

Tribal Nonpoint Source Programs

Working to solve water quality problems



A Message from the National Tribal Water Council*

Tribes are essential partners in protecting our nation's waters. Although tribes occupy only a fraction of their ancestral lands, many tribes still control and have rights to vast areas of land and water. Their reservations and extended boundary rights encompass estuaries, rivers, streams, wetlands, lakes, springs, everglades and ocean shores. Tribes in Alaska have subsistence rights that encompass vast areas of land and water. Many tribal lands and waterways are positioned in strategic areas and are of cultural, ecological, and aquatic value. These areas are critical to both the subsistence of tribal communities as well as development of industries associated with diverse bodies of water.

The Tribal Nonpoint Source Program efforts have improved land and water management within tribal lands by implementing effective projects to restore water quality benefiting the sustainable use of water, protection of water quality, preservation of habitats of aquatic species, and protection of communities reaching beyond reservation boundaries. A number of tribal programs partner with adjacent landowners and communities to carry out projects off tribal territories that stretch limited resources and directly benefit both tribal and non-tribal communities.

Tribal efforts in the CWA Section 319 arena are supported by unique knowledge and understanding inherent in their traditions and culture that provides real value to the government-to-government partnership, as we work together to preserve and protect each unique yet interconnected ecosystem for future generations.

**The National Tribal Water Council is a technical and scientific body created to assist the EPA, federally recognized Indian Tribes, including Alaska Native Tribes, and their associated tribal communities and tribal organizations, with research and information for decision making regarding water issues and water-related concerns that impact Indian and Alaska Native tribal members, as well as other residents of Alaska Native Villages and Indian Country in the United States.*

For more information about EPA's Tribal NPS Program,
including educational and technical resources,
see www.epa.gov/nps/tribal.

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Caring for Water

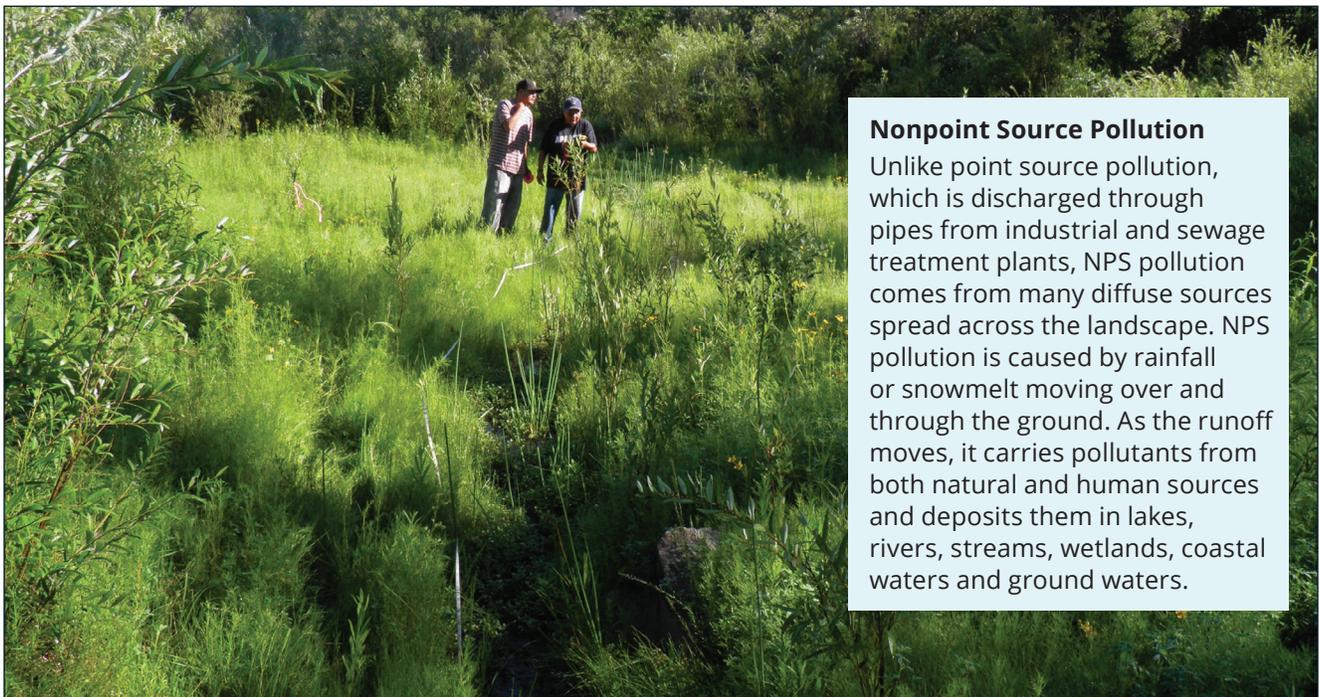
For Native Americans and their tribal communities, water is life. Protecting and restoring lakes, rivers, streams, wetlands and other waters can be both a spiritual obligation and an economic necessity. Tribal waters support fisheries, recreation, towns and agricultural operations where Indian people live, work, and play. At the time of this publication, 203 tribes across the country have worked with EPA to become eligible for Clean Water Act (CWA) Section 319 grants by completing assessments and developing plans to guide their efforts to address polluted runoff originating from sources across the landscape.

