

2022

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STATUS OF TRIBAL AIR REPORT

Advocate and Advance



The mission of the NTAA is to advance air quality management policies and programs, consistent with the needs, interests, and unique legal status of American Indian Tribes and Alaska Natives.

The National Tribal Air Association is funded through a grant from the United States Environmental Protection Agency's Office of Air & Radiation (OAR)

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Acronyms

ACE	Affordable Clean Energy Rule
AI/AN	American Indian/Alaska Native
AICAF	American Indian Cancer Foundation
ALA	American Lung Association
AMoN	Ammonia Monitoring Network
ANTHC	Alaska Native Tribal Health Consortium
AQ	Air Quality
AQP	Air Quality Program
AQS	Air Quality System
ATSDR	Agency for Toxic Substances and Disease Registry
BACT	Best Available Control Technology
BIA	Bureau of Indian Affairs
BLR	Blue Lake Rancheria
CAA	Clean Air Act
CAAAC	Clean Air Act Advisory Committee
CARB	California Air Resources Board
CASTNET	Clean Air Status and Trends Network
COLA	Cost-of-Living Adjustment
COPD	Chronic Obstructive Pulmonary Disease
COVID	Corona Virus Disease
DERA	Diesel Emissions Reduction Act
DOJ	Department of Justice
EA	Environmental Assessment
EI	Emissions Inventory
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPD	Environmental Programs Department
FARR	Federal Air Rules for Reservations (for Region 10 only)
FIP	Federal Implementation Plan
FRM	Federal Reference Method
GAP	General Assistance Program
GHG	Greenhouse Gas
HAP	Hazardous Air Pollutant
HIA	Health Impact Assessment
HUD	Housing and Urban Development
HVAC	Heating, Ventilation, and Air Conditioning
IAQ	Indoor Air Quality
IAQWG	Indoor Air Quality Work Group
ICS	Incident Command System
IPCC	Intergovernmental Panel on Climate Change
ITEP	Institute for Tribal Environmental Professionals
KDHE	Kansas Department of Health and Environment
Moms	Moms Clean Air Force
MPCA	Minnesota Pollution Control Agency
MSWG	Mobile Sources Work Group
NAA	Non-attainment Area



NAAQS	National Ambient Air Quality Standards
NACAA	National Association of Clean Air Agencies
NADP	National Atmospheric Deposition Program
NATA	National Air Toxics Assessment
NAU	Northern Arizona University
NCA4	Fourth National Climate Assessment
NEI	National Emissions Inventory
NESHAP	National Emission Standards for Hazardous Air Pollutants
NGO	Non-Governmental Organization
NIHB	National Indian Health Board
NOAA	National Oceanic and Atmospheric Administration
NOFO	Notice of Funding Opportunity
NPS	National Park Service
NRAP	National Radon Action Plan
NSR	New Source Review
NSPS	New Source Performance Standards
NTAA	National Tribal Air Association
NTF	National Tribal Forum on Air Quality
NTFAQ	National Tribal Forum on Air Quality
NWS	National Weather Service
OAP	Office of Atmospheric Programs
OAQPS	Office of Air Planning and Standards
OAR	Office of Air and Radiation
OEJ	Office of Environmental Justice
OITA	Office of International and Tribal Affairs
ORIA	Office of Radiation and Indoor Air
OTAQ	Office of Transportation and Air Quality
OTS	OAR Tribal System
PBPN	Prairie Band Potawatomi Nation
PCB	Polychlorinated biphenyls
PM	Particulate matter
PPE	Personal Protective Equipment
PRK	Policy Response Kits
PSD	Prevention of Significant Deterioration
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RTR	Risk and Technology Review
SAFE	Safer Affordable Fuel-Efficient
SEP	Supplemental Environmental Projects
SIRG	State Indoor Radon Grants
SOP	Standard Operating Procedures
STAG	State and Tribal Assistance Grant
STAR	Status of Tribal Air Report
TAC	Tribal Advisory Council
TAMS	Tribal Air Monitoring Support Center
TAR	Tribal Authority Rule
THHN	Tribal Healthy Homes Network
TAP	Tribal Air Program



TAS	Treatment in the Same Manner as a State
TEISS	Tribal Emissions Inventory Software Solution
TIP	Tribal Implementation Plan
TEK	Traditional Ecological Knowledges
UMUT	Ute Mountain Ute Tribe
USGCRP	U.S. Global Change Research Program
VW	Volkswagen
WSWG	Wood Smoke Work Group
WTGHA	Wampanoag Tribe of Gay Head Aquinnah



1 Welcome from the NTAA Chairwoman

The National Tribal Air Association's (NTAA) Executive Committee is pleased to present the 2022 Status of Tribal Air Report (STAR). The STAR is an annual review of Tribal Air Programs providing an opportunity to share successes and challenges that Tribal Environmental Professionals face in their efforts to protect the health, cultural, and spiritual resources for the people and communities that they serve.

NTAA was founded by resolution of the National Congress of American Indians in 2002 and is celebrating its 20th anniversary this year. With this celebration, NTAA has grown its membership to 156 federally recognized member Tribes throughout the nation. It is with this focus in mind that NTAA is reminded that when it comes to the protection of ambient air quality, indoor air quality, and the mitigation of climate change issues and concerns the NTAA functions as a communication liaison and information conduit for the NTAA member Tribes and always respects and supports Tribal Sovereignty.

In this year's report, the STAR will highlight a few of the results from the Baseline Needs Assessment (BNA) which was conducted by the NTAA. The BNA identifies gaps in resources needed to comprehensively fulfill the growing needs in Indian Country to protect air resources, including comments on limited /lack of funding, which has been an ongoing issue.

In addition, the STAR now includes issue specific chapters to help people quickly navigate to issues that are of interest to them. The information can be used to educate decision makers both in Indian Country and at the Federal level. The STAR celebrates Tribal successes while still acknowledging the gaps in resources for Tribal Air Programs.

In closing, the STAR is an opportunity to continue these important discussions on Tribal air quality management policies and programs, that are consistent with the needs, interests and unique legal status of American Indian Tribes and Alaska Natives.

Sincerely,

Syndi Smallwood

Syndi Smallwood
Chairwoman

National Tribal Air Association's
Executive Committee



2 Introduction and Purpose of the STAR

The Status of Tribal Air Report (STAR) is an annual report by the National Tribal Air Association (NTAA) to provide a national overview of Tribal air quality programs for decision makers in Indian country, Federal Government, including the Administration, and allies. The STAR contains information about the success and struggles facing Tribal air programs. In this year's report we will highlight the results of the Baseline Needs Assessment (BNA) conducted by NTAA. This report was commissioned to have a greater understanding of the growing need of Tribal Air Programs. From the needs assessment the STAR reviews the status, struggles and resource gaps identified in the BNA, barriers to Tribes in accessing resources and support, and makes recommendations on growing support for Tribal Air Programs. It is important to note that although there are approximately 120 with Tribal air grants, there are Tribes that conduct air quality work using other resources. So, the STAR and the BNA reflect not only the efforts and needs of Tribes with air grants but also other Tribes with air quality concerns.

The National Tribal Air Association

The National Tribal Air Association (NTAA) is a Tribal membership organization currently with 156 Member Tribes whose mission is to advance air quality management policies and programs consistent with the needs, interests, and unique legal status of federally recognized Tribes. The NTAA's membership grows yearly; to learn more about the NTAA and to become a member, please visit www.NTAATribalAir.org.

Additionally, the NTAA serves as a communication liaison and information conduit between Tribes, EPA, and other federal agencies. The NTAA exists to assist Tribes in air quality policy work while respecting and supporting Tribal sovereignty and the Tribes' rights to a government-to-government relationship with the federal government.

All federally recognized Tribes are eligible to become member Tribes of the NTAA. Tools, such as the policy resource kits, developed by the NTAA are available online for download and are readily accessible by members of the public. These PRK's include template letters for Tribes to respond to EPA rulemakings and proposals as well as relevant fact sheets to print and distribute.

The NTAA's Goals:

To advocate for and advance the development of Tribal air policy for the protection of environmental, cultural, and economic interests at all levels of government (Tribal, federal, state, local, and international).

To promote the development, funding, and capacity building of Tribal air management programs.

To promote and facilitate air quality policy and technical information that may include research, scientific and/or medical studies.



To advance the recognition and acceptance of Tribal sovereign authority by conducting effective communication with and outreach to state, local, federal, and international agencies, and to the public; and

To encourage and support appropriate consultation of state, local, federal, and international agencies with all Tribal governments in accordance with Tribal structures and policies.

NTAA Executive Committee

	Primary Representatives	Alternate Representatives
Region 1	Marvin Cling, Sr. Passamaquoddy Tribe at Pleasant Point	Open Seat
Region 2	Angela Benedict, Saint Regis Mohawk Tribe	Steven Smith, Shinnecock Nation
Region 3	Open Seat	Open Seat
Region 4	Scott Hansen, Catawba Indian Nation	Tiffany Lozada, Poarch Band of Creek Indians
Region 5	Brandy Toft, <i>NTAA Vice Chair</i> Leech Lake Band of Ojibwe	Vallen Cook, Grand Portage Band of Lake Superior Chippewa
Region 6	Craig Kreman, <i>NTAA Treasurer</i> Quapaw Nation	Open Seat
Region 7	Billie Toledo, <i>NTAA Secretary</i> Prairie Band Potawatomi Nation	Joseph Painter, Winnebago Tribe
Region 8	Janice Archuleta, Ute Mountain Ute Tribe	Randy Ashley, Confederated Salish & Kootenai Tribes
Region 9	Syndi Smallwood, <i>NTAA Chairwoman</i> Jamul Indian Village of California	Leonard Bruce, Gila River Indian Community
Region 10	Lucas Bair, Spokane Tribe of Indians	Caleb Minthorn, Confederated Tribes of the Umatilla Indian Reservation
Alaska	Rosalie Kalistook, Association of Village Council Presidents	Shannon Melton, Native Village of Buckland

Table 1 NTAA Executive Committee Members



2.1 Background

Since the promulgation of the Tribal Authority Rule (TAR) in 1998, Tribal air programs across the country have seen both successes and challenges. Tribes, using the modular approach provided by the TAR have identified their own needs and priorities and established programs reflect those needs and priorities. As a result, there are Tribes that have approved Tribal Implementation Plans, approved permitting programs, conducting regulatory monitoring, Class I redesignations, working with the states on reviewing permits and state implementation plans, developing emissions inventories, indoor air programs, programs to address radon, programs to protect natural and cultural resources impacted by climate change, and many more. In support of the Tribes, ITEP and NTAA have built a support infrastructure that provides technical support and capacity building as well as policy analysis and review to help Tribes grow their programs and impact EPA policy and guidance.

However, this success has been limited and undermined by the lack of financial and technical support for Tribes for air quality programs. Since 1998, the CAA funding, has not significantly changed, with initial funding levels in 1998 at \$11 million, rising to \$12.49 million in 2012 and declining to \$12.43 in 2021 and again in 2022. Yet, in the new 2023 budget the funding for Tribal Air Programs remained stagnate while the state program budget received an additional \$1.9 million. NTAA continues to call out this stagnation as an untenable funding scenario moving forward. EPA needs to demonstrate their trust responsibility and update this idle budget. Earlier this year and through the publication of NTAA's BNA, NTAA has provided the National Tribal Caucus (NTC), Tribal leaders, and the Biden Administration with clear and factually based numbers detailed in this report.

Summary of Needs

In 2022, the NTAA celebrated its 20th anniversary, established through Tribal leadership and EPA funding. Just two years earlier, in 2020, the United States celebrated the 50th anniversary of the Clean Air Act (CAA), arguably one of the most successful pieces of public health legislation ever adopted in the United States. These two anniversaries mark important air quality milestones in the mission to protect public health, natural and cultural resources. These anniversaries also provide an opportunity to reflect on Tribal air quality achievements to date, along with unmet and emerging air quality issues.

Summary of the Baseline Needs Assessment

The BNA is a new report that provides the first-of-its kind assessment that demonstrates the need for increased funding for Tribal Nations to address air quality and climate change on and around Tribal Lands. NTAA Executive Committee Members, Janice Archuleta, and Tribal Healthy Homes Network Director, Gillian Mittelstaedt presented on the BNA's important key findings. [Watch the Informational Webinar Here](#). An electronic survey was distributed nationally, to obtain baseline information from among the 574 federally recognized Indian Tribes. The 59-question survey collected both quantitative and qualitative data from a total of



169 individual Tribal respondents. A total of 136 individual Tribes participated, representing 24% of all federally recognized Tribes.

A little over half of the Tribes who completed the survey are current recipients of a CAA Section 103 or Section 105 grant funding from the U.S. EPA (58%), with the remaining 42% of Tribal respondents not receiving any CAA funding (nationally, 22% of all Tribes receive CAA funding).

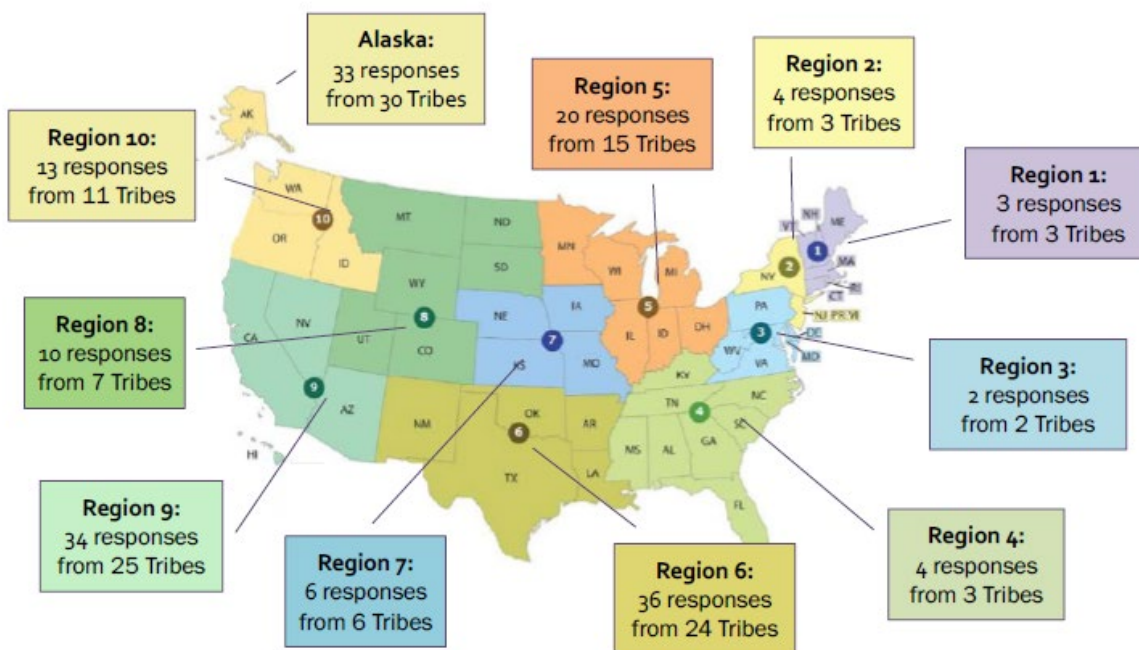


Figure 1 Tribal Responses to the 2021 NTAA Baseline Needs Assessment. There's a total of 169 individual Tribal respondents.

2.2 Summary of the Tribal Air Program (TAP) Resources and Status

Given this large unmet need, it is important to provide context of the success and additional barrier for TAPs. Much of TAPs success comes from the Tribal Portion of the State and Tribal Air Grants (STAG) provided under the authority of section 103 and 105 of the CAA. Since the STAG grants remain unchanged, Tribes have been able to supplement 103 and 105 funding with other grant programs including GAP, DERA, SIRG, Climate Resiliency grants and others. In addition, there were one-time funds available this year through the American Rescue Plan (ARP) that provided additional resources. NTAA has consistently advocated to EPA and other federal agencies to remove all barriers to accessing these grants including limited administrative capacity. Unlike 103 and 105 funding, many of these grants are project specific rather than programmatic in nature, so they often will not contribute to the overall funding for TAP needed to develop and sustain the adequate administrative capacity needed to apply and implement many of these grants for the Tribes.

Despite these barriers, the following is a discussion of the status of Tribal program achievements to date.

Current Program Status

Over the past several years, TAPs have experienced the following indicators of success and setbacks:

1. The Treatment as a State (TAS) statute authorizes Tribes to manage programs under the CAA, including regulatory development, reviewing authority for Title V permits, the opportunity for Prevention of Significant Deterioration (PSD) Redesignation of Reservation lands, air quality monitoring, etc. Between FY2012 and FY2022, the number of Tribes with non-regulatory TAS status increased from 34 to 61, and the number with regulatory TAS increased from 7 to 11 in FY2020, before declining to 10 in FY2021.
2. The number of Tribes currently operating air monitors, monitoring for criteria pollutants, hazardous air pollutants, and other pollutants under the National Atmospheric Deposition Program, grew from 81 in FY2012 to 88 in FY2020, but declined to 86 in FY2022.
3. The number of Tribes with completed Emissions Inventories ranged from 74 in FY2012 to a peak of 86 in 2015 but decreased to 80 in FY2022.
4. The number of Tribes with §103 grants has varied from year to year but reached a peak of 96 in FY2014. This number fell to 66 in FY2022.
5. The number of Tribes with §105 grants has increased steadily from 25 in FY2012 to 51 in FY2022.
6. The interest in Indian Country to address radon has grown, however there is little awareness of how SIRG grants can be used in Indian Country.
7. The previous EPA Administration de-emphasized using 103/105 grant funding to address climate change. Therefore, so many Tribes are having to rebuild their climate change and resiliency programs even with an infusion of climate funds for this year. However, like all one-time funding opportunities, there is insufficient funding for staffing or for a long-term sustained program. NTAA provided climate change funding recommendations to the National Tribal Caucus earlier this year with [specific recommendations](#) on how to provide additional climate change funding to Tribal Air Programs.
8. Twenty-five Tribes submitted applications for Volkswagen Settlement funds in the first round, which disbursed approximately \$6 million in funding. The second round disbursed \$15.5 million to 45 Tribes. The third round disbursed \$16.5 million to 50 Tribes. The fourth, and possibly final round disbursed \$18.1 million to 63 Tribes. The funds have



been used to replace certain older diesel engines with updated technology, as well as to purchase electric vehicle charging stations. The Trustee and the U.S. Department of Justice are currently considering whether there are enough funds left for a fifth and final funding cycle, or if not, how the remaining funds can be dispersed.

9. In 2022, NTAA provided comment to the U.S. Department of Justice regarding Supplemental Environmental Projects like the VW Settlement Environmental Mitigation Trust. NTAA provided recommendations that encourages flexible use of settlement money like the VW SEP for Tribal Nations and Tribes without reservations to build Tribal air quality program capacity.

2.3 Summary of Recommendations

Tribes and Tribal air programs have specific priorities related to each of the programmatic areas in the Office of Air and Radiation, as well as non-programmatic priorities. These priorities are outlined in Section 4: Tribal and National Priorities and illustrated by the stories submitted from Tribes and TAPs across the country. The following list is intended to serve as a summary of recommendations for decisionmakers and those working with TAPs.

1. **Uphold Tribal Sovereignty:** Federal and state agencies need to demonstrate their commitment to Tribal sovereignty through:
 - Appropriately allocating funding for Tribal Air Quality Programs.
 - Engaging proactively in government-to-government consultation with Tribal Nations.
 - Upholding Trust Responsibility by developing and implementing air programs that are responsive to the individual needs of Tribes.
 - Responding to Tribal requests and recommendations in a timely manner.
2. **Substantial investment in TAPs both in financial resources for air programs and capacity building:**
 - As presented in the BNA, the total outstanding need is \$64.2 million. However, because there would be a need to invest in capacity building for new Tribal programs and in helping mature programs to continue to grow, we are recommending a step wise investment of an increase in the Tribal 103 and 105 funding to be **\$54.7 million** in FY 2024 and then reaching the **\$64.2 million** in FY 2025.
 - Because of the continuing demand for capacity building and technical support we are recommending a comparable growth in separate funding for the training infrastructure to include an increase of **\$1 million** in FY 2024 and another increase to \$2 million in FY 2025.
3. **NTAA is recommending an additional infusion of \$80 to \$120 Million increase** to support rebuilding capacity for Tribal climate programs in this first year with an

increase to provide an additional \$80 to \$120 in future years to continue to allow new Tribes to participate as well as provide for sustaining existing programs.

4. **Support the growing Tribal programs, EPA needs to invest in TAPs for:**
 - *Regional Grant Officers* – this will ensure that EPA staff have the time and resources to invest in the Tribes they support.
 - *Headquarter Staff* – because of high turnover rates and changing priorities, there is disinvestment in supporting Tribal air programs. For example, having to shift staff to support EJ programs disinvests from technical support (i.e., reviewing permits and technical analysis), and limits access that Tribes must have to meaningful consulting in EPA regulatory and policy development.
 - *Ongoing Capacity Building* – for EPA staff on/for understanding Tribal sovereignty and the Nation-to-Nation relationship with Tribes.
 - *Grant and Program Review* – Efforts to provide consistency in grant and program review and approval.

5. **Remove Match Requirements:** As grant programs are made available via Tribal set asides, removing match requirements will improve access to Tribes to these programs. Budget and grants need to respond to the new policy (e.g., funding to meet QA/QC obligations) so these new policies do not become an unfunded mandate and/or preclude Tribes from self-governance.

3 Baseline Needs Assessment

In late 2021, the NTAA Executive Committee commissioned a BNA, to quantify and characterize unmet and emerging air quality needs. The electronic survey was distributed by NTAA, Partnership for Air Matters, Tribes, Tribal partners, and Tribal consortia. The survey was open for 4 months, with a total of 339 responses. Partial responses were excluded from the final data set if they did not answer whether their Tribe had an air quality program or department or not. Data was validated through the confirmation of each Tribe's existence, IP addresses, and respondent locations to check for BOTs. Participants who had multiple responses were contacted for confirmation of most accurate data. If they did not reply, their most recent response was kept in the sample and their original submission was removed. After data cleaning and validation, there were a total of **169 responses**. All 10 regions were represented from 129 Tribes and 4 organizations across 28 states. (See Appendix D for a list of all the Tribes, by region, that participated in the BNA).

From this survey population, the following key themes emerged:

1. **The federal investment in Tribal air quality programs is, in magnitudes of order, smaller than the federal investment in Tribal natural resources and environmental management.** Presently, 22% of all Tribes receive some level of CAA funding, which is a valued EPA investment in Tribal capacity. Yet the \$12.5 million average annual EPA funding for Tribal



CAA programs is minor relative to the federal investment in Tribal natural resource and environmental programs. To illustrate, the Bureau of Indian Affairs provided \$395.8 million to Tribes under the “Within Trust—Natural Resources Management” Program¹. The \$12.5 million EPA investment in Tribal air quality represents just 3% of this total.

2. **The modest allocation of \$12.5 million for Tribal air programs places a strain on some Tribes such as over-burdened air quality staff, all while leaving other Tribes without any air quality presence.** 42% of survey respondents who receive CAA funding reported that their CAA 103 or CAA 105 grant does not fully fund their air quality needs. Tribes reported that they seek non-EPA grants to support their air quality work, yet 85% of the time, Tribes reported that outside funding was insufficient to fund their air quality needs. 3 out of 4 Tribes reported that they have other environmental program responsibilities besides air quality, while 1 in 3 Tribes reported that they are lacking experienced air quality staff which made them less competitive when applying for grants. Tribes who currently have an Air Quality program reported that while they have access to technical training and equipment, their work is adversely impacted by staff turnover, lack of competitive pay, or difficulty finding candidates in remote and rural areas.
3. **EPA’s investment in Tribal air programs is impactful, yet most of the Tribe’s report that limited funding has far-reaching impacts.** 78% of Tribes surveyed agreed or strongly agreed that insufficient air quality funding impacts the health and welfare of their people. 79% agreed or strongly agreed that insufficient air quality funding affects their Tribe’s capacity to prevent adverse health impacts, such as asthma, allergies, lung, and heart disease. 69% agreed or strongly agreed that insufficient air quality funding impacts their Tribe’s ability to test for and mitigate radon gases and lead contamination, which contribute to lung cancer and learning disabilities. 71% agreed or strongly agreed that insufficient air quality funding impacts their Tribe’s ability to address the ecological consequences of air pollution on their Treaty-Protected Natural and Cultural Resources. Finally, 67% agreed or strongly agreed that insufficient air quality funding impacts their Tribe’s ability to assert and exercise their sovereignty and our government-to-governmental relationships.
4. **Wildfire smoke is an emerging concern, but long-standing air quality issues continue to impact Tribes, including but not limited to road dust, diesel emissions, woodsmoke, and air toxics.** Given their geographic diversity, Tribes contend with a range of air pollution sources and types. The most pervasive air quality issue, affecting 80% of Tribes responding to the BNA, was road dust. Wildfire smoke, as anticipated, was reported as a priority concern, with 62% of Tribes reporting that wildfire smoke has become impactful to their community. Other major sources of particulate matter impacting Tribes included diesel

¹ FY 2022 Interior Budget in Brief, Bureau of Indian Affairs



emissions (reported by 63% of Tribes) and residential wood-burning devices (54%). Air toxics, including Hazardous Air Pollutants (HAPs) were reported as a concern by 21% of Tribes, with qualitative responses indicating significant Tribal concern around uranium, and uranium tailings, polychlorinated biphenyls (PCBs), mercury, asbestos, radon, radon progeny, styrene, and 2-butanone.

5. **When asked about indoor air pollution, Tribes were nearly unanimous in reporting that mold and moisture was a factor, with woodsmoke and radon also among high priority issues.** Within Tribal housing, mold and moisture ranked as the most concerning at 90.1% (n = 118). Mold and moisture also had the most responses for Tribal public/community buildings in (82.6%). Tribes expressed that funding to mitigate these pollutants was a moderate to urgent need, varying by issue.

3.1 Results of BNA Survey

Characteristics and Prevalence of Tribal Air Quality Programs

As demonstrated by Figure 1 in the BNA, not all Tribes have an air quality program. Among the 169 responses to this survey question, 53.2% (n = 90) responded that they do have an air quality program or department, 22.5% (n = 38) responded that they did not, and 24.5% (n = 41) expressed that they do not have an air quality program but would like to.

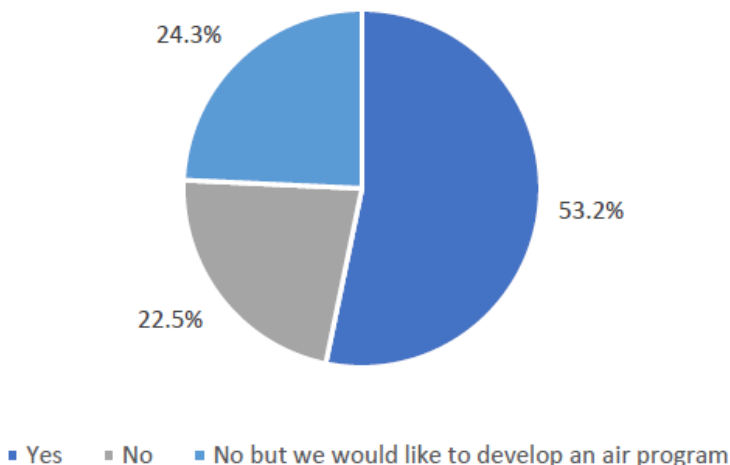


Figure 2 Number of Tribes that currently have an air quality department or program. (n = 169)

Human Resources to Address Air Quality

Figure 3 below provides a deeper insight into the three department's responsibilities. Oftentimes, air quality activities are conducted under different departments because they have more capacity and resources, such as Environment/Environmental Protection or Natural

Resources. Table 2 depicts the estimated amount of personnel per program in which air quality has the least number of responses and staff.

Of the 138 Tribes identified that work on air quality, 73.2% (n = 101) of staff work on a combination of air quality, environmental, and other activities, whereas only 26.8% (n = 37) are solely dedicated to air quality work.

