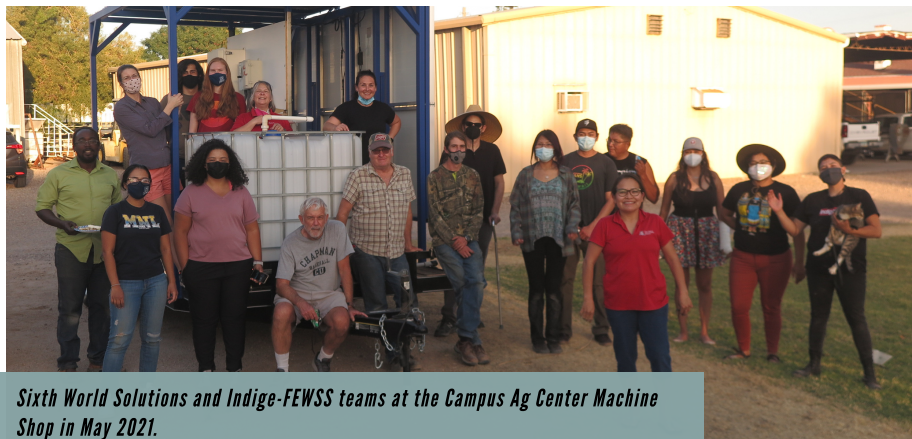




INDIGENOUS FOOD, ENERGY, & WATER SECURITY AND SOVEREIGNTY NEWSLETTER



Sixth World Solutions and Indige-FEWSS teams at the Campus Ag Center Machine Shop in May 2021.

PHOTO CREDIT: TORRAN ANDERSON

ABOUT INDIGE-FEWSS

The Indige-FEWSS program at the University of Arizona is a National Science Foundation - National Research Traineeship (NSF-NRT) that aims to develop and implement transformative models for science, technology, engineering, and mathematics (STEM) graduate education training. With our partner institution, Diné College, we provide unique, on-site research and training for tribal undergraduate and UArizona graduate students to work with and within Indigenous communities with respect and fellowship.

IN THIS ISSUE:

- A Year in Review
Page 2
- COVID-19 Response
Page 3
- Program Highlights
Page 4-5
- Transdisciplinary Trainee Leadership
Page 6
- Bridge to Steam
Page 7
- Trainee Spotlight
Page 8
- 2021 Graduates
Page 9
- Team Spotlight
page 10
- Welcome Our New Cohort!
Page 11
- Community Partners
Page 12
- Meet the Designers
Page 13



CHEE 514 student presentations on FEWS solutions for off-grid communities; Advisory Board Members provided feedback on these real-world solutions. May 2021

A MESSAGE FROM THE PI DR. KARLETTA CHIEF (DINÉ)

On behalf of Indige-FEWSS I wish you and your family health and safety during these unprecedented times. I'm happy to share program highlights of our Trainees, Faculty, and Community Partners. Every week during our seminar course, I work with the third cohort of trainees. These classes have included many practical sessions to prepare students for working with Indigenous communities. You'll read about our projects, collaborations, awards, and trainee achievements in this newsletter and the links.

The Indige-FEWSS project continues to extend its reach into the community through our COVID-19 response, Native Voices in STEM series, and new grant-funded projects. Seeing the work of the Indige-FEWSS team makes me appreciate the commitment and passion of the trainees, partners, and faculty to make a real difference in addressing the FEWS challenges in Indigenous communities.

We're excited to welcome our final cohort of Indige-FEWSS trainees in Fall 2021. Our team is working to continue the valuable training and community engagement elements of the program after the NSF funding concludes. With institutional support and many devoted faculty and staff, we see a bright future for the Indige-FEWSS mission!

Learn more about our program & check our new website!