Like their counterparts in state and local government, tribal water quality professionals face a formidable challenge when tackling the impacts of nonpoint source (NPS) pollution: sediment-choked streams, eroding riverbanks, algae-infested lakes and beaches tainted by bacteria. Tribal water quality programs across America are partnering with their fellow agencies and off-reservation stakeholders to tackle these daunting issues, which arise both on and beyond Indian lands.

What's in This Document?

This report summarizes tribal NPS pollution control work conducted under CWA §319 and provides examples of how native communities are implementing what the Odawa people call *nibiish naagdowen*—care of the water. Pages 2 and 3 of this document describe the CWA §319 Tribal NPS Program, the types of grants available to tribes, and the most common projects tribes implement nationwide. Pages 4 to 12 describe six key themes that are woven throughout tribal NPS programs across the nation.

Tribal Spotlights featured under each theme show tribal NPS efforts in action. Given that tribal members and staff are at the center of NPS successes, the report also includes *Staff Spotlights* that highlight the people behind the progress.



Nonpoint Source Pollution

Unlike point source pollution, which is discharged through pipes from industrial and sewage treatment plants, NPS pollution comes from many diffuse sources spread across the landscape. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it carries pollutants from both natural and human sources and deposits them in lakes, rivers, streams, wetlands, coastal waters and ground waters.

White Mountain Apache tribal staff survey a wetland.

Clean Water Act §319 Tribal Nonpoint Source Program

In 1987 the U.S. Congress amended the CWA to add §319 and §518, which authorize the U.S. Environmental Protection Agency (EPA) to award grants to eligible states, territories, tribes and intertribal consortia (referred to collectively as tribes in this document) to implement EPA-approved NPS management programs to reduce the water quality impacts of polluted runoff. To be eligible, tribes must obtain “treatment in a similar manner as a state (TAS)” approval for the §319 grant program.

Of the 573 federally recognized tribes, approximately 330 meet the requirements to apply for TAS. Of that, 203 tribes are currently eligible to receive §319 grants (Figure 1). The tribes are located across a range of ecoregions and face different NPS pollution challenges (Figure 2). Although diverse, these programs share the common goal of protecting and improving water resources.

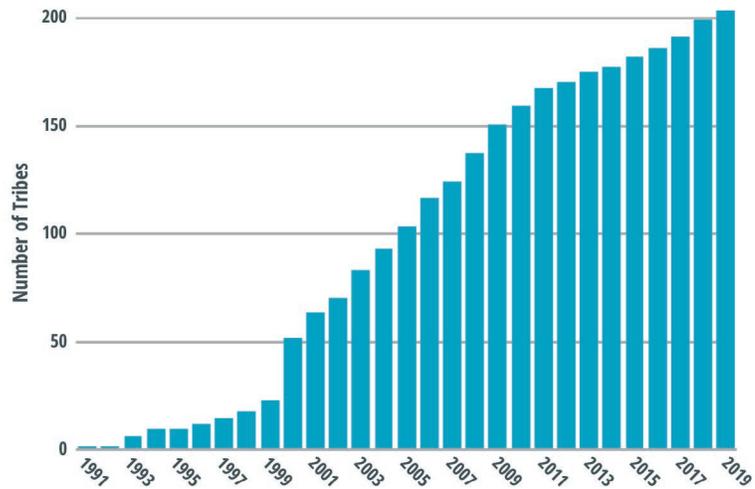


Figure 1. Tribal CWA §319 grant eligibility is on the rise. Since 2000, each year an average of eight new tribes have become eligible to receive §319 grants.



Figure 2. At the time of this publication, 203 tribes have EPA-approved NPS programs. Each point represents the center of each tribe’s land area; these are within various ecoregions (areas of similar environmental characteristics such as climate, vegetation, and geology).^{1,2}

CWA §319 Grants: Supporting Water Quality Improvement

Since 2015, the annual tribal §319 grant total has averaged \$8.2 million—approximately 5 percent of the national §319 federal budget allocation. Tribal funds are allocated in two parts: first, base grants are awarded to all eligible tribes with EPA-approved workplans; then, the remaining funds are competed nationally among §319-eligible tribes to support larger, on-the-ground implementation projects.