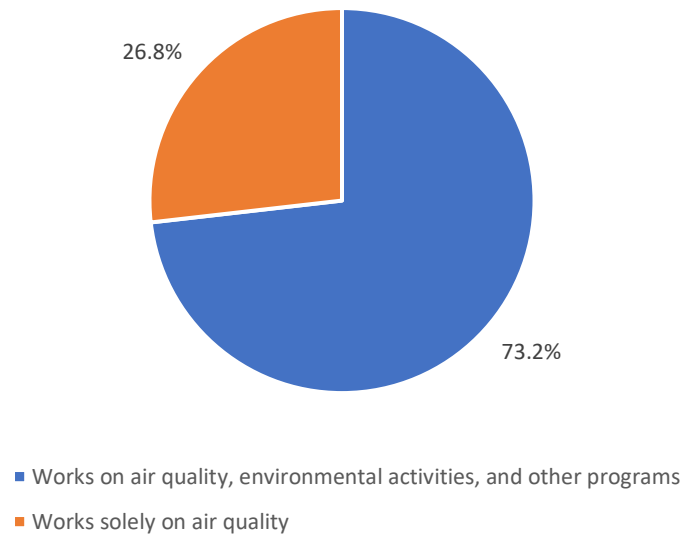


Figure 3 Air quality staff responsibilities. (n = 138)

	Environment/ Environmental Protection		Natural Resources		Air Quality	
	n	%	n	%	n	%
1-5	90	66.7%	50	41.3%	76	69.7%
6-10	22	16.3%	19	15.7%	8	7.3%
11-15	5	3.7%	10	8.3%	4	3.7%
16-20	3	2.2%	2	1.7%	0	0.0%
21 or More	6	4.4%	16	13.2%	0	0.0%
Don't Know	9	6.7%	24	19.8%	21	19.3%
Total	135	100.0%	121	100.0%	109	100.0%

Table 2 Amount of people employed in each Tribal department.

Of the 101 respondents that indicated that their staff works on a combination of air quality and environmental activities, 100 described the percentage of staff time spent on air quality (Figure 16). An overwhelming 45.0% spend less than a quarter of their time on air quality, 29.0% work about a quarter to a half, 14.0% spend about a half to three-quarters, and only 12.0% work on air quality for more than three-quarters of their time.

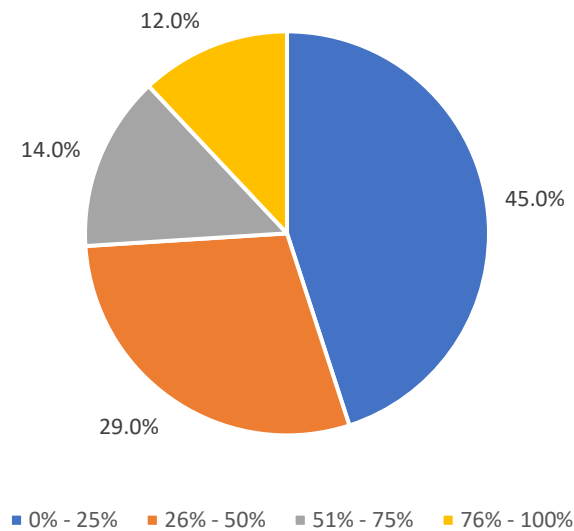


Figure 4 Percentage of staff time spent exclusively on-air quality. (n = 100)

See Appendix D for more notable figures from the Baseline Needs Assessment.

3.2 BNA Key Findings

The federal investment in Tribal natural resource and environmental protection programs is appreciable, originating in part from the federal trust responsibility to Tribes. This federal funding, while not ever able to compensate for the ecological and cultural impacts of colonization, has enabled many Tribes to become highly skilled, autonomous, and culturally led natural resource stewards and co-managers, paralleling the capacities of local and state governments. Though CAA funding is comparatively young relative to other federal grant programs, Tribes with CAA grants have built impressive air quality management capacities and programs. CAA-funded Tribes exhibit a high degree of air quality technical, scientific, and program management capacities.

The federal investment in Tribal air programs is accelerated and expanded by the national reach of Tribal consortia and training organizations, including the NTAA, ITEP, and the TAMS. Alaskan Tribes are supported by air quality training from the Alaska Native Tribal Health Consortium (ANTHC), and Tribes receive indoor air/healthy homes support from the Tribal Healthy Homes Network (THHN).

Yet despite the visible and valuable impact of the federal investment in Tribal air quality, chronic underfunding is evident. In this BNA, key findings on the overall federal investment include:

1. In 2021, **22% of Tribes** (127 out of 154) received CAA Funding (103, 105) where 100% of the states receiving CAA funding.

2. In 2022, **3% of Federal Investment in Tribal Air Quality Programs** came from CAA funding as compared to BIA \$395.8 million in “Within Trust”—Natural Resources Management Program vs \$12.5 million of CAA funding.
3. In 2021, **2% of Federal Investing in Tribal Air Quality Programs** came from the housing and Urban Development (HUD) providing \$450 million to the Indian Block Grant (IHBG) program and another \$100 Million IHBG Competitive Program. For EPA, a total of \$12.5 million was provided to Tribes in 2022 for funding under 103 and 105².
4. In 2021, **42% of Tribes who reported receiving CAA funding**, the grant does NOT fully fund their air quality work or future needs. In the BNA, 33 of the 79 Tribes reported that they currently receive CAA³.
5. Of the Tribes that receive non-CAA funding, **85% of Tribes reported having this type of funding**: EPA Performance Partnership Grants, BIA, Administration for Native Americans, DOE, HUD, CARES (American Rescue Plan), EPA Diesel Emissions Reduction Act (DERA), Volkswagen Settlement Act or Settlement Agreement Funds.
6. Of the 169 respondents (89 currently have air funds and 76 are unfunded) a **\$21.9 million shortfall** was seen in meeting the needs of the responding Tribe. This shortfall represents an **average** of \$132,726.35 across all responding Tribes.
7. If you extrapolate \$132,726.35 for all 574 federally recognized Tribes, there is a total need of \$76.2 million, larger than the current short fall of **\$64.2 million**. It’s important to note that NTAA is not advocating a one size fits all budget for all Tribes, some Tribes may need more to run a successful program, and some may need less. This value represents only the average of the need, not as an allocation formula.

² Survey question #28 asked those Tribes who do currently receive CAA 103 or 105 air quality grants to estimate their total estimated annual grant amount (the sum of their current funding plus their unmet funding needs). A total of 89 survey respondents answered this question, selecting from a value range. Respondent count for each range: \$25k-\$49k (n=6), \$50k - \$74k (n=6), \$75k - \$99k (n=17), \$100k - \$124k (n=16), \$125k - \$149k (n=13), \$150k - \$174k (n=4), \$175k - \$199k (n=8), \$200k - \$224k (n=4), \$225k - \$249k (n=3), \$250k - \$274k (n=1), \$275k - \$299k (n=1), \$300k or greater (n=10). The mid-point value in each range was used, then multiplied by the number of respondents in that range. As example, 6 respondents indicated a total grant need of \$25,000 - \$49,000. The mid-point value in this range, \$37,499.50, was multiplied by 6 (number of respondents in this value range), for a total of \$224,997.00 This formula was then applied to all of the value ranges, for a combined total of \$12,937,461.

³ Survey question #26 asked those Tribes who do not receive CAA 103 or 105 air quality grants to estimate their estimated annual grant amount. A total of 76 survey respondents answered this question, selecting from a value range. Respondent count for each range: \$25k-\$49k (n=4), \$50k - \$74k (n=13), \$75k - \$99k (n=14), \$100k - \$124k (n=18), \$125k - \$149k (n=11), \$150k - \$174k (n=5), \$175k - \$199k (n=5), \$200k - \$224k (n=0), \$225k - \$249k (n=3), \$250k - \$274k (n=0), \$275k - \$299k (n=0), \$300k or greater (n=3). The mid-point value in each range was used, then multiplied by the number of respondents in that range. As example, 4 respondents indicated a total grant need of \$25,000 - \$49,000. The mid-point value in this range, \$37,499.50, was multiplied by 4 (number of respondents in this value range), for a total of \$149,998.00. This formula was then applied to all of the value ranges, for a combined total of \$9,087,464.

8. If Congress provided this funding increase, it would still only represent **19%** of the total funding provided by BIA and **14%** of HUD funding for Tribes in comparison to current funding levels for Tribal Air Programs.

4 Tribal Sovereignty

4.1 Protection of Tribal Sovereignty and Self Determination

Tribal sovereignty is the inherent right of American Indians and Alaska Natives to self-governance and regulation of internal affairs. The U.S. Constitution recognizes this inherent right existed long before the arrival of Europeans on this continent. As such, Tribes are rightful stewards of air quality within Tribal lands and can regulate air quality as needed to protect human health and the environment.

In 1984, the EPA issued the Policy for the Administration of Environmental Programs on Indian Reservations that affirms the authority of Tribal Governments over reservation populations and lands and the effort to work with Tribes on a government-to-government relationship. Consistent with this policy originally signed in 1984 by President Reagan, it directs the EPA to work in close coordination with the Tribes and respect Tribal self-determination and sovereignty. Specifically, the EPA's Policy for the Administration of Environmental Programs on Indian Reservations is as follows:

In carrying out our responsibilities on Indian Reservations, the fundamental objective of the Environmental Protection Agency is to protect human health and the environment. The keynote of this effort will be to give special consideration to Tribal interests in making Agency policy, and to insure the close involvement of Tribal Governments in making decisions and managing environmental programs affecting Reservation lands.

Tribal governments are not equivalent to Environmental Justice Communities

Tribes are seeing great strides from the Biden Administration regarding **Tribal Concerns, Impacts, Environmental Justice and Jurisdiction**, and eager to take the next steps towards addressing these issues and concerns. Funding, that at times comes with use limitations, have assisted in creating new partnerships, though so much more needs to be done. The integration of EJ policy is needed at the program staff level for daily work and in on-the-ground projects where it has been to date lacking or fledgling. Incorporation of EJ must be the practice of talking-the-talk and walking-the-walk, not an affirmation that there is a policy for that. The lack of policy integration and implementation stems from the top hierarchy of management to those who carry out the programs, is a problem for many Tribes. More importantly it's important to recognize that each Tribe addresses Environmental Justice concerns in their own way. So, the Federal definition might not meet all situations. Additionally, it's inappropriate to equate Tribal nations and the Nation-to-Nation consultation



status with EJ communities. The moves to improve the EJ programs within the Agency have resulted in a tendency to combine support for Tribal programs with support for EJ communities. The result has been reducing the technical and policy support for Tribes.

4.2 EPA's 1984 Indian Policy

The program focus areas for each topic area have significant overlap, particularly regarding the importance of upholding the [1984 Indian Policy](#), maintaining strong regulations, improving monitoring capacity, and increasing funding.

Pursuant to the 1984 Indian Policy, EPA must take Tribal interests into consideration whenever policy or environmental management decisions are proposed that affect Indian Country. To reaffirm that policy, the Biden Administration recognizes that American Indian and Alaska Native Tribal Nations are sovereign governments recognized under the Constitution of the United States, treaties, statutes, Executive Orders, and court decisions. It is a priority of their Administration to make respect for Tribal sovereignty and self-governance, commitment to fulfilling Federal trust and treaty responsibilities to Tribal Nations, and regular, meaningful, and robust consultation with Tribal Nations cornerstones of Federal Indian policy.

The United States has made solemn promises to Tribal Nations for more than two centuries. Honoring those commitments is particularly vital now, as our Nation faces crises related to health, the economy, racial justice, and climate change—all of which disproportionately harm Native Americans. History demonstrates that we best serve Native American people when Tribal governments are empowered to lead their communities, and when Federal officials speak with and listen to Tribal leaders in formulating Federal policy that affects Tribal Nations.

4.3 Protection of Tribal Treaty Rights

Treaty Rights are legal protections which safeguard Tribal citizens' manner of having their chosen lifeway, which is depended upon access to natural and cultural resources. For Region 5 Tribes, this means in order to safeguard treaty rights, all media containing those resources need protection as well, because without them, not only would this become an Environmental Justice issue but also a human rights issue. Air quality and air pollutants impact the health and environment of animal and plant species harvested under Treaty Rights which need to thrive and be present for the next seven generations. Tribes need EPA to respect, protect, and uphold treaty protected rights for our resources. For example, you can see by the map below, all of Minnesota, Wisconsin and Michigan composed of Ceded Territories.





Figure 5 This map shows Ceded Tribal Territories in Region 5. Boundaries marked in red are Tribal Reservation Lands.

5 Tribal and National Priorities:

Although each Tribe has their own needs and priorities in addressing Tribal air issues, common themes emerged between Tribal and National priorities. Some priorities are similar Nationwide, while others reflect the needs within and between regions. The following is a discussion of said common themes. However, decisionmakers are cautioned not ignore other critical needs that may occur for each individual Tribal program.

The following section identifies regional priorities in air quality for Tribal Air Programs. However, we acknowledge that top priorities for most TAPs is to protect human health and the environment. Tribes are excellent regulators and co-regulators of air quality. However, Tribes are faced with many challenges in the implementation of their air quality programs and projects, some of which are unique to Tribes and some of which are like other regulatory entities. Below is a table of pressing air topics that are of concern for TAPs in each EPA Region:

Region	Ambient Air	Climate Change	Funding	Wildfires	Emergency Mgmt.	Green Renewable Energy	Air Quality Assessment	Mobile Emissions	Program Development / TAS	Indoor Air Quality	Road Dust	Oil and Gas	HAPs / Mercury	Mining
1	X	X					X							
2	X		X					X		X				
4		X					X		X	X	X			
5		X				X				X			X	X
6	X	X	X					X					X	
7	X	X	X				X			X				
8	X	X	X	X						X			X	
9	X	X	X	X			X							
10	X	X	X	X			X	X		X			X	
AK	X	X	X					X		X	X			

Figure 6 Tribal Air Program priorities identified by the NTAA Executive Committee.

The graph above depicts the thirteen TAP priorities that were identified by the NTAA EC. Each region marked an ‘X’ where their region is prioritizing or focusing their efforts. Although across the board, funding and climate change issues are the top two priorities that regions described being of most concern. For instance, previous NTAA EC Alternate Representative for Alaska, Shannon Isaacs stated,

Our climate is changing so drastically that we are seeing it in our riverbanks due to erosion, more toxic phytoplankton in our waters creating harmful traditional food sources, less available traditional foods to gather.

Climate change is no longer a distant threat, we are currently experiencing it. As the climate changes, warmer temperatures and drier conditions lead to catastrophic wildfires on and near Tribal lands. In recent years, Tribes have struggled with growing costs to prepare for, defend against, and clean up following catastrophic wildfires that impact public health, cause environmental damage and strain Tribal budgets. At the same time, Tribes’ attempts to reduce fire danger on their Reservations can be frustrating. Prior to pre-European contact, many Tribes controlled wildfires through cultural burning. However, a 1911 federal law made it illegal for non-state or federal agencies to burn public land. The Karuk Tribe in California, for example, must negotiate individual agreements with the agencies that have jurisdictional power over their land. Although there has been some Tribal Resilience funding under the BIA,

the need for consistent funding and flexibility is necessary. As stated by NTAA Primary Representative for Region 10, Lucas Bair,

Much of the good work that the Tribes of region 10 require funding from outside agencies such as the EPA. Increasing air quality funds would ensure the continuation of established programs, but also allow for new programs in the region. Current funding does permit for good work to be done though it acts more as a maintenance measure with no new programs with additional Tribes that may have need of air quality programs to better their own communities.

Wampanoag Tribe of Gay Head Aquinnah (WTGHA) Tribal Air Program by Andrew Jacobs, Aquinnah Lab Manager

The Wampanoag Tribe of Gay Head (Aquinnah) Tribal lands reside on the island of Martha's Vineyard in southeastern Massachusetts. Air Quality is of the highest priority and concern for the Wampanoag Tribe. The Tribe sees a direct need to look at trends in air quality over time that may directly affect conditions that lead to ocean acidification, habitat degradation, decline in species diversity and sustenance fishing, and can be tied directly to respiratory health issues in the surrounding community.

Dating back to 1992, the air quality of all counties within the commonwealth of Massachusetts have had years with an air quality status of "nonattainment". Under the EPA, any area that does not meet (or negatively impacts ambient air quality in a nearby area) the national primary or secondary ambient air quality standard for a NAAQS, is designated with the status of nonattainment.

Over the years, as regulations regarding pollution under the NAAQS became more stringent and technologies advanced to mitigate the release of airborne pollution, all counties within the commonwealth slowly met compliance standards to where they no longer held a designation of nonattainment. That is, all counties but one. Dukes County, where the Tribal lands of the Wampanoag people reside, consist of the island towns of Martha's Vineyard and 10 other small islands off the southeastern coast of Massachusetts. Our rural county is afflicted with poor air quality caused by elevated ground level ozone, and as such, has always had nonattainment of its air quality.

In order better understand the quality of the air and its effects on our people and Tribal lands, the Tribe took active steps to implement an air quality monitoring program. Our sampling site on Tribal lands has become an important monitoring location as we are removed from any large industry here in our island community.

Back in 2000, our Tribe's Natural Resource Department participated in a pilot program to assess the current state of air quality by measuring the atmospheric deposition of mercury and various pollutants. This study sparked the beginning of our Tribal air program which now includes the monitoring of ambient levels of ozone, collection of

particulate matter, and the monitoring of mercury concentrations within sustenance foods.



Since 2001 our Tribe has administered a diverse air program that provides useful data, not only for its Tribal lands, but for the entire the Cape Cod region and beyond. The data generated from our programs has been important to determine the potential threat of air pollution to the Tribal and regional community, as well as the effects of air pollution on the environment and through the consumption of locally harvested sustenance foods. Our Tribal members are dependent on the resources of the land, air, fresh and salt water to harvest fish, animals & plants for consumption.

The Tribe operates a Particulate Monitor 2.5 IMPROVE air sampling station (IMPROVE stands for Interagency Monitoring of Protected Visual Environments). This sampling station turns on and off at the same time as other similar units nationwide, passing an air sample through filters where particulate matter is collected. The filters are sent to the University of California Davis Air Quality Group, where they are analyzed for various metals and aerosols. Their evaluations are provided to the EPA, uploaded to their website, and made available to the public.

The Tribe is analyzing the contribution of “deposition”, that is, the air pollution that arrives here from elsewhere. As fish and shellfish are important to Tribal members, both culturally and economically, we are in the process of conducting studies of fish tissue to assess the impact of airborne pollution (largely focused on content of mercury) on Tribal sustenance foods. As Aquinnah has few sources of air pollution, our air monitors and deposition and fish tissue analyses have helped EPA better understand the transport of air pollutants.

Lastly, the Natural Resources Department has operated a successful ozone monitoring program since 2003. Ambient levels of ground level ozone are constantly monitored throughout the year at our laboratory site. Our data is exported in real-time to the state of Massachusetts Ozone Program for validation allowing the state to issue air quality alerts immediately. The Tribe’s ozone data is vital to public health, which without, air quality for the entire Cape Cod region could not be validated. Once the state validates the data, it gets uploaded to a national database and is made accessible to professional agencies and the general public.

Now, for many years, our Tribe has focused on an ambient air program parameter. Outside sources of air toxins directly impact Tribal members' sustenance practices through deposition, dermal exposure, ingestion, and inhalation, whether directly from ambient air, or through water, plant or animal pathways. The EPA has identified a threshold of mercury in freshwater fish on Martha's Vineyard within the traditional harvest areas that has been deemed higher than the Tribe finds acceptable. This information is critically important to the NRD and Tribal Members due to the relationship between particulate deposition and sustenance foods on and near Tribal trust lands.

In addition to continuing to monitor and study ambient air quality, including ozone non-attainment and toxin deposition, there is an immediate need to enhance our understanding of air quality and the impact it has on the health of our Tribal members, especially from sources well outside the that of our Tribal lands.

In a continued effort to establish and maintain the capacity and capability to manage our environmental programs on Tribal lands, the Wampanoag Tribe of Gay Head (Aquinnah) has recently submitted a proposal for a large-scale air quality analysis through the National Oceanic and Atmospheric Administration (NOAA).

If successfully funded, the study will not only characterize air quality levels and trends from Wampanoag Tribal lands but also will look at pollutants regionally, including other Tribal sites and compare them to regional trends and concentrations over the past 15 years. The proposed study aims to address two long-term mission goals that are close to everyone's heart: Climate adaptation and pollution mitigation by looking at trends in air quality. These trends may directly affect conditions that lead to ocean acidification, habitat degradation, decline in species diversity and sustenance fishing, and can be tied directly to respiratory health issues in the surrounding community.



Image 1 Wampanoag Environmental Laboratory

As we continue into another year of air quality monitoring and data acquisition, it goes without saying how deeply proud we are of our Natural Resources Department and the tireless efforts they continue to put forth in name of the environment and the

Tribe's wellbeing. We are hopeful at the proposition of funding this study and the insights it may provide to the Tribes of Region 1 and beyond.



Image 2 Improve site and Air Monitoring Station

5.1 Climate Change

Climate Change is a critical issue for Indian Country. This cross media, holistic assessment of how Tribes are impacted by climate change is daunting. Climate Change impacts subsistence resources, contributes to wildfires, road dust, flooding, and impacts Tribes across the country. Many Tribes do not have the staff and or expertise to fully assess, combat and or adapt to these changes. While the current Administration has prioritized EJ and climate mitigation, there are further issues that need attention. Announcements about increased funding amounts help, however those funds have limitations and parameters that often prevent Tribes from building the necessary capacity to do what is necessary and to sustain programs over time.

Tribes need significant resources to address climate change

While it is difficult to determine exactly how much climate change funding would be needed to fund all TAPs and given the wide variety of climate change issues that Tribes are facing, the NTAA recommends the following options to begin the discussion and advance the process. The following FY24 Climate Change Funding Recommendation supplements NTAA's FY24 Budget Recommendation made to the NTC for TAP funding on February 28, 2022, found here on [NTAA's website](#). Some Tribes have been proactive in developing and implementing both adaptation and mitigation strategies through related funding available from several federal agencies. Some examples include Tribal funding for climate adaptation planning and onetime funding from the ARP. However, these existing resources do not support the critical need to sustain and enhance TAPs. There is a critical and immediate need to hire Tribal staff for TAPs. The growing challenges of climate change to Tribes should not result in any loss of existing

TAP activities. Some Tribes may not be in position to immediately begin a dedicated climate change program. Therefore, NTAA recommends the following funding levels for at least one full time employee (FTE) hire for climate change tasks and a significant infusion of resources for Tribal climate change programs within TAPs:

- It is possible that a minimum of 120 Tribes (the number of Tribes with current EPA air quality management grants) may be interested in seeking a climate change program.
- We further assume that at a minimum of one program professional and requisite support will be required at an average initial annual cost of \$80,000 - \$100,000 per FTE per Tribe per year.
- The resulting request will offer Tribes the ability to hire staff within air programs to initiate climate change programs at \$9.6-\$12 million per year.
- Additionally, NTAA recommends increasing the level of funding of Tribal climate change program funding to an additional \$19.2 to \$24 million in subsequent years to continue to offer new TAPs the opportunity to tackle climate change as well as provide funding for sustaining existing programs for previously funded Tribes.

5.2 Wildland Fires

Climate Change has increased the number and intensity of wildfires impacting Tribes across the country. Tribes have demonstrated leadership in addressing wildfire smoke through air quality monitoring, community outreach and other programs. The White Mountain Apache Tribe provided the following example:

Preventative Fire Suppression Activities is Crucial by *Delbert Altaha Jr., Air Quality Specialist, White Mountain Apache Tribe*

Looking at recent events of major wildfire activities in Western United States, wildfires have become more destructive in recent years. Destruction of structures, businesses and infrastructure are costing millions if not billions of dollars. It is important to recognize the impacts on economy, environment and the safety and well-being of people. Educating the public in projects such as clearing fuels or vegetations around homes, cleaning up the forest, creating greenbelt along the roadside, control burning of prescribed grass lands. What if we strategize to spend funds on proactive fire management? Just think of how much monies could be saved. Strategies to plan an annual prescribe burning program to reduce fuels, vegetations and debris would reduce the risk of a major wildfire. Educating the public in projects such as clearing fuels or vegetations around homes, cleaning up the forest, creating greenbelt along the roadside, control burning of prescribed grass lands would be beneficial. Public education on the

destructive natures of wildfires on the eco-systems and to effects of well-being for human and wildlife. One major resource to be considered is the preservation of water which is a precious commodity. Some measures to combat wildfire is to close off back country access and recreation areas during high fire dangers.

Prescribe burns differ greatly from wildfires in many ways. Prescribe burns are set intentionally after considering the safety of people and property, ideal weather condition, and smoke management. Wildfires are uncontrolled and unplanned and often occur on days where weather and fuel conditions are prime for large fire development. They also have the potential to do great harm to people, structures, and natural resources. While prescribed burn occurs under conditions favorable for low to medium fire intensity, wildfires can grow to an intensity level capable of completely burning an entire forest stand.

So, being proactive and setting land management objectives with prescribe burning is especially important in forests and urban areas. By reducing the fuel loading in communities and forest can reduce fires and are easier to control and suppress.

Prior to the arrival of English, Native American Indians played a major role in determining the preservation and management of the ecosystem. Fire was used to keep large areas of forest and mountain free of undergrowth for hunting, travel and to create farming fields. The new era of fast population growth and more people building homes in wild-urban forested areas are face with some of the highest risk for wildfires. Preparing our homeland and homes for wildfires season can take months. It is important to use late fall and winter seasons to create fire suppression activities while precipitation is high. These mitigation measures can prevent wildfires during the hot and dry seasons of late spring and summer.

In conclusion, taking an active role to protect our natural resources, forested and wooded areas, and communities to prevent destruction that is caused by wildfire is crucial. We must take the initiative to address issues while the opportunity is available to prevent destruction and loss by fire or other natural disasters events. If we wait for a catastrophic event to unfold, then we pay the price of great loss.

5.3 Funding and activities

Continued support is needed for Tribes to approach additional funding opportunities to support air quality issues and for air related research and demonstration projects that are prioritized by Tribal Nations. The Tribes in Region 9 provided this example:

Region 9; 148 Tribal Nations in 3 states, California, Nevada, and Arizona with 107 of the Tribal Nations in California.

One consistent priority has been increased funding to support Tribal Air Programs. A constant priority request for many years has been the focus on the need for more funding. Funding for air programs has consistently been flatlined leaving Tribal air programs lacking staff, equipment, training and for many Tribes the option of having an air program may never become a reality. Of the 148 Tribes only 28 received air funding in FY21 - 21 for CAA103 programs and 7 CAA105 programs. Each year the demand for air funding is not met. Tribes are even told in the grant RFP “not to expect to be funded.” This means that even an advanced program could lose funding or not be funded at an amount that would adequately support the program. This is not a sustainable method for supporting Tribal Air Programs.

Need continues to grow. EPA Region 9 has the greatest number of nonattainment areas in the nation. Moreover, 68 Tribes are in airsheds that are designated as nonattainment for at least one or more criteria pollutant. Some Tribes have sought funding through the GAP program to conduct emission inventories, education and outreach, basic (introductory) air training, and to purchase equipment. This is not a sustainable form of funding since Tribes using GAP for air projects will eventually need to move to CAA103 and then to CAA105 progressively for air program implementation.

As Tribes with sovereign status develop their air programs under the Clean Air Act, they must have the appropriate resources they need to develop legally defensible data to support air quality activities for their communities. This requires that appropriate level training be available as needed and reliable rather than every two or three years.

There is a continuous concern about the lack of funding for the appropriate number of staff for an air program. To adequately perform the duties of an advanced or regulatory program a minimum of 3 FTE’s would be needed to conduct air monitoring, collect data and conduct quality control. This funding need has long been neglected.