<https://environment.arizona.edu/indigefewss>



A YEAR IN REVIEW

ARIZONA GRANTS WITH PARTNERS

DigDeep

Haury Program Grant, Tribal Resilience Initiative Projects: Off-Grid Water Purification Units in Navajo Nation

Diné College Land Grant Office

IEEE Nuclear and Plasma Sciences Society (NPSS) Donation Gift to Dr. Kelly Simmons-Potter and Dr. Murat Kacira to advance the solar greenhouse pilot unit at Diné College Land Grant Office

Diné College

USDA-NIFA Advancing Post-secondary Attainment and Research in STEAM for Tribal Students - the "Bridge to STEAM" program

Diné College

Tribal College Research Grant Program (TCRGP) - "Decision support for agricultural reuse of municipal wastewater effluent in the Navajo Nation"

Water Access Coordinator Group (WACC)

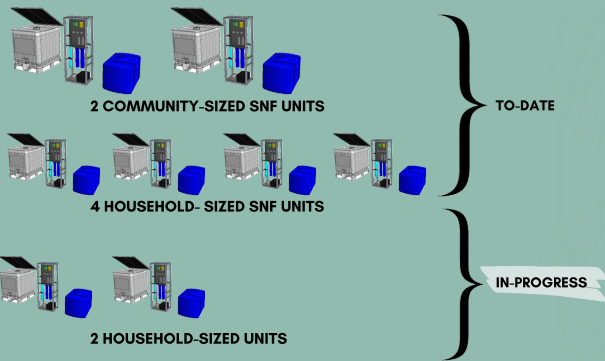
Haury Program Grant, Tribal Resilience Initiative Projects: Navajo COVID-19 Water Needs Data Mapping

Sixth-World Solutions

Arizona Institutes for Resilience: Indigenous resilience: Co-designing and deploying off-grid household solar nanofiltration water systems for remote Navajo communities

BY THE NUMBERS

SOLAR NANOFILTRATION UNITS



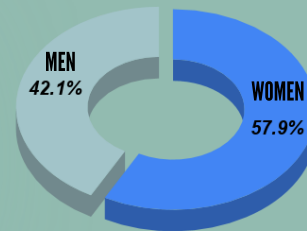
20-21 PUBLICATIONS

13

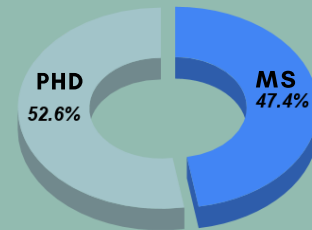
Find the most recent publications [here](#).

INDIGE-FEWSS COHORT

TRAINEE DEMOGRAPHICS



GRADUATE DEGREE PROGRAM



NATIVE VOICES IN STEM

SEMINAR SERIES



Native Voices in STEM (NVIS) celebrates its speakers from the 2020-2021 academic year. The professional seminar series invites Native scientists, engineers, activists, community members, and leaders to share their personal and professional journeys, providing inspiration to the next generation of change-makers. These events are open to the public and allow for the students, staff, and faculty at the University of Arizona to engage with the Native STEM community. NVIS aims to foster a close-knit and culturally responsive community. Find more information regarding our speakers and watch the recordings of the series [here](#).

Thank you to the **UArizona-Sloan Indigenous Graduate Partnership & the School of Natural Resources and the Environment for Co-Sponsoring the NVIS 2020-2021 SEMINAR SERIES!**

INDIGE-FEWSS COVID-19 RESPONSE



Photo Credit - Nikki Tulley, "Family Adaptations Navajo Nation 2020" - Winning Entry to the WRRC 2021 Photo Contest

The Navajo Nation identified food, energy, and water systems (FEWS) insecurities as a top priority in their COVID-19 response and mitigation. The lack of access to clean water during the pandemic has proven detrimental to Navajo communities. The Indige-FEWSS team has been working to address this by:

- **NEW:** Water Hub created with support from Haury; Nikki Tulley co-leader
- **NEW:** AIR/RII grant for Sixth World Solutions and IndigeFEWSS to build four SNF units for use by households and workforce development on Navajo Nation
- **NEW:** Haury grant for DigDeep and IndigeFEWSS to build two large SNF units for use by Chapter Houses on Navajo Nation
- **NEW:** Dr. Chief, Dr. Tulley-Cordova, Ms. Becker, and Dr. Megdal participated in the American Water Resources Association on a panel titled *The Wicked Water Problems in the Navajo Nation Heightened by the COVID-19 Pandemic*
- **NEW:** Dr. Chief and Navajo President Jonathan Nez presented to WRRC series on "Water and COVID-19 in Indian Country"
- **NEW:** Navajo Water Access Coordinator Group (WACG) contributions and [Good Works Documentary](#).
- **CONTINUED:** Collaborating with Diné (Navajo) tribal government, tribal utilities, and community members to address water security

2021 STEM FOR ALL VIDEO SHOWCASE

The 2021 STEM for All Video Showcase focused on COVID, Equity & Social Justice. Indige-FEWSS trainee Nikki Tulley co-produced a video for the showcase titled, *Rising to the Call: Indige-FEWSS Navajo Nation COVID-19 Response*. The video highlights our team's efforts to support the Navajo Nation in responding to the 2020 COVID-19 Pandemic. Watch the video [here](#).

