditional, water-based ceremonies while also protecting the water itself. This ability to pursue an environmental ethic consistent with cultural practices and values is a powerful force because it links a tribe's spiritual-ecological beliefs with the law. Consider the following excerpt from a member of the Mole Lake Band of Lake Superior Chippewa:

> *"The purpose of this ordinance is to protect and maintain life on the Mole Lake Indian Reservation by enacting minimum standards for water on the Reservation. Water is a sacred thing to us, as it has always been to our most revered ancestors, through all of time. It has been taught to us by our revered elders that water is sacred. It is our blood. It is the blood of our children and ancestors. It is the life-supporting blood of Mother Earth" (Rodgers 2004).*

Surely a group that genuinely views water as being akin to their mother's own blood would work to regulate and protect that water with the highest level of commitment and passion. Here lies another key difference between tribes and states: states are responsible for balancing a diverse array of uses while tribes can choose to favor a more specific agenda in line with their traditional ethics. "One study of the Miccosukee

Indians in the Everglades shows the real differences between tribe and state in perspective, commitment, and legal posture. The Miccosukee tribe is eager to intervene, slow to settle, quick to regulate, and anxious to enforce" (Rodgers 2004). Another excellent example of this commitment to high environmental ethics comes by way of the Fundamental Laws of Navajo Nation:

> "The four sacred elements of life, air, light/fire, water and earth/pollen in all their forms must be respected, honored, and protected for they sustain life" (The Fundamental Laws of the Diné). President Albert Hale affirms this belief in saying that, "…these are the elements that sustain us and help to define our sovereignty" (Dussias 1998).

It is, however, necessary to avoid overgeneralizing; the same freedom to enact stringent water quality standards that support traditional uses could be turned around to support lax standards that support economic development. Regardless, "tribes could presumably use their standard setting powers to protect other values associated with water" (Fort 1995). After all, "a tribe's ability to control its environment is empty indeed if water cannot be put to uses which are important to the people of the region" (ibid).

This is exactly what the Pueblo of Isleta did when they were granted TAS-status in 1992. When establishing the beneficial uses of their waters, the Isletans listed an uncommon beneficial use titled "primary contact ceremonial use." This official designation of a legally-protected religious use indicates, "the different perspective that the Pueblo brings to its role as an environmental regulator" (Dussias 1998). Tribes are certainly fit to be effective environmental protectors because, alongside the standard social, economic, and environmental reasons, there is a "religious and cultural motivation" to protect natural resources. Plus, "tribal governing institutions [are] more productive and effective when they fit with the tribe's cultural norms and understandings" (Sanders 2009). In other words, culturally-sensitive governance is not only favorable from a social perspective, but it alsois more effective too.

When tribes choose to regulate water quality within their reservation, they are not only protecting the environment and health of tribal members, but also their culture and sovereignty through the codification of traditional values into law. This is a big leap in sustainable thought: cultural, environmental, and economic sustainability are all facets of the same central concept. Control over these domains is a primary benefit of the TAS program and contributes greatly to tribal sovereignty.

Administrative Process of the Treatment as a State Program

The TAS program appears to be a bastion of sovereign regulatory rights, but history has shown that the privilege of environmental self-governance comes with a hefty cost. There are four main conditions that must be satisfied in extreme detail for a tribe to qualify to apply for TAS approval (see **Figure 14**):

1) Tribe must be recognized by the Department of the Interior
2) Tribe must have a governing body carrying out substantial duties

Figure 14: Schematic of Treatment as a State

Source: US Environmental Protection Agency.

3) Tribe must hold[3] waters to be regulated
4) Tribe must be reasonably expected to be capable of effective administration (The Federal Water Pollution Control Act 2002).

This list of requirements, regardless of the daunting application process that follows, is already highly restrictive as will be discussed later. For those fortunate enough to qualify, the application process for seeking federal approval of water quality standards (WQSs) is similarly intense. Qualifying tribes must develop standards, which include designated uses, numeric and narrative protection criteria for those uses, and an anti-degradation policy to prevent present water quality from declining. Once this is completed, there is a period of public comment from citizens within and without the reservation as well as a public hearing. In addition to this, a 1998 amendment to the CWA gives "appropriate governmental entities" the opportunity to debate tribes' jurisdictional assertions (Rodgers 2004). This gives states multiple avenues to argue tribal jurisdiction. If the EPA approves the TAS application, the tribe is finally eligible to seek federal approval of standards, which means even though they have been granted authority to set WQSs, the EPA still has veto power. And yet, approved WQSs, "do not impose any direct, enforceable requirements on any party, unless and until they are incorporated into a permit or used as the basis for some other regulatory decision" (Treatment in a Similar Manner as a State Portal 2015). In this way, a tribe's ability to fix WQSs amounts to a constraint on the NPDES system and preparation for potential litigation or penalties related to WQS violations.

[3]The exact text of this requirement reads, "The functions to be exercised by the Indian Tribe pertain to the management and protection of water resources which are held by an Indian Tribe, held by the United States in trust for the Indians, held by a member of an Indian Tribe if such property interest is subject to a trust restriction on alienation, or otherwise within the borders of an Indian reservation."

Enforcement of Water Quality Standards Via Routine Sampling

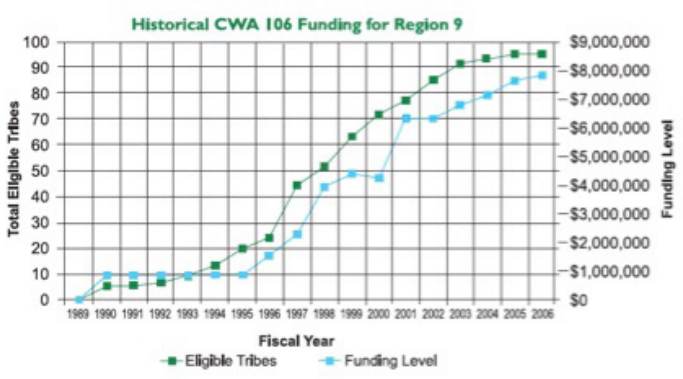
When asked about implementation of new WQSs, Cody Walker from the Pueblo of Isleta says that routine sampling of streams and wells is the best tool for triggering EPA penalties (Cody Walker, personal communication 2015). While this may sound obvious, it is surprisingly less straightforward on the ground. Hydrology in the Pueblo of Isleta is remarkably simpler than hydrology in Navajo Nation (see **Figures 4 and 5**). The Pueblo is situated in the Rio Grande River basin and covers the most of downstream sides of 17 watersheds. It is bound to the west by the Rio Puerco and to the east by the Manzano Mountains. All the precipitation in this region converges upon the Rio Grande via a small handful of washes and ephemeral streams, so comprehensive monitoring of the entire reservation can be accomplished with a handful of strategically-placed sampling stations.

Navajo Nation, on the other hand, faces a much larger technical challenge. Navajo Nation has a complex hydrological system consisting of 33 watersheds and five major aquifers. Due to the distributed, rural nature of the reservation, it is nearly impossible to monitor the quality of all waters within the nation. Even if it were technically feasible, it is not economically viable.