Base §319 grants (\$30,000 or \$50,000 per year, depending on tribal land area) support the administration of tribal NPS programs. Typical activities, which are often completed by a single tribal NPS coordinator, include:

- Building partnerships with other agencies to advance NPS work
- Conducting water quality monitoring (e.g., to target potential NPS projects)
- Educating communities about NPS pollution
- Implementing NPS demonstration projects

Competitive §319 grants (up to \$100,000 per project) support projects that will directly protect or restore water quality. Eligible activities include:

- Implementing on-the-ground best management practices (BMPs)
- Developing a watershed-based plan to guide NPS management efforts
- Conducting water quality monitoring (e.g., to assess project effectiveness)

From 2013 to 2018, 60 different tribes received a total of 160 competitive grants. Using these funds, the tribes addressed key pollutants, like sediment and nutrients, from a variety of sources by implementing a range of practices (Figure 3).

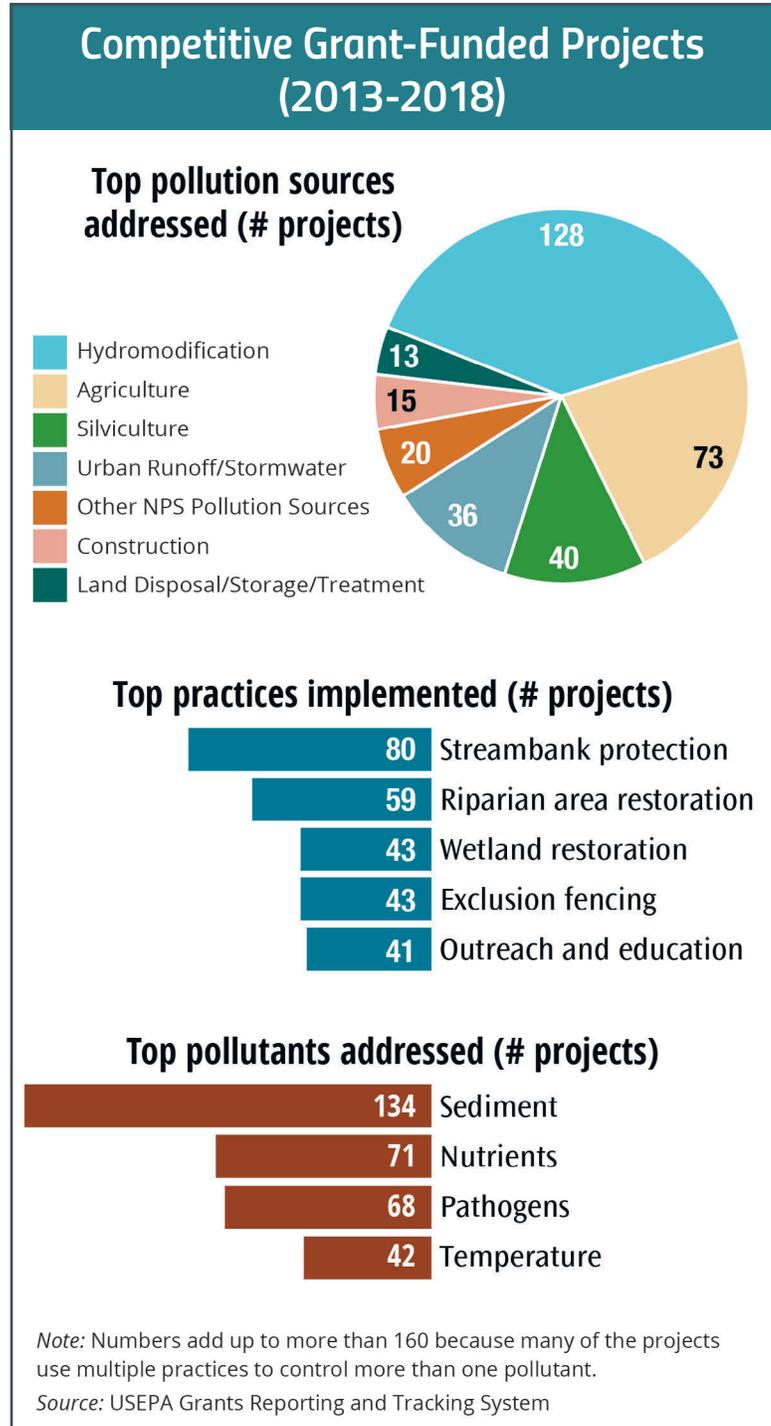


Figure 3. Eligible tribes across the country used competitive §319 grants to address key pollutants across multiple types of pollution sources using a variety of project types.

1 Tribal NPS programs are protecting and improving water quality and habitat

From the home of the Iroquois Longhouse on Onondaga Lake to the Seminoles' Everglades, the Pueblo canyon washes, the Rancheria creeks of California, and the grand rivers of the Great Plains and Northwest, water resources are central to Native American communities and their sense of place. NPS pollution, the predominant cause of water quality problems in the United States, threatens the health of these water resources.³ With support from the CWA §319 program, tribal NPS programs are working to protect and restore water quality. Their efforts benefit communities that rely on water resources for sustenance and livelihood.