UArizona COVID-19 Update:

The UArizona Tucson campus is keeping the community safe and healthy with an aggressive "Test, Trace, Treat" program. Students, staff and faculty are now returning to campus for learning and research activities. Vaccination rates are increasing, infection rates remain low, and UA anticipates an easing of travel restrictions for Fall 2021. [Read more here](#).



NIKKI TULLEY

Nikki Tulley is a member of the Navajo Nation. She is a Ph.D. candidate in the Department of Environmental Science with a concentration in Hydrosience at the University of Arizona. Her research focuses on ensuring that people living in Indigenous communities have access to clean drinking water to sustain their way of life in an ever-changing environment through sustainable practices and water policies and management. She is an Alfred P. Sloan 2018-2021 Scholar, American Indian Graduate Center Fellow, and an American Indian Science and Engineering Society Sequoyah Fellow. Tulley has interned with the Center for the Future of Arizona. She is a research assistant for the Water Resources in NASA's Western Water Applications Office. With NASA's [DSET tool](#), Tulley has been involved in the capacity building component of using earth observations and satellite imagery used with work on the Navajo Nation.

PROJECTS & ACCOLADES

The Haury Water Hub
NASA Western Water Applications Office
Podcast Series: [The Navajo Nation and Clean Water: The Story of Two Sisters](#)
Exceptional Women Film 2021
Festival Award: Lifeblood of the People
WRRC 2021 Photo Contest, Best of People and Their Animals: Winner for Family Pandemic Adaptations - Navajo Nation 2020

PROGRAM HIGHLIGHTS



Sixth World Solutions team members take a break from constructing solar-powered nanofiltration units at UArizona Campus Agriculture Center machine shop in December 2020 (Photo by Kern Collymore)

For the Diné Community, By the Diné Community

A partnership between IndigeFEWSS and Sixth-World Solutions (SWS) has received a \$100,000 grant from the Arizona Institutes for Resilience (AIR) entitled "Indigenous resilience: Co-designing and deploying off-grid household solar nanofiltration water systems for remote Navajo communities." This 6-month project aims to increase Indigenous community resilience, water security and sovereignty through the deployment of off-grid, solar-powered nanofiltration (SNF) water purification systems that are designed, built, and operated by Diné citizens. **Read the full story [here](#).**

Dr. Valerie Shirley Leads the Community Engagement Dialogue

The 2020-2021 weekly seminar for IndigeFEWSS Trainees focused on community engagement and preparing our team to work with and within Indigenous communities with respect and fellowship. Dr. Valerie Shirley an Assistant Professor in the Department of Teaching, Learning and Sociocultural Studies, led discussions on "decolonizing methodologies." Dr. Karletta Chief led discussions on case studies with invited guests Dr. Ranalda Tsosie, Dr. Channah Rock and Dr. Jeanne McClain, and Dr. Monica Ramirez-Andreotta.



Reference: Linda Tuhiwai Smith's *Decolonizing Methodologies: Research and Indigenous Peoples*

CHEE 514: Sustainable Water Supplies for Remote Communities

This GIPD Indige-FEWS minor course was designed to emphasize the water component of the Food-Energy-Water Systems nexus. Co-developed and taught by Dr. Byron Hempel, the course places students in transdisciplinary teams to develop a FEWS project for use in a remote community that lacks ready access to safe, potable water. Student-designed projects addressed water challenges such as removing heavy metals from water and providing an electricity source along with potable water. The course develops students' transdisciplinary research skills and real-world design thinking. The Spring 2021 student projects were evaluated by IndigeFEWSS external and internal advisory board members.

Read more about the GIPD degree [here](#).