Mr. Walker from the Pueblo of Isleta tells us that one groundwater sample costs roughly $15,000. This is the cost of enforcement; samples require a great deal of equipment, labels, staff supervision, and redundancy, not to mention the cost of contracting a third-party lab and certified lab technicians to handle and test the samples in a manner that is scientifically and legally defensible. The aforementioned CWA Section 106 grants do help finance this Herculean effort; however, there is still high overhead for qualified tribes. To compound matters, the EPA Region #9, "anticipates it will allocate approximately $8 million to support CWA § 106 tribal programs," as of 2012 (Environmental Protection Agency 2011). With 79 tribes operating qualifying monitoring programs, this amounts to an average of $100,000 per tribe. According to Mr. Walker's price quote, the EPA is able to support roughly six groundwater samples per year, a number insufficient for a reservation of any size. In addition to this, the funding for Section 106 grants has increased negligibly since 2012 despite the number of eligible tribes increasing, so the amount of funding available to each tribe is increasingly scarce (see **Figure 15**) (Gail Louis, personal communication 2015).

Sarana Riggs, a member of Navajo Nation as well as volunteer at the Grand Canyon Trust and Save the Confluence, states the issue plainly: "We need more sampling and funding… most services are contracted outside Navajo Nation… [because] we don't have many qualified natives, just outside hydrologists" (Sarana Riggs, personal communication 2015). This solution is characteristic of a trend I found with many of the Navajo people I have spoken with: internalize and localize everything from water infrastructure and power generation to contractors and quantification in order to maintain sovereignty and control. Unfortunately, it appears that the Navajo Nation tribal government is wary of the potential for conflicts of interest and tends to seek out external, third party experts and contractors instead of hiring qualified members of the tribe (Jason John, personal communication 2015).

Figure 15: Historical CWA §106 Funding for EPA Region 9



Source: US Environmental Protection Agency.

Outcomes of the Treatment as a State Program

It is clear that tribes with TAS status tend to enter into beneficial negotiations with their neighbors, develop their internal regulatory capacity, and gain access to funding that has aided in the assertion of tribal sovereignty, as well as the development of water infrastructure. In this section, I will explore how Navajo Nation and the Pueblo of Isleta have directly benefitted from the TAS program.

Case Study: Navajo Nation

After the first TAS clauses were introduced into the major federal environmental regulations in the 1980s, Navajo Nation moved to establish the Navajo Nation Environmental Protection Agency (NNEPA).

NNEPA "is an independent regulatory agency, established within the Executive Branch of the Navajo Nation government, headed by an Executive Director appointed by the Navajo Nation President and subject to the legislative oversight of the Navajo Nation Council through its Resources Committee" (Grant 2007). The debut of the TAS program triggered the formation of NNEPA, "and therefore be viewed as an important stimulus for the development of tribal environmental programs" (ibid).

Since the formation of NNEPA, Navajo Nation has achieved primacy over regulations concerning air quality, surface and groundwater quality, drinking water, solid and hazardous waste, underground injection and storage, and pesticides. "From the outset NNEPA developed a long-range plan committing itself to obtaining TAS and primacy for as many environmental programs as possible. NNEPA made this commitment for two main reasons: a belief that the TAS provisions in the federal environmental laws created a unique opportunity to assert tribal sovereignty, and a view that EPA implementation of federal environmental laws in Navajo Indian country was not providing the desired degree of environmental protection" (Grant 2007).

Logo of the Navajo Nation Environmental Protection Agency. Source: NNEPA.

The capability to administer these programs was not yet present in Navajo Nation prior to implementation of TAS, so TAS can be seen as enabling and incentivizing the accumulation of more environmental management capacity, and therefore the assertion of tribal sovereignty. "In order to obtain TAS, NNEPA focused immediately on developing comprehensives statutes and regulations based on the federal models, while at the same time establishing inventories, acquiring information on program issues, and obtaining training for staff" (ibid).

The TAS-status of NNEPA has also given the nation more bargaining power in water right negotiations. Navajo Nation began a dispute with the state of New Mexico over water resources from the San Juan River in 1975. Decades of litigation yielded little relief for members of the nation, many of which were elderly and without access to a public water supply system. While it is difficult to establish a direct causal link between the obtainment of TAS-status under the Safe Drinking Water Act[4] in 2000 and the resolution of the San Juan River Settlement of 2005, what is clear is that building the capacity to manage the water and infrastructure conveyed by the settlement necessarily makes the settlement more successful and impactful. The San Juan settlement was actualized in the Omnibus Public Land Management Act of 2009, the largest land protection package passed in nearly a quarter century (see **Figure 16**). The Omnibus Land Act also ratifies and executes 15 large water projects, some of which are from tribal water settlements (Omnibus Public Lands Management Act of 2009; San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement 2005).

As a result of the Act confirming and executing the San Juan Settlement, Navajo Nation is entitled to up to $1.37 billion federal dollars intended to finance the design, construction, operations, and maintenance of the Navajo-Gallup Water Supply Project (NGWSP) (see **Figure 17**). The Act also requires New Mexico to provide $50 million to aid in construction of the NGWSP. On top of this, there is an additional $53 million that the Bureau of Reclamation is authorized to use in constructing and rehabilitating conjunctive use wells and irrigation projects within the reservation. The Act establishes the Navajo Nation Water Resources Development Trust Fund, which is set to receive $6 million in federal deposits annually between 2010 and 2014, and $4 million in deposits annually between 2015 and 2019. When completed around 2024, the NGWSP is expected to deliver potable water to about 80,000 Navajo people for the first time (The Navajo Nation Office of the President and Vice President 2010).

Large-scale megaprojects like this are especially imperative given the need for infrastructure within the nation. Jason John, the principal hydrologist at the Water Management Branch within the Navajo Nation Department of Natural Resources, claims there is about $700 million in local, domestic infrastructure needs and over $1 billion in agricultural infrastructure needs (Jason John, personal communication 2015). Furthermore, the Indian Health Service has a 20-year backlog of feasible, local water projects due to limited funding, so TAS can be a powerful tool for accessing non-Native capital (Draft Water Resource Development Strategy for the Navajo Nation 2011).

This tremendous achievement, however, comes with a cost. Navajo Nation had, "a substantial Winters doctrine claim to water in the San Juan: over 900,000 acre feet annually with a priority date of June 1868" (Widdison 2012). Navajo Nation waived all of these claims to San Juan River Basin water rights in exchange for 669,000 acre feet annually, plus the funding for the NGWSP and an additional right to deplete

Figure 16: Summary of San Juan Settlement from Omnibus Land Act

Navajo Water Rights Settlement and Navajo-Gallup Water Supply Project – What the Omnibus Act Says

NAVAJO NATION ("NATION") WATER RIGHTS

Sec. 10701

- Congress approves, ratifies, and confirms San Juan River Settlement Agreement in 2009.
- Secretary and Nation execute contract in 2010.
- Court to enter Partial Final Decree on Nov. 1, 2013.

Sec. 10702

- Establishes trust fund for Nation's water resources development, but funds are not available to Nation until 2020. This is not the same fund as the settlements fund noted below.

Sec. 10703

- Nation waives all claims to other San Juan Basin water rights.

RECLAMATION WATER SETTLEMENTS FUND

Sec. 10501

- Establishes a fund within the U.S. Treasury, to consist of $120 million plus interest, to be deposited in each of FYs 2020–2029 (from revenues that would otherwise be deposited in the Reclamation Fund). The same amount may be expended in each of those years for the following projects (spending to be in priority order 1 through 4):
  1. Navajo-Gallup ($500 million total for 2020–2029).
  2. *Aamodt and Abeyta* (in each year, sufficient amounts to pay federal share of implementing settlements if annual appropriations are not otherwise available, if settlements are approved by Congress).
  3. Montana Indian settlements (not detailed here).
  4. Arizona-Navajo Lower Colorado River settlements (not detailed here).