Quality Assurance/Control funding is needed to support quality data. A QA manager position within EPA for Tribes to conduct audits or as a 3rd party resource or increased funding to allow for the hiring of additional staff within the Tribe’s air program is absolutely necessary to meet EPA’s QA/QC requirements. Increasing funding to support Tribes in engaging and networking with Tribes, states and local agencies on permitting and SIP plans provides for meaningful collaboration and partnerships to help build capacity.

5.4 Maintaining Existing Tribal Air Programs

Maintaining existing TAPs and building capacity for new programs has proven to be difficult for many Tribes with limited funding, training and technical support, and high turnover rates. Great strides have been made by TAPs with limited funding and many more advances are



waiting. In NTAA’s BNA, it was identified that 70% of Tribes do not have enough funds to support more than one full-time staff. For example, as stated in the R5 Tribal Air Resources Journal, over half of the Tribes do not have a formal air program, however *all* have air quality concerns. It takes multiple staff to fully and functionally operate an air quality program to serve the needs of the Tribe⁴. Often Tribes are the jack-of-all-trades and the masters of none as they must do the position duties of multiple staff. We need well-rounded staff that can be technical experts to move Tribal air programs forward. There is an administrative burden of attaining funding through different sources to piece meal necessary positions needed for maintaining capacity growth.

5.5 Indoor Air Quality

Indoor Air Quality has been ever more present with the COVID pandemic by highlighting the importance of IAQ in homes and workplaces. Conversely, it hampered many activities and workplan tasks due to COVID-related restrictions. Region 5 Tribes have taken the lead in the nation with radon SIRG funding, incorporating radon funding into PPGs to decrease the match and better address Tribal radon concerns. While all 50 states have radon grants, R5 has four of the 10 nationwide radon SIRG Tribal grants. The additional work of addressing viral concerns and home energy efficiency into the indoor air assessment process has increased the need for advanced knowledge to provide thorough healthy home inspections. Indoor Air Quality is evolving into “Indoor Environment Quality” and funding needs to increase to encompass these additional aspects of capacity growth within our Tribal Air Programs.

Indoor air pollution is an increasing issue of concern for many Tribes, as climate events, such as high heat, hurricanes and wildfires are driving people to spend a greater portion of their time indoors. Indoor air concerns cover a spectrum of activities from woodsmoke, gas stoves, carbon dioxide, radon, mold, etc. Ninety percent of Tribes reported that mold in an indoor air concern in Tribal housing. This is followed closely by asthma and allergy triggers. Sixty-three percent of Tribes also reported that woodsmoke is a priority for many Tribes.

5.6 Environmental Justice

NTAA has consistently encouraged the Biden Administration to advance environmental justice for all through consistent engagement with leadership from EPA’s Office of Environmental Justice (OEJ), other EPA offices, partners and Tribes to ensure that there is clear communication with Tribes as it relates to the Biden Administration’s prioritization, of EJ through executive orders started in 2021. Access to clean air for vulnerable children with asthma should not depend on where they live or how much money their parents make. Clean air should not possess the ability to discriminate or pollute only in certain areas, so despite stagnate funding, Tribes are key partners with EPA to ensure that clean air for all is a key

⁴ 2021 Tribal Air Resources Journal: Accomplishments, Obstacles, Successes and Setbacks of EPA Region 5 Tribes Pertaining to Air Quality. <https://aarst.org/wp-content/uploads/2021/12/Tribal-Air-Resources-Journal-for-R5-Tribes-13th-Edition-2021.pdf>. 2021 Edition, Volume XIII.

priority for advancing EJ. NTAA encourages funding agencies to keep funding for Tribal government’s implementation of EJ projects separate from other “disadvantaged” communities that the Biden Administration has identified through the White House Justice40 Initiative EO 14008. It is difficult to understand and respond to the diverse needs of all Tribal Nations. Nevertheless, NTAA is eager to see EJ moving forward through EPA’s OEJ, OAR and other EPA offices. Tribes and Tribal Air Programs can partner with EPA to identify unique barriers and challenges to advance EJ in Tribal communities. Last year, for example, NTAA was featured on OEJ’s Tribal Webinar Series highlighting EPA’s work with Tribal Partnership Groups. Tribes should have the flexibility to address EJ issues in their own communities.

Case Study: Passamaquoddy Tribe Uses EJ Funding to Address Cultural Issues by Marvin Cling, NTAA Region 1 Primary Representative

When a culturally significant resource like fish is impacted due to pollution, it limits a Tribe from practicing their culture. Sustenance is best described as a practice that keeps a Tribal member fed and connected to the environment. A common example is when a Tribal member fishes or hunts, he or she is making that necessary connection to keep the environment relevant. However, if the animals or fish are polluted with man-made chemicals, Tribal members are warned about the level of contamination through consumption advisories. So, it limits a Tribal member from practicing a tradition or culture. It is going to take several generations to see the forever chemicals gone from our environment and the U.S. government has not practiced the precautionary principle. NTAA understands the precautionary principle as practicing precautions that will not cause harm to the public and/or the environment, such as not introducing commercial products that science shows us harm human health and the environment. It puts the burden on commercial entities to demonstrate a commercial act or practice will not harm humans and the environment. Many Tribal communities are impacted by air pollution and products that interfere with our wellbeing. Humans and the environment are exposed. Until there is enough deaths and disabilities to act, or product is not great, we will continue to be exposed to harmful products and practices. Even when there is a lot of evidence, companies are allowed to continue to market their goods. One example, Dupont and its Teflon invention. Another example is the use of mercury or allowing mercury to be put in the air by coal-fired plants. No amount of Teflon or mercury is safe. There are many examples such as fracking for petroleum products and that destroys ground water and causes more earthquakes and sink holes. There is a strong effort by the Biden Administration to prioritize both climate impacts and EJ. That effort will only be made stronger by better understanding how to advance EJ and reduce impacts through a Tribal lens.

Tribes do not want to be lumped into any pre-set category of a “disadvantaged community”. Tribes are unique due their inherent sovereign rights, beliefs surrounding their ability to connect to the land, waters and air asper cultural teachings and

practices. At its core, this is deeply personal and spiritual act. If the U.S. or other act or limits a Tribe's interaction and connection, it is form of taking away someone's spiritual identity and connection.

5.7 Permitting Review Support

As Tribes are asserting their sovereignty and working in partnership with the states, Tribes are taking advantage of Class I redesignations, sections 505(a) and 126 of the CAA, allowing them to be treated as “neighboring jurisdiction” and can review state permits. However, Tribes often have very limited staff to review the permits issued by their neighboring states. In addition, the range of potential source categories can be mean that Tribal staff may not have the technical expertise for each permit being issued. Previously, EPA provided access to technical support to the Tribes to help them understand the technical expertise in reviewing permits. Recently that support has ended resulting with Tribes not having the capacity to participate in the permit review process in the regulatory partnership envisioned in the CAA.

6 Summary of the Program Resources and Status

6.1 EPA Funding for Tribal Air Programs

The largest and most stable resources for Tribal air programs comes from the State and Tribal Air Grant (STAG) funding or 103/105 money. As shown in Appendix, the STAG allocations have declined slightly from 2012 to 2022 by \$600,000 over the years. In this year's President's budget request, there was an increased request in Tribal STAG allocation to \$21,415,000. However, in the final budget Tribal STAG budget **did not** increase at all, at the same time the final budget allocated an increase in the state STAG allocation by \$1,891,000.

General Assistance Program (GAP) is another area where Tribes fund their air quality programs. This funding is provided to Tribes to build capacity and the GAP funding amounts have grown over time. Since GAP only provides for funding for building capacity, the expectation to shift over to STAG funding once capacity is attained can be an unrealistic outcome. The result is a growing number of Tribes have started programs and still do not have access to 103/105 funding, so either the Tribe loses their program, or another Tribe loses funding to support the new program.

Tribes can apply for EPA Specialty Grants for specific programs:

- a. *Diesel Emission Reduction Act* – DERA provides project-based funding for Tribes for replacing diesel equipment. There is a Tribal set aside for this funding and as of this year there is not a match requirement so the there was an increase in the number

of Tribes accessing this funding. This funding is very valuable but does not support a sustained Tribal air program.

- b. *State Indoor Radon Grants* - Although there is interest in the SIRG grants for mitigating radon, only 10 Tribes have SIRG grants. Part of that provides uncertainty in the Regional Staff on what can be covered under CAA 103 and 105 grants.
- c. *American Rescue Plan Grants* – These are one-time grants that will be very valuable to Tribes. There are two types of grants available to Tribes that can support air program monitoring activities.
 - i. *Monitoring grants* – There was a Tribal set aside of \$2,000,000 to support monitoring studies particularly in support of community capacity to participate in addressing air quality issues.
 - ii. *Tribal Program Participation Grants* – Available only to federally recognized Tribes will provide \$100,000 grants to Tribes to improve public engagement in address air quality or water quality issues.

Tribes who are seeking additional programmatic funding should note that the EPA is issuing multi-purpose Tribal assistance grants (MPGs) for use in high priority activities that involve implementation tasks under federal environmental regulations. Eligible Tribes include those who have TAS status and Tribes who are approved to operate regulatory programs though certain non-TAS approval provisions. In 2020, EPA offered \$19.5 million to eligible Tribes. These funds could be added to a new or existing Performance Partnership grant (PPG) or could be awarded as a stand-alone grant. The EPA has a [list of Tribes](#) and their eligible programs. No Tribal match is required.

6.2 Separate Funding Stream for Training

The American Indian Air Quality Training Program (AIAQTP) has provided high quality, culturally sensitive training to Tribal air quality staff since 1993. The program has grown from providing 3 workshops in 1993 to currently providing over 20 workshops per year. The AIAQTP also funds the Tribal Air Monitoring Support (TAMS) Center to assist Tribes with their air monitoring needs. This type of training, aimed specifically at Tribes, addresses the unique situation many Tribal air staff find themselves facing – the need to run a one or two-person program while state and local programs have dozens of staff members.

Over the past 15 years, this program has been funded using \$1 million in STAG funds, supplemented by EPA with an additional \$600,000, plus EPA contributions of facilities and salaries for a co-director and instructor. While this structure has been greatly beneficial to Tribes, the EPA should consider a shift to funding the full costs of this program, thereby releasing the \$1 million in STAG funds for Tribal implementation activities.



6.3 Barriers to Grant and Program Access

- 1) *Resource limitations* – In order to take advantage of available grants to support Tribal air programs, Tribes need to have the adequate resources and infrastructure to apply for grants. Since many Tribes only have partial FTE to address air quality, they also may not have the staff capacity to apply for other grants. For example, to access the ARP monitoring grants, Tribes without monitoring capability may not have the opportunity to apply for these grants.
- 2) *Inconsistency between Regions in what can be covered under 103 and 105* – Some Tribes have not had access to 103/105 funding for projects for Indoor air quality issues, or climate change issues because of EPA staff's inexperience or understanding of the way STAG funding can be used. This also is an important issue for climate change and climate adaptation activities.
- 3) *Inconsistency between Regional staff in review and approval requirements* – Different EPA grant officers review grant applications and workplans approval in various ways, often times making this difficult for staff.
- 4) *Limited EPA staff to issue and manage grants* – EPA's budget and staffing levels have been reduced over the years leaving less staff to manage grants this can be particularly difficult as the one-time grants are available to the Tribes.
- 5) *One time infusion of money doesn't allow time to build capacity or maintain on-going programs.*
- 6) *Continuing resolutions* – affecting EPA's budget represent status quo and a net loss in value due to inflation, cost of living and the raise in health care cost for Tribal staff.
- 7) *Past disinvestment* – in critical programs such as indoor air quality and climate change activities, result in lost capacity in Tribal air programs which will require reinvestment and rebuilding with limited resources.
- 8) The Agency's current interest in Environmental Justice is laudable, however the current trend of treating sovereign Tribal governments as EJ communities is a dangerous disinvestment in the Tribal governments access and participation in EPA programs.

6.4 Current Program Status and Resource Gaps

Despite the limited funding Tribal Air Programs have continued to achieve following indicators of success:



- The Treatment as a State (TAS) statute authorizes Tribes to manage programs under the CAA, including regulatory development, reviewing authority for Title V permits, the opportunity for PSD Redesignation of Reservation lands, air quality monitoring, etc. Between FY2012 and FY2022, the number of Tribes with non-regulatory TAS status increased from 34 to 61, and the number with regulatory TAS increased from 7 to 11 in FY2020, before declining to 10 in FY2021.
- The number of Tribes currently operating air monitors, monitoring for criteria pollutants, hazardous air pollutants, and other pollutants under the National Atmospheric Deposition Program, grew from 81 in FY2012 to 88 in FY2020, but declined to 86 in FY2022.

The Gila River Indian Community Regulatory Air Monitoring Program by Leroy Williams, GRIC DEQ Air Quality Program

Located in central Arizona, the Gila River Indian Community (GRIC) encompasses over 600 square miles with about 14,000 residents living on the Community. The GRIC reservation is adjacent to the southern side of the Phoenix Metropolitan Area (PMA) that has a population of over 4.8 million as of the 2020 census. Phoenix is the fifth most populous city in the U.S. The reservation is largely a rural area with one industrial park and one commercial area adjacent to the boundary of the PMA.

GRIC leadership recognized the interest to control and preserve its economy and to protect the health of its members, it took the opportunity presented by the Tribal Authority Rule (TAR) in 1998 to develop a comprehensive Tribal Implementation Plan (TIP) that would reflect GRIC's characteristics and values. This first step was the establishment of an Air Quality Program.

Based on an initial assessment of an emission inventory and surrounding political jurisdictions, the GRIC Council adopted the National Ambient Air Quality Standards (NAAQS) as GRIC standards in August 2002. Since then, GRIC has been monitoring PM10 and ozone.

The GRIC Air Quality Program (AQP) operates a regulatory air monitoring program that follows a strict quality assurance protocol when collecting ambient air data used in regulatory NAAQS airshed designations. In 2011, GRIC received approval for its TIP by U.S. Environmental Protection Agency (EPA). Through the TIP, GRIC adopted specific Clean Air Act regulatory elements that included NAAQS regulatory management. Basically, the TIP stated that GRIC will issue permits to air pollution sources and monitor air quality to enforce standards.

The air monitoring data has been used in air quality planning within the GRIC air basin. Unfortunately, GRIC was put into a very difficult position and was not consulted when the Maricopa County portion of the Community was designated Nonattainment for

PM₁₀ and ozone pollutants under the Clean Air Act (CAA) by the EPA and the State of Arizona in the 1970s and 1980s, prior to development of the GRIC TIP and gathering of air quality data on the Community.

After starting a Tribal air quality program in 1998 and collecting data within the GRIC jurisdiction, in 2006 GRIC demonstrated that the ozone nonattainment designation was an “erroneous inclusion of a portion of the Reservation in the Phoenix metropolitan 1-hour ozone nonattainment area”. GRIC started its first formal consultation with EPA in 2004 during the 8-hour ozone establishment process. Since then, GRIC has been Unclassified/Attainment for the ozone NAAQS.

The GRIC AQP collects ozone and PM₁₀ data under an established Quality Assurance Project Plan (QAPP), which was originally centered around two full-time AQP staff. Over time, EPA has continued to revise policy and requirements for regulatory air monitoring programs. After the 2018 Technical Systems Audit (TSA) conducted by EPA, GRIC was directed to implement an independent quality assurance (QA) manager for the air monitoring program. However, GRIC is not receiving additional CAA funds for new requirements requested of the AQP.

The AQP operates three sites: there are PM₁₀ monitoring at all sites and ozone monitoring at only two of the three sites. An online Internet site at <https://www.gricdeq.org/air-monitoring> provides a map with real-time data for the public. GRIC submits data to the EPA Air Quality System (AQS) national database repository. The AQP has implemented a data acquisition system that provides real-time data monitoring and security with quality assurance functions for managing regulatory air monitoring data. The air monitoring sites include meteorological parameters monitoring and digital images at the monitoring stations.

The AQP staff understand that managing and operating a regulatory air monitoring program is resource intensive, but it is essential to making important policy and accurate planning decisions. For a NAAQS monitoring program, there are numerous levels of roles and responsibilities requiring independent QA roles. Programs now need a minimum of 3 staff to operate a regulatory air monitoring program with independent QA. To get the revised QAPP approved, The AQP reorganized the roles and responsibilities of existing staff so that the QA independence requirement would be acceptable. This was a difficult change to make as it required pulling resources away from other regulatory responsibilities, primarily compliance and enforcement. Additionally, the AQP chose to make this change internally rather than rely on outside QA because other air agencies may or may not have the time and dedication to properly fulfill GRIC’s QA program activities. The AQP is fortunate to have skilled staff who continue to troubleshoot equipment and software incompatibilities successfully and creatively find work-around solutions and greatly believes that having its own professional staffing will provide quality data.

The AQP continues to ask EPA for funds under the CAA to implement all the required portions of a regulatory program but has so far been unsuccessful. The AQP understands that the tribal funding allocated by Congress for CAA 103 & 105 programs has remained the same for over 10 years. However, during that time, there have been increasing regulatory air monitoring requirements and additional tribes have requested funding to implement their own air monitoring programs.

GRIC has demonstrated to EPA and neighboring air agencies that the GRIC DEQ Air Program manages and operates an air monitoring program that is respected and trustworthy. GRIC seeks to continue to grow its air quality program and fulfill all its regulatory obligations in full partnership with the US EPA.



Image 3 Image from left: GRIC - Casa Blanca Air Monitoring Site and St Johns Air Monitoring Site

- The number of Tribes with completed Emissions Inventories ranged from 74 in FY2012 to a peak of 86 in 2015 but decreased to 80 in FY2022.
- The number of Tribes with §103 grants has varied from year to year but reached a peak of 96 in FY2014. This number fell to 66 in FY2022.
- The number of Tribes with §105 grants has increased steadily from 25 in FY2012 to 51 in FY2022.
- Since the program began in 2018, 92 individual Tribes applied for and received over \$51 million from the VW settlement to replace old, high-emitting diesel vehicles and generators, and install electric vehicle (EV) charging stations. Of the 301 vehicles and generators that were replaced, 75% were medium or large heavy-duty trucks, 16% were buses and 8% were generators. Eleven of the new trucks and buses purchased are electric or hybrid vehicles, and the funding also supported the installation of 89 light duty EV charging stations on Tribal lands
- Since the DERA program began in 2009, 43 Tribes have received a total of \$13.7 million in funds to replace older diesel engines or vehicles that release high levels of

harmful pollutants with cleaner options. In 2022, there were 11 DERA awards from 5 EPA regions with a total cost of \$6.8 million from 11 Tribal DERA awarded projects and \$4.8 million of the EPA award.

2022 Updates to the Volkswagen (VW) Settlement by Mark Daniels, Institute for Environmental Professionals

Early this year the Volkswagen (VW) settlement diesel emissions environmental mitigation program wrapped up its fourth, and probably final funding cycle (as I write this the US Department of Justice is considering whether the funds remaining in the account are enough to merit holding a fifth cycle, but we've been told that is unlikely). The program was set up after VW was caught in 2015 cheating on emissions tests for Clean Air Act standards by programming their diesel cars to know when they were being tested and reduce emissions to meet the standards. During normal driving conditions the cars produced up to 40 times the legal limit for pollutants such as oxides of nitrogen (NOx). A portion of the record fine the company paid to the US government was set aside to fund state and Tribal mitigation projects to reduce NOx emissions elsewhere to make up for the excess pollutants emitted by the cars, attempting to essentially undo the damage to air quality caused by VW's cheating.

Since the Tribal program began in 2018, 92 individual Tribes applied for and received over \$51 million from the VW settlement to replace old, high-emitting diesel vehicles and generators, and install electric vehicle (EV) charging stations. Of the 301 vehicles and generators that were replaced, 75% were medium or large heavy-duty trucks, 16% were buses and 8% were generators. Eleven of the new trucks and buses purchased are electric or hybrid vehicles, and the funding also supported the installation of 89 light duty EV charging stations on Tribal lands. These purchases are further reducing emissions of NOx and other harmful air pollutants and helping Tribe's transition to a cleaner energy future with less dependence on fossil fuels. In all, the Tribal program is estimated to have removed approximately 1450 tons of NOx over the remaining life of the vehicles and generators replaced (not including reductions from the EV charging stations).

In many ways the Tribal VW program has been a great success. This was the first time Tribes were included in a large environmental mitigation settlement like this. Tribes from across the country, representing eight of the ten EPA regions, participated in the program. Beneficiaries ranged from some of the smallest Alaska Native Villages to some of the largest Tribes in the lower 48. But there have also been some things that did not go as well as they could have. Many of the project types specified in the program were not able to be used by Tribes (such as freight switchers, or airport ground support equipment). The option to repower old vehicles with new engines was never successfully applied, due to technical issues and a lack of shops willing to attempt the work. Alaskan Tribes and Native Villages faced numerous hurdles due to the emphasis of the program tested and reduce emissions to meet the standards. During normal

driving conditions, the cars produced up to 40 times the legal limit for pollutants such as oxides of nitrogen (NOx). A portion of the record fine the company paid to the US government was set aside to fund state and Tribal mitigation projects to reduce NOx emissions elsewhere to make up for the excess pollutants emitted by the cars, attempting to essentially undo the damage to air quality caused by VW's cheating.

- SIRG Grants – Although there is interest in the SIRG grants for addressing Radon only 10 Tribes have SIRG grants. Part of that provides uncertainty in the Regional Staff on what can be covered under CAA 103 and 105 grants.

Why Radon Matters to Tribal Air Programs or Negotiating the Radon Issue by Janice Archuleta, Certified Radon Tester, MS, Health Physics (Radiation Health and Safety)

For professionals in the field of air quality, when we hear the topic ‘radon’, we are familiar enough to know that radon can cause lung cancer and possibly have other health risks. We have learned that radon is a decay product of uranium which is a naturally occurring radioactive element in the earth’s geological structure and surface. Radon in outside air is at low levels and generally not a high health risk. However, once a structure or a house is built on top of the soil, the radon gas is ‘sucked’ into the houses or building, due to pressure and diffusion principles, so that it concentrates with a higher risk for health effects from more radioactive particles decaying.

However, for others in the Tribal Community, members may not hear about dangers of radon, so it becomes the responsibility of the air program staff to educate them that radon testing is easy and cheap, and that it accounts for about 21,000 deaths each year, and is the second leading cause of lung cancer, the first leading cause in non-smokers.

As environmental professionals we have certain tools at our hands in order to be more ready to respond to the community. Although EPA has stated since the onset of the Indoor Radon Abatement Act in 1988 that each home should be tested, if you are wondering what the chances of radon in your area or on the Tribal lands where the community lives, you can check out the EPA radon page Map of Radon Zones.

Because there is not a Tribal Radon page on the EPA radon website, on the map of the United States portrayed there, the radon risk zones are differentiated by county:

<https://www.epa.gov/radon/epa-map-radon-zones>. So, you can identify the county or part of the state of interest. The page no longer has the Radon Zones defined, but the Red or Zone 1 has the highest radon potential, Orange is Zone 2 having the next highest potential, and Yellow or Zone 1 with the least.

At the Ute Mountain Ute Tribe, a voluntary testing program within Tribal homes took place in the last decade. At that time, the radon testing kits, and the analyses were free, so there was no or little cost to the Tribe or from the Clean Air Act grant funding. Over the past years, radon workplans have been supported by Grants under the Clean Air Act and now the State and Indoor Radon Grant (SIRG) is available under the umbrella of the Performance Partnership Grant, so that the Tribal match cost that usually accompanies the SIRG Grant will be waived. The SIRG [Grant] was not originally available for Tribes, but in 2001, a revision allowed Tribes and InterTribal Consortia to participate in the State Indoor Radon Grants program. The standalone grant match requirement is presently 25 percent in the first year and 40 percent in the second and subsequent years.

All Tribes are encouraged to explore for work and establishment of radon programs in Indian Country. The SIRG Factsheet can be found at the following link: <https://www.epa.gov/system/files/documents/2022-02/sirg-factsheet-for-Tribes.pdf>

The grant allows radon programs to pursue several aspects for a radon program: radon awareness outreach activities, testing and mitigating schools for radon, to mention a few.

The SIRG is awarded by the Regional Office of EPA; more information is available at those offices. Other sources of information on the grants are other Tribes who have received those grants or the state radon program offices. Tribes in Region 5 of the EPA have been receiving SIRG and even more will be on the list for this year. In 2021, an article has published at the Radon Reporter: <https://aarst.org/Tribal-nations-combat-radon/>

More guidance on radon, aside from the wealth of information on the EPA radon page, <https://www.epa.gov/radon>, can be found at Institute for Tribal Environmental Professional http://www7.nau.edu/itep/main/iaq/iaq_radon, and Tribal Air Monitoring Programs <http://www7.nau.edu/itep/main/tams>. Radon information is also available at CRCPD, the Conference of Radiation Control Program Directors, along with their partners, AARST, an organization for radon professionals. And radon will also be covered under its section of the soon to be released, *Tribal Indoor Air Quality Training and Resource Directory*.

- Air Toxics – Hazardous Air Pollutants (HAPs) and Toxicants were added as pollutants to the Clean Air Act as one of the amendments in 1990. These pollutants are hazardous to human health or the environment and cause cancer, mutations, birth defects, or other adverse health or environmental effects. The EPA lists 188 known toxic air pollutants including benzene, asbestos, mercury, and lead compounds. The National Air Toxics Assessment (<https://www.epa.gov/national-air-toxics-assessment>) is a tool Tribes can use to determine if their area has the potential risk from certain air toxics.

Ute Mountain Ute Tribe’s Temporary Victory with the White Mesa Uranium Mill by Janice Archuleta, NTAA EC Member for Region 8

A flyover the White Mesa Uranium Mill (Mill) by one of the Ute Mountain Ute Tribe’s Council members and the Water Quality Manager last summer had unexpected results. The Water Quality Manager took photos of the tailings pond, which according to the NESHAPS Subpart W should have three feet of water covering it, but instead showed the bottom sediments exposed on huge sections of the impoundment. The State of Utah Division of Air Quality issued a Notice of Violation as a result of the flyover discovery.

The Mill in southeast Utah is the only conventional uranium mill in the US. Energy Fuels Resources Inc. (EFRI) is the owner and manager of the facility. It shares a boundary with the Ute Mountain Ute Tribe Reservation and a small community presides in White Mesa, Utah.



Image 4 Photo from the flyover of the White Mesa Uranium Mill. Photo by Colin Larrick.

The Environmental Programs Department (EPD) of the Ute Mountain Ute Tribe notified Region 8 EPA who is a regulatory oversight agency for the Mill in White Mesa, Utah of the situation and violation. We waited over the next weeks for any “news” on whether

EPA would act on this notification. While we were hoping for a different outcome this time, this same situation occurred in 2017 (from an EPA inspection) and under the previous administration, the Region's Administrator, Doug Benevento, ruled that no violation had occurred.

The White Mesa Community has been a neighbor to the Mill for over forty years, although the original Environmental Impact Statement for the Mill in 1978 stated that it would be operational for fifteen years. The members of the White Mesa Concerned Community, the Tribal government, and the Environmental Programs Office at the Ute Mountain Ute Tribe have been monitoring activities at the White Mesa Mill over the last twenty years and longer. The greatest concerns revolve around the issue that the mill has been accepting uranium waste from other sources than uranium mines for which it was designed. Many uranium cleanup efforts from contamination at federal or military defense sites in continental US have sent their waste to the Mill under the guise of milling what small quantities of uranium contained in the material as a relatively inexpensive means for disposal. Over the past few years, transporting waste from Estonia and Japan has also been proposed. The Tribe fears that the Mill has become a world-wide nuclear waste site without any of the regulatory safeguards that would occur in a designated and licensed low-level radioactive waste site. By-products of the Mill processing, also radioactive for thousands of thousands of years, are placed into the tailing disposal areas which currently span across over 200 acres and plans for expansion have been submitted to the State of Utah's Division of Waste Management and Radiation Control who licenses the facility. As a result of these and past Mill activities, the Ute Mountain Ute Tribe will have 'nuclear' neighbor throughout perpetuity.