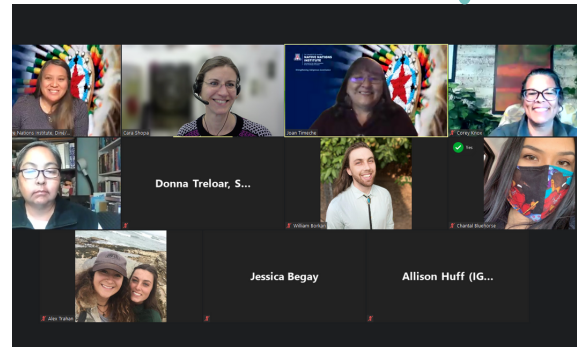
PHOTO CREDIT: TORRAN ANDERSON

COMMUNICATING FOR SOCIETAL IMPACT: CREATING THE NEXT GENERATION OF LEADERS



The Communicating for Societal Impact Workshop series was held virtually from March 22nd to March 25th. Eight training sessions provided additional resources for Sloan Scholars, IndigeFEWSS Trainees, and Diné College Bridge to STEAM Scholars to build skills in effective communication and community-engaged research. The workshop series provided a connection between community leaders and the future generation of STEM professionals. UArizona and Diné College students practiced multiple approaches to engaging diverse audiences about their research. **Learn more and discover resources [here](#).**

Thank you to the University of Arizona-Sloan Indigenous Graduate Partnership (UA-SIGP) and the Indigenous Graduate Education in Science and Engineering - Southwest (IGESE-SW) for partnering with Indige-FEWSS for the 2021 Communicating for Societal Impact Workshop Series!

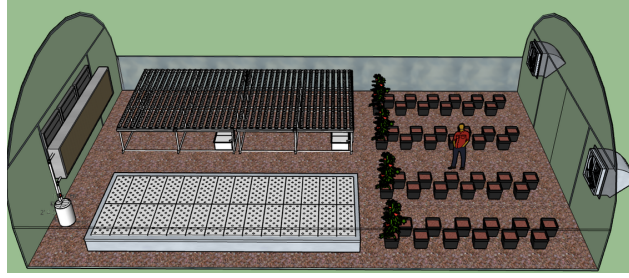


- Sixth World Solutions at UArizona -

From May 3rd through May 7th, Sixth World Solutions (SWS) worked at the Campus Agriculture Center's Machine shop with the Indige-FEWSS team to construct 4 SNF units. The units will be used to provide individual families with 100 gallons of potable water per day and some solar power for small appliances. This project is funded by AIR/RII: "Indigenous resilience: Co-designing and deploying off-grid household solar nanofiltration water systems for remote Navajo communities".

Read more [here](#).

PROGRAM HIGHLIGHTS



NEW IEEE GIFT: Hoop House Renovation Project

Dr. Kelly Simmons-Potter accepted a gift from IEEE to advance this interdisciplinary, community-engaged pilot project!

The Hoop House Renovation project will update a high tunnel greenhouse located at Diné College Land Grant Office (LGO). The existing structure has been used for traditional soil farming by the college and local community. The renovation will strengthen the current structure and will incorporate renewable photovoltaic energy and a water nanofiltration unit, solar and data monitoring technology (CEA climate controller, evaporative cooling, gas heating, ventilation fans), and various hydroponic growing systems (Deep Water Culture, Nutrient Film Technique, Dutch Bucket System). The updated greenhouse will be used by Diné College as a demonstration unit for teaching and training purposes, allowing for the production of a variety of crops as determined by the students and community. Renovations will begin this summer. This collaboration is an example of sustainable innovation to address food-energy-water-security (FEWS) issues on the Navajo Nation.

Trainee Team: project lead Jaymus Lee (Diné), Amy Pierce, Sarah Abney, Ailyn Brizo, Frances Willberg, Ruth Pannill, and Kyle Boyer.

Faculty and Staff: Benita Litson (Diné), Bryan Neztosie (Diné), Murat Kacira, Kelly Simmons-Potter, Vicky Karanikola, Bob Arnold, Karletta Chief (Diné)



Dr. Karletta Chief awarded UArizona Distinguished Outreach Faculty Award

*"Her impact in the community, at a national and international levels is exceptional."
- Provost Liesl Folks*

Principal Investigator Karletta Chief, PhD, Associate Professor and Extension Specialist in Environmental Science earned the 2021 UArizona Distinguished Outreach Faculty Award. This honor comes just one year after earning the AGU Ambassador Award and Conferred Fellowship. With notable contributions to her community, Dr. Chief continues to serve her community through outreach and research and to train and inspire the next generation of scientists. Read about Dr. Chief's award [here](#).