NAVAJO-GALLUP WATER SUPPLY PROJECT

Sec. 10602

- Authorizes the Secretary of the Interior (through Reclamation) to design, construct, operate, and maintain the project.
- Requires environmental compliance.
- Requires the State of New Mexico to provide a $50 million share of construction cost.
- Authorizes conveyance of facilities to Gallup and Nation, under several conditions.

Sec. 10603

- Allows incidental generation of hydropower, with proceeds going to the Nation.
- Authorizes diversions from San Juan River and Navajo Reservoir: 37,760 acre-feet per year, or river depletion of 35,890 acre-feet per year.
- Authorizes diversion of 6,411 afy for use by Nation in Arizona (at Window Rock).
- Diversions are to be used in New Mexico and charged against the New Mexico consumptive use apportionment made in the Colorado River Compact.

Sec. 10604

- Authorizes a contract between the United States and the Nation. Construction costs applicable to the Nation are not to be reimbursed by the Nation. Operations and maintenance costs are to be paid by the Nation but may be waived for ten years.
- Authorizes a contract between the United States and Gallup. The city is required to pay its share of construction and operations and maintenance costs, within a fifty-year period, except Gallup is not required to pay more than 35 percent of allocable share of construction costs. The city is to obtain rights to use the water it receives.
- Authorizes a contract between the United States and the Jicarilla Apache Nation. Payment terms are similar to Gallup's listed above.

Section 10609

- Authorizes appropriation of $870 million for 2009 thru 2024 (subject to inflation index adjustment) to plan, design, and construct facilities. Additional sums for operations and maintenance are authorized for ten years following completion.
- Participants' construction committee is to be formed.

Section 10606

- Reclamation is to assist the Nation with construction/rehab of conjunctive use wells; $30 million authorized.

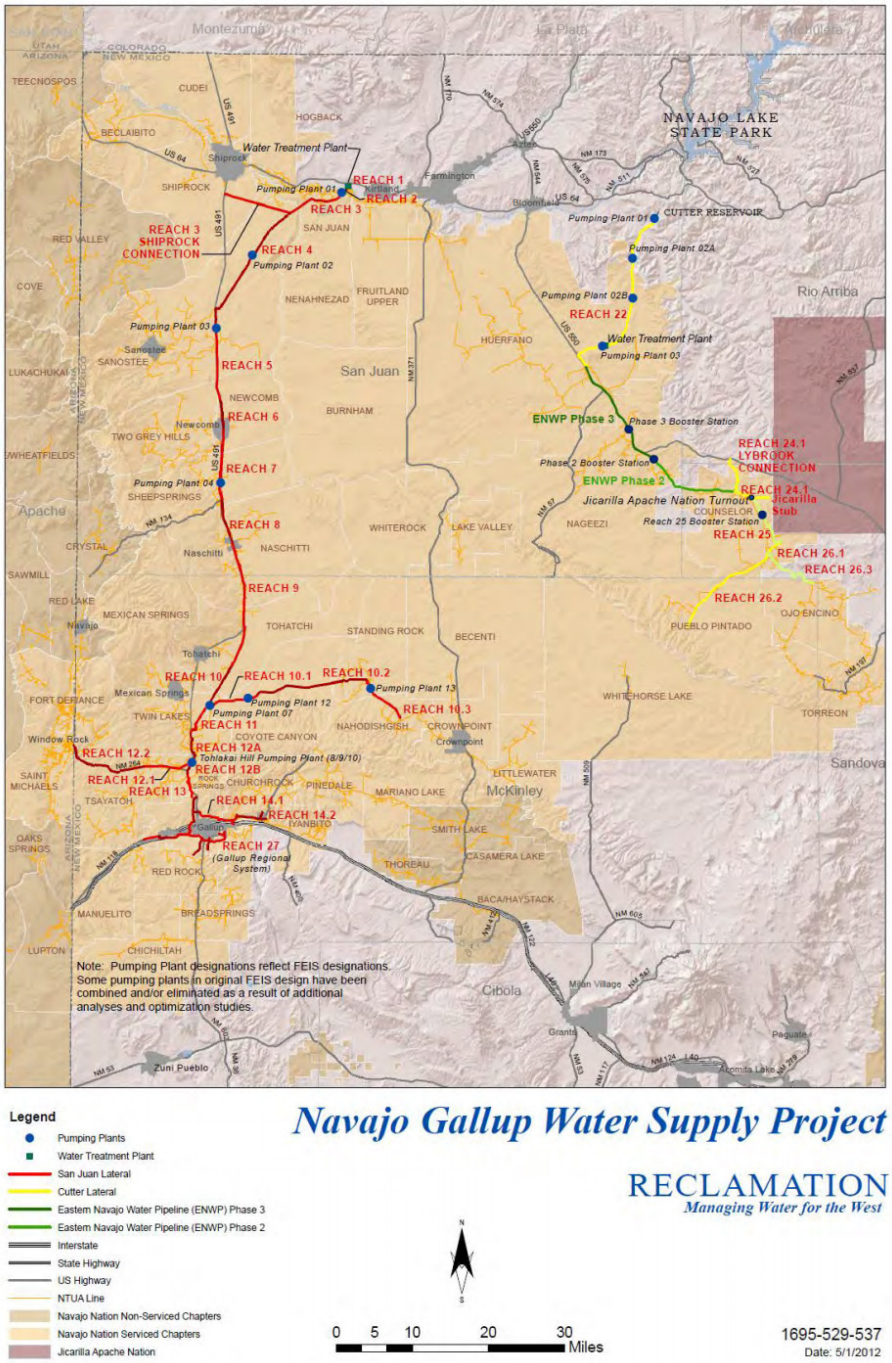
Section 10607

- Reclamation is to assist the Nation with rehabilitation of existing on-reservation San Juan irrigation projects; $23.1 million authorized.

Source: Utton Center for Transboundary Resources.

[4]NNEPA received primacy over the Public Water Supply Supervision program under the Safe Drinking Water Act in December of 2000. Primacy over the Clean Water Act, whose regulations are less specific to municipal supplies, took over 5 years and was not finalized until March of 2006.

Figure 17: Navajo Gallup Water Supply Project



Source: US Bureau of Reclamation.

(that is, divert without return flows) 36,000 acre feet annually for the NGWSP (San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement 2009; New Mexico Office of the State Engineer Interstate Stream Commission 2013). As will be seen later on, this may not have been a favorable trade-off despite the obvious relief that will be enjoyed by those currently without access to potable water.

Ultimately, this project is going to benefit Navajo and non-Navajo people alike. A press release from the New Mexico Office of the State Engineer claims the NGWSP will generate between 400 and 650 jobs, generate local and state tax revenue, serve 250,000 people by 2040, increase water security for all parties, and reduce the potential for future litigation through the settlement of outstanding Navajo claims to water in the San Juan River Basin (New Mexico Office of the State Engineer Interstate Stream Commission 2013). Even more importantly, this protects the water resources of the Navajo Nation from being captured by a downstream user without proper rights. The Ten Tribes Partnership, of which Navajo Nation is a member, advocates for justice with regards to tribal water rights in the Colorado River Basin. In a testimony to congress in 2013, the partnership expressed concern, "that while they struggle to put their water to use, others with far more political clout are relying on unused tribal water supplies and will seek to curtail future tribal water use to protect their own uses" (Vigil 2013). Deals like the San Juan River Basin of 2009 solidify the state of tribal water rights and protect currently undeveloped water for future use.