Pueblo of Santa Clara

In 2011 the Las Conchas Fire destroyed 65 percent of the Santa Clara watershed. The flooding, fish mortality and erosion that followed prevented the Pueblo of Santa Clara from using Santa Clara Creek water for cultural and traditional purposes. Using the Federal Emergency Management Agency's (FEMA's) National Disaster Framework, the Pueblo created a federally led Recovery Support Strategy that identified and prioritized



actions that could build resiliency to future flooding. With these tools, the Pueblo leveraged federal and state interagency partnerships and technical support. From 2014 to 2017, the Pueblo used competitive §319 funds to install over 5,000 natural erosion control structures (i.e., rocks and fallen trees) in the tributaries and to educate the tribe, schools and the surrounding community. Recent monitoring shows that the stream is recovering, indicated by the presence of macroinvertebrates and improved water clarity and dissolved oxygen levels. "Technical assistance, grant support and communication are vital for documenting the benefits to the water quality," explained Dino Chavarria, the Pueblo's Environmental Director. The Pueblo is continuing restoration efforts with support from §319 and other funds.



A member of the Pueblo of Santa Clara constructs a log mattress and log dam in one of the flood-eroded drainages in the fire-damaged Santa Clara Creek watershed.

Staff Spotlight



Emily Luscombe, Coyote Valley Band of Pomo Indians

Emily Luscombe collaborates with local tribes and agencies to share skills and equipment to reduce NPS pollution. The tribe is using both §319 base and competitive funding to support a long-term, multi-partner cliff stabilization and erosion reduction project. "The §319 funding is imperative for our watershed work," notes Luscombe. "Base funding allows education and outreach and identification of needs. Competitive funding is one of the only sources available to tribes for implementation. Without §319, we wouldn't be able to pursue projects."



Upper Skagit Indian Tribe



Years of dredging in Hansen Creek to try to control flooding changed the creek and created deep channels and accumulated sediment that isolated the creek from its historic floodplain, a dynamic alluvial fan, and its surrounding wetlands. Over the past 10 years the Upper Skagit Indian Tribe and its partners used \$319 and other funds to add over 100,000 native plants in riparian areas and add large woody debris to reconnect the creek with its surrounding ecosystem. Additional \$319 funds have supported almost a decade of monitoring. Recent data show decreased turbidity and cooler waters, increasing food resources, and better aquatic habitat that supports healthier adult populations of steelhead and salmon. Downstream landowners are also reporting an additional benefit: reduced flooding. The tribe has deepened the community's connection to the creek by building ecological awareness and stewardship through youth outreach, project tours for community members, and educational signage.



Upper Skagit Indian Tribe youths participate in stream restoration and monitoring efforts.

Staff Spotlights

Citizen Potawatomi Nation Team



Members of the CPN team

The Citizen Potawatomi Nation's (CPN's) environmental staff is small in number but large in versatility, covering water, solid waste recycling, air, underground storage tanks, energy, floodplain management, and roads issues for tribal lands.

"We're a team. We all wear many hats and pitch in to make our projects work," explains Shawn Howard, CPN's Environmental Manager. CPN is using \$319 funds to help restore and expand a wetland system at the confluence of two waterways, which will reduce flooding, treat NPS pollution, provide wildlife habitat, add culturally significant plant life, and provide an opportunity for NPS education.



Jeremy Freimund, Lummi Nation



Jeremy Freimund (1961–2017) was on the Lummi Nation's environmental team for nearly 21 years. A true professional, he brought out the best in everyone around him—from elected leaders to technician-level staff. He guided development of the Lummi Nation's Comprehensive Water Resources Management Program, which addresses the tribe's management of NPS issues related to wellhead protection, wetland and storm water management, and water quality standards. Among his many accomplishments, Jeremy oversaw development of the first FEMA-approved tribal multi-hazard mitigation plan, the Lummi Nation Climate Change Mitigation and Adaptation Plan, and the tribe's wetland and habitat mitigation bank—the first tribal commercial mitigation bank in the US. Jeremy also advocated for the

tribe and its lands and treaty rights through oil spill response preparation, strategic energy planning, solid waste planning and countless other efforts. "Although Jeremy is dearly missed by the Lummi Nation, he left behind a legacy that we continue to advance in the continuing fight to protect tribal resources," notes Merle Jefferson, Lummi Natural Resources Department Executive Director.



2 Tribes lead efforts to assess and prioritize NPS pollution problems on their lands

To effectively address a problem, you need to understand its source. NPS pollution often originates from multiple diffuse sources, both on and off tribal lands, within a single watershed. Tribal programs collect water quality monitoring data, often supported by the CWA §106 program, to understand the problem. Traditional Ecological Knowledge (TEK), which is knowledge acquired by indigenous and local peoples through direct contact with the environment, complements water quality data in helping to understand and protect aquatic systems. Tribal NPS programs synthesize this information to connect the dots between pollution sources, water quality problems, and critical areas where management actions are needed.