Months went by and here at the EPD, we wondered if this administration's actions would be different than the last one. However, along with publicity in High Country News in an October article and a professional aerial photo of the exposed ponds, and several Salt Lake City Tribune articles, the EPA issued a violation to the Mill's operator on December 2, 2021. As a result of the violation, the Mill was deemed to be not suitable for the receipt or processing of clean up waste from any Comprehensive Environmental Response Compensation Liability Act (CERCLA or Superfund) site. Though this is not a huge blow to the Mill economically at the present, with the planned cleanup of the Navajo Nation's uranium milling and mining sites, the Mill has been proposed as a possible deposition for those activities, and that option is off the table for the time being. We anticipate that the owners of the mill, Energy Fuels Resources (USA), Inc. will appeal the decision and request a new determination soon.

The work of the Tribal Community Members, the EPD staff, and Tribal Council continues. The EPD has several projects on-going: a radon testing project for indoor and ambient air along with first steps for an epidemiological study under an Environmental Justice Grant is forthcoming, a Total Suspended Particulate radioactive material in the

community's ambient air is on-going, a study by Agency for Toxic Substances Disease Registry (ATSDR) report is pending, a EPA Regional Applied Research Effort (RARE) Grant that is looking at groundwater contamination off of the Mill site is currently underway, to mention a few.

Articles on the White Mesa Mill and the White Mesa Community of the Ute Mountain Ute Tribe have appeared in the 2020 and 2021 STAR if you are interested in more information on the issues of concern.

6.5 Monitoring

The Tribal Air Monitoring Support (TAMS) Center was formed in 2000 through a cooperative agreement between the U.S. EPA and the Northern Arizona University (NAU) Institute for Tribal Environmental Professionals (ITEP). The mission of the TAMS Center is to develop Tribal capacity to assess, understand, and prevent environmental impacts that adversely affect health, culture, and natural resources. The TAMS Center is the first technical training center designed specifically to meet the needs of Tribes involved in air quality management and offers an array of training and support services to Tribal air professionals. The TAMS Steering Committee is the Tribal advisory group that provides guidance on the services offered by the TAMS Center. The Steering Committee consists of Tribal program voting members and ex-officio members representing EPA offices, the Northern Arizona University Institute for Tribal Environmental Professionals and other Tribal support organizations.

TAMS Steering Committee Activity in 2020-2022

For the Fiscal Year of 2022, the TAMS Center Steering Committee and staff continued to work remotely due to the ongoing COVID 19 Pandemic. In-person SC meetings were modified to be online meetings. It was also necessary for TAMS staff to modify some support that would have previously been in-person to remote assistance. Online platforms such as MS TEAMS, Zoom, and GoToMeeting were used extensively.

Technical issues – Quality Assurance/Data Validation

Tribes approached the TAMS SC and requested assistance to address concerns about how quality assurance tasks are being applied to their programs. The issue is the agencies in certain regions has expressed concerns on how the Tribes are handling the Level 3 data reviews for validating data, and thus are disapproving some previously approved Tribal air monitoring QAPPs. After meeting with some Tribes who are conducting air monitoring for the purposes of obtaining data to compare to the National Ambient Air Quality Standards, the SC submitted a letter to EPA-OAQPS, to get the issue addressed. The letter requested the agency to institute a quality assurance project plan (QAPP) review process that is consistent between the

regions, transparent and timely to help the Tribes in their effort to conduct their air monitoring projects and to obtain legally defensible data.

2021 TAMS Technical Needs Assessment Results

The TAMS SC completed the third version of the TAMS Technical Needs Assessment in 2021. The SC in the past had decided to conduct the Needs Assessment every three years to ensure that the TAMS Center services remain current and relevant to Tribal program needs. Each questionnaire has been reviewed and updated to inquire about the current issues facing Tribes. For example, questions concerning support for the DERA Grants and projects was included in the previous Needs Assessment to determine the technical support needs for diesel retrofit projects in response to the Volkswagen Settlement Funding. The 2021 Needs Assessment questionnaire was streamlined to shorten the amount of time to complete as well as to lessen the details to consider for providing input. A 2021 *TAMS Needs Assessment Results and Implementation Report* was completed in March 2022 and the SC shared the results at the 2022 National Tribal Forum on Air Quality in Tulsa, Oklahoma.

WTN Met Station Saga by Kurt Lyons, Air Quality Specialist, Winnebago Tribe of Nebraska



Hi, my name is Kurt Lyons, thanks for taking the time to read my story! I joined the Winnebago Tribe of Nebraska's Environmental Protection Department as the *Air Quality Specialist* during the summer of 2020. Before that, the air program had been vacant for about a year and the Met Station site had been knocked out by a lightning strike. Being brand new to air quality I had to learn things from almost ground zero. My first goal was to get the Met Station operational again. At first the plan was to use the met instruments from a sister Tribe who ended their met program some few years ago. With assistance from region 7's Environmental Scientists, we would transplant those instruments to bring our met station on-line. However, the pandemic stopped all travel, so this task had to be put on hold till travel was possible. Around this same time, my Project Officer retired and was replaced with someone new.

In developing my budget and work-plan for the next fiscal year, I questioned if we would be better off, in the long run, if we started with new Met instruments. After discussing it with our EPA and Tribal partners, we agreed it was more beneficial starting with new instruments than chance inheriting old problems. So, the FY21 budget included new Met Station equipment and a contractor to help install, test, and give some hands-on training.



Development of a new QAPP and Standard Operating Procedure (SOP) was also on the agenda. I had written SOPs before, but never for a process I'd never seen. And

while I took the ITEP classes on QAPP's, it's not the same as writing one. Acclimating to the new terms, acronyms, and processes was a little like sipping from a firehose. I had to imagine the process by, reading the old QAPP, instrument manuals, and lots of Google searches. But what I found most helpful was the EPA QA handbooks and talking to experienced peers. Despite all that, our air program had set its sights on starting up the next fiscal year using new equipment, a new QAPP with SOPs and contractor assistance in helping me to deploy the new Met instruments.

Then on August 1, 2021 it was announced the Met Station's land was needed for other priorities. So instead, the station was dismantled. This changed our priority to find a new site that: 1) was owned by the Tribe, 2) will meet EPA siting criteria, 3) has road accessibility, 4) has access to power, and 5) represents the general topography and meteorological conditions of our airshed. This process started with Winnebago's Land Development, GPS/GIS, and Planning and Development departments. Making use of *Google Earth Pro*, we did a virtual reconnaissance of available land finding 11 hopeful sites. After visiting and assessing each site, we narrowed it down to two choices.



The first site was a telecommunication tower, “Tower-Site” which had road access, electricity, Wi-Fi, a security fence with motion detections and remote-control cameras! But it was surrounded by woods on a hilly landscape.

The second site “Site-4” was an area of farmland with a gentle rise to a large plateau. It was perfect except it lacked road access and power hookup. So, it became a choice of going with the site with the best infrastructure vs. the best ambient location.

A “cost-efficacy” study compared the development costs to the effectiveness at collecting defensible data. The Tribal Council was presented with this information and agreed Site-4 was the better choice. Funding became the next hurdle as we applied for two ARP Grants; competitive and direct funding. In order to meet ARP grant requirements, the air program altered its plans to also include a PM_{2.5} monitoring component into our air program. This brings us to the time of writing this article. We should know by August of 2022 what or if we will be funded. – To be continued!



Even though the story isn't over I still feel accomplishment in the experience. Each attempt increases the probability of success. This has allowed me to learn a great deal about the academics of air monitoring, QAPPs, and the underpinnings involved in working through grants and government practices. Plans hardly ever go as designed.

It's overcoming the issues, finding work-a-rounds, seizing upon opportunities and not giving up that will deliver eventual success.

6.6 Recommendations

There needs to be a substantial financial investment for Tribal Air Programs. As presented in the Tribal needs assessment, the total outstanding need is \$64.2 million dollars. Since there would be a need to invest in capacity building for new Tribal programs and in helping mature programs to continue to grow, we are recommending a step wise investment of an increase in the Tribal 103 and 105 funding to be **\$54.7 million** in FY 2024 and then reaching the **\$64.2 million** in FY 2025.

Because of the growth in demand for capacity building and technical support, we are recommending a comparable growth in separate funding for the training infrastructure to include an increase of **\$1 million** in FY 2024 and another increase of \$2 million in FY 2025.

In order to support Tribal Climate Change Programs, the amount requested will offer Tribes the ability to hire staff within air programs to initiate climate change programs at \$9.6-\$12 million per year. Additionally, NTAA recommends increasing the level of funding for Tribal climate change program funding by an additional \$19.2 to \$24 million in subsequent years to continue to offer new TAPs the opportunity to tackle climate change as well as provide funding for sustaining existing programs for previously funded Tribes.

In order to support the growing Tribal programs EPA needs to invest in Tribal air program staffing:

- Regional grant officers – this will ensure that EPA staff have the time and resources to invest in the Tribes they support.
- Headquarters staff – because of high turnover and changing priorities there is a disinvestment in supporting Tribal air programs. For example, shifting staff to support EJ programs from supporting Tribal and disinvesting in technical support (support in reviewing permits, and other technical analysis) and limiting the access that Tribes have to meaningfully consult in EPA regulatory and policy development.
- EPA should reinvest in permitting review support for Tribes.
- On-going capacity building for EPA staff on understanding Tribal sovereignty and the Nation-to-Nation relationship with Tribes.
- Efforts to provide consistency in grant and program review and approval.
- As grant programs are made available, Tribal set-asides and removing match requirements will improve access for Tribes to these programs.

The resulting request will offer Tribes the ability to hire staff within air programs to initiate climate change programs at \$9.6-\$12 million per year. Additionally, NTAA recommends increasing the level of funding of Tribal climate change program funding to an additional \$19.2

to \$24 million in subsequent years to continue to offer new TAPs the opportunity to tackle climate change as well as provide funding for sustaining existing programs for previously funded Tribes.

7 Air Program Topic Chapters

The following sections cover firsthand experiences by Tribal air programs and the Tribal points of view on air quality topics.

Chapter 1: Climate Change, Impacts to Traditional Sustenance & Lifestyles

The NTAA has a history of working on climate change issues and communicating the concerns of Tribes to the EPA. In 2009, NTAA developed a report on the impacts of climate change in Indian Country after a request by then-Office of Air and Radiation (OAR) Assistant Administrator, Gina McCarthy. As a result of work such as this, the EPA released the Clean Power Plan Final Rule with the goal of reducing greenhouse gas (GHG) emissions. This rule states: “Tribal communities whose health, economic well-being, and cultural traditions that depend upon the natural environment will likely be affected by the degradation of ecosystem goods, and services associated with climate change.”⁵ Tribal cultural survival will be a challenge as many of the practices and traditions are observed around a climate that is more predictable and less disastrous.

In March of 2019, EPA issued their proposed New Source Performance Standards (NSPS) for Greenhouse Gases from New, Modified, and Reconstructed EGUs. In September of 2019, NTAA was approached by members of the US Senate’s Indian Affairs Committee and the Special Committee on the Climate Crisis and asked to provide information on the impacts of climate change to Tribal communities. In June of 2019, the Council for Environmental Quality (CEQ) issued draft guidance for Consideration of Greenhouse Gas emissions in implementation of the National Environmental Policy Act (NEPA), followed in January 2020 by a more comprehensive proposal to update the rules implementing NEPA, which the NTAA believes would have serious impacts on climate change. NTAA developed Policy Resource Kits (PRKs) to alert NTAA Member Tribes and other Tribal Air Offices of these important proposed rules and information requests and provide tools for Tribes to submit comments on federal actions.

According to the U.S. Fourth National Climate Assessment (NCA4) report, climate change has already started to alter and damage the U.S. economy, environment, and human health.

⁵ USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018

Chapter 12 of the NCA4 concludes: “Climate change increasingly threatens Indigenous communities’ livelihoods, economies, health, and cultural identities by disrupting interconnected social, physical, and ecological systems.” On October 6, 2018, the Intergovernmental Panel on Climate Change (IPCC) released its Special Report on Global Warming of 1.5° Celsius. The report finds that drastic transformational actions across all economic sectors and levels, including energy, food production, behavior, and technologies, are required to limit global warming by 2030. Furthermore, the extent and magnitude of these changes depend on the current and future policy regulations and actions to limit the amount of GHG emissions released into the atmosphere today and in the future.

The consequences of climate change will endanger public health, both directly and indirectly. The EPA’s Endangerment Finding cites numerous health concerns associated with increased levels of atmospheric GHGs. The EPA predicts that the negative effects of extreme hot days will outweigh the positive effects of less exposure to extreme cold, a scenario that will disproportionately impact poor communities that cannot afford or do not have access to air conditioning. Climate change has likely already increased ozone pollution in some regions of the US and has the potential to exacerbate fine particulate concentrations as well as the many associated health impacts⁶. Changes in temperature and precipitation patterns will increase risks associated with aeroallergens (i.e., pollen and mold), vector-borne diseases, and drinking water dependent on surface water. Furthermore, climate change is leading to more frequent extreme weather events, which have the potential to severely impact Tribes, depending on their preparedness and geographic location⁷. Finally, climate change is projected to cause more frequent and severe wildfires, degrading air quality and resulting in additional adverse health outcomes (e.g., increased respiratory illnesses from exposure to wildfire smoke, impaired visibility, and disrupted outdoor recreational activities). The negative health effects associated with climate change are especially damaging for vulnerable populations including the elderly, young children, and those individuals already in poor health.

Climate change threatens Tribal lifestyles by decreasing food security, endangering culturally significant flora and fauna, and forcing them towards extinction, increasing the risk of extreme weather events, and endangering public health in general. Climate change impacts are causing the loss of Indigenous cultures and Indigenous knowledge systems and forcing the relocation of Tribal communities⁸. Additionally, air quality impacts exacerbated by climate change extend to hunting, fishing, and gathering rights of Tribes in Ceded Territories, lands that Tribes transferred to the federal government in exchange for off-reservation rights by a treaty agreement. Long-term climate change and near-term weather variation are both

⁶ Fann, N., T. Brennan, P. Dolwick, J.L. Gamble, V. Ilacqua, L. Kolb, C.G. Nolte, T.L. Spero, and L. Ziska, 2016: Ch. 3: Air Quality Impacts. The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment. U.S. Global Change Research Program, Washington, DC, 69–98. <http://dx.doi.org/10.10.7930/JoGQ6VP6>

⁷ U.S. Environmental Protection Agency. (2009) USEPA’s Endangerment Finding. Retrieved from https://www.epa.gov/sites/production/files/2016-08/documents/federal_register_epa_hq_oar_2009-0171-dec.15-09.pdf.

⁸ Kathryn Norton-Smith et. al. 2016. “Climate change and Indigenous Peoples: a Synthesis of Current Impacts and Experiences”. Gen. Tech. Rep. PNW-GTR-944. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. Pgs 1-138.



leading to changes in biodiversity, the abundance of important flora and fauna species, and seasonal changes that are impacting traditional hunting, foraging, and farming. Tribes and their members are experiencing declines in health due to the loss of traditional food use caused by climate change⁹.

Longer summers and warmer winters in Alaska are causing sea ice to form late and melt early, reducing Alaska Natives' ability to move around their region to hunt or gather. In the upper Midwest, moose and wild rice habitats are shifting with the changing climate, restricting their availability as a food resource. Changing temperature and precipitation patterns are permanently altering biomes across the southwest, changing where many culturally significant plants can grow and even leading towards their extinction. Further, climate change is threatening food security based on subsistence agriculture, particularly in the west where a lack of rainfall has created long-term drought conditions. In the southeast, sea level rise and increasing flood risks in coastal and low-lying regions are impacting several communities and raising discussions on relocation. In the Northeast, moose are becoming more susceptible to tick-borne diseases that colder winters once helped prevent. Tribal hunters cannot harvest the moose when it is not cold due to meat spoilage and the moose are too hot and do not attempt to escape. Instead, the moose are cooling off in ponds. Partridge hunting is also affected when the trees have yet to lose their leaves and the partridge harvesting might not occur because the leaves might fall after the hunting season is over.

Seasonal changes have affected maple sap. The conditions for sap production favor a steady colder winter and not the winters that the Northeast experiences where the temperatures are freezing one day and the next day, the temperatures are milder. Seasonal changes have disrupted ceremonial practices because the seasonal cycles are either extended or shortened. The seasonal pattern disruption interferes with planting and excess precipitation also does not help. Snow that should have melted or frost conditions in the early spring also disrupts the planting and seeding. Temperature changes in the rivers also hamper fish migrating to spawn in freshwater systems. Ice jams and colder temperatures cause fish kills as the fish are trying to navigate their way to the spawning ponds and lakes. Sea run fish will only migrate if the water temperatures are optimal. Tribal nations are impacted because the native fisheries are replaced by invasive and non-native fish species.

The United States should have policies to promote employers to allow employees to work at home because it lessens the need to commute. The productivity of employees increases when employees can work remotely. In return, the air quality improves, and less carbon dioxide is emitted. Not only is productivity increased for work products, but employees can also maximize time since commute time is reduced. This allows additional time to becoming more self-sufficient such as learning how to grow, can, and preserve food. Additional time to return to Tribal traditional lifestyles can mitigate carbon pollution and Tribal nations will continue to

⁹ Kathy Lynn et. al, "The impacts of climate change on Tribal traditional foods," *Climate Change* 120:545-556, 547 (2013) ("Obesity, diabetes and cancer, rare in communities living on a traditional diet, are now increasing health problems in Tribes across the U.S").

thrive even though climate change is wreaking havoc to the ecosystem. Adaptation to becoming more resilient is a way Tribal nation can address the changing environment and climate despite loss of ceremonial and cultural knowledge.

Several Tribes and Tribal organizations have committed significant resources to analyze the health effects of climate changes on Tribal communities. In particular, the ANTHC Center for Climate and Health has been conducting comprehensive community assessments for several Alaska Native Villages, such as the Native Village of Kivalina (Kivalina), focused on the impacts of climate change and related health effects¹⁰. For Kivalina, ANTHC has observed a rise in dust, smoke, and allergen levels along with health-related issues such as asthma, allergies, and other respiratory problems¹¹. These levels and health-related issues have become most prominent during the summer months due to an increase in the number of hot and dry summers, lightning and wildfires, and trees and shrubs¹².

Additionally, the NCA4 report highlighted over 800 climate adaptation activities across all regions that Tribal governments, Indigenous peoples, inter-Tribal organizations, and their partners have undertaken¹³. Tribal leaders and managers are developing climate change adaptation strategies and emissions reduction actions that not only consider ecological impacts but sociocultural impacts. Land and resources are integral to the cultures and economies of Tribes. As climate change continues to impact ecological biomes, Tribal governments face institutional barriers that severely limit their adaptive capacities, including limited access to traditional territory and resources and the limitation of existing policies, programs, and funding mechanisms in accounting for the unique conditions of Indigenous communities. Federal, state, and regional institutions must support the unique political status of Tribes as sovereign nations. Tribal sovereignty, self-determination, Indigenous knowledge systems, and inter-Tribal organizations provide vital opportunities to adapt to the potential challenges of climate change.

Chapter 2: Indoor Air Quality

Much like ambient air quality, monitoring and maintaining indoor air quality (IAQ) plays a very important role in maintaining health within Tribal communities. Common indoor pollutants include allergens, radon, particulate matter, second-hand smoke, carbon monoxide, and

¹⁰ “Climate Change Health Assessment.” Center for Infectious Disease Research and Policy at <http://www.cidrap.umn.edu/practice/climate-change-health-assessment> (last visited on March 12, 2017).

¹¹ “Climate Change in Kivalina, Alaska, Strategies for Community Health.” ANTHC Center for Climate and Health 21 (January 2011).

¹² Id. In the Northwest Arctic, more than 10.5 million acres burned between 1950 and 2007, including 24.1% of boreal forest and 9.2% of the tundra (Joly et al., 2009). In 2007, the largest tundra fires on record occurred on the North Slope, burning over 240,000 acres in a single season.

¹³ Bennett, T. M. B., N. G. Maynard, P. Cochran, R. Gough, K. Lynn, J. Maldonado, G. Voggesser, S. Wotkyns, and K. Cozzetto, 2014: Ch. 12: Indigenous Peoples, Lands, and Resources. *Climate Change Impacts in the United States: The Third National Climate Assessment*, J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, 297-317. doi:10.7930/J09G5JR1.



excessive moisture. These are linked to a wide variety of health impacts that may cause symptoms immediately or years later. IAQ issues can vary widely depending on the season and region, meaning Tribes across North America face different challenges when mitigating the impacts from indoor air pollution at any given time. While the pollutants and health impacts associated with IAQ are very similar to those of ambient air quality, the challenges to monitoring and maintaining IAQ are much different. Some pollutants can be in our homes, and we do not even know it, like radon and carbon monoxide. That is why it is so important that programs help their communities.

The EPA has found that Americans spend as much as 90% of their time indoors, where levels of air pollutants are often 2, 5, or even 100 times higher than levels outside. The NTAA's Indoor Air Quality Work Group (IAQ WG) has been meeting bi-monthly to present various issues/concerns that address many Tribes across our country. The NTAA IAQ Work Group includes Tribal and EPA professionals with an interest in indoor air quality in Tribal homes and other buildings. This has gone a long way in providing up-to-date information that Tribal IAQ programs can use to benefit their communities. All information processed can be found on the NTAA website under the IAQ Work Group section. The work group meets via conference call and virtual meetings with government agencies such as the U.S. Department of HUD's Office of Lead Hazard Control and Healthy Homes. As many will recall, March of 2020 threw a curve ball we were not ready for.

For the last two years Tribes across our country have been dealing with the affects from COVID-19. The IAQ Work Group's priority is to get as much up-to-date information/technologies out to Tribes as possible. The IAQ WG held a webinar on Do-It-Yourself air cleaners utilizing a box fan and furnace filters. It's amazing how much something as simple as a box fan can help reduce the dust or particle pollution in a home. The other major task was working on the Tribal IAQ Training and Resource Directory in coordination with EPA's ORIA and THHN. We have all learned so much about what we can do at home to increase the purity of our indoor air quality.

The work group has some hurdles ahead of them but with your help we can get people to want to change for the health of their family, friends and pets. Indoor air affects everyone inside the home. The work group will continue to keep a pulse on rising issues as it pertains to IAQ with the sole effort of getting information out to the Tribes. All are welcome to join our bi-monthly conference calls to share and learn as we push through these trying times.

Hoopa Valley Tribal Environmental Protection Agency

Over this past year, the Hoopa Valley Tribal Environmental Protection Agency (TEPA) has continued to collaborate with US EPA's Office of Research and Development and Region 9 on the [Wildfire Advancing Science Partnerships for Indoor Reductions of Smoke Exposures \(ASPIRE\) Study](#) to better understand indoor air quality during smoke events and how to reduce associated exposures and health risks. TEPA has collaborated with the US EPA on three study components:



- **Field studies:** monitoring indoor/outdoor PM_{2.5} concentrations with Purple Air sensors to understand indoor air quality in public buildings under typical ambient conditions and opportunistically when smoke events occur (Dec 2019 to present).
- **ASPIRE-Health:** Evaluating the impacts of air cleaner usage on residential indoor air quality and health measures in Tribal members.
- **Scientific Challenge:** Partnering with US EPA and nine other federal, state, local, and Tribal organizations to stimulate the development of low-cost and sustainable methods to reduce outdoor air pollutants in homes during wildfire smoke or high pollution episodes.

The ongoing ASPIRE research utilizes low-cost air sensors (PurpleAir) to monitor indoor and outdoor PM_{2.5} concentrations in a variety of commercial and community buildings throughout the HVIR. Monitoring is taking place year-round during the wildfire season and the heating season to understand the real-world variation of indoor air quality under typical ambient conditions and opportunistically when smoke events occur. Building inspections were conducted during the summer of 2021 to better understand what building features or occupant practices impact smoke infiltration indoors.

Working with the US EPA and Cal Poly Humboldt, we have developed a data dashboard to more easily share the air sensor measurements with Hoopa Valley Tribal members. A complementary US EPA laboratory study is underway to evaluate the effectiveness of air cleaners, including do-it-yourself (DIY) and commercially available air cleaners, to improve indoor air quality. In 2021, the Hoopa Valley Tribe and the US EPA began collaborating on a pilot health study to evaluate the effectiveness of portable air cleaning technology during smoke episodes in Tribal households to evaluate potential improvements in indoor air quality and health (learn more about the ASPIRE-Health Study [here](#)).

Chapter 3: Implementing CAA Programs

Outreach and Education

Growing Powerful Partnerships with Public Libraries on the Nez Perce Reservation by *Johna Boulafentis, Nez Perce Tribe Air Quality Program*



About a decade ago, our Air Quality Program wanted to expand outreach to youth across the Nez Perce Reservation. After hearing about a Summer Reading Program offered at public libraries off-Reservation, we contacted a few community libraries on-Rez to inquire if they provided a similar program and would be interested in an air quality lesson and activity. Since then, each summer, we typically worked with 40 young people at three to five of the nine community libraries. We delivered hands-on, STEM (science, technology, engineering, mathematics) lessons, covering topics such as wind and solar energy, climate change, air chemistry, properties of flight, and respiratory health.



For many summers, the Institute for Tribal Environmental Professionals' (ITEP) Summer Student Interns created and lead these activities including reading or telling a story from their culture. In 2020, while hosting a remote ITEP intern, we saw an opportunity to increase our reach to all community libraries through distance-learning. We pre-recorded videos and assembled STEM kits with instructions, providing two lessons and 250 kits to young students across the Reservation.

Over the years through our work, we observed that the libraries in our small towns serve as community hubs through their various offerings and central location on “Main Street.” Hearing about the Los Angeles Public Library Air Sensor Loan Program, we felt inspired and confident that our libraries could oversee air sensors. We excitedly approached each library with a new partnership possibility in winter 2021 via an EPA Region 10- Regional-State-Tribal Innovation Project (RSTIP).

During meetings with librarians, we introduced the PurpleAir (PA) sensor, discussed regional and community air quality challenges including wildfire smoke and residential wood smoke and outdoor burning as well as actions to create Smoke Ready Communities. Each library received an outdoor PA sensor and an Air Quality Index (AQI) Flag Kit with support from EPA. We also provided a tour of the AirNow Fire and Smoke Map and resources. We worked with a couple of the towns' maintenance staff to mount the PA and AQI flags on the various building facades. Two of the libraries even paid for electricians to install an outdoor electrical outlet.

We launched our Sensor Project in mid-June thinking that the librarians would have about six weeks to get acquainted with the PA and AQI flags before wildfire smoke season began. Unfortunately, about two weeks later wildfire smoke hit our area, impacting each community. Fortunately, our libraries quickly adapted to their new responsibilities and began their community outreach on air quality. Additionally, on their own initiative after learning about the potential of outdoor smoke creeping indoors, libraries purchased supplies, built, and

displayed DIY Box Fan Filters. Simultaneously, improving their buildings' indoor air and demonstrating a proactive step that patrons could take to protect themselves from smoke.

On community social media forums and the library sites, we saw community members responding curiously and positively about the AQI Flags. We also observed tech savvy folks and other agencies like the Winchester State Park sharing their town's air quality data. We also had some really engaged citizens. For instance, the Peck Community Library is only open two days a week. One resident on the main road into town monitored the AirNow Fire and Smoke Map, constructed and painted wooden AQI-colored triangles to display in their yard, and changed the colors accordingly throughout the season.

So, what's next with the library partnership? In January 2022, two libraries began piloting a Moisture Meter Loan Program for firewood users (based off the Vermont Public Library Program). This spring, we will provide an individual report to each library with their June to October 2021 data including an evaluation of sensor performance compared to our Ambient Network PM_{2.5} monitors (two BAM 1022s and three EBAMs). In summer 2022, we hope to pilot a portable sensor loan project for library patrons; we're currently exploring durable and easy-to-use PM_{2.5} models.