Case Study: Pueblo of Isleta

The Pueblo of Isleta, being a much smaller community facing drastically different challenges when compared to Navajo Nation, has used its TAS status in dramatically different fashion. The Isletans also hold the special distinction of being the first tribe to set WQS in 1992 under the CWA's TAS program. As a result, the pueblo has taken advantage of the diverse powers provided by the TAS system.

The most sensational example of the exercise of TAS powers comes from the Albuquerque v. Browner case, during which the Pueblo of Isleta served the role of amicus curiae. This case focuses on a challenge to Isletan WQSs made by the city of Albuquerque, whose treated sewage is discharged into the Rio Grande five miles upstream of the pueblo.

After the pueblo set its WQSs under their newfound TAS powers, the city of Albuquerque contested the EPA's approval of those standards because the more stringent standards required the EPA to revise the National Pollution Discharge Elimination System (NPDES) permit that governed Albuquerque's sewage treatment plant. This would result in the city being forced to construct and operate new treatment plants whose estimated value was in the order of hundreds of millions of dollars.

The court reviewed three main complaints made by Albuquerque: the EPA failed to follow the proper procedure in approving the Isletan's WQSs, there is no scientifically defensible basis for their high standards, and the EPA failed to provide an appropriate mechanism of dispute resolution when conflicting standards are placed on a common body of water.

All three counts were ruled in favor of the Pueblo of Isleta. The court found that no procedural errors were committed. It was also found that the EPA does offer a dispute resolution

mechanism; however, it is only available to tribes and states (not cities like Albuquerque) because those are the only entities capable of revising WQSs. Even though the resolution mechanism cannot be of use to Albuquerque, the EPA did properly meet its statutory mandate.

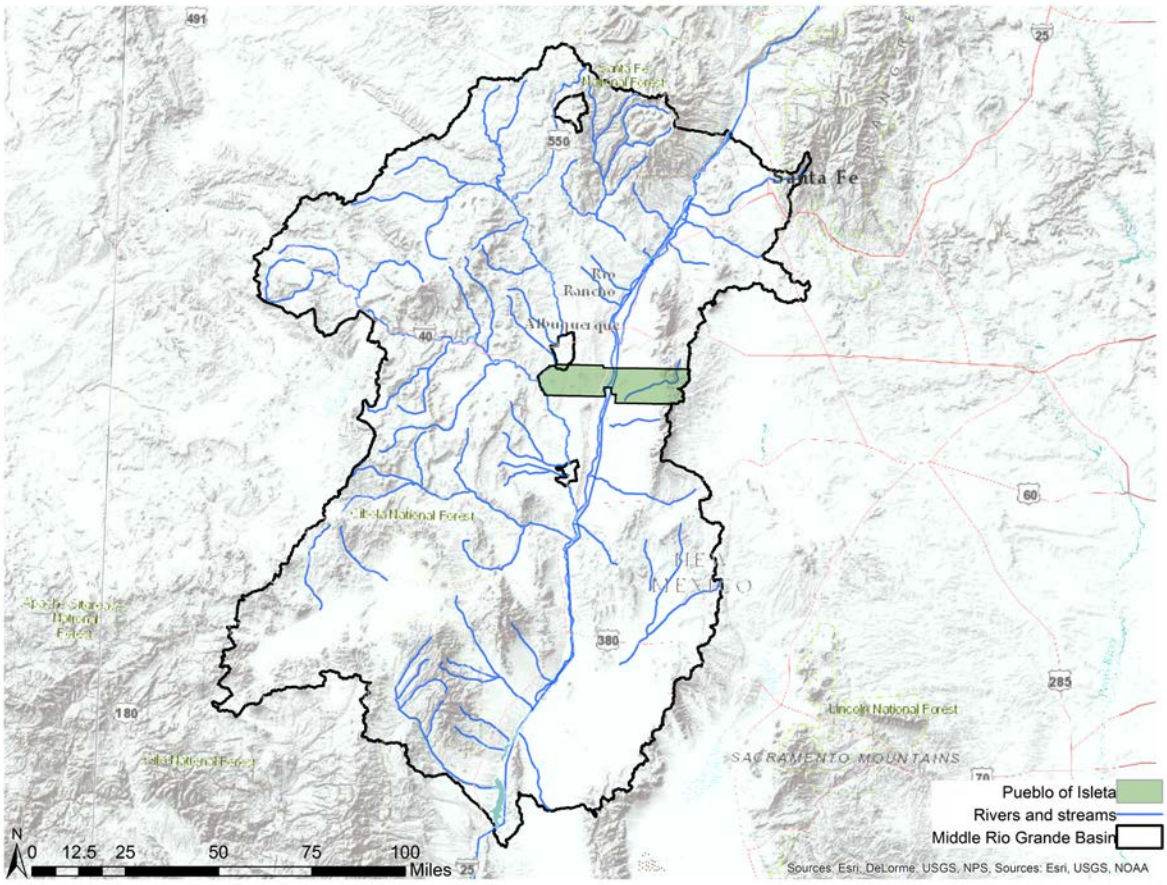
The most interesting finding concerned the alleged baselessness of the Isletan WQSs. Albuquerque argued that the Isletan WQS were below background levels found naturally in the Rio Grande and were unattainable, therefore arbitrary and capricious. Specifically, Albuquerque was referring to the Isletan standard for arsenic, which was 1,143 times more stringent than Albuquerque's standard (Dussias 1998). The court found that the Isletans had conferred extensively with the EPA regarding the technical aspects of their standards. Cody Walker says that due to the traditional Isletan diet being high in fish, which concentrate arsenic through biological magnification, members of the pueblo have abnormally high exposure (Cody Walker, personal communication 2015). WQSs are set to benefit the lowest common denominator, which in this case is the elderly that have had a lifetime of arsenic exposure. This is how such a seemingly ludicrous standard becomes legally defensible.

Another line of argument attacked the aforementioned Isletan establishment of a rare beneficial use titled "primary contact ceremonial use." This use designation carries with it a phenomenally stringent set of WQSs because the Isletans ingest water during their traditional ceremonies in the Rio Grande. The court supported the pueblo's right to define the uses and corresponding quality of their water. As a result, Albuquerque was forced to comply with the revised NPDES permit, construct new treatment plants, and send clean water downstream to the Pueblo of Isleta.

This case demonstrates how the TAS program can help tribes assert their inherent sovereignty through the far-reaching implications of Albuquerque v. Browner. Not only were the Isletans able to protect and sustain their traditional practices and corresponding environmental ethic, but they were also able to do so in a way that was legally defensible outside of the reservation. The Isletans used the TAS program to its fullest extent when forcing Albuquerque to invest in new treatment infrastructure that benefits the pueblo. This is one of the greatest benefits of TAS: the ability to reach beyond the boundaries of the reservation and demand compliance from upstream users. If tribal sovereignty equates to freedom from negative upstream effects, this extra-territorial power conveyed by TAS is one of the strongest tools for tribes seeking to assert their sovereignty. As **Figure 18** shows, the hydrologically-defined boundaries of TAS reach far beyond the physical boundaries of the Pueblo of Isleta.

It's important to note that most extra-territorial effects are only possible when tribal WQSs are integrated with a NPDES permit or are the "basis of some other regulatory decision" (Treatment in a Similar Manner as a State Portal 2015). Fortunately, there are many ways to accomplish this. In order to expand their protections beyond the city of Albuquerque, the Pueblo of Isleta submitted their WQSs to be

Figure 18: Middle Rio Grande River Basin



Source: Esri, Bureau of Indian Affairs, US Geological Survey.

considered in the issuance of a Multiple Separate Storm Sewer System (MS4) permit. This is a class of NPDES permits that is applied to the entire Middle Rio Grande watershed and overseen by all water quality regulators within the watershed.