Oneida Nation

Oneida Nation collects both water quality data and drone footage to help guide implementation of conservation measures. For more than 10 years the Oneida Nation has been controlling NPS pollution by establishing riparian buffers and installing agricultural BMPs. Within the last 3 years, Oneida has worked with farmers to convert more than 600 acres of cropland into pasture for rotational grazing. Oneida now uses drones



to efficiently survey its land to identify the presence of invasive species and identify NPS problems on agricultural fields. Most of the Oneida land lies within the Lower Fox River (LFR) basin, which drains to Green Bay, the world's largest freshwater estuary. Although not legally obligated to comply with total maximum daily load (TMDL) targets in place for the LFR basin, Oneida has contributed to the water quality improvement effort by voluntarily reducing phosphorus loads from its agricultural lands and wastewater treatment plant.



Oneida Nation has established vegetated buffers along waterways (left) and works to educate its community members about the benefits of buffers and other BMPs (right).

Dry Creek Rancheria Band of Pomo Indians

The Dry Creek Rancheria Band takes a watershed-based approach to addressing NPS pollution on reservation land and beyond. The tribe created a watershed management plan with the help of Bureau of Indian Affairs (BIA) funding, and then used §319 funds to implement projects such as removing landslide debris from Rancheria Creek to protect surface waters, enhance flows and improve habitat for



endangered steelhead and Coho salmon. The tribe proved it could successfully complete a project, which made it easier to obtain additional funding. The tribe joined the Russian River Confluence Partnership, a collaboration of 26 government agencies and other stakeholders, and received \$4 million from the state of California by leveraging work plans under CWA §319 and §106 grants. Subsequent restoration efforts improved water quality and established cooperative relationships. "Investing in the partnership took time," explains Chris Ott, the tribe's Environmental Director, "but issues are easier to resolve because people now know each other."



The tribe used native plants from the tribe's nursery to restore a section of the creek after a landslide.

3 Tribal programs strategically target resources to solve NPS pollution problems

Tribal NPS programs, often led by one dedicated staff person or a few dedicated staff members, are responsible for managing NPS pollution on tribal lands that today range in area from less than one square mile to more than 24,000 square miles.⁴ Consistent work—often over long periods of time—is needed to achieve observable water quality improvements. Tribal staff must be strategic in their targeting of limited resources and persistent in their efforts to incrementally address NPS problems, often over multiple project phases supported by more than one funding source. NPS management program plans serve as strategic roadmaps to prioritize potential actions and target program resources.

Eastern Band of Cherokee Indians



In 2014 the Eastern Band of Cherokee Indians (EBCI) opened an ecofriendly native plant nursery equipped with a rainwater harvesting and irrigation system. The tribe raises its own native plants (approximately

30 species of shrubs and trees) for riparian restoration and reforestation efforts. The persistent hard work has paid off. To date, EBCI has grown and incorporated almost 100,000 nursery-grown plants in projects across the reservation, including giving native fruit trees to tribal homeowners. Using \$319 base funding and tribal funding, EBCI continues to improve the capacity and efficiency of the facility to meet the increasing demand for native plants. Mike LaVoie, EBCI Natural Resources Manager, notes “the project has been a great tool to help us develop partnerships and conduct outreach activities.”



EBCI members and partners celebrated the opening of the tribe’s new greenhouse (top) with a ribbon-cutting event (left).

Confederated Tribes of the Umatilla Indian Reservation

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) have made continuous progress toward their restoration goals using a process-based approach to management, which promotes the sustainability of *First Foods* resources such as water, salmon, deer, cous (herb) and huckleberry. CTUIR are currently working to restore floodplain function to more than 8 miles of Meacham Creek. With multiple phases supported by \$319 funding and a variety of other sources (e.g., Bonneville Power Administration), CTUIR



CTUIR is restoring floodplain function along Meacham Creek.

restored channel connectivity and habitat by removing over 3 miles of railroad levees, constructing and reconnecting over 5 miles of channel, adding more than 3,500 pieces of wood, and replacing invasive vegetation with native plants. CTUIR have measured changes in stream channel function and habitat, groundwater levels, and water temperatures that benefit native fish populations, beavers, and plant communities. Rick Christian, CTUIR Project Manager, notes “restoration efforts will help reduce threats from changing climate and protect the tribes’ future subsistence.”