We feel deeply grateful for our public library staff and their willingness to partner and take on something new. In the past, we tried to launch the AQI Flag Program and a PurpleAir Project with local schools and youth organizations but weren't successful. This expanded collaboration with libraries and engagement with communities about their specific community's air quality has been truly rewarding. Growing trust and building relationships takes time and now librarians on the Nez Perce Reservation have become AQ ambassadors. It's a win-win partnership and a big achievement for our Air Quality Program!

Chapter 4: Hazardous Air Pollutants

Hazardous Air Pollutants (HAPs) and Toxicants or toxins were added as pollutants to the Clean Air Act as one of the amendments in 1990. These pollutants are hazardous to human health or the environment and cause cancer, mutations, birth defects, or other adverse health or environmental effects. The EPA lists 188 known toxic air pollutants including benzene, asbestos, mercury, and lead compounds.

A new listing occurred in 2022, to include 1-bromopropane, used in the manufacturing industry, has been linked to neurological illnesses. The EPA has not added a substance to the list since it was created in 1990, although some substances have been removed from the CAA HAP list.

HAPs can be ingested, inhaled, adsorbed through the skin directly or by indirect pathways such as air dispersal and consequently deposition onto plants where these pollutants can be ingested by eating plants. Some HAPs bioaccumulate, a process in which toxins accumulate in body tissues. For example, mercury is found in higher concentrations in animals higher up

the food chain, a potential concentration increases in millions. These concentrations can have direct adverse effects on environmental populations, such as mercury which decreases reproductive and neurological development of fish, ducks, and other members of the aquatic community, which directly affects the species populations and could lead to dramatic decreases in populations.

The EPA has several mechanisms to regulate HAPs and programs for reduction, depending on the category. In the case of large industrial facilities, a two-phased method is used which first involves technology controls or maximum achievable control technology standards, which is risk based, which depends on whether more controls need to be applied to protect safety to humans and the environment. The National Emission Standards for Hazardous Air Pollutants, NESHAP(s) are stationary source standards with enforcement initiatives for non-compliance. Other reduction strategies occur through lower vehicle and engine emissions imposed through new rigorous emission standards and cleaner burning fuels. Indoor air pollution can be reduced through implementation of voluntary programs and education by various governmental agencies (Tribal, federal, and state).

Humans face long-term impacts by ingesting even small amounts of toxins over long periods of time. Such cumulative impacts are a particular concern for Tribes who may be more exposed due to subsistence and traditional life ways. The [Air Toxics Screening Assessment](#) (Air Toxics Screening Assessment (AirToxScreen) is a tool Tribes can use to determine if their area has the potential risk from certain air toxics.

Tribal Nations and Alaskan Villages communities are impacted by HAPs every day, here are some of their stories.

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<https://www.epa.gov/haps/reducing-emissions-hazardous-air-pollutants>

Chapter 5: Mobile Sources

Mobile Sources Work Group led by Craig Kreman and Ryan Tsingine

The NTAA Mobile Sources Work Group (MSWG) had a great year, with many people participating and actively engaged in the presentations from various Tribes, agencies, and interest groups. The big focus of the new administration in the White House is the future of



transportation, with much buzz and hype on fleets transitioning to electric vehicles across the country. A priority of the administration should be on ways to include Tribes in this effort. Bringing in the necessary stakeholders to help Tribes better understand the potential rulemaking and policies surrounding mobile sources will be a focus of the MSWG this year. Throughout the past year, leading up to the release of the 2022 STAR, various presentations and discussions included:

- Hosted a Special Workshop for Tribes to access the \$5 billion Clean School Bus Program in its first of five years of funding. The workshop featured EPA's OAR leadership including OAR's Deputy Assistant Administrator Ale' Nunez and Congresswoman Katie Porter of California's 45th district as well as other speakers from EPA and the World Resources Institute.
- Abandoned vehicles on Tribal Lands Presentation and CAAAC's Mobile Sources Technical Review Information Session
- Demonstration of Diesel Emissions Qualifier Information Session
- SmartWay Program Overview and EPA's Proposed Light-Duty Greenhouse Gas Emissions Standards Rule Information Sessions
- Bishop Paiute Tribal Fleet Emission Estimates using EPA's Tribal Greenhouse Gas Tool and DERA & ARP School Bus Rebate Program Information Sessions
- California Air Resource Board (CARB) Heavy – Duty Engine Standards “Omnibus” Package and EPA's Renewable Fuel Standards Information Sessions
- EPA Regulations for Greenhouse Gas Emissions from Commercial Trucks & Buses Information Session
- EPA Update on Light – Duty GHG Rule Information Session
- Control of Air Pollution from Aircraft Engines: Emission Standards and Test Procedures Rule Update and Aircraft Lead Announcement Information Sessions and,
- Monthly OTAQ updates included

The NTAA Mobile Sources Work Group will remain engaged in any opportunity to secure a Tribal set aside for Supplemental Environmental Programs for any future settlements. The NTAA Mobile Sources Work Group looks forward to the increased interest and participation on future calls and how it can help NTAA respond to necessary guidance and policymaking initiatives by EPA. The Work Group meets on the first Thursday of every month at 2pm ET.

Chapter 6: Wildfires

As the climate changes, warmer temperatures and drier conditions lead to catastrophic wildfires on and near Tribal lands. In recent years, Tribes have struggled with growing costs to prepare for, defend against, and clean up following catastrophic wildfires that impact public health, cause environmental damage, and strain Tribal budgets.

In NTAA's FY2021 Tribal Air Quality Budget Analysis, wildfires are identified as a budgetary threat that must be addressed. While an increase over 2020 funding was seen in 2021 (from \$11.77 million to \$12.35 million), the disparity between Tribal funding needs and funding reality remains substantial. Fire staffing within the Forest Service has grown 114%, from 5,700 in 1998 to over 12,000 in 2015.ⁱ Such increases have not been seen by Tribes, even though a recent article reports that more than 20% of Native Americans in the U.S. live in areas highly prone to wildfires, less than 18% of Tribes in the country have fire departments and less than 5% receive sufficient funding from agencies such as the FEMA or the BIA.ⁱⁱ This article also reports that insurers often refuse coverage to homeowners in these areas, which means that Tribes and individual Tribal members may lose everything due to wildfires. This could also lead to Tribal members being extremely reluctant to evacuate their homes during such a fire, putting their lives, as well as their property, in danger. An additional study in *PLOS One*ⁱⁱⁱ found that Native Americans are more likely than people in other ethnic communities to live in areas that have both the highest potential for wildfires and the lowest capacity for effective response and recovery. This is due to factors such as income, education, and access to transportation and other social services.

At the same time, Tribes' attempts to reduce fire danger on their Reservations can be frustrating. Pre-European contact, many Tribes controlled wildfires through cultural burning. However, a 1911 federal law made it illegal for non-state or federal agencies to burn public land. The Karuk Tribe in California, for example, must negotiate individual agreements with the agencies that have jurisdictional power over their land.

Increasing Impacts from Wildfires

Sources report that today's fires are larger, last longer, start earlier in the year and last later in the year than in the past.^{iv} In a Washington Post article that ran on August 14, 2018,^v a number of facts were highlighted, as follows:

- The amount of acreage burned has been growing steadily since the 1980s, despite year-to-year variations.
- Between 1990 and 2000, the number of acres burned annually grew from 4.6 million to 7.4 million, and in 2015 this number was a record-breaking 10.1 million.
- The typical fire has gotten bigger, from between 40-80 acres in the 1980s and 1990s to more than 100 acres in the 2010s. In 2018, the average size was about 130 acres.

In 2020, there were about 57,000 wildfires, compared to 50,477 in 2019 and 58,083 in 2018. The acreage burned in 2020 totaled 10.3 million acres, compared to 4.7 million acres in 2019 and 8.7 million acres in 2018. In California, five of the top 20 largest fires in the state occurred in 2020.^{vi}

Annual Number of Acres Burned in Wildland Fires, 1980-2019

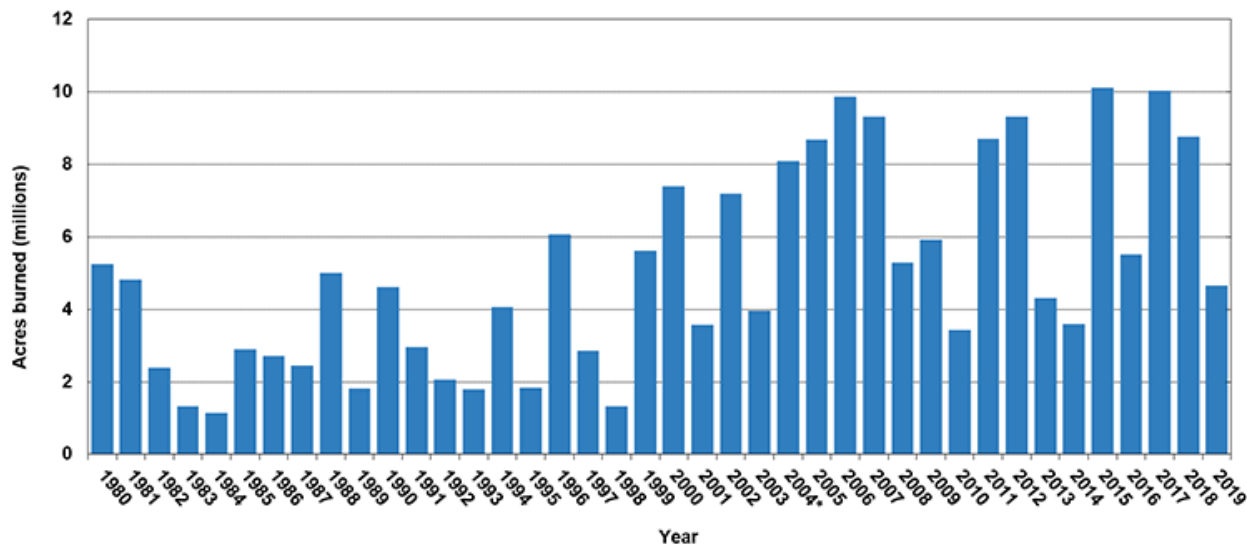


Figure 7 Annual Number of Acres Burned in Wildland Fires, 1980-2019

Wildfires burden Tribes with additional and often unplanned costs to monitor air quality, update Tribal leadership, conduct public outreach, assess environmental mitigation, and conduct clean-up operations. These have led to budgetary and capacity challenges for Tribes, which are described in the paragraphs below.

Tribal Responses to Wildfires

Tribes have many governmental entities and enterprises for which they are responsible. Tribal leadership must assess when they need to close K-12 schools, colleges, clinics, elder housing complexes, casinos, government buildings, and other businesses due to extreme wildfire smoke or the fires themselves. Tribes may need to evacuate employees and Tribal members, sometimes from remote locations, and must find a safe place for these evacuees to stay. Since many reservations are quite large and quite remote, Tribes cannot rely solely on other governmental agencies to help them manage these concerns. Other agencies are facing the same challenges with funding as Tribes and cannot devote the resources needed to fully protect reservations. Non-Tribal agencies may not respond to Tribal areas at all because these areas are not in their jurisdiction. Tribes know best how to manage these situations to minimize costs and health impacts but need the funds to do so. For example, advanced planning is necessary to coordinate community evacuations. Evacuations can be difficult and dangerous because they may occur under all types of conditions, and at any time of the day or year. Routes can become blocked due to heavy traffic or vehicle breakdowns. Once citizens

have been evacuated, they need to know where to go and need to be sheltered until they are able to return home.

If conditions do not require a call for evacuations or if citizens are instructed to shelter in place, indoor air quality can become an important issue. Studies show that during wildfire events, indoor air in older buildings can have particulate levels that are up to 70-80% of outdoor levels, even if all the doors and windows are closed. However, in newer buildings with high performance filtration, levels can reduce exposures to outdoor particles to less than 5%.

Residents can try to reduce pollutant levels indoors by using portable air cleaners (if they do not create ozone), recirculating indoor air rather than drawing in outdoor air, closing the dampers on window air conditioners, and avoiding indoor activities that create pollutants, such as burning incense or candles or spraying aerosols.^{vii}

Schools are a particular concern during wildfire events because their occupancy rate is higher than homes or office buildings.^{viii} Due to the amount of time that most people spend indoors, up to 80% of the length of time of exposure to particulates from wildfires can take place indoors.^{ix}

Tribes are also responsible for the health and safety of the firefighters who are diligently working to protect life and property from these fires. In 2017, the BIA reported 1,100 Tribal firefighters and 1,500 Tribal administrative firefighters.^x Just as the Forest Service works to estimate pollutant levels for firefighters, Tribes need to be able to protect the health of these individuals if they are working on-reservation.

In addition to immediate emergency situations, many wildfires are lasting longer - leading to public health emergencies for several weeks at a time in Tribal communities, where Tribal members can be more susceptible to asthma or pulmonary issues.^{xi} For those with asthma, other pulmonary issues, or who are homebound, both ambient air quality and indoor air quality are a threat.^{xii} Tribes may also need advanced communications equipment or plans in order to keep leadership and the Tribal population informed.

Clean-up operations include hauling away large amounts of housing debris and burned vehicles. These can cause air quality issues insofar as Tribal workers must be protected from lingering toxic emissions and particulate matter that come from moving the debris. Toxic chemicals may come from charred vehicles, asbestos, and fiberglass from homes, even from containers of cleaning fluids, such as bleach, which were burned.^{xiii} Even though the flames may be out when the clean-up crews arrive, the contaminated ash that is left behind is hard to avoid.

Tribal people are also at risk from repercussions of power outages caused by wildfires due to geographic isolation and lack of basic services. This leads to increased costs for generators to keep buildings at a comfortable temperature and to provide refrigeration and sanitation.

Specific Tribal Needs Related to Wildfires



Tribes in the western US and Alaska are experiencing larger, more intense, and longer-lasting wildfires over time, at substantial cost to all involved. In 2019, several catastrophic wildfires in California were estimated to cost \$88 per person per day in additional costs. Affected Tribes must prepare emergency response plans that calculate some of these specific costs, in partnership with EPA. Through the BIA Wildland Fire Management, Tribes have responded to an average of 8,893 wildfires covering about 500,000 acres every year.^{xiv} These Tribes need support from EPA as soon as possible.

Funding within Tribes for air quality monitoring and public outreach is already stretched thin, so identifying additional funds to set up mobile air monitors during a fire or to educate Tribal communities to become “smoke-ready” is a real challenge. Tribes can fall into three categories when it comes to wildfire response: those who deal with wildfires consistently, those who deal with them occasionally, and those who deal with them remotely. Tribes in each of these categories have separate needs.

Tribes who regularly experience wildfires on or near the reservation need to be able to mobilize monitors and conduct outreach immediately upon notification of a wildfire. These Tribes should prepare emergency response plans and should have their own monitors, with staff trained and ready to deploy these devices. Clean-up staff should also be trained in how to protect themselves from emissions. Tribes whose lands cover large areas would likely need several of these monitors to adequately protect their populations. Cost estimates to prepare an emergency response plan vary greatly due to the complexity of the process and the need to include an Incident Command System (ICS) that prepares Tribes for all emergencies, not just fires. Smoke modeling would be helpful for Tribes in these situations, as it could help protect firefighters and residents by predicting when and where the heaviest smoke conditions would occur. The NOAA provides air quality forecasts related to smoke through the [National Weather Service](#) but some Tribes may prefer to perform their own forecasts, and this would require training and software.

How do Tribes prepare and calculate costs from wildfires that may or may not happen? Some Tribes experience only occasional problems with wildfire smoke. Tribes can prepare emergency response plans that calculate some of these specific costs (the cost of preparing an emergency response plan is estimated above) but a dialogue between Tribes and EPA or another federal agency must take place to set things in motion. These Tribes could potentially borrow equipment from the Tribal Air Monitoring Support (TAMS) Center as needed, however the current TAMS Center equipment loan program is limited and currently does not have the budget to purchase the amount of equipment needed to adequately address Tribes being impacted during the wildfire season. These Tribes should also prepare emergency response plans. As stated above, if a Tribe needs to purchase their own portable monitor, these costs run at least \$5,000-\$10,000 for a basic unit. If the Tribe purchases a Federal Reference Method (FRM) monitor for long-term monitoring needs, they can expect to spend around \$15,000-\$25,000 just for the monitor, depending on what type is purchased. Additional costs are listed in the paragraphs below.

Tribes across the country experience smoke impacts each summer, such as high particulate levels, from wildfires in the western US and in Canada. For example, a recent study conducted by the Louisiana Department of Environmental Quality used a Weight of Evidence approach to demonstrate that wildfires in California caused ozone exceedances in Louisiana, roughly 1,600 miles away.^{xv} More demonstrations like this will be conducted in the future as states and Tribes work to pinpoint why exceedances occur. While Tribes impacted by distant fires may not need to use portable monitors, placement of FRM monitors can help track the movement of wildfire emissions across the nation and can help Tribal Nations protect their people. As stated above, the cost to purchase an FRM monitor is roughly \$15,000-\$25,000, but associated costs also include training, quality assurance project plan preparation, audits, filter analysis (at around \$7,000 per year), and data analysis. EPA has prepared materials for “Smoke-Ready Communities.” Publications such as this are helpful to Tribal communities preparing for wildfires, but additional funds must be made available for Tribes to address the air quality crises that result from wildfires.

The Role of Climate Change & Wildfires

As wildfires continue to sweep the landscape of America, the role of climate change in this area remains largely ignored. A recent article in the *Columbia Journalism Review*^{xvi} discusses the lack of reporting on the link between climate change and this phenomenon. This article discusses media coverage of wildfires in the State of California over the past few years. While several papers have published “explainers,” editorials, and opinion pieces about the role of climate change in their state’s battle against these blazes, most articles either do not bring the topic up or gloss over it in a sentence or two. This means that readers must actively seek out coverage that delves deeper into the causes of the fires. News stories that do mention climate change tend to do so only in quotes from politicians and officials, which can make the claims seem politically motivated and lacking in authority.

Smoke, Air, Fire Energy (SAFE) in Rural California by Connor McGuigan, Outreach and Sustainability Planning Coordinator, Karuk Tribe Department of Natural Resources

In September of 2020, air quality was the stuff of national headlines. Accounts of “apocalyptic skies” and “smoke blotting out the sun” came from the San Francisco Bay Area, and a photograph of the Golden Gate Bridge shrouded in orange haze made the front page of the *New York Times*. That same week, national media outlets reported that Portland had the worst air quality of any major city in the world.

For those living on fire’s edge in less populated regions of California, Oregon and Washington, the orange skies were a familiar sight. “We’ve been dealing with this every the year for a long time,” said Bill Tripp, Director of the Karuk Tribe Department of Natural Resources (DNR), about hazardous wildfire smoke levels in the Klamath river basin where Tribe’s ancestral lands are situated.

The climate crisis, combined with more than a century of practicing fire suppression over traditional tribal land stewardship, has brought catastrophic fire and pollution to the doorstep of Karuk tribe members. Over 95 percent of the tribe’s aboriginal territory is



Smoke descending on Orleans one morning in August 2021. Photo: Peter Alstone

classified by the USDA Forest Service as having a “very high” fire hazard rating. On the day Portland’s air quality made for headline news, the average PM 2.5 concentration in the tribal seat of Happy Camp reached nearly 1,600 $\mu\text{g}/\text{m}^3$ —over three times the highest reading in Portland. The Slater Fire had just torn through the tribal seat of Happy Camp, burning through almost 200 homes and leaving smoke in its wake. The following year, the town of Orleans was inundated with heavy smoke for several months straight.

The Karuk Tribe is deeply invested in combating the detrimental effects of wildfire and wildfire smoke. In 2020, the tribe, in partnership with the Blue Lake Rancheria and Humboldt State University (HSU) researchers, helped initiate the “Smoke, Air, Fire, Energy (SAFE) in Rural California” project. This 2.5-year venture was founded around a shared motivation to provide resilient technology that helps people manage smoke, air quality and energy.

The project partners are committed to air quality infrastructure development and have reached several milestones over the last two years. HSU and Karuk researchers installed five outdoor PurpleAir sensors at different locations and elevations within Karuk lands to fill gaps in monitoring smoke during wildfire season. During last year’s fires, the tribe included data from these air monitors in PSAs posted on social media. The SAFE team has also installed in-home filtration systems in nine households and is currently studying their effectiveness and learning from participants how the systems work for them. Staff at HSU and the Karuk Tribe are currently pursuing grant funding to purchase and distribute 100 more in-home filtration systems.

Energy resilience is another important component of the SAFE project. During wildfire season, electric utilities sometime shut off service at times when indoor air filtration is needed most. Our project partners at the Blue Lake Rancheria are nationwide experts in deploying microgrid technology. Working with them and DNR staff, HSU researchers are developing a community-scale resilient energy plan for the town of Orleans. The project team is currently seeking funding to build a solar microgrid in Orleans that would supply energy to key facilities during power shut offs.

Karuk people have used fire to manage the landscape since time immemorial, and the DNR maintains this tradition through carrying out prescribed fires and cultural burns. These low-intensity fires bring myriad benefits to the ecosystem, including fuels reduction and prevention of catastrophic wildfires. To compare the smoke produced by intentional burning to wildfire smoke, SAFE researchers temporarily installed air monitors at different locations during multiple burns. They found that a week of prescribed fire caused PM 2.5 to reach “unhealthy” levels for only one day, whereas wildfires that year had produced such levels of smoke in the area for over a month straight.



Smoke from a low-intensity prescribed fire near Orleans. Photo: Stormy Staats

There are many beneficial aspects to fire and smoke. The Karuk Tribe depends on these benefits as do our territorial forests, plants and animals. This extends to fish and water considerations, which can be understood more by reading the [Karuk Climate Adaptation Plan](#).

There is no “no fire” or “no smoke” alternative. SAFE project research helps support the Karuk Tribe DNR’s mission to restore the practice of using good fire and emphasizes what traditional ecological knowledge tells us—that working with fire is the solution to it working against us.

Chapter 7: Woodsmoke

NTAA Wood Smoke Work Group (Co-Led Lucas Bair & Mariah Ashley)

In 2021, the NTAA Wood Smoke Work Group (WSWG) continued to dedicate attention to Tribal residential wood smoke reduction programs by increasing awareness of woodsmoke funding and its capacity at the federal, state, local and Tribal level. Tribal wood smoke reduction programs across Indian Country continue to make strides by implementing wood stove change-out programs. Tribes are also working to increase awareness of the importance of indoor air quality and the harmful impacts of smoke inhalation despite the lack of or stagnant change-out program funding and other external challenges.

To assist with Tribal residential wood smoke reduction programs, the WSWG focused on several major areas:

The workgroup created several infographics for public distribution:

- a. [Wood Smoke Use and Safety](#) This graphic was aimed at outreach & education for woodstove users, information about the potential dangers of woodstove use, as well as knowledge about firewood for a better burn. This tied into the EPA Burn Wise program which we hosted on the WSWG multiple times as the message is important to hear.
- b. [Woodstoves: Off Season and Maintenance](#) During summertime most people may neglect proper care for their woodstoves until the last minute. This graphic is aimed to help woodstove users prepare for the upcoming winter months by collecting firewood in time to dry, replacing parts in your woodstove, and cleaning your chimney.

The EPA Burn Wise Program released a new [Resource Directory library](#) via the Microsoft Teams platform that contains information on various woodstove related topics, case studies, and photos to use for free.

The WSWG also created a [White Paper on the Wood Heater Emission Pilot Project for Indian Country](#) written by Laura McKelvey. Prior to this paper there was a proposal for Wood Heaters Emissions Reduction Act, known as WHERA. This program would have set aside 4% for Indian Tribes and rural communities. The program's goal was to reduce air toxics pollution and particulate matter to protect public health and support American jobs. However, WHERA is no longer considered in this year's budget process. An upcoming paper is in the works from NTAA to help support new proposals like WHERA with information pertaining to Tribal needs, and why these programs are so important to Tribal health and safety. The NTAA WSWG calls are held bi-monthly on the third Thursday, every other month starting in January of 2022. If you wish to participate and learn more about these calls, contact NTAA Community Program Coordinator, Mariah Ashley at mariah.ashley@nau.edu.

Chapter 8: Summary of Air Quality Impacts on Tribal Health

The primary motivation for Tribal involvement in supporting cleaner air quality initiatives is the protection of the health of our citizens and overall environment. The total number of AI/AN people in the United States is between 2.5 and 6 million, of which 20% live on Tribal lands or in Alaska Native villages. There are 574 federally recognized Tribes, but this number does not account for the total number of AI groups in the US¹⁴. Multiple studies have demonstrated the impacts of pollutants on human respiration, reproduction, endocrine systems, and much more. For instance, while epidemiologists have long known that pollutants such as ozone, nitrogen oxides, sulfur oxides, and particulate matter can have detrimental impacts on our respiratory and cardiovascular systems, new research links these pollutants to cognitive problems and mental health issues. The links between diabetes and pollution have been strengthened in recent years as well. While the reproductive impacts of some pollutants (such

¹⁴ Indigenous World 2020: United States of America. The International Workgroup for Indigenous Affairs, 2020. <https://www.iwgia.org/en/usa/3640-iw-2020-united-states-of-america.html>

as toxics and diesel particulates) have been studied in the past, emerging links between preterm delivery, low birth weight, and infertility have been shown to exist. Most recently, a connection between increased air pollution levels and morbidity from COVID-19 has been demonstrated.

Moreover, study after study shows that the health of American Indian/Alaska Natives (AI/AN) is disproportionately impacted by air pollution. AI/AN adults and children alike have higher rates of asthma, and AI/AN adults suffer from higher rates of diabetes, heart disease, and chronic obstructive pulmonary disorder than do people of non-AI/AN descent.

Wildfires are an increasing concern to air quality in Indian Country. As the climate changes, hotter temperatures and dryer conditions lead to catastrophic wildfires on and near Tribal lands. In recent years, Tribes have struggled with growing costs to prepare for, defend against, and clean up following catastrophic wildfires that impact public health, cause environmental damage, and strain Tribal budgets. Wildfires burden Tribes with additional and often unplanned costs to monitor air quality, update Tribal leadership regularly, conduct public outreach, assess environmental mitigation, and conduct clean-up operations. These financial impacts are on top of the health impacts suffered due to high levels of smoke inundation into the effected communities.

Indoor air quality, hazardous air pollutants, mobile sources, and climate change all contribute to air quality health concerns for Tribal people. Common indoor pollutants include allergens, radon, particulate matter, second-hand smoke, carbon monoxide, and excessive moisture, which in many cases leads to mold growth. These are linked to a wide variety of health impacts that may cause symptoms immediately or years later. Hazardous air pollutants (including benzene, asbestos, mercury, and lead compounds) can be of particular concern for Tribes who may be more exposed due to subsistence and traditional life ways. Mobile sources of air pollution, particularly from diesel exhaust, are of significant concern to Tribal communities who often rely on old or “legacy” fleets of diesel vehicles and equipment that produce high levels of air pollutants. Climate change and air quality protection are inextricably linked; climate change threatens Tribal lifestyles by decreasing food security, endangering culturally significant flora and fauna, and forcing them towards extinction, increasing the risk of extreme weather events, and endangering public health in general.

Air Quality and Health

Tribal involvement in air quality is integral for the safeguard of the health of all our American Indian/Alaskan Native (AI/AN) citizens. Air pollution is responsible for tens of thousands of deaths in the US each year. Pollutants such as ground-level ozone (smog), nitrogen oxides, sulfur oxides, and particulate matter cause harm to respiratory and cardiovascular systems and increase the risk of cognitive problems and mental health issues. Air pollution is also linked to diabetes and reproductive harm (preterm delivery, low birth weight, and infertility).