It's a relatively new form of collaborative management and notable in that one watershed-wide permit can apply to multiple dischargers. Because the Pueblo of Isleta has some jurisdiction within the watershed, their WQSs were integrated with the MS4 permit and are thus meaningful outside of the reservation. In addition to this, the previously mentioned Section 106 grants can be used towards monitoring programs used to enforce the MS4 permit, so in this way TAS also provides funds that aid in extra-territorial enforcement of the pueblo's WQSs. Dr. Kannan believes this is a "primary extension of the benefits conveyed by the TAS system," and further strengthens tribal sovereignty (Phillip Kannan, personal communication 2015).

Analysis of the TAS Program

Strengths of Treatment as a State as Currently Implemented

As Navajo Nation and the Pueblo of Isleta have shown, the TAS system is yielding truly meaningful results on the ground today. All of the outcomes of TAS-related programs have served to strengthen tribal sovereignty and position tribes for a future where clean water is easily accessible.

The obvious benefit of the TAS program is how it enables tribes to set WQSs that, when integrated with an NPDES permit held by an upstream discharger, have definite impacts on tribal water quality. This has a direct impact on human health and welfare, but even more importantly it is an assertion of tribal sovereignty in that tribal regulations can extend beyond reservation boundaries such that tribes are no longer subject to the effluence of their upstream neighbors. Furthermore, tribes can now dictate uses for water that are harmonious with their traditional values and ethics. This reclaimed sovereignty did not appear spontaneously, however. The TAS program carries with it an array of monetary and educational resources created with the intent of assisting tribes in their quest to build and operate successful environmental management agencies. This is the key to enhancing tribal sovereignty: providing the tools necessary to build capacity within tribal governments.

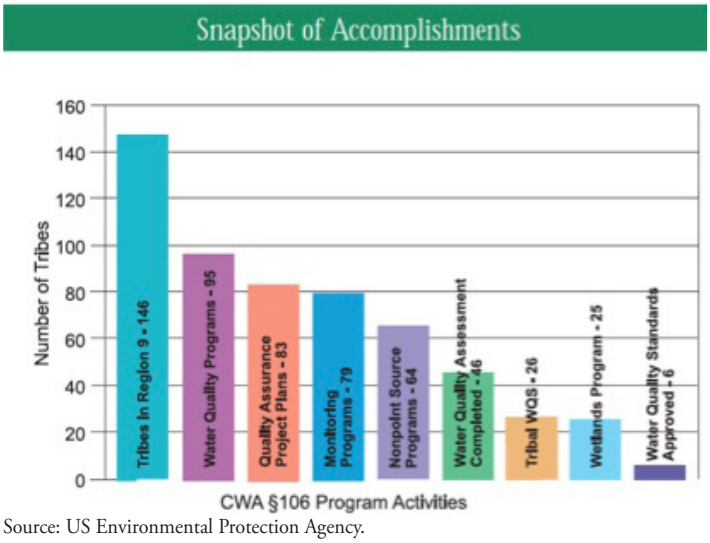
These tools have created monumental changes in infrastructure development. The Navajo-Gallup Water Supply project would not have been economically feasible without the cooperation of the state of New Mexico and the federal government. Similarly, the Pueblo of Isleta simply could not have financed the treatment facility necessary to protect their people from arsenic-laden fish. All in all, the TAS program is increasing freshwater access through infrastructure development. In the short term, this is an issue of public health, but in the long term, increasing access to safe water will also catalyze a wave of economic development. "It has been asserted that economic development, needed to break the cycle of chronic poverty, is largely dependent upon a reliable water supply and water infrastructure" (Widdison 2012). "Towns on the western side of the reservation, including Tuba City and Kayenta, are projected to run out of

groundwater within the next three decades. Thousands of ranchers have been forced to sell livestock because wells have dried up" (Miller 2009). Using TAS to deliver water in hopes of spurring economic development seems to be an excellent means of alleviating the extremely high poverty rate in Navajo Nation.

Critique of the Treatment as a State Program

While TAS may sound like a silver-bullet solution to environmental woes faced by tribes today, it is not a perfect system yet (see **Figure 19**). Navajo Nation is the largest reservation in the United States so the NNEPA has a correspondingly large amount of resources. This makes Navajo Nation the exception to the rule; they have resources many tribes do not. Part of the application process involves creating an inventory of all waters within the reservation, and therefore waters outside of the reservation that may affect water within the reservation. This can be a daunting task for tribes with fewer resources and it is imperative that tribes perform a perfectly accurate survey to prevent future litigation. Gail Louis, a manager in the Tribal Water Program in Region #9 of the EPA, agrees that TAS has a prohibitively high barrier for entry and is not easy. In addition to the reservation-wide survey, the process of building capacity to perform successful environmental management is long and arduous. Often new staff must be hired and then trained to fill new roles (Gail Louis, personal communication 2015). Ultimately, "the application process [for TAS status] was onerous…burdensome, time-consuming, and offensive to tribes… tribes must submit detailed…documentation demonstrating jurisdiction…as well as their technical and administrative qualifications and experience…not only can these requirements be offensive…[but] depending on their regulatory infrastructure, can be downright overwhelming" (Sanders 2009).

Figure 19: Clean Water Act §106 Program Activities



Source: US Environmental Protection Agency.

Furthermore, many of the aforementioned funding options that would help tribes survey, inventory, and build capacity to administer environmental regulatory programs are only available once the tribe has accomplished those tasks. In this way, there is likely a "cliff effect" in the TAS system: tribes with sufficiently low capital will not have the necessary resources to apply for the program that grants them access to critical funding. This theory is supported by there only being six tribes with approved WQSs in EPA's Region #9 despite there being 146 tribes in the region. Of course, the decision to not pursue WQS approval through TAS is also an exercise of tribal sovereignty, but its still unfortunate that such a beneficial program only has a participation rate of 4%(Environmental Protection Agency 2006).

For those lucky few tribes who meet the qualifying conditions for eligibility, successfully navigate the rest of the application process, and go on to have their WQSs approved by the EPA, the road still leads uphill. As Cody Walker has said, sampling is the best tool for enforcement, but without adequate funds for Section 106 grants, tribal water quality monitoring programs will be undercapitalized and stunted (Cody Walker, personal communication 2015).

The EPA funds geared towards developing environmental agencies and supporting monitoring programs are insufficient for their intended purpose. Even though the amount of funding for Section 106 grants (water quality monitoring programs) is increasing as the number of eligible tribes does, there is still a significant funding gap that leaves tribes willing, but unable, to fully develop their programs.

The TAS system is certainly an indispensible legal tool for strengthening and asserting tribal sovereignty, but in doing so it also undermines the alleged inherence of that same sovereignty. The issue is simple: it is inappropriate to treat tribes as states because tribes are not states. As discussed earlier, tribes exist as parallel sovereigns with respect to state and federal governments; however, the nature of their sovereignty is dissimilar. The state-federal partnership known as cooperative federalism is codified into the Constitution of the United States, but tribes were not a part of this arrangement. Tribal sovereignty is constrained by this dynamic, so they are treated as states to simplify the policy frameworks, but in reality their sovereignty is akin to that of an independent nation. Yes, the trust responsibility of the federal government complicates that, but should tribes ultimately need to seek approval from an outside government to have authority over their own lands?