4 Tribal NPS programs play a unique role in their community and watershed

Tribal NPS programs are staffed by professionals who work to integrate NPS water quality concerns within tribal communities and culture. Some tribal NPS coordinators are members of the tribes they work for, while others are members of another tribe or are a nonmember working for their tribe. In all cases, tribal staff develop an intimate knowledge of local water resources, the surrounding watersheds and the needs of the local community. Their days are filled with diverse activities, from assessing waters to educating local and neighboring communities about NPS pollution or implementing on-the-ground projects to protect and restore water quality. This network of tribal NPS coordinators serves as a critical link to regional and national clean water efforts.



Melding function and culture, PIIC incorporated a medicine wheel design into a stormwater BMP.

Prairie Island Indian Community

Most of the Prairie Island Indian Community's (PIIC's) approximately 3,000 acres of land are on Prairie Island on the Mississippi River, about 40 miles downstream of Minneapolis, Minnesota. NPS pollution from upstream urban areas can affect the island and its underlying water table. Using both §319 competitive funding and other resources, PIIC has implemented restoration projects in highly visible areas that address NPS pollution while also educating visitors. Projects have included restoring the banks of the Mississippi River as well as adding rain gardens, stormwater management practices, and native plants that filter pollutants, inhibit erosion and restore pollinator habitats. Signs installed at project sites educate locals and the more than 1 million people who visit PIIC's resort and casino annually.



Dan (above) manages the tribe's water program. He defines the problems, identifies how the problems fit into the tribe's overall efforts to protect water quality, and writes the reports.

Staff Spotlights

Dan Kusnierz and Jason Mitchell, Penobscot Indian Nation

The Penobscot Indian Nation's Dan Kusnierz and Jason Mitchell are an effective team. Together they've received 10 competitive §319 grants to support NPS projects such as stabilizing eroding stream banks, building bridges, and relocating all-terrain vehicle trails to less-sensitive areas. They've hosted outreach workshops for children and adults on- and off-reservation, and they've trained road crews on BMP use.



Jason (left) is the tribe's NPS coordinator and a tribal member. He does the on-the-ground work like selecting project BMPs, hiring contractors, and overseeing project implementation and monitoring. Homeowners look to Jason to identify solutions that are minimally intrusive and compatible with how they want to use their property.



Hopi Tribe



To the Hopi, “water is life.” Because local springs are an integral part of tribal culture—supporting tribal ceremonies, nurturing growth of traditional plants, and providing water for food sources such as cattle—the tribe is using §319 funds to restore spring water quality impacted by livestock and other animals, exotic vegetation and other nonpoint sources. Members of the Hopi Tribe belong to one of 20 clans and live within a collection of 12 self-governed villages that comprise the Hopi Reservation. Each village is led by a chief and spiritual leader, known as the Kikmongwi, who is the key to communication within and across villages. Hopi’s Water Resources Program staff work closely with the Kikmongwi when planning spring restoration projects. According to Albert Silas, the tribe’s NPS coordinator and a Hopi Tribal member, “Everything in the Hopi culture is tied to water. I often speak with elders in our native language to communicate the goals of a project.” During restoration work, Water Resources Program staff hire experienced masons to train tribal members to build using traditional Hopi stonework techniques. Hopi’s NPS program has worked with local communities to successfully restore three springs over the past 5 years.



Hopi Tribe is restoring culturally important springs such as Toreva Spring, seen after recent restoration efforts were completed in 2019 (top photo) and during a flute ceremony in 1905 (bottom left photo). Tribal members are using traditional Hopi stonework methods (bottom right photo) during building projects, which ensures transfer of knowledge and respect of Hopi culture.

Staff Spotlight

Carey Pauquette, Saginaw Chippewa Tribe



Carey Pauquette, Environmental Manager for the Saginaw Chippewa Tribe, promotes collaboration with local partners and has built tribal capacity by recruiting interns, volunteers, and additional tribal water staff. She used CWA §106 funding to develop a NPS management plan that allows her to leverage additional funding to benefit the tribe’s projects, which include erosion control, an agriculture biofilter and floodplain enhancement. Local governments often refer to the tribe’s NPS management plan as a baseline resource when environmental problems arise. Project partners view Carey and her team as local experts who can provide advice and technical assistance on issues such as soil erosion, water quality, land improvements and BMPs.



5 Tribes build partnerships to address NPS pollution

Partnerships are often pivotal to the success of tribal NPS programs. Although jurisdictional and other issues can sometimes create hurdles, tribal staff form partnerships across tribal departments and with external agencies and organizations to collaboratively manage NPS pollution at the watershed scale. Federal agencies provide technical and other forms of support. Tribal programs also enlist the support of various agencies from state and local governments, universities, nonprofit organizations and private businesses.