Reclaiming Wastewater: USDA GRANT

Dr. Shazia Hakim (Diné College), Dr. Charles Gerba and Dr. Robert Arnold (UArizona) are directing the "Decision support for agricultural reuse of municipal wastewater effluent in the Navajo Nation." The USDA-NIFA funded project will investigate the use of reclaimed wastewater for agricultural use on Navajo Nation and aims to advance the safe use of non-traditional water sources. With a vision to address water security, the team will demonstrate that the Navajo wastewater treatment plant can be used successfully for the irrigation of edible crops, engage Navajo stakeholders in decision-making, and instruct students, water providers, and the public in the science and engineering of wastewater purification and reuse.

Read more [here](#).

Dr. Karanikola leads the Haury Grant Project

The Haury Tribal Resilience Initiatives program awarded Dr. Vicky Karanikola funding to construct two solar-powered water filtration units that produce potable water and enough energy for nighttime energy. The units will be placed in two Chapter Houses on the Navajo Nation, Dilkon and Thoreau. The goal is to provide safe and reliable access to water and technology, and to design devices that fit the community's needs. [Read more here](#).

TRANSDISCIPLINARY TRAINEE LEADERSHIP

Trainees Teach FEWS Modules: Diné College Summer Internship Program

Indige-FEWS Trainees updated and expanded upon existing food-energy-water systems (FEWS) Training Modules to teach these engineering concepts to the 2021 Summer Internship Program at Diné College for the third consecutive year. Funded by the NSF Tribal College and University Program (TCUP), Diné College students learn research best practices and conduct summer research internships in a STEAM field.

Here's what trainee team leaders say about the FEWS curriculum:



FOOD **JAYMUS LEE**

"The project allows for us to develop a curriculum and training that is culturally relevant and collaborative with traditional knowledge sharing at the forefront. It will allow for students and faculty from the University of Arizona and Diné College to share and teach each other, further strengthening future collaborations and trust. The project has allowed me to step into the role of a leader and teacher, allowing me to challenge my education and understanding of my training through teaching the next generation of leaders - if you can't teach what you know then you don't really understand it!"

ENERGY **FRANCES WILLBERG**

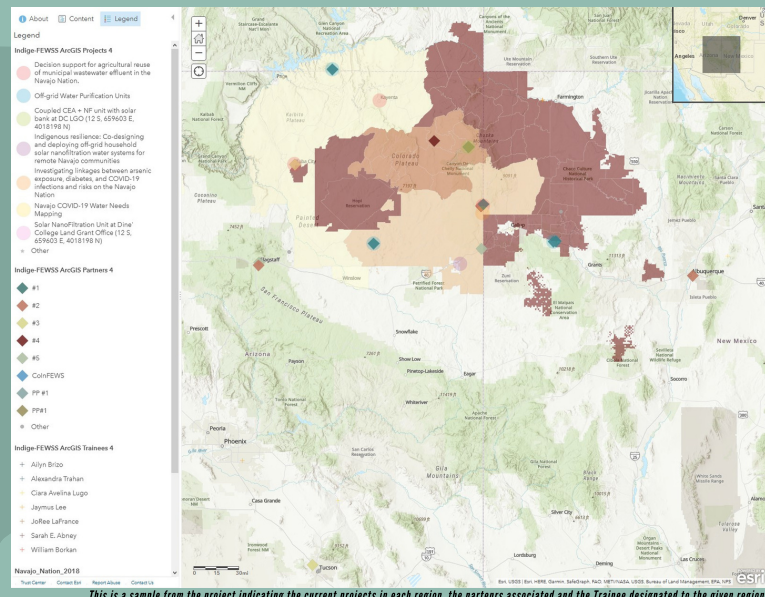
"The Indige-FEWS program emphasizes the importance of listening to Indigenous voices and letting community members direct and participate in research. Involving Diné College students in this work is an essential facet of this vision and one in which I am excited to participate. Through the educational module, I am very excited to be able to both teach and learn from students, and I am grateful to Indige-FEWS for providing me with this opportunity."

WATER **AILYN BRIZO**

"For the FEW modules we are really aiming to provide information that is relevant to Diné students and that will help them work towards their vision of food sovereignty and energy and water security. Indige-FEWS has always included outreach and collaboration with Navajo communities and the FEW modules are one way that we can contribute to that vision. Coordinating the water module has helped me reflect on my first year with the program and how these experiences have prepared me to become a culturally competent engineer."