The position of tribes in the hierarchy of governments is higher than presently recognized in the CWA. The major philosophical downfall of TAS program within the CWA (TAS clauses vary from statute to statute) is that it cedes power to tribes in a manner that does not fully recognize the extent of their sovereignty. Once approved for TAS, the EPA delegates to tribes the power to set WQSs and utilize federal resources. This is the same mechanism by which states become responsible for managing their own environmental management programs, but as mentioned earlier, tribes are not states. Their sovereignty is inherent in their existence, so instead of delegating authority after approval, it should be assumed that tribes have authority to govern themselves. They would still have to interface with the US EPA when integrating their standards with the NPDES, but the key difference is in this model, the CWA devolves power directly to tribes.

This discussion of delegation versus devolution may sound like semantics, but the language of the CWA appears to plainly recognize the inherent sovereignty of tribes. The EPA may have erred in their interpretation of the law, especially when interpreting Section 518(e), which describes the conditions for treating tribes as states. The statutory language in this section, "seems to indicate plainly that Congress did intend to delegate…authority to tribes" (Anderson 2015). Even though Anderson used the word "delegate," the message is the same: the text of CWA itself should be sufficient recognition of tribal regulatory authority. The official EPA position on this debate is that they, "presume that, in general, tribes are likely to possess the authority to regulate activities affecting water quality on the reservation . . . [but it] does not believe . . . that it would be appropriate to recognize Tribal authority and approve [TAS] requests [without] verifying documentation . . . [and] an affirmative demonstration of their regulatory authority" (Sanders 2009). This is an odd statement because, as the EPA itself admits, the purpose of the application is not to determine authority but to verify what they themselves have already assumed.

Thankfully, "[the] EPA is considering reinterpreting Section 518(e) as a delegation by Congress of authority to eligible tribes to administer Clean Water Act regulatory programs over their entire reservations. This reinterpretation would replace EPA's current interpretation that applicant tribes need to demonstrate their inherent regulatory authority" (Anderson 2015). In July of 2015, Gail Louis from the Region #9 Tribal Water Program office confirmed that these internal discussions are taking place and that the only potential complication would be a mechanism to resolve jurisdictional conflicts over jurisdictional boundaries near the borders of reservations (Gail Louis, personal communication 2015). In September of 2015, the EPA officially proposed a rule that would revise their interpretation of 518(e) to assume tribal authority. They cite a 1996 Federal district court case in Montana that ruled in favor of tribal authority, as well as their 1998 interpretation of TAS under the Clean Air Act, which was upheld in a 2000 Federal Circuit Court of Appeals case in Washington D.C. The proposal also clarifies that tribes must "identify the boundaries of the reservation," and there will be a commenting period for states, tribes, and government agencies (Environmental Protection Agency 2015).

"Section 518(e) should be read as delegating authority to regulate all sources with impacts on the reservation" (Rodgers 2004, italics added for emphasis). This differs from the third qualifying condition stated in 518(e), which claims that tribes must "hold" the waters to be regulated. This means the tribe, or an individual tribal member, or the federal government in trust for the tribe, must own the waters to be regulated. This poses challenges because tribes can be negatively impacted by waters that they do not own but are hydrologically interconnected with waters they do own. Obviously, tribes needs some water within their reservation in order to be connected to exterior hydrology, but the language of the third condition does not properly reflect one purpose of the TAS system: giving tribes the power to protect themselves from exterior contamination.

Potential Solutions to the Shortcomings of TAS

It should come as no surprise that the two easiest reforms to the TAS system are purely administrative. The language of the Clean Water Act plainly devolves power to tribes to regulate their own waters without any additional approval of authority. The EPA's interpretation and implementation of Section 518(e) must be remedied to reflect the true nature of tribal sovereignty, not to mention a revised 518(e) would then be consistent with most other TAS clauses found in federal regulations. This does not solve the problem of continuing to force tribes into the federal regulatory framework, but as we have seen, compromises are necessary to accomplish anything.

In lieu of a revision to the language of 518(e), the application process is unnecessarily demanding and critically underfunded. Tribes are being asked to complete large volumes of highly detailed surveys that are onerous relative to the average number of staff in tribal regulatory bodies. Of course, knowing what natural resources exist to be regulated is necessary to successfully regulate them, but tribes should be responsible to themselves, not the federal government, in this regard.

Another revision to the application process could be the role of comment periods prior to approval of TAS status. There exists a public comment period, plus "appropriate governmental entities" are given the opportunity to debate jurisdictional boundaries and comment on the application. While this is consistent with other democratic processes, it is complicated in these cases by the unique sovereign status tribes have. Providing two avenues by which governments can slow the process of self-governance is unnecessary. Of course, it is threatening to neighbors to potentially cede power, but the point of the TAS system is to help tribes recapture power that had been usurped by those same neighbors. Plus, the way in which TAS "expands" the boundaries of a reservation make jurisdictional debates less relevant: if a discharge violates tribal WQSs, then that tribe is due reparations.

The EPA has two main functions with respect to tribal WQSs: helping to build the capacity to operate environmental regulatory programs, and integrating the standards of those programs with upstream NPDES permit holders. Building capacity takes the form of sharing expertise, training staff, and financing the monitoring programs necessary to enforce water quality standards. The EPA should not put up additional barriers to entry, especially given tribes' historic lack of capital in the first place.

With regards to capital, the EPA's Section 106 grant program is integral to the functionality of the TAS system, but funding for water quality monitoring networks is still insufficient. This is largely due to the surprisingly high cost of obtaining samples and contracting laboratories to analyze them. While it is necessary to continue the Section 106 grant program, especially for smaller tribes, a more efficient alternative would be to fund programs that build tribes' capacity to complete the entire monitoring process in-house. This means training technicians to collect samples, subsidizing tools like chromatography machines and other analytical equipment, and providing education so tribes can analyze their samples without the cost of a contracted, third party lab. This may introduce

the potential for conflicts of interest and raise questions about the legal defensibility of samples, but these problems are solvable. This would also be more consistent with the federal policy of Native American self-determination.

Conclusion

In theory, the TAS system is well suited for protecting tribal sovereignty by amplifying tribes' political voices, advancing the state of infrastructure within reservations, and forcing upstream users to comply with downstream standards. In practice, however, the current implementation of the TAS program features patently low-hanging fruit that is ripe for reform.

The true value of the TAS system emerges from how it allows tribes to more fully assert their allegedly inherent sovereignty. TAS enables tribes to assume "a core governmental function, whose exercise is critical to self-government... environmental self-regulation is critical to tribal sovereignty" (Sanders 2009). Self-regulation is key because, "tribal governing institutions [are] more productive and effective when they fit with the tribe's cultural norms and understandings" (ibid). TAS allows tribes to follow their own traditional ethics and values when codifying the uses and standards for their water. "[A] tribe's ability to control its environment is empty indeed if water cannot be put to uses which are important to the people of the region" (Fort 1995). Cases like the Pueblo of Isleta's establishment of primary contact ceremonial use or their standards for arsenic based on their traditional diet serve as prime examples of how traditions and culture can be protected through environmental regulation.