Houlton Band of Maliseet Indians

For over two decades, the Houlton Band of Maliseet Indians (HBMI) has worked to improve water quality in the Meduxnekeag River, which runs through HBMI lands, as well as parts of the United States and Canada. Participating in a diverse international partnership has allowed HBMI to receive and leverage grants to complete BMP implementation projects and outreach in this



HBMI and their partners conduct research to evaluate the effectiveness of biochar applications to improve soil quality and reduce erosion on active potato fields.

transboundary watershed. Each partner brings tools to the table. For example, the Southern Aroostook Soil and Water Conservation District provides technical assistance and a connection to landowners. The Maine Department of Environmental Protection offers state and federal funding and monitoring resources. The Natural Resources Conservation Service (NRCS) offers technical assistance and Farm Bill funding. The tribe conducts monitoring, offers a connection to tribal landowners and secures federal funds. Other partners include nongovernmental organizations, Maliseet First Nations in Canada, and U.S. and Canadian environmental protection agencies. The key to their successful collaboration is consistent face-to-face meetings where they share data and information, conduct planning, write grants and support one another.

Southern Ute Tribe



The Southern Ute Tribe's reservation covers more than 1,000 square miles in arid Southwest Colorado. Increased irrigation flows from agricultural lands have eroded ephemeral stream channels, sending sediment downstream. Fortunately, the tribe benefits from a close partnership with NRCS that encourages

collaboration between tribal agricultural landowners, the tribal government, and an on-site NRCS liaison. The tribe uses its \$319 funds for stream restoration projects and leverages NRCS Environmental Quality Incentive Program (EQIP) dollars and NRCS cost-share to install BMPs that reduce NPS pollution and irrigation flows while providing financial incentives to farmers (e.g., savings on water bills). This cooperative, watershed-scale approach has helped the tribe secure project funding from new sources, such as a recent stream restoration project grant from Colorado Parks and Wildlife to protect the endangered New Mexico jumping mouse.



Southern Ute tribal member operates a \$319-funded gated pipe to increase irrigation water efficiency and reduce NPS pollution that reaches local waters.

White Mountain Apache Tribe



Historical hydrologic modifications and ongoing erosion and nutrient enrichment have degraded the North Fork White River, which provides drinking water and has cultural, ecological and religious significance for the White Mountain Apache Tribe. In July 2017, with the help of \$100,000 in §319 competitive grant funding, the White Mountain Apache Tribe completed a livestock exclusion fencing and stream stabilization project

along the North Fork White River. Multiple tribal departments worked with the NRCS, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, BIA, local landowners and others to plan, design, fund, and implement projects and perform biologic monitoring to assess restoration progress. To minimize disturbance to sensitive species, the tribe successfully completed construction in a mere 6 weeks. After construction, the tribe received support from CWA §319 and §106, NRCS EQIP, and the White Mountain Apache Land Restoration Fund to develop a monitoring plan and continue restoration efforts. This project, which took 6 years of planning and collaboration, improved a valuable water resource and helped build tribal capacity.



Members of the White Mountain Apache Tribe work to restore a streambank along the North White Mountain River.

Kickapoo Tribe in Kansas



Through the EPA/State HABs Workgroup, EPA scientists helped facilitate communication between the Kickapoo Tribe and Kansas. The partners shared data and photos of the Delaware River cyanobacteria bloom and observations on the river south of the tribal lands.

Harmful algal blooms (HABs) are overgrowths of algae in water, influenced by nutrient pollution, that can impair water quality and produce toxins that are dangerous to people and animals. Documenting the frequency and severity of HABs is critical in protecting community health, as well as developing strategies to address the causes of these events. In 2017, the Kickapoo Tribe in Kansas coordinated with technical staff from EPA Region 7 and the state of Kansas to improve communication about HABs in the Delaware River, the tribe's drinking water source. Kickapoo Environmental Department staff, with analytical support from EPA Region 7's Mobile Lab, monitored water quality for indicators of HABs. When HABs were observed, the tribe implemented a communications plan to alert downstream watershed partners, including the tribe's drinking water plant and Kansas



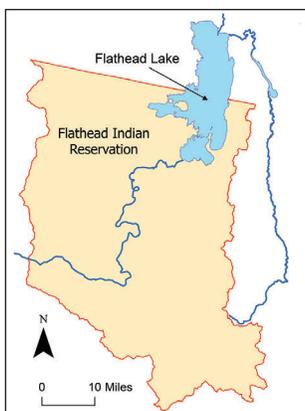
A Kickapoo Tribe scientist joins EPA Region 7 scientists to learn HABs monitoring and sampling techniques.

Department of Health and Environment water quality staff. The tribe's efforts demonstrated a communications plan model that could be adaptable for any small community addressing HABs or other source water protection issues.

6 Tribal programs face unique challenges

Tribal NPS programs face unique challenges in their efforts to manage NPS pollution. Many programs work within overburdened communities where competing needs put stress on limited available resources.⁵ For example, according to data from the Indian Health Service, 48 percent of all homes on tribal land lack access to adequate drinking water, sewage or solid waste disposal facilities.⁶ Today's tribal land areas often follow complex landownership patterns that complicate watershed-based approaches to managing NPS pollution. Plus, the often limited number and frequent turnover of environmental staff emphasizes the need for effective planning to ensure continuity and growth. Tribal staff demonstrate creativity and perseverance in the face of such challenges.