Air quality is measured by a series of six criteria air pollutants that the EPA defines as ground level ozone, particulate matter, carbon monoxide, lead, sulfur dioxide, and nitrogen oxide¹⁵. According to the U.S. Global Change Research Program, ground-level ozone and particulate matter are common air pollutants that pose a severe risk to human health and the environment. Certain population groups, such as the elderly, children, and those with chronic illnesses, are especially susceptible to ozone and particulate matter (PM)-related health effects¹⁶. Short- and long-term exposure to these pollutants results in adverse respiratory/pulmonary, asthma, lung cancer, emphysema, cardiovascular, neurological and brain development and cognition, and reproductive effects. Also, multiple studies have demonstrated the impacts of pollutants contributed to the increased mortality from COVID19 in AI/AN populations.

Respiratory/Pulmonary

Studies on the impacts of indoor and ambient air pollution on the respiratory system are among the most widespread and well-established studies conducted. Asthma and lung cancer have all been shown to be heightened by or have an increased risk due to exposure to air pollution from ozone and particulate matter. Furthermore, climate change is leading to an increase in the same respiratory issues¹⁷.

Asthma

Due to the rapid development of the respiratory system both in utero and during early childhood, children and adolescents are more susceptible than adults to developing asthma or other respiratory conditions related to air pollution¹⁸. Studies regarding AI/AN children have shown that AI/AN children have a 13% higher probability (compared to 8.6% of children in non-AI/AN descent) of developing respiratory problems¹⁹. The higher percentage may be due to the more frequent use of biomass in AI/AN communities for cooking and the heating of homes. For example, 89% of Navajo families still use biomass for heating and cooking, contributing to elevated PM levels and increasing the severity of asthma and morbidity²⁰. In addition, AI/AN children suffer from asthma at much greater rates compared to other American children. 13% of AI/AN children have asthma, compared with 8.6% of children of non-

¹⁵ Criteria air pollutants. (2022, March 17). Retrieved 2022, from <https://www.epa.gov/criteria-air-pollutants>

¹⁶ Usgcrp. (1970, January 01). Fourth national Climate Assessment: Summary findings. Retrieved March, 2021, from <https://nca2018.globalchange.gov/>

¹⁷ D'Amato G, Pawankar R, Vitale C, Lanza M, Molino A, Stanziola A, Sanduzzi A, Vatrella A, D'Amato M. Climate Change and Air Pollution: Effects on Respiratory Allergy. *Allergy Asthma Immunol Res.* 2016 Sep;8(5):391-395. doi:10.4168/aaair.2016.8.5.391

¹⁸ Kurt, Ozlem Kar et al. (2016). Pulmonary health effects of air pollution. *Current opinion in pulmonary medicine* vol. 22,2: 138-43. doi:10.1097/MCP.000000000000248

¹⁹ Garcia E, Berhane KT, Islam T, et al. Association of Changes in Air Quality with Incident Asthma in Children in California, 1993-2014. *JAMA.* 2019;321(19):1906–1915. doi:10.1001/jama.2019.5357

²⁰ Lowe, Ashley A., et al. (2018). Environmental Concerns for Children with Asthma on the Navajo Nation. *Annals of the American Thoracic Society*, vol. 15, no. 6, 2018, pp. 745–753., doi: 10.1513/annalsats.201708-674ps.

AI/AN descent²¹. High rates of poverty and inadequate access to health care compound the impact that asthma has on AI/AN children²². Air pollution is a well-established trigger of asthma attacks. It can cause the development of asthma and interfere with lung growth.

Lung Cancer

Multiple studies have shown the link between exposure to NO₂ and lung cancer. A meta-analysis from 2015 demonstrated that vehicular emissions of NO_x, SO₂, and PM_{2.5} led to a significant increase in the risk of developing lung cancer²³. In China, increased air pollution from industrialization and urban development is now labeled a Group One carcinogen. In 2010, cancers of the trachea, bronchus, or lung represented approximately 7% of total mortality attributable to PM_{2.5}²⁴.

Emphysema

A 2019 study found a link between long-term exposure to air pollutants, especially ozone, and increasing emphysema and worsening lung function. Emphysema is a disease that is usually associated with smoking. An increase of about three parts per billion of ozone was found to be equivalent to smoking a pack of cigarettes a day for 29 years²⁵.

Cardiovascular

Studies have shown that heart disease rates are about 50% higher among AI/AN peoples in the United States than their non-AI/AN counterparts. More than one-third of their deaths attributed to cardiovascular disease occur before age 65. Multiple studies have also discovered that long-term exposure to air pollution from combustion-related fine particulates contributes to higher rates of heart disease and cardiopulmonary or respiratory conditions. Also, Tribes located near highways and heavy traffic areas experience heightened risk rates

²¹ Asthma prevalence among US children in underrepresented minority populations: American Indian/Alaska Native, Chinese, Filipino, and Asian Indian. Susan N. Brim et al, *Pediatrics*, 2008. <https://pubmed.ncbi.nlm.nih.gov/18595967/>

²² National Tribal Air Association's 2020 Update to: A White Paper Detailing the Connections Between Air Pollution, Tribes, and Public Health. Joy Wiecks et al, 2020. <https://7vv.611.myftpupload.com/wp-content/uploads/2020/05/NTAAs-2020-White-Paper-Detailing-the-Science-and-Connections-Between-Air-Pollution-Tribes-and-Public-Health.pdf>

²³ Chen G, Wan X, Yang G, Zou X. (2015). Traffic-related air pollution and lung cancer: A meta-analysis. *Thoracic Cancer*. 6(3):307-18

²⁴ Hamra, G. B., Guha, N., Cohen, A., Laden, F., Raaschou-Nielsen, O., Samet, J. M., Vineis, P., Forastiere, F., Saldiva, P., Yorifuji, T., & Loomis, D. (2014). Outdoor particulate matter exposure and lung cancer: a systematic review and meta-analysis. *Environmental health perspectives*, 122(9), 906–911. <https://doi.org/10.1289/ehp/1408092>

²⁵ Wang, Meng, Carrie Pistenmaa Aaron, Jaime Madrigano, et al. (2019). Association Between Long-Term Exposure to Ambient Air Pollution and Change in Quantitatively Assessed Emphysema and Lung Function. *Journal of the American Medical Association*; 2019;332(6):546-556. doi:10.1001/jama.2019.10255

for developing cardiovascular problems^{26 27 28}. Air pollution increases the risk of heart disease and other cardiovascular conditions. Heart disease and diabetes have similar risk factors, and some Tribal public health centers are encouraging traditional foods consumption and activities to help prevent heart disease.

Neurological and Brain Development and Cognition

Multiple studies conducted by the National Academy of Sciences and the EPA have cited that air pollutants such as PM, SO₂, lead, mercury, and NO₂ have direct links to the impedance of cognitive abilities in young children and are more pronounced in elderly populations. For children, exposure to such pollutants may increase inflammation in their brains, leading to cognitive deficits and the presence of proteins characteristic to the development of Alzheimer's disease. Impediments for elderly people include "early decline of immediate free recall/new learning... which indicates increased Alzheimer's disease risk"²⁹. Studies have also suggested that mercury exposure poses a heightened risk to AI/AN populations. Some Tribes located near fresh and saltwater resources rely heavily on fish as a primary food source, which increases their risk for mercury exposure^{30 31}.

Reproductive Health

Air pollution can negatively impact reproductive function. A study conducted by Candela et al. (2013) finds a correlation between air pollution and adverse perinatal events such as preterm delivery and low birth weight³². Data from PubMed databases referencing over 100 independent studies with a correlation between animal and human epidemiological studies supports the idea that air pollutants cause defects during gametogenesis leading to a drop in reproductive capacities in exposed populations³³. Tellingly, AI/AN women have some of the highest preterm birth rates, miscarriages, and sudden infant death syndrome compared to non-AI/AN populations in the U.S. Reproductive health are worse among AI/AN people. AI/AN women have higher rates of teenage pregnancy, an increased likelihood of late or no prenatal

²⁶ Dockery DW, Pope CA, 3rd, Xu X, et al. (1993). An association between air pollution and mortality in six U.S. cities. *New England Journal of Medicine*; 329:1753-9

²⁷ Pope CA, 3rd, Burnett RT, Thun MJ, et al. (2002). Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution. *Journal of the American Medical Association*; 287:1132-41.

²⁸ Simoni M, Baldacci S, Maio S, et al. Adverse effects of outdoor pollution in the elderly. (2015). *Journal of Thoracic Disease*; 7:34-45

²⁹ Brockmeyer, Sam, and Amedeo D'Angiulli (2016). "How air pollution alters brain development: the role of neuroinflammation", *Translational Neuroscience*. doi: 10.1515/tnsci-2016-005

³⁰ Zhang Xin. (2018). The impact of exposure to air pollution on cognitive performance. *Proceedings of the National Academy of Sciences of the United States of America*. 115 (37) 9193-9197.

³¹ Younan, D., Petkus, A. J., Widaman, K. F., Wang, X., Casanova, R., Espeland, M. A., Gatz, M., Henderson, V. W., Manson, J. E., Rapp, S. R., Sachs, B. C., Serre, M. L., Gaussoin, S. A., Barnard, R., Saldana, S., Vizuete, W., Beavers, D. P., Salinas, J. A., Chui, H. C., ... Chen, J. (2019). Particulate matter and episodic memory decline mediated by early neuroanatomic biomarkers of Alzheimer's disease. *Brain*, 143(1), 289-302. <https://doi.org/10.1093/brain/awz348>.

³² Candela, S., Ranzi, A., Bonvicini, L., Baldacchini, F., Marzaroli, P., Evangelista, A. et al. (2013). Air pollution from incinerators and reproductive outcomes: a multisite study. *Epidemiology*; 24: 863–870

³³ Carre, Julie, Nicolas Gatimel, Jessika Moreau, Jean Parinaud, Roger Leandri. (2017). Does air pollution play a role in infertility? a systematic review. *Environmental Health* 16, Article number: 82

care, and higher rates of alcohol and tobacco use. Their infants are at greater risk of preterm birth, mortality, and sudden infant death syndrome than infants in the general population³⁴.

Connection to COVID-19

In early 2020, the first cases of COVID-19 were present in the U.S. Over the next year, COVID-19 has taken over 500,000 U.S. citizens, including citizens from AI/AN communities. According to statistics from multiple sources, AI/AN populations were some of the most impacted communities in the U.S., losing 1 in every 475 AI/AN, compared to 1 in every 825 non-AI/AN³⁵. The higher infection and mortality rates of AI/AN citizens is primarily due to the poor socioeconomic status and lack of basic infrastructure such as access to clean water. A study conducted by Italy's Northern Provinces of Lombardy and Emilia Romagna concluded that a high level of pollution in northern Italy should be considered an additional co-factor of the high level of lethality in that area. Furthermore, studies conducted in China by Zhu et al. (2020) found that there was a significant relationship between air pollution and COVID-19 infection³⁶³⁷. In AI/AN communities, many people also live in multigenerational housing, putting families and elders at risk. COVID mortality among AI/AN people is 1.8 times that of white people. Emerging research suggests that air pollution increases the risk of death from COVID³⁸.

Conclusion

The link between poor air quality and health impacts is well documented around the world. Poor air quality can lead to respiratory/pulmonary, asthma, lung cancer, emphysema, cardiovascular, neurological and brain development and cognition, and reproductive problems. Poor air quality within Tribal boundaries can increase COVID-19 infection rates. Healthy air quality is a fundamental human right that all Tribal nations and surrounding communities should be actively improving. Without maintaining air quality standards in AI/AN communities there is an increased risk of losing AI/AN citizens and degrading the environment. Every member of the AI/AN community is vital for continuing its cultural teachings and heritage.

³⁴ Health Care for Urban American Indian and Alaska Native Women. American College of Obstetricians and Gynecologists, 2012. <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2012/01/health-care-for-urban-american-indian-and-alaska-native-women>

³⁵ Ellis, R. (2021, February 05). COVID deadlier for Native Americans than other groups. Retrieved 2021, from <https://www.webmd.com/lung/news/20210204/covid-deadlier-for-native-americans-than-other-groups>

³⁶ Coronavirus and air pollution. (2020, November 10). Retrieved 2021, from <https://www.hsph.harvard.edu/change/subtopics/coronavirus-and-pollution/>

³⁷ Yongjian Zhu, Jingui Xie, Fengming Huang, Liqing Cao, Association between short-term exposure to air pollution and COVID-19 infection: Evidence from China, *Science of The Total Environment*, Volume 727, 2020, <https://doi.org/10.1016/j.scitotenv.2020.138704>.

³⁸ COVID-19 Mortality Among American Indian and Alaska Native Persons — 14 States, January–June 2020. Jessica Arrazola et al, *Morbidity and Mortality Weekly Report*, Centers for Disease Control and Prevention, 2020. <https://www.cdc.gov/mmwr/volumes/69/wr/mm6949a3.htm>



Credits and Acknowledgement

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Appendix A: NTAA Tribal Air Quality Budget Analysis

Funding and Resources

The EPA provides approximately \$12.4 million in funding to Indian Tribes under the Clean Air Act Sections 103 and 105 for air quality programs (see Table 2 below). *It's important to note that the current budget for FY22 has not been released from the Biden Administration as of the publishing of this report.* Indian Tribes have limited revenue sources. Many either do not have an air quality program or rely solely on EPA funds, which are crucial to Indian Tribes' ability to operate and maintain air quality programs on Tribal lands. As more and more Tribes seek to establish air quality programs, this funding level becomes even less sufficient. While this year's funding for air quality programs reflects the first increase in the last five years, there are also more federally recognized Tribes than in the past, and air quality programs have seen an overall reduction since 2012. The NTAA has consistently supported increased funding for Tribal air quality programs, specifically to:

- Restore funding to at least the highest historical funding levels
- Provide funding for Tribes seeking to establish an air program of their own
- Create new funding streams targeted at addressing critical needs such as indoor air quality, and climate change mitigation and adaptation
- Provide new funding to keep pace with increased new source permitting activity
- Provide funding to replace and repair aging air monitoring infrastructure

Tribes that are initiating new air programs, and nearly all the Tribes/Native Villages in Alaska, rely solely on the Indian Environmental General Assistance Program (GAP) funding, which has also been relatively stagnant over the last 10 years. To cover all their environmental programs with GAP funding forces tough choices for Tribal governments as to which of the worst challenges will be addressed. NTAA strongly supports an increase in GAP base funding. This Budget Analysis informs the audience of additional details on funding required to adequately operate Tribal air quality programs.

State and Tribal Assistance Grant (STAG) Allocations for Fiscal Years 2012-2021

Region	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	\$.657	\$.614	\$.623	\$.622	\$.594	\$.576	\$.566	\$.554	\$.621	\$.642
2	\$.440	\$.424	\$.425	\$.418	\$.403	\$.394	\$.389	\$.380	\$.368	\$.368
3									\$.077	\$.085
4	\$.331	\$.312	\$.317	\$.313	\$.316	\$.327	\$.328	\$.322	\$.317	\$.321
5	\$1.264	\$1.146	\$1.179	\$1.226	\$1.229	\$1.233	\$1.284	\$1.294	\$1.282	\$1.340
6	\$1.305	\$1.174	\$1.176	\$1.181	\$1.141	\$1.137	\$1.109	\$1.075	\$1.172	\$1.237
7	\$.465	\$.434	\$.500	\$.525	\$.535	\$.535	\$.575	\$.605	\$.563	\$.549
8	\$2.110	\$2.002	\$2.096	\$2.070	\$2.001	\$1.976	\$1.889	\$1.834	\$1.889	\$2.011
9	\$3.260	\$2.934	\$2.975	\$2.885	\$2.967	\$2.917	\$2.869	\$2.844	\$2.879	\$2.942
10*	\$2.657	\$2.421	\$2.467	\$2.444	\$2.464	\$2.450	\$2.468	\$2.442	\$2.599	\$2.859



Total	\$12.5	\$11.5	\$11.8	\$11.7	\$11.7	\$11.5	\$11.5	\$11.4	\$11.8	\$12.4
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All amounts are in millions of dollars. * Includes Alaska

Table 3 State and Tribal Assistance Grant Allocations for Fiscal Years 2012-2021

As an EPA Partnership organization, NTAA also encourages and facilitates partnerships between Tribes, the EPA, and other air quality entities, including state and local governments. Funding and technical resources from the EPA – especially for monitoring, analysis, co-regulation, and IAQ testing and remediation – are critical to supporting these efforts.

Permit Categories on Reservations

The Clean Air Act establishes emissions-related permitting programs, the pre-construction permit programs under Title I of the Act, and the operating permit program under Title V of the Act. EPA delegates their implementation to local air agencies. Tribes may implement their permit programs once approved by EPA either under the Tribal New Source Review rule or under the part 71 rule for Title V sources (Federal Implementation Plan) or by taking delegation of one or both Federal Implementation Plans (FIPs). Where a Tribe does not implement these programs, EPA issues the permits to the sources as appropriate. Some important terms related to permitting includes:

NSR – New Source Review – NSR is a Clean Air Act program (aka, the “preconstruction air permitting program”) that requires industrial facilities to install modern pollution control equipment when they are built or when making a change that increases emissions significantly. The program requires owners or operators to obtain permits before they begin construction.

Tribal New Source Review Rule – The Tribal NSR rule is a Federal Implementation Plan (FIP – a plan that is developed by the EPA to federally implement CAA requirements) that establishes the nonattainment NSR and minor NSR permitting programs in Indian country where no EPA-approved Tribal program exists. There are 2 parts – the minor NSR rule and the nonattainment major NSR rule. The permitting authority (either EPA or a Tribe that takes delegation from EPA) reviews the permit application and either grants or denies the permit after a public comment period.

PSD – Prevention of Significant Deterioration – Applicable to new and modified major sources in attainment areas, this program applies to regulated pollutants: NAAQS, GHGs, and others (sulfuric acid mist, hydrogen sulfide) but does not include air toxics (mercury, cadmium, benzene, etc.). The PSD program has specific requirements, such as to install Best Available Control Technology (BACT); perform air quality analysis to assess impacts on air quality; perform Class I area analysis to assess impacts on national parks/wilderness areas and Tribal Class I areas; perform additional impacts analysis; and allow for public involvement. This program can also be delegated to the Tribes or implemented through an EPA approved Tribal Program. NTAA published a white paper on PSD in 2022 that can be found on [NTAA’s website](#).



FARR – Federal Air Rules for Reservations (applicable in Region 10 only) – A set of air quality regulations that apply to Indian Reservations in Idaho, Oregon, and Washington.

Title V – Permits issued to major sources by states (Part 70), Tribes (Part 71), or EPA (Part 71). These operating permits include all the applicable CAA requirements that apply to a major source and are designed to improve compliance by clarifying what sources must do to control air pollution.

Major Source – Facilities that emit or have the potential to emit pollutants in amounts equal to or greater than the corresponding major source threshold levels. These levels vary by pollutant and/or source category. Major sources must comply with specific emission limits which are generally more stringent in nonattainment areas and if the pollutant is a criteria pollutant or an air toxic.

Minor Source – Facilities that have the potential to emit pollutants in amounts less than the corresponding major source thresholds.

Synthetic Minor Source – Facilities that have the potential to emit pollutants at or above the major source threshold level, but voluntarily accept enforceable limits to keep emissions below the major source thresholds and avoid the major NSR requirements.

Nonattainment Area – Areas of the country not meeting air quality standards (NAAQS).

Attainment Area – Areas of the country that have air quality as good as or better than the air quality standards for a given pollutant.

HAP – Hazardous Air Pollutant - pollutants (toxic air pollutants or air toxics) that are known to cause cancer and other serious health impacts. There are approximately 187 toxic air pollutants.

TAS – Treatment as a State

The Tribal Authority Rule authorizes EPA to treat eligible federally recognized Indian Tribes in the same manner as a state for implementing and managing certain environmental programs.

TAS Eligibility – A Tribe must meet certain criteria to be eligible for TAS. The Tribe must be federally recognized; have a governing body; have appropriate authority to regulate air quality (includes exterior boundaries of the reservation); and be capable of carrying out the functions of the program.

Administrative TAS – Examples include 105 grants, 107 designations, 126/505 notifications, 319 monitoring, permit review, redesignations, etc.

Regulatory TAS – Examples include Tribal Implementation Plan (TIP), delegation of a FIP, regional haze, or permit program, etc. Note: TAS is not required for all programs, e.g., program development, monitoring, and identifying areas of concern for Tribal communities.

Appendix B: Data Tables of Tribal Air Quality Programs and Grants

Tribal Air Quality Monitoring Programs and Projects

Tribes significantly contribute to air quality protection, exercising Tribal sovereignty through air quality program activities. At the request of the NTAA, EPA’s Office of Air and Radiation provided a set of data summarizing Tribal air activities from 2012-2021. A broad national summary of Tribal air quality programs can be found below, followed by regional summaries, with additional explanations of terms used in Appendix C.

The following data is used by the EPA to create budgets that influence CAA grant funding available to Tribes. The presentation of this data is illustrated in a simplified layout that is both easier to understand and more useful to readers. This simplified layout serves the important purpose of highlighting recent declines of funding and stagnation of Tribal air quality programs.

The data set was provided to the NTAA by EPA’s OAR Tribal System (OTS) database.

National Summary of Tribal Air Quality Programs

Table 4 National Summary of Tribal Air Quality Programs

National Summary of Tribal Air Quality Programs											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
STAG Funding (in millions)	\$12.49	\$11.46	\$11.76	\$11.68	\$11.65	\$11.55	\$11.48	\$11.35	\$11.77	\$12.35	\$12.35
Tribes Operating Air Monitors	81	83	84	83	85	83	85	86	88	85	86
Tribes w/ Completed EIs	74	73	84	86	84	80	78	73	62	74	80
Tribes w/ Non-Regulatory TAS	34	38	45	46	48	49	52	53	60	61	61
Tribes w/ Regulatory TAS	7	8	8	8	10	10	10	10	11	10	10
Major Sources on Reservations*	167	159	863	1626	1900	2991	342	367	368	400	372
Tribal Non-Attainment Areas**	201	156	156	202	167	166	166	198	199	113	113
Tribes with 105 Grants	25	25	32	34	35	39	40	40	47	47	51
Tribes with 103 Grants	84	84	96	77	78	75	82	78	74	80	66

*The values shown in this table reflect annual totals for all regions. The steep rise of Major Sources on Reservations in 2014-2017 is due to the introduction of new major source registration rules, which were applied to previously identified sources. This jump in major sources was caused by increased regulation, not by new pollutant sources. 2018-2021 totals are reflective only of actual permitted sources in Indian country.

**The decrease in Tribal Non-Attainment Areas in 2021 reflects a realignment of reporting protocols for Region 9 to ensure consistency with other Regions, not an actual change in the number of non-attainment areas.



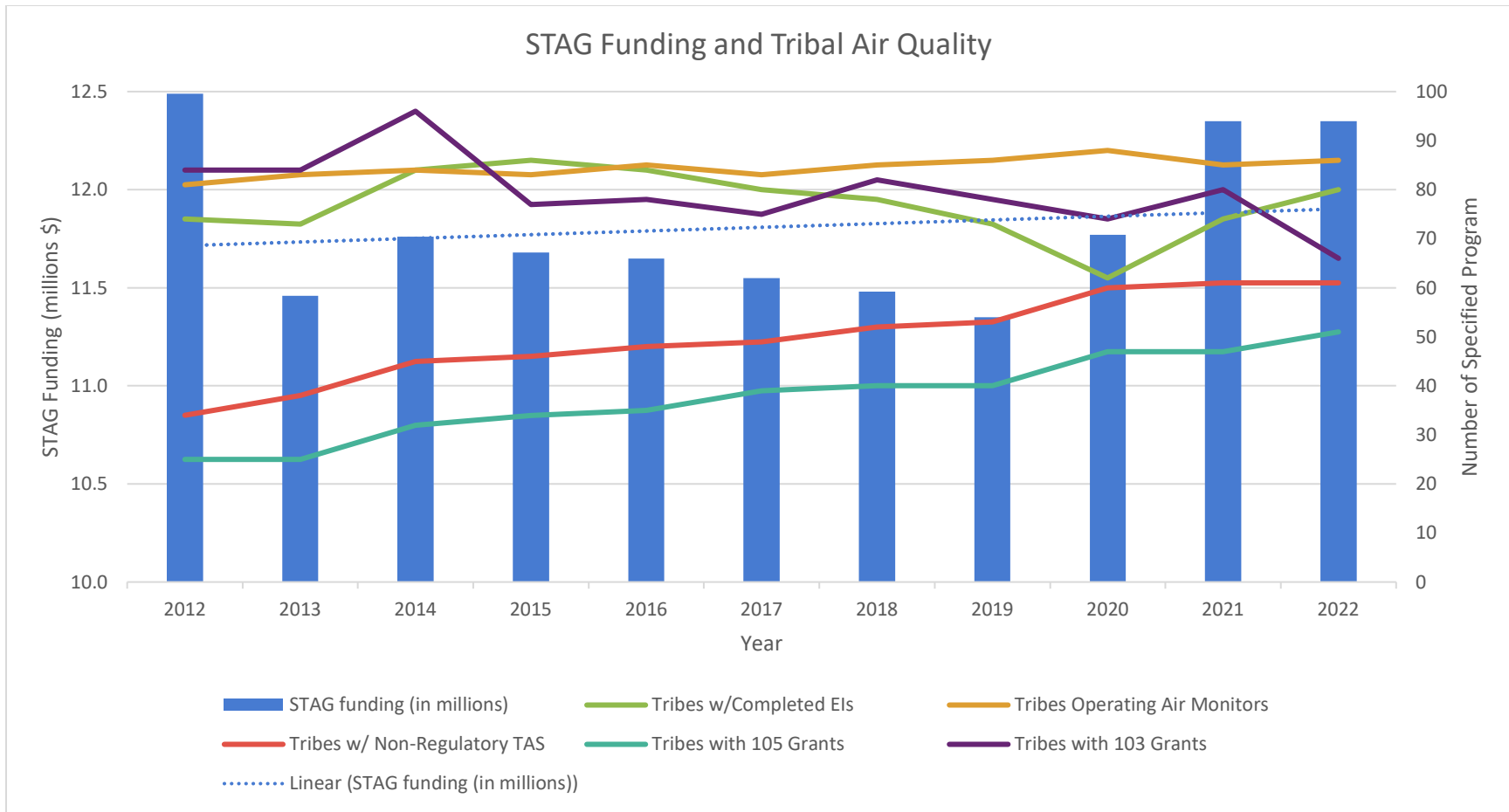


Table 5 STAG Funding and Tribal Air Quality Programs

STAG funding increased in 2021 and remained the same in 2022. However, this does not account for either inflation and/or the Cost-of-Living Adjustment.