This concept of culturally-sensitive environmental management is not just a good idea; it's a basic right according to the First Amendment in the United States' Bill of Rights, as well as Article 18 of the Universal Declaration of Human Rights. The Fundamental Laws of the Diné (self-referential name for Navajo people) also recognizes this basic right, "[t]he four sacred elements of life, air, light/fire, water and earth/pollen in all their forms must be respected, honored and protected for they sustain life; and…[i]t is the duty and responsibility of the Diné to protect and preserve the beauty of the natural world for future generations" (The Fundamental Laws of the Diné). Navajo Nation ex-President Albert Hale adds that "…these are the elements that sustain us and help to define our sovereignty" (Dussias 1998). Cody Walker rephrased this sentiment in words more digestible to the average American and described an unlawful discharge into the Rio Grande to, "be like pouring 6 million gallons of sewage into your church" (Cody Walker, personal communication 2015).

Jason Nez, an archaeologist and leader of Save the Confluence, succinctly describes the importance of sustaining Native American culture through environmental law:

> "Our differing value systems is what makes us human…when you're connected to your history from 3000 years ago, you are standing on a mountain. You are strengthened by your culture…who am I without that? Without that, I am not Navajo" (Jason Nez, personal communication 2015).

On a local level, water quality management results in an improvement to environmental conditions and therefore individuals' health. A 1974 report by the Indian Health Service estimated that Native American families, "with satisfactory environmental conditions in their homes required approximately one fourth the medical services as those with unsatisfactory environmental conditions (Rogers 2003).

TAS is especially good at helping to improve environmental conditions due to its influence on right-for-infrastructure exchanges within negotiated water settlements. The ability to achieve primacy over water quality standards and public water supply systems makes projects like the Navajo-Gallup Water Supply project, which is expected to serve 80,000 Navajo who are currently hauling water, much more feasible. Even without super-projects like the NGWSP, TAS still gives tribes access to state and federal funds necessary to serve more clean water to more people.

Serving clean water does double duty for benefitting tribes. Clean water leads to better environmental conditions and therefore health, but from a long-term perspective, access to clean water catalyzes the economic growth necessary to break the cycle of chronic poverty found in many reservations. "It has been asserted that economic development…is largely dependent upon a reliable water supply and water infrastructure" (Widdison 2012). "The fact that the mean income of Navajo families is below the poverty line can be attributed, in large part, to the lack of water supplies within the reservation" (Draft Water Resource Development Strategy for the Navajo Nation 2011). Clean water is the limiting reagent that prevents tribes in the southwest from developing as they see fit.

Not all people view the current practice of negotiated water settlements as progress, however. Jason John believes these agreements are powerful in their ability to fund necessary infrastructure project, and adds that compromise is a necessary component of all negotiations (Jason John, personal communication 2015). Jason Nez, on the other hand, sees the forfeiture of water rights in exchange for infrastructure as a reinforcement of white supremacy and colonialism. From his perspective, deals like the NGWSP are promoted by the belief that Natives are inadequate and cannot develop their own resources. He admits that compromise is necessary to settle water rights, but fears the current sprint to do so could prove to be a poor strategy (Jason Nez, personal communication 2015). Dion Ben, a member of the Navajo Nation and associate at the Grand Canyon Trust, agrees with Jason Nez in this regard. "Do not jump on the bandwagon," he tells me in an informal conversation as we wandered the North Rim of the Grand Canyon. "We don't know the full quantity [of our claims], we don't know the quality either" (Deon Ben, personal communication 2015). Deon tells me that Navajo must resolve these issues first to realize the true value of their water prior to selling it. In Deon's eyes, the NGWSP is a failure because the infrastructure was purchased with rights of undetermined quality, and therefore value. Sarana Riggs, a member of the Navajo Nation and volunteer at the Grand Canyon Trust, agrees with Deon's sentiment. She described modern times as a "point of no return" for the Navajo people (Sarana Riggs, personal communication 2015). She believes the nation must slow down before selling off too many rights in order to properly valuate the water resources of Navajo Nation.

Despite the arguments put forward by Sarana, Deon, and Jason Nez, the TAS system still has a great potential to strengthen tribal sovereignty through the assumption of new environmental management roles. TAS separates reservations from the potentially harmful contents of shared water bodies and allows tribes to dictate the quality of water that flows into their reservation. This gives tribal governments greater political influence in their respective regions and boosts their bargaining power during negotiations to settle water rights and develop water infrastructure. Catalyzing infrastructure development is one of TAS's best impacts considering the high poverty rates and low access to public water supply systems found in Navajo Nation and other reservations. TAS also allows tribes to promote and protect their traditional values and practices through establishing beneficial uses that are harmonious with their traditional cultures. All of this amounts to more sovereign and effective tribal governments.

The results are only as good as the law, however. The language of the CWA is clear in its recognition of the inherent authority of tribes to regulate themselves. The EPA's interpretation when executing this law does not yet properly reflect the assumption of regulatory authority that Congress intended for. If the purpose of the TAS program is to allow tribes to achieve primacy over environmental regulations, then the most essential modification to the current implementation of TAS under the CWA would be to assume tribal authority to self-govern. This would recognize the law's intent to devolve the authority to self-govern instead of the EPA's present interpretation that the authority must be delegated through a "prohibitively onerous" application process. Thankfully, the EPA appears to be proceeding with its proposed modification to their interpretation of the Clean Water Act. Doing this will benefit all parties, as it correctly accounts for the sovereign status of Native American tribes while streamlining the complex, expensive, and lengthy processes used to manage water quality and quantity in the western United States.

Bibliography

Albuquerque District of the Army Corps of Engineers, 2013. SPA-2004-00406-ABQ - Pueblo Of Isleta Rio Grande Island Removal And Bank Stabilization Project. Albuquerque: US Army Corps of Engineers.

Albuquerque Metropolitan Arroyo Flood Control Authority. April 7, 2013. Accessed July 12, 2015. http://www.amafca.org/documents/april2013-factsheet.pdf.

Anderson, Robert T. "Water Rights, Water Quality, and Regulatory Jurisdiction in Indian Country." Stanford Environmental Law Journal, Forthcoming (2015).

Arizona Rural Policy Institute and Northern Arizona University, 2015. Demographic Analysis Of The Navajo Nation Using 2010 Census And 2010 American Community Survey Estimates. Flagstaff: Arizona Rural Policy Institute, Center for Business Outreach, W.A. Franke College of Business, Northern Arizona University.

Arizona v. California, 283 U.S. 423, 51 S. Ct. 522, 75 L. Ed. 1154 (1931).

Bovee, Brett. "Establishing and Preserving Tribal Water Rights in a Water Stressed West." Water Resources Impact 17, no. 4 (2015): 5-10. Accessed October 1, 2015. http://www.awra.org.

Chandler, Mark E. "Link Between Water Quality and Water Rights: Native American Control Over Water Quality, A." Tulsa LJ 30 (1994): 105.

City of Albuquerque v. Browner, 97 F.3d 415 (10th Cir. 1996).

Claims Resolution Act of 2010. 42 U.S.C. §§301-314, §§601-626.

Draft Water Resource Development Strategy for the Navajo Nation. Navajo Nation Department of Water Resources, 2011.

Dussias, Allison M. "Asserting a traditional environmental ethic: Recent developments in environmental regulation involving Native American tribes. "New Eng. L. Rev. 33 (1998): 653.

EcoSystem Management Inc., Sanitary Assessment of Drinking Water Used by Navajo Residents not Connected to Public Water Systems. September 2003.

Environmental Protection Agency, 2006. Tribal Resource Directory For Drinking Water And Wastewater Treatment.

Environmental Protection Agency, 2006. Tribal Water Quality Accomplishments. Reports On The Water Pollution Control Program. Environmental Protection Agency Region #9.