Interactive Mapping Project: *The Future of Indige-FEWS*

Co-led by Adrianna Nicolay, M.S. and William Borkan, M.S., trainees are creating a publicly-available interactive map to locate resources and projects by Indige-FEWS and our partners in the Navajo Nation. The goal of the interactive map is to identify resources available to the public and to share the impact these projects are making. The interactive map links to the website of the identified organization (when possible) so users can access more information. Indige-FEWS is developing the map as a centralized location to provide food, water, and energy information and to increase awareness of the resources available in the Navajo Nation and in Tucson, Arizona. Currently, the team is cross-referencing data with partners ahead of the release date. **William Borkan**, M.S. co-lead on the project said, "The mapping project is an interactive resource to inform the public and our partners about all the incredible work that we do at Indige-FEWS! Ultimately, this project will be uploaded to the Indige-FEWS website and may also lead to the publication of a Storymap, detailing the history of Indige-FEWS and a bit about each of our projects."



This is a sample from the project indicating the current projects in each region, the partners associated and the Trainee designated to the given region.

BRIDGE TO STEAM

BUILDING BRIDGES: Dine College and UArizona support students in STEAM



In partnership with Diné College, the University of Arizona established the “Advancing Postsecondary Attainment and Research in STEAM for Tribal Students” program in Fall 2021. The program is dubbed “Bridge to STEAM” and works to provide Native American undergraduate students with a clear and culturally responsive pathway for transfer to UArizona. The program includes mentor support, research internships, and outreach to Navajo high schools. Indige-FEWS Trainees Mark Clytus and Christopher Yazzie are Mentors to Diné College undergraduates. STEAM = science, technology, engineering, agriculture, and mathematics. Read the Full Story [here](#).

Bridge to STEAM Mentors



MARK CLYTUS

Mark is a PhD candidate in American Indian Studies researching Indigenous STEM education. He appreciates the opportunity to help BIPOC (Black, Indigenous, and People of Color) further their education, research, and professional goals as STEAM scholars.

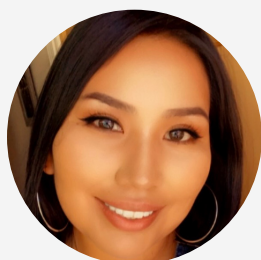


CHRIS YAZZIE (DINÉ)

Chris is a PhD candidate in Chemical & Environmental Engineering researching nonfiltration devices that could be used to help expand water security for Navajo communities. He enjoys helping the Scholars develop their research skills in and out of the laboratory. Chris aims to give his guidance to younger STEAM scholars to further their career goals in their respective fields.

Bridge to STEAM Scholars

These Diné College STEAM Scholars are working towards their associate's degrees and expect to transfer to a 4-year university setting. Scholars research DNA in the lab of Dr. Demetra Skaltsas, research advisor and STEM professor.



CHANTEL BLUEHORSE

Biology Major



JESSICA BEGAY

Biology Major



DARRELL YAZZIE JR.

Agriculture Major

TRAINEE SPOTLIGHTS



JAYMUS LEE (DINÉ)

"As a trainee and Navajo tribal member, it has been amazing to learn how I could be actively involved in making a difference in my community."

Jaymus is earning a PSM (professional science master's degree) in Biosystems Engineering with advisor Dr. Murat Kacira. He leads both the House Hoop Renovation Project and the Food Training Module. The updated greenhouse, located at Diné College Land Grant Office, had been used for traditional farming purposes by the community and will now be available for trainings and for students and community members grow preferred crops. Contributing to these projects, Jaymus has gained invaluable experience and has been challenged to balance academia and Indigenous knowledge.



WILLIAM BORKAN

"Through the Indige-FEWSS, and especially Native Voices in STEM speaker series, it has been a blessing to be able to engage with Indigenous activists and scholars. I am always learning!"

William is earning a master of science degree in Environmental Science in Soil and Water Science with advisor Dr. Mark Brusseau. This summer he will intern with the Navajo Nation EPA and plans to focus on uranium mine contamination. He is excited to assist the Navajo Nation EPA in doing site inventories and remedial investigations at abandon mining sites which is a serious issues neglected on the national level for decades.