Regional Summaries of Tribal Air Quality Programs

Table 6 Regional Summaries of Tribal Air Quality Programs

Region 1 - Summary of Tribal Air Quality Programs											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
STAG Funding (in thousands)	\$657	\$614	\$623	\$622	\$594	\$576	\$566	\$554	\$621	\$642	\$664
Tribes Operating Air Monitors	4	5	5	5	5	5	5	5	5	5	5
Tribes w/ Completed EIs	1	1	1	1	1	1	1	1	0	0	0
Tribes w/ Non-Regulatory TAS	1	2	2	2	2	2	2	2	4	3	4
Tribes w/ Regulatory TAS	2	2	2	2	2	2	2	2	2	2	2
Major Sources on Reservations	2	2	2	2	2	2	2	2	2	2	2
Tribal Non-Attainment Areas	5	5	5	5	3	3	3	3	5	3	3
Tribes with 105 Grants				2	2	2	2	2	4	3	4
Tribes with 103 Grants	8	8	8	4	4	4	5	5	4	3	2

Region 2 - Summary of Tribal Air Quality Programs											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
STAG Funding (in thousands)	\$440	\$424	\$425	\$418	\$403	\$394	\$389	\$380	\$368	\$368	\$363
Tribes Operating Air Monitors	1	1	1	1	1	1	1	1	1	1	1
Tribes w/ Completed EIs	0	1	1	1	1	1	1	0	0	0	0
Tribes w/ Non-Regulatory TAS	1	1	1	1	1	1	1	1	1	1	1
Tribes w/ Regulatory TAS	1	1	1	1	1	1	1	1	1	1	1
Major Sources on Reservations	1	1	1	1	1	1	1	1	1	1	1
Tribal Non-Attainment Areas	5	4	4	4	1	1	1	1	1	1	1
Tribes with 105 Grants				1	1	1	1	1	1	1	1
Tribes with 103 Grants	2	2	2	0	2	1	1	1	1	1	1



Region 3 - Summary of Tribal Air Quality Programs			
	2020	2021	2022
STAG Funding (in thousands)	\$77	\$85	\$84
Tribes Operating Air Monitors	0	0	0
Tribes w/ Completed EIs	0	0	0
Tribes w/ Non-Regulatory TAS	0	0	0
Tribes w/ Regulatory TAS	0	0	0
Major Sources on Reservations	0	0	0
Tribal Non-Attainment Areas	0	0	0
Tribes with 105 Grants	0	0	0
Tribes with 103 Grants	0	0	0

Region 4 - Summary of Tribal Air Quality Programs											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
STAG Funding (in thousands)	\$331	\$312	\$317	\$313	\$316	\$327	\$328	\$322	\$317	\$321	\$315
Tribes Operating Air Monitors	1	2	2	3	3	4	4	3	3	3	3
Tribes w/ Completed EIs	1	1	2	2	2	2	2	2	3	3	3
Tribes w/ Non-Regulatory TAS	1	1	1	1	1	1	1	1	1	1	1
Tribes w/ Regulatory TAS	0	0	0	0	0	0	0	0	0	0	0
Major Sources on Reservations	0	0	0	0	0	0	0	0	0	0	0
Tribal Non-Attainment Areas	1	0	0	0	0	0	0	0	0	0	0
Tribes with 105 Grants				1	1	1	1	1	1	1	1
Tribes with 103 Grants	2	2	3	3	3	4	4	3	3	3	3



Region 5 - Summary of Tribal Air Quality Programs											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
STAG Funding (in millions)	\$1.26	\$1.15	\$1.18	\$1.23	\$1.23	\$1.23	\$1.28	\$1.29	\$1.28	\$1.34	\$1.32
Tribes Operating Air Monitors	11	11	12	12	12	14	14	14	14	16	16
Tribes w/ Completed EIs	14	14	15	16	18	19	20	20	10	11	11
Tribes w/ Non-Regulatory TAS	4	4	5	5	5	6	7	7	8	8	8
Tribes w/ Regulatory TAS	0	0	0	0	0	0	0	0	0	0	0
Major Sources on Reservations	13	15	15	15	15	16	17	17	19	19	19
Tribal Non-Attainment Areas	5	5	5	5	4	4	4	4	4	4	4
Tribes with 105 Grants				5	5	5	7	7	8	8	8
Tribes with 103 Grants	15	15	19	11	12	10	10	9	8	8	8

Region 6 - Summary of Tribal Air Quality Programs											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
STAG Funding (in millions)	\$1.31	\$1.17	\$1.18	\$1.18	\$1.14	\$1.14	\$1.11	\$1.07	\$1.17	\$1.24	\$1.25
Tribes Operating Air Monitors	5	5	4	4	5	5	7	7	6	4	3
Tribes w/ Completed EIs	8	8	14	15	11	12	9	5	10	7	8
Tribes w/ Non-Regulatory TAS	2	2	3	3	4	4	5	6	7	8	7
Tribes w/ Regulatory TAS	0	0	0	0	0	0	0	0	0	0	0
Major Sources on Reservations	6	6	6	6	11	10	9	9	13	13	10
Tribal Non-Attainment Areas	0	0	0	0	0	0	0	0	1	1	1
Tribes with 105 Grants				0	0	1	1	1	3	4	5
Tribes with 103 Grants	9	9	9	10	7	8	15	12	11	11	10



Region 7 - Summary of Tribal Air Quality Programs											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
STAG Funding (in thousands)	\$465	\$434	\$500	\$525	\$535	\$535	\$575	\$605	\$563	\$549	\$536
Tribes Operating Air Monitors	4	4	5	4	4	4	5	6	4	4	4
Tribes w/ Completed EIs	6	6	6	6	6	6	6	6	4	4	5
Tribes w/ Non-Regulatory TAS	0	1	2	2	2	2	2	2	2	2	2
Tribes w/ Regulatory TAS	0	0	0	0	0	0	0	0	0	0	0
Major Sources on Reservations	4	4	4	4	4	4	4	4	4	4	4
Tribal Non-Attainment Areas	0	0	0	0	0	0	0	0	0	0	0
Tribes with 105 Grants				1	0	1	2	2	1	1	1
Tribes with 103 Grants	4	4	7	7	7	7	5	6	6	6	5

Region 8 - Summary of Tribal Air Quality Programs											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
STAG Funding (in millions)	\$2.11	\$2.00	\$2.10	\$2.07	\$2.00	\$1.98	\$1.89	\$1.83	\$1.89	\$2.01	\$1.99
Tribes Operating Air Monitors	10	10	10	10	10	10	9	9	11	11	13
Tribes w/ Completed EIs	18	13	14	14	14	8	8	8	4	4	4
Tribes w/ Non-Regulatory TAS	7	7	9	9	9	9	9	9	10	11	10
Tribes w/ Regulatory TAS	1	1	1	1	1	1	1	1	2	3	2
Major Sources on Reservations*	86	89/706†	702	1451	1719	2806	261	289	268	300	274
Tribal Non-Attainment Areas	3	3	3	3	3	3	3	4	2	3	3
Tribes with 105 Grants				7	6	8	8	8	8	8	8
Tribes with 103 Grants	11	11	11	14	14	13	13	13	16	18	11



*The steep rise of Major Sources on Reservations in 2014-2017 is due to the introduction of new major source registration rules, which were applied to previously identified sources. This includes newly identified oil and gas sources required to be registered for PSD permits. 2018 totals are reflective only of actual permitted sources in Indian country.

#In 2013, Region 8 reported this data using both old and new rules.

Region 9 - Summary of Tribal Air Quality Programs											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
STAG Funding (in millions)	\$3.26	\$2.93	\$2.97	\$2.89	\$2.97	\$2.92	\$2.87	\$2.84	\$2.88	\$2.94	\$2.91
Tribes Operating Air Monitors	29	29	29	29	30	29	27	28	30	27	27
Tribes w/ Completed EIs	17	19	21	21	24	24	24	24	10	10	11
Tribes w/ Non-Regulatory TAS	7	7	9	10	11	11	12	12	12	12	14
Tribes w/ Regulatory TAS	2	2	2	2	4	4	4	4	5	3	4
Major Sources on Reservations	21	21	21	21	22	22	22	18	25	24	23
Tribal Non-Attainment Areas	170	137	137	183	154	154	154	185	185	100*	100
Tribes with 105 Grants				4	7	7	5	6	7	7	8
Tribes with 103 Grants	23	23	23	26	26	25	25	24	20	24	11

* The decrease in Tribal Non-Attainment Areas in 2021 for Region 9 reflects a realignment of reporting protocols for the Region 9 to ensure consistency with other Regions, not an actual change in the number of non-attainment areas.

Region 10 - Summary of Tribal Air Quality Programs											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
STAG Funding (in millions)	\$2.66	\$2.42	\$2.47	\$2.44	\$2.46	\$2.45	\$2.47	\$2.44	\$2.60	\$2.86	\$2.90
Tribes Operating Air Monitors	16	16	16	15	15	13	13	13	14	14	14
Tribes w/ Completed EIs	9	10	10	10	7	7	7	7	21	35	38
Tribes w/ Non-Regulatory TAS	11	13	13	13	13	13	13	13	15	15	14
Tribes w/ Regulatory TAS	1	2	2	2	2	2	2	2	1	1	1



Major Sources on Reservations*	34	110	112	126	126	130	26	27	36	37	39
Tribal Non-Attainment Areas	12	2	2	2	1	1	1	1	1	1	0
Tribes with 105 Grants				13	13	13	13	12	14	14	15
Tribes with 103 Grants	10	10	14	2	3	3	4	5	5	6	6

*The steep rise of Major Sources on Reservations in 2014-2017 is due to the introduction of new major source registration rules, which were applied to previously identified sources. 2018 totals are reflective only of actual permitted sources in Indian country.

Tribal Diesel Emissions Reduction Act (DERA)

EPA’s Tribal DERA program awards grants to federally recognized Tribes, inter-Tribal consortium, and Alaska Native Villages for projects that reduce emissions from diesel engines. Through 2020, the Tribal DERA program required a high-cost share commitment, which was a barrier for most Tribes. In 2020, the NTAA wrote to the EPA with recommendations on ways to improve the Tribal DERA program so that Tribes could better utilize the funds. The EPA responded, in part, by removing the required cost share for the anticipated 2022 DERA RFP. The graph below provides the total amounts awarded from EPA, the total amounts of cost share borne by the Tribes, and the total number of awards for each year since the program began in 2009 through 2020.



Table 7 Tribal DERA Grant Awards

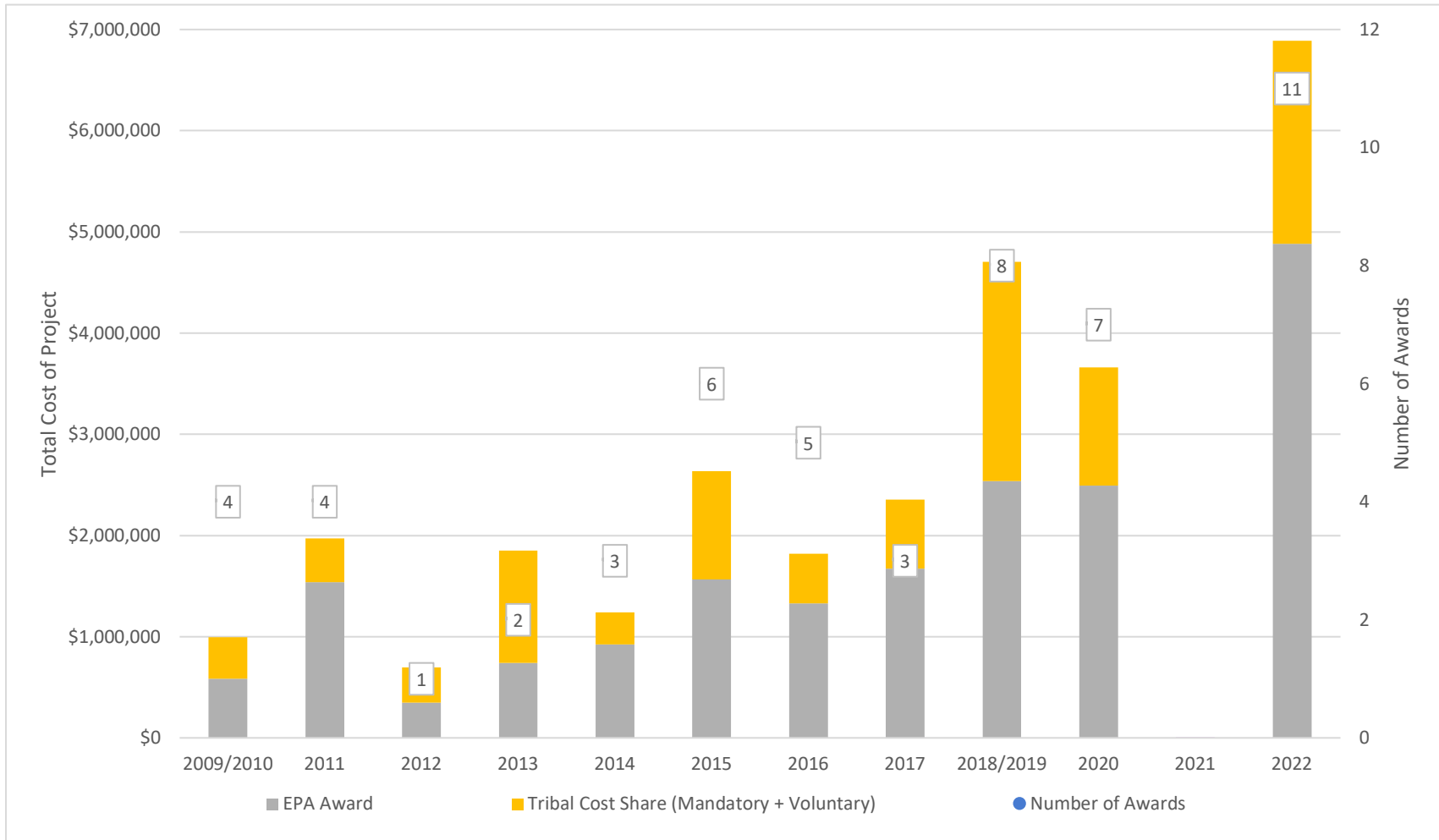


Figure 8 Note: for FY21, the mandatory cost share requirement was removed.



Appendix C: Member Tribes and Associate Members

List of 156 NTAA Member Tribes by EPA Regions

Region 1 (4 Tribes)

- Houlton Band of Maliseet Indians
- The Mohegan Tribe
- Passamaquoddy Tribe at Pleasant Point
- Penobscot Indian Nation

Region 2 (3 Tribes)

- Saint Regis Band of Mohawk Indians
- Seneca Nation of Indians
- Shinnecock Indian Tribe

Region 3 (2 Tribe)

- Chickahominy Indian Tribe
- Rappahannock Tribe

Region 4 (5 Tribes)

- Catawba Indian Nation
- Eastern Band of Cherokee
- Miccosukee Indian Tribe of Florida
- Mississippi Band of Choctaw Indians
- Poarch Band of Creek India

Region 5 (21 Tribes)

- Bad River Band of Lake Superior Tribe of Chippewa Indians
- Bois Forte Band of Chippewa
- Fond du Lac Band of Lake Superior Chippewa
- Forest County Potawatomi Community
- Grand Portage Band of Lake Superior Chippewa
- Grand Traverse Band of Ottawa & Chippewa Indians
- Keweenaw Bay Indian Community
- Lac du Flambeau Band of Lake Superior Chippewa Indians
- Leech Lake Band of Ojibwe
- Little Traverse Bay Bands of Odawa Indians
- Lower Sioux Indian Community
- Match-E-Be-Nash-She-Wish Band of Pottawatomis Indians of Michigan
- Menominee Indian Tribe of Wisconsin
- Oneida Tribe of Indians of Wisconsin
- Red Cliff Band of Lake Superior Chippewa Indians
- Red Lake Band of Chippewa Indians
- Saginaw Chippewa Indian Tribe of Michigan
- Sault Tribe of Chippewa Indians
- Shakopee Mdewakanton Sioux Community
- St. Croix Chippewa Indian of Wisconsin
- White Earth Nation

Region 6 (24 Tribes)

- Caddo Nation of Oklahoma
- Cherokee Nation of Oklahoma
- Choctaw Nation of Oklahoma
- Citizen Potawatomi Nation
- Delaware Nation of Oklahoma
- Fort Sill Apache Tribe of Oklahoma
- Iowa Tribe of Oklahoma
- Modoc Tribe of Oklahoma
- Muscogee Nation
- Ohkay Owingeh
- Ottawa Tribe of Oklahoma
- Pueblo of Acoma
- Pueblo of Jemez
- Pueblo of Laguna
- Pueblo of Pojoaque
- Pueblo of Santa Ana
- Pueblo of Santo Domingo
- Pueblo of Zia
- Pueblo of Zuni
- Quapaw Tribe of Oklahoma
- Sac and Fox Nation
- Seminole Nation of Oklahoma
- Taos Pueblo
- United Keetoowah Band of Cherokee Indians in Oklahoma

Region 7 (7 Tribes)

- Kickapoo Tribe in Kansas
- Ponca Tribe of Nebraska
- Prairie Band Potawatomi Nation
- Sac & Fox Tribe of the Mississippi in Iowa/Meskwi
- Sac & Fox Nation of Missouri in Kansas and Nebraska
- Santee Sioux Nation
- Winnebago Tribe of Nebraska

Region 8 (10 Tribes)

- Confederated Salish & Kootenai Tribes
- Fort Belknap Indian Community
- Fort Peck Tribes of Assiniboine & Sioux Tribe
- Northern Cheyenne Tribe
- Northwestern Band of Shoshone Nation
- Sisseton Wahpeton Oyate
- Southern Ute Indian Tribe
- Standing Rock Sioux Tribe
- Ute Indian Tribe
- Ute Mountain Ute Tribe

Region 9 (40 Tribes)

- Augustine Band of Cahuilla Indians
- Ak-Chin Indian Community
- Big Pine Paiute Tribe of the Owens Valley
- Bishop Paiute Tribe
- Blue Lake Rancheria
- Cahto Tribe of the Laytonville Rancheria
- Cahuilla Band of Indians
- Campo Band of Mission Indians
- Colorado River Indian Tribes
- Coyote Valley Band of Pomo Indians
- Elk Valley Rancheria
- Enterprise Rancheria Estom Yumeka Maidu Tribe

- Fort Independence Tribe of Paiute Indians
- Gila River Indian Community
- Habematolel Pomo of Upper Lake
- Hoopa Valley Tribe
- Hualapai Tribe
- Jamul Indian Village
- Kletsel Dehe Wintun Nation
- La Posta Band of Mission Indians
- Lone Pine Paiute Shoshone Reservation
- Los Coyotes Band of Cahuilla Cupeno Indians
- Manzanita Band of the Kumeyaay Nation
- Moapa Band of Paiutes
- Morongo Band of Mission Indians
- Pala Band of Mission Indians
- Pechanga Band of Luiseno Indians
- Pyramid Lake Paiute Tribe
- Robinson Rancheria of Pomo Indians
- Round Valley Indian Tribes
- Santa Ynez Band of Chumash Indians
- Soboba Band of Luiseno Indians
- Susanville Indian Rancheria
- Tejon Indian Tribe
- Tohono O’odham Nation
- Utu Gwaitu Paiute Tribe
- Walker River Paiute Tribe
- Washoe Tribe of Nevada and California
- White Mountain Apache Tribe
- Yavapai Apache Nation

Region 10 (15 Tribes)

- Coeur d’Alene Tribe
- Confederated Tribes of Warm Springs
- Confederated Tribes of the Colville Reservation
- Confederated Tribes of the Coos, Lower Umpqua & Siuslaw Indians
- Kootenai Tribe of Idaho
- Makah Indian Tribe
- Nez Perce Tribe
- Nisqually Tribe
- Quinalt Indian Nation
- Samish Indian Nation
- Shoshone Bannock Tribes
- Spokane Tribe
- Swinomish Indian Tribal Community
- Tulalip Tribes
- Yakama Nation

Alaska (25 Tribes and Villages)

- Aleknagik Traditional Council
- Alutiiq Tribe of Old Harbor
- Bristol Bay Native Association
- Chickaloon Village Traditional Council
- Craig Tribal Association
- Inupiat Community of the Arctic Slope
- Klawock Cooperative Association
- Native Village of Aniak
- Native Village of Buckland
- Native Village of Kiana
- Native Village of Kivalina (IRA)
- Native Village of Kluti-Kaah
- Native Village of Kwinhagak
- Native Village of Noatak



- Native Village of Nuiqsut
- Native Village of Selawik
- Native Village of Shungnak
- Native Village of Tyonek
- Noorvik Native Community
- Nulato Tribal Council

- Orutsararmuit Native Council
- Qawalangin Tribe of Unalaska
- Seldovia Village Tribe
- Ugashik Traditional Village
- Wrangell Cooperative Association

Associate NTAA Members

Inter-Tribal Consortia Associate Members

- Inter-Tribal Council of Arizona

Non-Governmental Organizations

- Moms Clean Air Force

Individual Associate Members

- Lisa Gover
- Maggie Li
- Melyssa Cruz Navis
- Franklin Telles



Appendix D: EPA OAR and OITA Organizational Charts

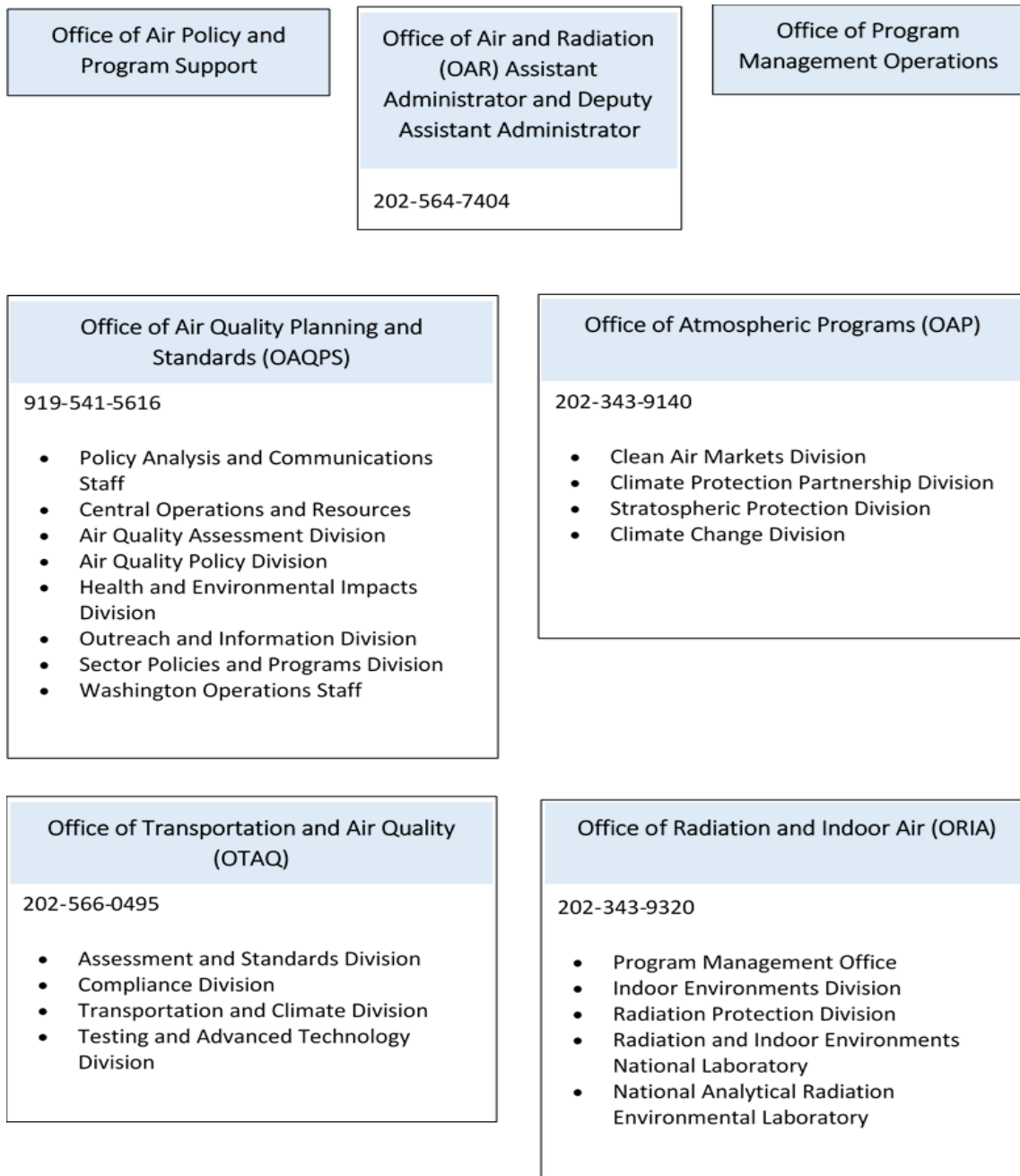


Figure 9 EPA OAR Organizational Chart

Additional information about the EPA Office of Air and Radiation can be found at: <https://www.epa.gov/aboutepa/about-office-air-and-radiation-oar>.

Office of International and Tribal Affairs (OITA)
 Assistant Administrator
 and Deputy Assistant Administrator

202-564-6600



Figure 10 EPA OITA Organizational Chart

Additional information about the EPA Office of International and Tribal Affairs can be found at: <https://www.epa.gov/aboutepa/about-office-international-and-tribal-affairs-oita>.

Appendix E: Notable Figures from the Baseline Needs Assessment

Tribal Nations with Survey Respondents by EPA Region

Region 1 – 3 Tribes

- Houlton Band of Maliseet Indians *
- Passamaquoddy Tribe of Pleasant Point*
- Wampanoag Tribe of Gay Head (Aquinnah)

Region 2 – 3 Tribes

- HETF-Tuscarora Environment
- Seneca Nation of Indians *
- Shinnecock Indian Nation *

Region 3 – 2 Tribes

- Chickahominy Indians Eastern Division *
- Rappahannock Indian Tribe

Region 4 - 3 Tribes

- Eastern Band of Cherokee Indians *
- Mississippi Band of Choctaw Indians *
- Seminole Tribe of Florida

Region 5 – 15 Tribes

- Bad River Band of the Lake Superior Tribe of Chippewa Indians
- Fond du Lac Band of Lake Superior Chippewa *
- Forest County Potawatomi Community *
- Grand Traverse Band of Ottawa & Chippewa Indians*
- Ho-Chunk Nation
- Keweenaw Bay Indian Community *
- Leech Lake Band of Ojibwe *
- Little Traverse Bay Bands of Odawa Indians *^
- Lower Sioux Indian Community *
- Mille Lacs Band of Ojibwe
- Minnesota Chippewa Tribe
- Oneida Nation*
- Pokagon Band of Potawatomi Indians
- Red Lake Band of Chippewa Indians *
- Sault Ste. Marie Tribe of Chippewa Indians *

Region 9 – 25 Tribes

- Alturas Indian Rancheria

Region 6 - 24 Tribes

- Caddo Nation *
- Cherokee Nation *
- Cheyenne and Arapaho Tribes ^
- Choctaw Nation of Oklahoma *
- Coushatta Tribe of Louisiana ^
- Delaware Nation of Oklahoma *
- Fort Sill Apache Tribe *
- Iowa Tribe of Oklahoma *
- Jicarilla Apache Nation
- Nambe Pueblo
- Navajo Nation ^
- Otoe-Missouria Tribe ^
- Peoria Tribe of Indians of Oklahoma
- Pueblo of Acoma *^
- Pueblo of Isleta
- Pueblo of Laguna *^
- Pueblo of San Felipe
- Pueblo of Santa Ana *
- Pueblo of Santa Clara
- Pueblo of Tesuque
- Taos Pueblo *
- Thlopthlocco Tribal Town
- United Keetoowah Band of Cherokee Indians *
- Quapaw Tribe of Oklahoma *^

Region 7 – 6 Tribes

- Prairie Band Potawatomi Nation *
- Sac & Fox Nation
- Sac & Fox Nation of Missouri in Kansas and Nebraska
- Sac & Fox Tribe of the Mississippi in Iowa *
- Santee Sioux Nation of Nebraska *
- Winnebago Tribe of Nebraska *^

Region 8 – 7 Tribes

- Confederated Salish & Kootenai Tribes *^
- Crow Tribe
- Fort Peck Assiniboine & Sioux Tribes *^
- Sisseton Wahpeton Oyate *
- Spirit Lake Nation
- Three Affiliated Tribes of the Mandan, Hidatsa & Arikara Nations
- Ute Mountain Ute Tribe *



- Bear River Band of the Rohnerville Rancheria
- Big Lagoon Rancheria
- Chemehuevi Indian Tribe
- Ely Shoshone Tribe
- Fallon Paiute Shoshone Tribe ^
- Gila River Indian Community *^
- Hoopa Valley Tribe *^
- Hualapai Tribe *^
- Iipay Nation of Santa Ysabel
- La Posta Band of Mission Indians *
- Morongo Band of Mission Indians *^
- Navajo Nation ^
- North Fork Rancheria of Mono Indians of California
- Pechanga Band of Luiseno Indians *^
- Pinoleville Pomo Nation
- Pyramid Lake Paiute Tribe *
- Ramona Band of Cahuilla
- Santa Ynez Band of Chumash Indians *
- Soboba Band of San Luiseno Indians *
- Susanville Indian Rancheria
- Table Mountain Rancheria ^
- Tohono O'odham Nation *
- Tuolumne Band of Me-Wuk Indians
- Viejas Band of Kumeyaay Indians

Region 10 (not including AK) – 11 Tribes

- Confederated Tribes of the Grand Ronde
- Confederated Tribes of Warm Springs *
- Cow Creek Band of Umpqua Tribe of Indians
- Jamestown S'Klallam Tribe
- Klamath Tribe
- Kootenai Tribe of Idaho *
- Makah Indian Tribe *
- Nez Perce Tribe *
- Samish Indian Nation *
- Shoshone Bannock Tribes *
- Spokane Tribe of Indians *

* Indicates NTAA Membership

^ Indicates Multiple Responses from Tribe/Village

Alaska - 30 Tribes and Villages

- Aleutian Pribilof Islands Association
- Beaver Tribe
- Cheforak Village
- Chevak Native Village
- Chilkoot Indian Association
- Chinik Eskimo Community
- Copper River Native Association
- Craig Tribal Association *
- Holy Cross Tribe ^
- Kongiganak Native Village
- Louden Tribal Council ^
- Native Village of Afognak
- Native Village of Alakanuk
- Native Village of Brevig Mission
- Native Village of Iliamna
- Native Village of Kluti-Kaah *
- Native Village of Kwigillingok
- Native Village of Port Lions ^
- Native Village of Saint Michael
- Native Village of Wales
- Nondalton Village
- Noorvik Native Community
- Organized Village of Kasaan
- Orutsararmiut Native Council *
- Salamatof Tribe
- Seldovia Village Tribe *
- Native Village of Tetlin
- Traditional Council of Togiak
- Ugashik Traditional Village *
- Wainwright Village

Tribal-Affiliated Organizations - 4 Organizations

- Bristol Bay Area Health Corporation (AK) *
- Columbia River Inter-Tribal Fish Commission
- Southeast Alaska Regional Health Consortium (AK)
- Tribal EcoRestoration Alliance (CA)



The following are results from the BNA Survey: Human Resources to Address Air Quality. Not all Tribes have an air quality program. Oftentimes, air quality activities are conducted under different departments because they have more capacity and resources, such as Environment/Environmental Protection or Natural Resources. Table 2 depicts the estimated amount of personnel per program in which air quality has the least number of responses and staff.