Environmental Protection Agency, 2011. Water Pollution Control Program Grants Clean Water Act § 106. Environmental Protection Agency Region #9.

Environmental Protection Agency, 2015. Revised Interpretation Of The Clean Water Act TAS Provision: Proposed Rule. Washington D.C.: Office of Science and Technology.

"Fact Sheet and Supplemental Information for the Proposed Issuance of a National Pollution Discharge Elimination System (NPDES) Storm Water General Permit for Municipal Separate Storm Sewer Systems (MS4s) in the Middle Rio Grande Watershed."

Fact Sheet on Snake River Water Agreement (2004). Idaho: Idaho Water Resource Board.

Federal Funding For Non-Federally Recognized Tribes. 2015. Indian Issues. Washington DC: United States Government Accountability Office.

Federal Water Pollution Control Act (Clean Water Act) of 2002. 33 U.S.C. §§101-518.

Fort, Denise D. "State and tribal water quality standards under the Clean Water Act: A case study." Nat. Resources J. 35 (1995): 771.

Friends of Earth, Inc. v. Laidlaw Environmental Services (TOC), Inc., 528 U.S. 167, 120 S. Ct. 693, 145 L. Ed. 2d 610 (2000).

The Fundamental Laws of the Diné (Navajo). 1 N.N.C. §§201-206.

Gerlak, Andrea K., and John E. Thorson. "General Stream Adjudications Today: An Introduction." Journal of Contemporary Water Research & Education 133, no. 1 (2006): 1-4.

Grant, Jill Elise. "The Navajo Nation EPA's Experience with" Treatment as a State" and Primacy." Natural Resources & Environment (2007): 9-15.

Kershaw, J. (2013, March 14). Secretary Salazar Finalizes Historic Aamodt Water Rights Settlement in New Mexico. States News Service. Retrieved July 30, 2015, from http://www.highbeam.com/doc/1G1-322333651.html.

Leisy, Andrea K. "Inherent Tribal sovereignty and the Clean Water Act: The effect of Tribal water quality standards on non-Indian lands located both within and outside reservation boundaries." Golden Gate UL Rev. 29 (1999): 139.

Maupin, Molly A., Joan F. Kenny, Susan S. Hutson, John K. Lovelace, Nancy L. Barber, and Kristin S. Linsey. Estimated use of water in the United States in 2010. No. 1405. US Geological Survey, 2014.

Miller, Char. "The New Water Czars." In Water in the 21st-century West: A High Country News Reader. Corvallis, Oregon: Oregon State University Press, 2009.

Navajo Nation Clean Water Act.

Navajo Nation Safe Drinking Water Act.

"Navajo Nation Water Code." Accessed July 21, 2015. http://www.watercode.navajo-nsn.gov/

New Mexico Office of the State Engineer Interstate Stream Commission,. 2013. Presentation To The Interim Water And Natural Resource Committee And Drought Subcommittee.

"NTUA Water Rates." Navajo Tribal Utility Authority. Accessed November 5, 2015.

Omnibus Public Lands Management Act of 2009. Public Law 111-11, §§10601-10809.

Paulsgrove, Ed. "Pueblo of Isleta Rio Grande Island Removal and Bank Stabilization Project." Public Notices to Albuquerque District of the US Army Corps of Engineers. July 11, 2013. Accessed August 5, 2015.

"Project Specifics of the Navajo Water Project." DigDeep. Accessed November 5, 2015.

Pueblo of Isleta Settlement and Natural Resources Restoration Act of 2006, Pub. L. No. 109–379, 109th Congress., (December 1, 2006) Online Law Library of Congress.

Rodgers Jr, William H. "Treatment as Tribe, Treatment as State: The Penobscot Indians and the Clean Water Act." Ala. L. Rev. 55 (2004): 815-1167.

Rogers, C. L. "The Sanitation Facilities Construction Program of the Indian Health Service." Public Law: 86-121. (2003).

Royster, Judith. "Oil and water in the Indian country." Natural Resources Journal 37, no. 457 (1997).

Sanders, Marren. "Clean Water in Indian Country: The Risks (and Rewards) of Being Treated in the Same Manner as a State." William Mitchell Law Review 36 (2009).

San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement. New Mexico, 2005.

San Juan River Basin in New Mexico Navajo Nation Water Rights Settlement Agreement. New Mexico, 2009.

Santafenm.gov, 2015. 'Water Division Of The City Of Santa Fe, New Mexico'. http://www.santafenm.gov/water_division.

Santos, F. (2015, July 13). On Parched Navajo Reservation, 'Water Lady' Brings Liquid Gold. The New York Times. Retrieved July 22, 2015, from http://www.nytimes.com/2015/07/14/us/on-parched-navajo-reservation-water-lady-brings-liquid-gold.html?ref=earth&_r=1.

Steincamp, Charles C. "Citizenship: A Discussion of Environmental Citizen Suits."

The Cherokee Nation v. The State of Georgia, 30 U.S. 1, 8 L. Ed. 25, 8 L. Ed. 2d 25 (1831).

The Navajo Nation Office of the President and Vice President, 2010. Navajo President Joe Shirley, Jr., Joins Interior Secretary Ken Salazar To Sign San Juan River Water Settlement; Will Bring $1 Billion Project.

"Treatment in a Similar Manner as a State Portal." EPA. July 8, 2015. Accessed July 21, 2015. http://www.epa.gov/tribalportal/laws/tas.htm.

Tribal Resource Directory for Drinking Water and Wastewater Treatment. (2006). In EPA 832-R-06-007. Washington D.C.: Environmental Protection Agency.

United States Department of the Interior. 1990. Working Group In Indian Water Rights Settlements: Criteria And Procedures For The Participation Of The Federal Government In The Negotiations For Settlement Of The Indian Water Rights Claims. Washington DC: Federal Register.

Vigil, Darryl. 2013. 'Colorado River Basin Tribes' Partnership Testimony Regarding The Bureau Of Reclamation's Colorado River Basin Water Supply And Demand Study'. Speech, Subcommittee on Water and Power of the Senate Committee on Energy and Natural Resources.

Walton, B. (2015, July 1). In Drying Colorado River Basin, Indian Tribes Are Water Dealmakers. Circle of Blue. Retrieved July 22, 2015, from http://www.circleofblue.org/waternews/2015/world/in-drying-colorado-river-basin-indian-tribes-are-water-dealmakers/.

Walton, Brett. "Price of Water 2015: Up 6 Percent in 30 Major U.S. Cities; 41 Percent Rise Since 2010." Circle of Blue WaterNews. April 22, 2015. Accessed November 5, 2015.

"Water Management Branch." Accessed July 21, 2015. http://www.frontiernet.net/~nndwr_wmb/.

'Water Resources Of The Navajo Nation: Closing The Gap Between Water Supply And Demand'. 2014. University of Arizona.

Watershed-Based National Pollutant Discharge Elimination System (NPDES) Permitting Implementation Guidance. (2003). In EPA 833-B-03-004. Washington D.C.: Environmental Protection Agency.

Watkins, Kevin. "Human Development Report 2006-Beyond scarcity: Power, poverty and the global water crisis." UNDP Human Development Reports (2006).

Widdison, J. (2012). Navajo-Gallup Water Supply Project. In Water Matters! Albuquerque, New Mexico: Utton Transboundary Resources Center.

Www2.epa.gov, 2015. 'EPA Approvals Of Tribal Water Quality Standards'. http://www2.epa.gov/wqs-tech/epa-approvals-tribal-water-quality-standards.