Confederated Salish and Kootenai Tribes



Spanning 197 square miles across both state and tribal lands, Flathead Lake is the largest natural freshwater lake west of the Mississippi River.

The Confederated Salish and Kootenai Tribes (Tribes) and the state of Montana own portions of Flathead Lake. The Tribes have worked to protect this transboundary resource, relying on §319 funding to implement 10 NPS control projects. NPS funds have also supported projects like the Tribes' annual River Honoring outreach event, where professionals teach students about water issues such as the invasive zebra mussels, which have appeared in nearby waters. Determined to prevent an invasion in Flathead Lake, the Tribes have worked with Montana to develop a boat inspection program and recently hired an invasive species program manager to partner with other agencies.



The Confederated Salish and Kootenai Tribes conduct an annual River Honoring event for students.

Fond du Lac Band of Lake Superior Chippewa

The Fond du Lac Band reservation lies almost entirely within the St. Louis River watershed, which drains 2.4 million acres and empties into Lake Superior. According to the Band's assessments, off-reservation mercury pollution from point and nonpoint sources challenge the tribe's ability to protect water quality on tribal lands and have prompted widespread restrictions on traditional sustenance fish consumption. One such source is nearby legacy and active taconite (low-grade iron ore) mining. The



The Fond du Lac Band studies pollution on tribal lands from non-tribal sources.

tribe uses §319 funding to conduct studies to document mercury presence in tribal waters and to assess contributing sources. The tribe's environmental program also works to educate tribal members and the surrounding communities about fish advisories and the harmful effects of mercury and other mining-related pollutants on the environment. Growing the technical capacity of water resource staff is supporting NPS management efforts and enabling more meaningful tribal participation in National Environmental Policy Act and other federal water quality actions that affect mine-related pollution. This issue continues to bring the tribe together as a community and a culture.

Acknowledgments

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Endnotes

1. The nine ecoregions represented in Figure 2 are aggregations of EPA Level III ecoregions delineated for EPA's National Aquatic Resource Surveys. These ecoregions have not been delineated for Alaska or Hawaii. For more information on delineation methods, see Herlihy, A.T., Paulson, S.G., Van Sickle, J., Stoddard, J.L., Hawkins, C.P., and Yuan, L.L. 2008. Striving for consistency in a national assessment: the challenges of applying a reference-condition approach at a continental scale. *Journal of the North American Benthological Society* 27(4):860-877.
2. Tribal land areas based on EPA's Tribal Areas geospatial data layer (published July 2018), which represents locations of American Indian Tribal lands in the lower 48 states. The areas include all lands associated with federally recognized tribal entities: Federally Recognized Reservations, Off-Reservation Trust Lands, and Census Oklahoma Tribal Statistical Areas. Accessed November 2018. <https://edg.epa.gov/data/Public/OEI/OIAA/Tribes/EPATribes.zip>.
3. National Nonpoint Source Program Highlights Report (October 2016, EPA 814-R-16-009). https://www.epa.gov/sites/production/files/2016-10/documents/nps_program_highlights_report-508.pdf.
4. Tribal land areas based on EPA's Tribal Areas geospatial data layer (published July 2018), Accessed November 2018. <https://edg.epa.gov/data/Public/OEI/OIAA/Tribes/EPATribes.zip>.
5. The *EPA Policy on Environmental Justice for Working with Federally Recognized Tribes and Indigenous Peoples* (July 2014) defines overburdened communities as "Communities or populations, including minority, low-income, tribal, and indigenous, in the United States that potentially experience disproportionate environmental harms and risks as a result of greater vulnerability to environmental hazards."
6. Department of Health and Human Services, Indian Health Service Fiscal Year 2017 Justification of Estimates for Appropriations Committees. Accessed April 2019. <https://www.ihs.gov/sites/budgetformulation/themes/responsive2017/documents/FY2017CongressionalJustification.pdf>.

Nec

— ARAPAHO —

Aohkī(yi)

— BLACKFOOT —

Mahpe

— CHEYENNE —

'Samaqan

— PASSAMAQUODDY-MALISEET —

Kwaiya

— QUILEUTE —

Ohnekānus

— ONEIDA —

Kuuyi

— HOPI —

Nipi

— MIAMI/ILLINOIS —

Miní

— LAKOTA/DAKOTA —

Paya

— PAIUTE —

Nepi

— KICKAPOO —

Yanhi

— CATAWBA —

Kiky

— SOUTHERN SIERRA MIWOK —

A-ma

— CHEROKEE —

Water

Oka

— CHOCTAW —