ALEXANDRA TRAHAN

"Indigenous methodology is both humbling and empowering to the individual, and I can see this take root in my own journey as a scientist and person."

Alexandra is from Louisiana where she received her bachelor of science in Environmental biology. She gained interest in water projects and environmental impact on human health during summer outreach on the Navajo Nation where she saw firsthand the shortage of accessible water and the uranium mine contamination. Her research for a master of science degree in Environmental Science aims to address the health issues that come from living in heavily mined communities in Superior, AZ. Alex is advised by Dr. Monica Ramirez-Andreotta.

CONGRATULATIONS GRADUATES

WE WISH YOU SUCCESS IN YOUR FUTURE ENDEAVORS!

Faculty, trainees, and community members celebrated our graduates on May 13 with a luncheon and ceremony.



MANUELITO CHIEF (DINÉ)

MS in Electrical & Computer Engineering, 2021

Thesis: "Outdoor performance monitoring of organic photovoltaic (OPV) modules in an arid-hot climate"

After graduation, Manuelito plans a career in electric utilities and will invest his knowledge back into the Navajo Nation. Manuelito enjoyed his time as a trainee, saying, "the Indige-FEWS program enhanced my graduate experience in professional development and research training." He is thankful to the faculty and his fellow trainees for the challenges and the support.



ADRIANNA NICOLAY (DINÉ)

Professional MS in Water, Society, and Policy, 2021

Project: Communities & Relationships to Water in Tucson, AZ

After graduation, Adrianna will pursue a PhD in Geography at Oregon State University. She received her Bachelor of Science in Environmental Science from Willamette University in Salem, Oregon. She is passionate about Indigenous community-led organizing, particularly around water quality and access, and collaboration to address community needs and secure Indigenous futures. Adrianna was instrumental in creating the FEWS Mapping Project with other trainees.



REBEKAH WALLER

PhD in Biosystems Engineering, 2021

Dissertation: "Explorations in the food-energy nexus: integrating organic photovoltaics with greenhouse crop production systems."

After graduation, Rebekah plans to spend time with her friends and family after her busy years of graduate school. She acknowledges the value of Indige-FEWS to her education as it helped her gain a brighter awareness of FEW technologies in communities. She is thankful to the Diné people for welcoming, hosting, and teaching her for the past four years.

WELCOME NEW COHORT

The final cohort of the NSF Research Traineeship will focus on community engagement. Trainees will participate in professional development seminars, will analyze case studies of community-engaged research from a "decolonizing methodologies" lens, will collaborate with Diné College faculty and staff to finalize the Food-Energy-Water Systems curriculum, and will publish Extension Bulletins related to the program's pilot units: the solar-powered nanofiltration (SNF) water treatment unit and the solar-powered controlled environment agriculture (CEA-SNF) unit.

Trainees will be invited to participate in a spring break immersion experience on the Navajo Nation with our partners and community members to learn about tribal governance, environmental concerns, daily life for off-grid households, and the rich and welcoming culture of the Diné.

Introducing the 2021-22 Trainees

Veronique Arguello

Urban Planning, MS

Calder Bethke

Biosystems Engineering, MS

Chantel Harrison

Applied Biosciences, MS

Robert "Quinn" Hull

Hydrology, MS

Kunal Palawat

Soil and Water Science, PhD

Luke Presson

Environmental Engineering, PhD

Jaclyn Rybin

Agriculture Education, MS

Anton Samoylov

Chemical Engineering, PhD

Nizhoni Tallas

Natural Resources Studies, PhD

Arianna Tariqi

Environmental Engineering, PhD

Tony Viola

Language, Reading, Culture, PhD

Chrisa Whitmore

Biosystems Engineering, PhD

TEAM SPOTLIGHT

THE DREAM TEAM: SUPPORTING RESILIENCE



KARLETTA CHIEF (DINÉ)



VASILIKI "VICKY" KARANIKOLA



ROBERT ARNOLD

The Dream Team is leading a project to address lack of access to safe water for the ~33% of Diné community members who are not connected to centralized water services. In collaboration with the DigDeep Navajo Water Project, the team will engage with community members to co-develop water solutions, construct solar-powered nano filtration water treatment units, and trainees community members to operate the systems.