	Environment/ Environmental Protection		Natural Resources		Air Quality	
	n	%	n	%	n	%
1-5	90	66.7%	50	41.3%	76	69.7%
6-10	22	16.3%	19	15.7%	8	7.3%
11-15	5	3.7%	10	8.3%	4	3.7%
16-20	3	2.2%	2	1.7%	0	0.0%
21 or More	6	4.4%	16	13.2%	0	0.0%
Don't Know	9	6.7%	24	19.8%	21	19.3%
Total	135	100.0%	121	100.0%	109	100.0%

Table 8 Number of Full-Time Employees (FTE) in each Tribal department. “N” equals the total number of respondents, not the total number of Tribes

In the survey, respondents were asked to rate their level of agreement with several statements about staffing and human resources issues.

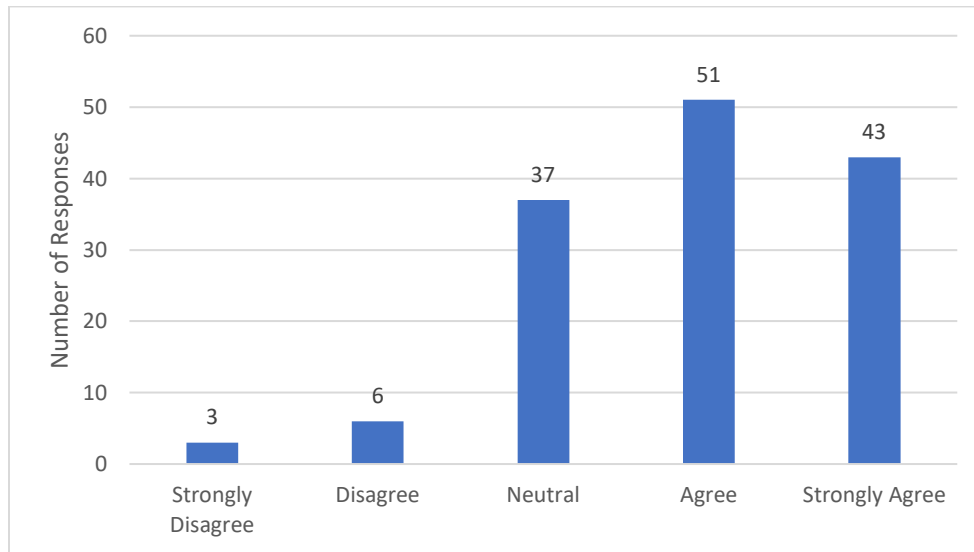


Figure 11 Participant responses regarding this statement: “Finding and retaining candidates interested in air quality can be difficult”. (n = 140)

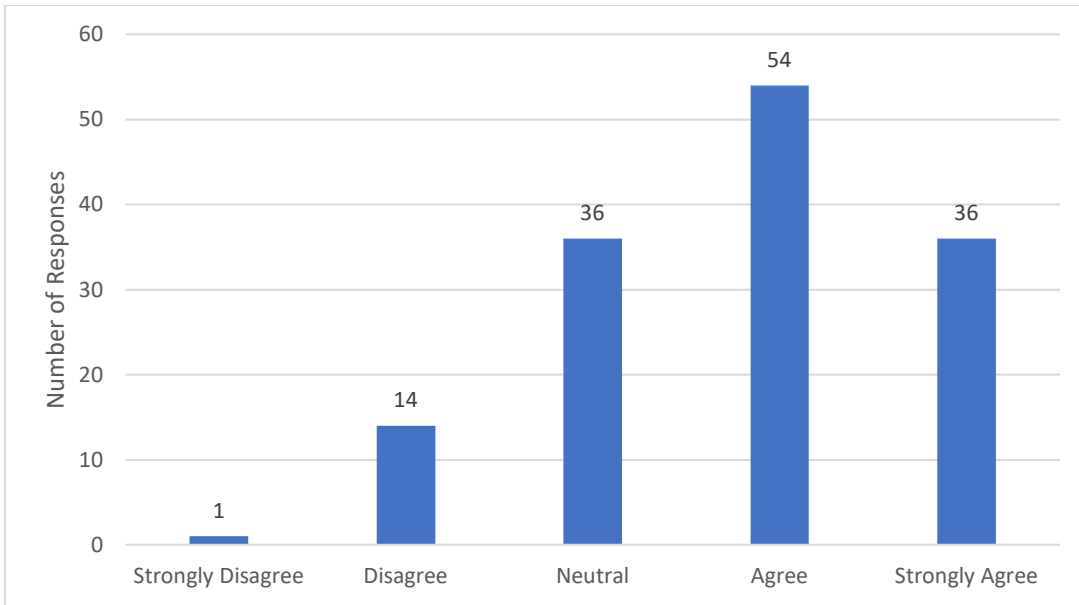


Figure 12 Participant responses regarding this statement: “Salaries are not competitive for staff retention”. (n = 141)

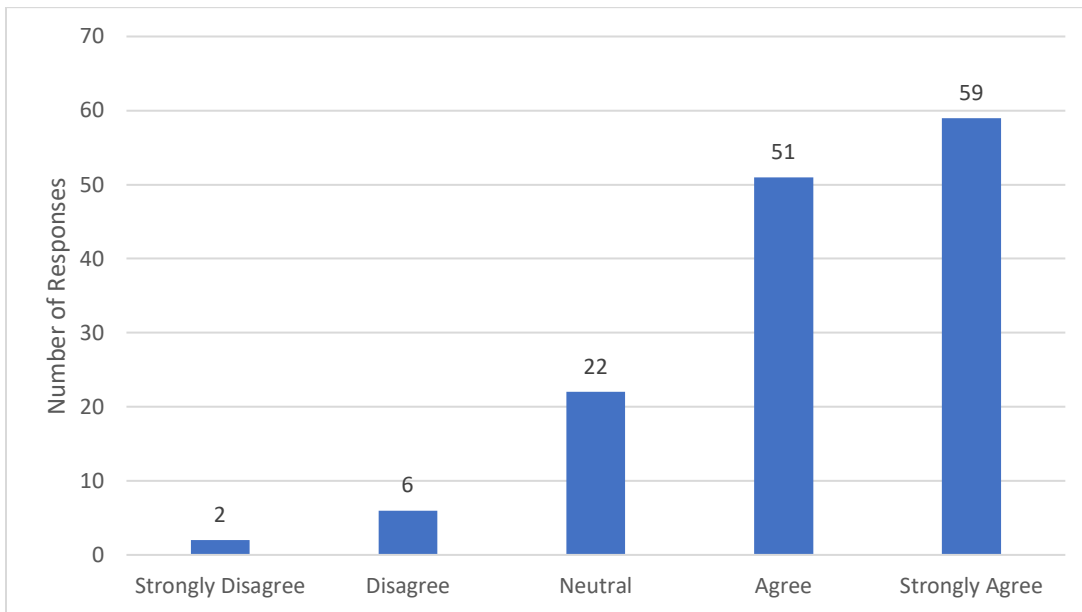


Figure 13 Participant responses regarding this statement: “Employee turnover can negatively impact the continuity of air quality activities”. (n = 140)

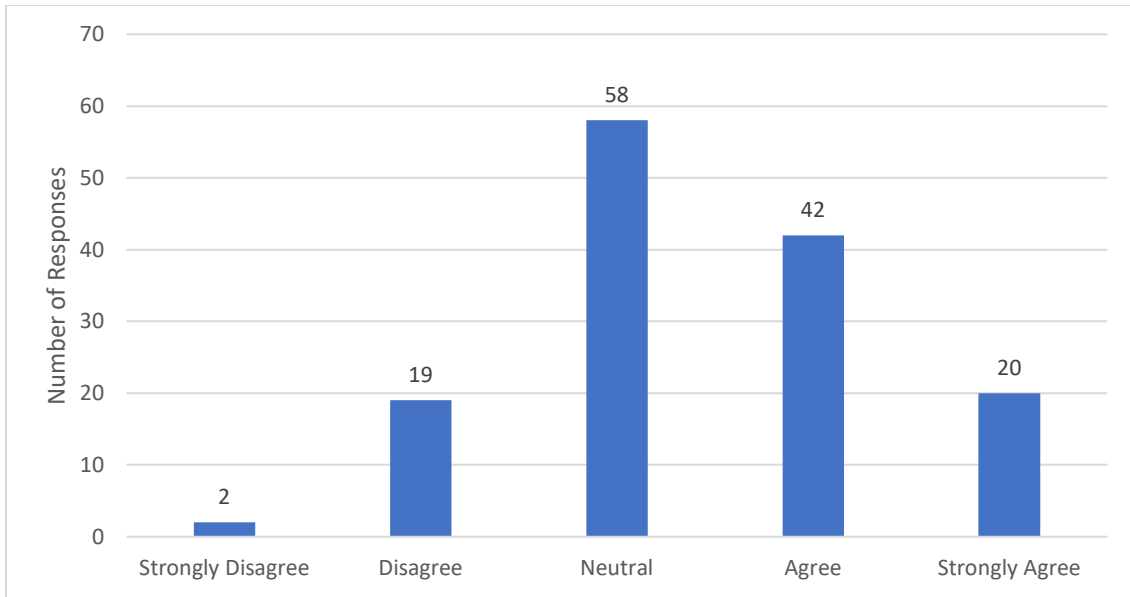


Figure 14 Participant responses regarding this statement: “Hiring permanent staff is difficult because of high fringe rates”. (n = 141)

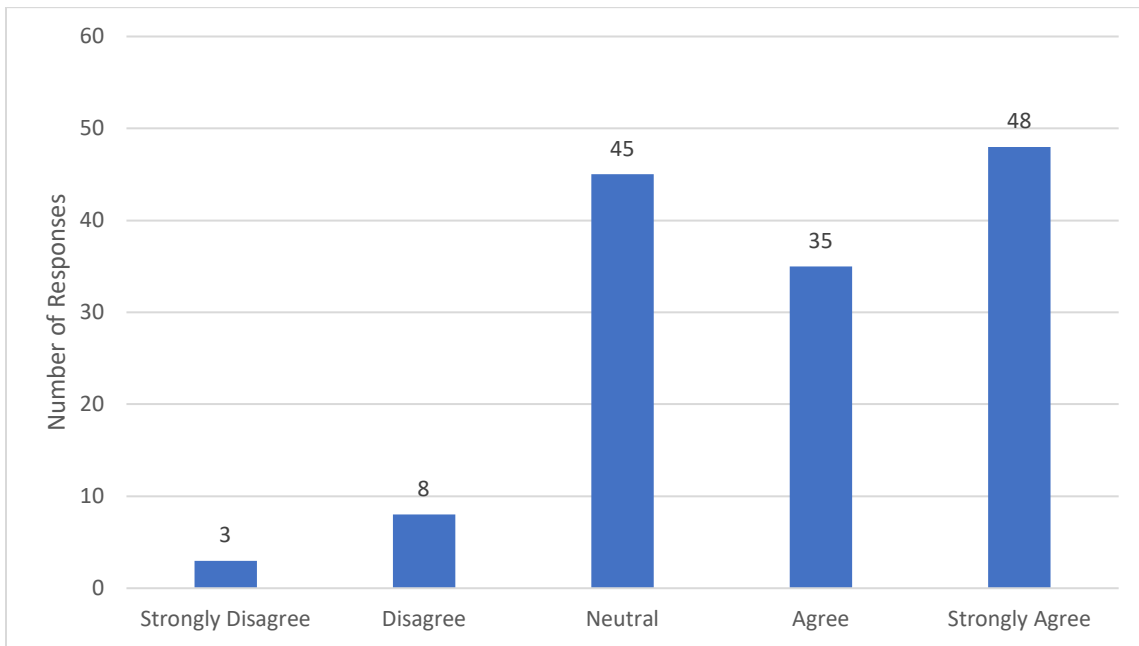


Figure 15 Participant responses regarding this statement: “Current funding is too low to fully fund the employees that we need for our air quality program”. (n = 139)

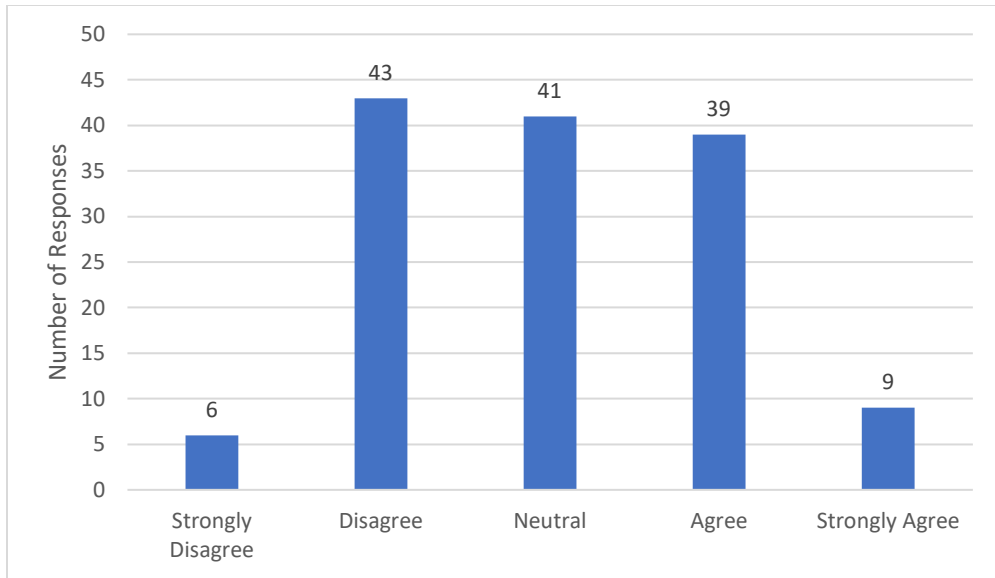


Figure 16 Participant responses regarding this statement: “Air quality staff have a lack of training opportunities available”. (n = 138)

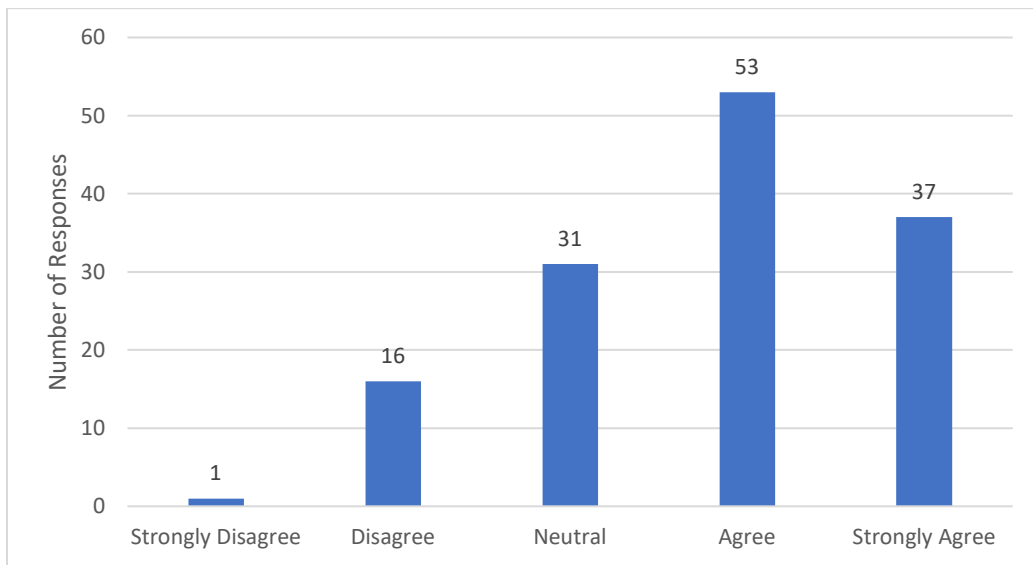


Figure 17 Participant responses regarding this statement: “Air quality staff have a steep learning curve because of the scientific and technical elements of many air quality activities”. (n = 138)

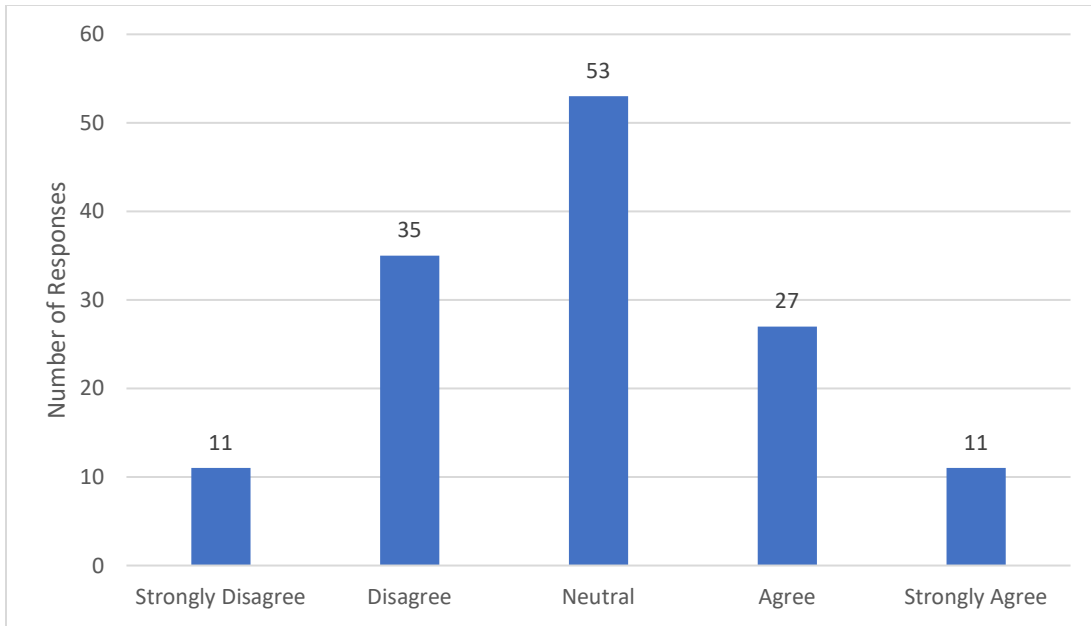


Figure 18 Participant responses regarding this statement: “Grant restrictions prevent my Tribe from developing an air quality program”. (n = 137)

Results of Survey Part 5: Ambient Air Quality Issues and Concerns

In the survey, Tribes were asked to identify which criteria air pollutants and ambient air pollutant sources were negatively impacting Tribal air quality

Pollutant	n	%
Ozone	55	47.0%
Fine Particulate Matter (PM2.5)	93	79.5%
Course Particulate Matter (PM10)	70	59.8%
Sulfur Dioxide	26	22.2%
Nitrogen Dioxide	27	23.1%
Carbon Monoxide	33	28.2%
Lead	17	14.5%

Table 9 EPA Criteria Air Pollutants Impacting Tribal Air Quality. (n = 117)

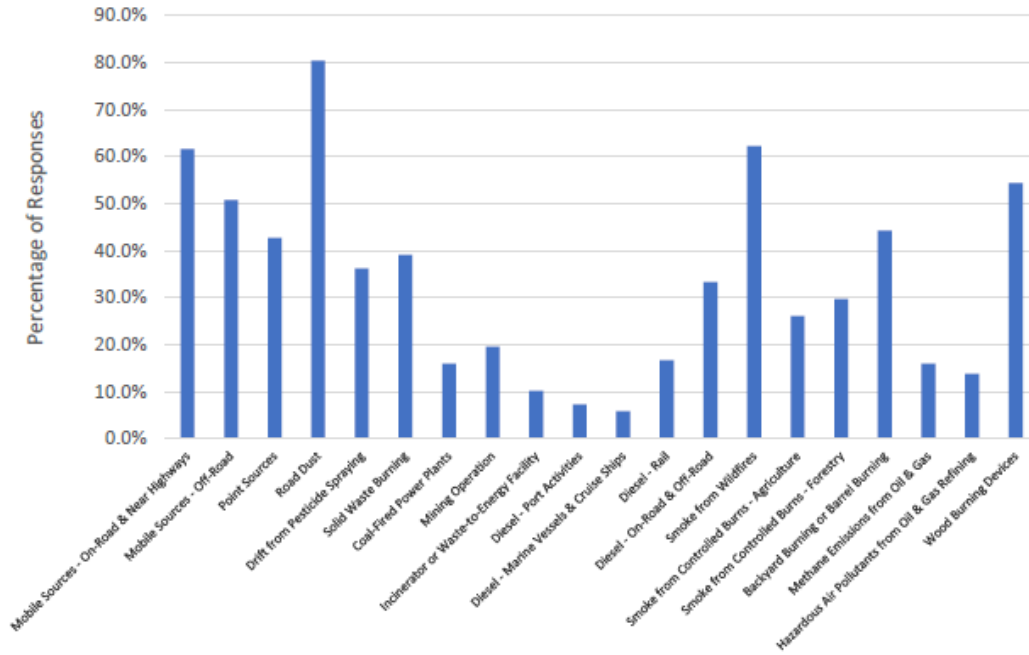


Table 10 Sources of ambient air pollution that impact Tribes. (n = 138)

Results of Survey Part 6: Indoor Air Quality Issues and Concerns

When asked about indoor air pollutant concerns for Tribal housing (Figure 51), mold and moisture ranked as the most concerning at 90.1% (n = 118). Mold and moisture also had the most responses for Tribal public/community buildings in Figure 52 (82.6%, n = 100). The second most concerning pollutant identified were allergy and asthma triggers at 77.9% (n = 102) and 74.4% (n = 90), respectively.

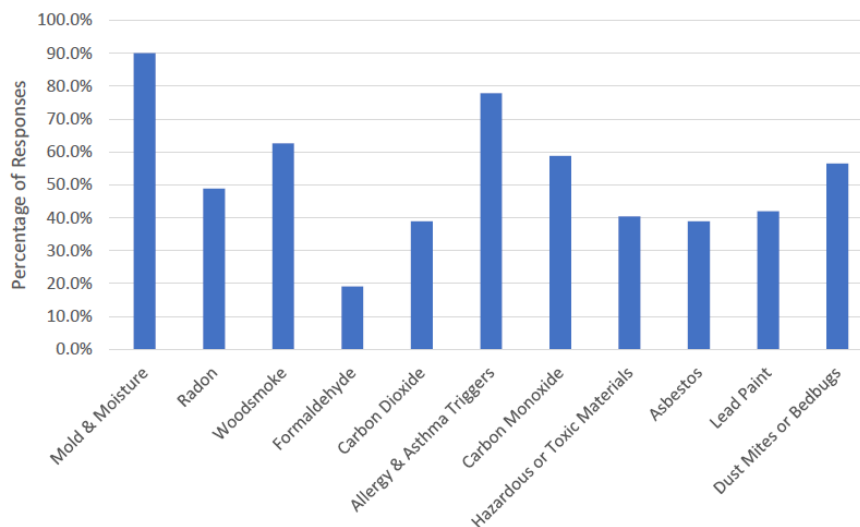


Figure 19 Indoor air pollutant concerns for Tribal housing. (n = 131)

2022 STAR References

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ⁱⁱ Survey question #28 asked those Tribes who do currently receive CAA 103 or 105 air quality grants to estimate their total estimated annual grant amount (the sum of their current funding plus their unmet funding needs). A total of 89 survey respondents answered this question, selecting from a value range. Respondent count for each range: \$25k-\$49k (n=6), \$50k - \$74k (n=6), \$75k - \$99k (n=17), \$100k - \$124k (n=16), \$125k - \$149k (n=13), \$150k - \$174k (n=4), \$175k - \$199k (n=8), \$200k - \$224k (n=4), \$225k - \$249k (n=3), \$250k - \$274k (n=1), \$275k - \$299k (n=1), \$300k or greater (n=10). The mid-point value in each range was used, then multiplied by the number of respondents in that range. As example, 6 respondents indicated a total grant need of \$25,000 - \$49,000. The mid-point value in this range, \$37,499.50, was multiplied by 6 (number of respondents in this value range), for a total of \$224,997.00. This formula was then applied to all of the value ranges, for a combined total of \$12,937,461.

ⁱⁱⁱ Survey question #26 asked those Tribes who do not receive CAA 103 or 105 air quality grants to estimate their estimated annual grant amount. A total of 76 survey respondents answered this question, selecting from a value range. Respondent count for each range: \$25k-\$49k (n=4), \$50k - \$74k (n=13), \$75k - \$99k (n=14), \$100k - \$124k (n=18), \$125k - \$149k (n=11), \$150k - \$174k (n=5), \$175k - \$199k (n=5), \$200k - \$224k (n=0), \$225k - \$249k (n=3), \$250k - \$274k (n=0), \$275k - \$299k (n=0), \$300k or greater (n=3). The mid-point value in each range was used, then multiplied by the number of respondents in that range. As example, 4 respondents indicated a total grant need of \$25,000 - \$49,000. The mid-point value in this range, \$37,499.50, was multiplied by 4 (number of respondents in this value range), for a total of \$149,998.00. This formula was then applied to all of the value ranges, for a combined total of \$9,087,464.

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^x "Climate Change Health Assessment." Center for Infectious Disease Research and Policy at <http://www.cidrap.umn.edu/practice/climate-change-health-assessment> (last visited on March 12, 2017).

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^{xii} Id. In the Northwest Arctic, more than 10.5 million acres burned between 1950 and 2007, including 24.1% of boreal forest and 9.2% of the tundra (Joly et al., 2009). In 2007, the largest tundra fires on record occurred on the North Slope, burning over 240,000 acres in a single season

^{xiii} Id. In the Northwest Arctic, more than 10.5 million acres burned between 1950 and 2007, including 24.1% of boreal forest and 9.2% of the tundra (Joly et al., 2009). In 2007, the largest tundra fires on record occurred on the North Slope, burning over 240,000 acres in a single season.

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