VALERIE SHIRLEY (DINÉ)

Associate Professor,
Teaching, Learning & Sociocultural Studies
American Indian Studies-GIDP

Dr. Valerie Shirley is a member of the Diné Nation (Ma'íideeshgizhíinii, Tsinajíinii, Todich'íinii and Honaghaanii clans). She was recently granted tenure and is now Associate Professor of Teaching, Learning and Sociocultural Studies. She directs the Indigenous Teacher Education Program (ITEP). Dr. Shirley's research is rooted in her community with an emphasis on the decolonization of teaching practices and curriculums, and the re-indigenization of pedagogies. She promotes a learning environment in which Indigenous and non-Indigenous teachers learn to address and identify social and environmental issues to build a collective solidarity among different tribes. With this expertise, she has the Community Engagement programming for IndigeFEWSS trainees.



BRYAN NEZTSOSIE

EXTERNAL BOARD MEMBER
RESEARCH AND OUTREACH COORDINATOR AT LGO

Along with providing guidance on how IndigeFEWSS can best reach its program goals, Mr. Neztosie creates and manages research projects with other universities as a coordinator at the Land Grant Office. He is currently leading the hoop house renovation project for LGO and will manage the renovation activities and future student and community trainings. Mr. Neztosie also provides training to Navajo communities and professionals on topics such as livestock and agriculture, he coordinates youth camps, and manages trainings for the LGO's greenhouses and solar nano-filtration units. Mr. Neztosie guidance as an advisory board member is instrumental in the success of the Indige-FEWSS program.



CARA DUNCAN SHOPA

PROGRAM COORDINATOR

Cara Duncan Shopa, MS, is the program coordinator. After falling in love with Tucson, Cara moved to Arizona and found a home at the University of Arizona, contributing to graduate student programming, community engagement, and sustainability initiatives. Cara's favorite part of her work is collaborating with the "creative and dedicated faculty and trainees". Known for her positivity and kind-heartedness, Cara plays an instrumental role in creating and maintaining the Indige-FEWSS family. She even brings baked goods to meetings!



TORRAN ANDERSON

COMMUNITY ENGAGEMENT COORDINATOR

Torran Anderson, MA, is the community engagement coordinator. A Tucson native with over 30 years in the field of education, Torran has experiences as a teacher, researcher, classroom presenter, curriculum developer, and education publishing editor. Torran has published over fifty books, with his most recent project engaging the Tucson community by asking what "tiny things" they enjoy about being alive and living in Tucson. Torran is no stranger to community outreach and helps faculty and trainees maintain strong connections with our Navajo partners.



MEET OUR COMMUNITY PARTNERS

INTERNAL ADVISORY BOARD

Andrew Carnie

Dean, Graduate College

Gene Giacomelli

Biosystems Engineering

James Hopkins

Udall Center, American Indian Studies

Allison Huff

Health Sciences

Len Necefer

American Indian Studies

Tristan Reader

American Indian Studies

Trent Teegerstrom

CALS Cooperative Extension

Joan Timeche

Native Nations Institute

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Sixth World Solutions

Scott Haase

National Renewable Energy

Laboratory

Peter Littlehat

Indian Health Service

Bryan Neztotsie

Diné College Land Grant Office

Walter Phelps

*Navajo Community Member,
Former Navajo Nation Council
Delegate*

Juanita Francis

Navajo Technical University

Donald Robinson

Diné College

Suzanne Singer

Native Renewables

Mark Sorenson

*Service to All Relations (STAR)
School*

MEET THE DESIGNERS

Love Foster-Malave is an undergraduate majoring in Molecular and Cellular Biology with an emphasis in Genetics and Human Health and minoring in Spanish.

Love plans to pursue an MD-PhD to merge her interests in research and clinical applications. Love plans to serve marginalized and underrepresented populations through medicine.



Nizhoni Greyeyes (Diné) is an undergraduate senior majoring in Molecular and Cellular Biology with an emphasis on Genetics and Human Health.

She plans to further her professional goals by pursuing a Master's degree in Public Health. She plans to invest her knowledge in underserved communities as well as the Navajo Nation.



A special thank you to our talented newsletter designers, Love Foster-Malave and Nizhoni Greyeyes (Diné)!

Love and Nizhoni dedicated their designer's eyes and communication skills to our efforts to share program advances and our community engagement. We are grateful to the Superfund Research Program for funding their work.

STAY CONNECTED

<https://environment.arizona.edu/indigefewss>

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Superfund Research Program
The University of Arizona