



Bishop Creek, CA

TXG TRIBAL ASSISTANCE CASE-STUDY

How the Bishop Paiute Tribe Benefitted from TXG's Suite of Tribal Assistance

CHALLENGE

The Bishop Paiute Tribe's (BPT) Water Quality (WQ) program faced a dilemma that is all too familiar in the tribal environmental field: ongoing capacity-building needs, limited internal training resources, and continual staff turnover. BPT's WQ program also faced a variety of critical data-related tasks to complete, including annual reporting. For the Tribe's WQ Program, an introduction to TXG's free Tribal Technical Assistance offerings provided much-needed and timely support.

OBJECTIVES

Bishop's goals in the beginning were to learn how to use R to improve their data management efficiency. Once staff had baselined, and new staff came on, the goals shifted for new staff to understand the R code used by previous program leads to ingest data from their cloud database solution (staged to analyze for regular community water quality updates), and to use R Markdown to ingest, analyze, summarize, and develop reports for various stakeholders and regulators.

SOLUTION

See *Page 2* for a timeline of TXG's support and collaboration with the Bishop Paiute Tribe's Water Quality Team.

LESSONS LEARNED

1. Programs like R can provide critical efficiencies

With programs like R, a wide variety of tasks can be automated to save time, especially for tasks that change or that are repeatable. Additionally, Tribal staff can collaborate on templates for tasks and reports that commonly occur. In this case, using existing R code filled in gaps during staff turnover and was ultimately used to improve BPT's Tribal Assessment Reports (TAR).

2. Peer to peer support is essential

The comfort and understanding built between TXG's tribal environmental professionals and the Bishop Paiute Tribe's WQ staff allowed for ongoing, open communications and trust in TXG's members to support staff and handle BPT's WQ data discretely and securely.

3. TXG's Tribal Assistance Programs Fill Gaps

Because TXG's Technical Assistance support spanned the gap of Bishop Paiute's staff turnover, it provided a critical bridge for incoming WQ staff - allowing BPT's incoming WQ Program Coordinator, Brianda Hernandez, to build upon code that former BPT staff had built with Angie, and thus continuing best practices for data management, and eliminating the need to start over.

Check out www.tribalexchangenetworkgroup.org for more.

OUTCOMES

- Post-TXG Tribal Assistance, Bishop's WQ program **developed their first annual Water Quality Assessment Report** using R Markdown.
- Newly developed skills in R have enabled BPT staff to **more efficiently manage their continuous physical data and streamline weekly bacteria data analysis**.
- Critical data on bacterial levels in Bishop Creek is now able to be communicated and shared with Tribal citizens, **improving public health**.
- BPT is now able to **effectively explain available water quality data** to mentors and stakeholders.

"...though the language (R) can seem complex to learn, having consistent mentorship provided skills within data wrangling and management which has surely pushed our program towards data sovereignty.

- Sabrina Barlow, Bishop Paiute Tribe WQ Program

TIMELINE of HOW the BISHOP PAIUTE TRIBE BENEFITTED FROM TXG'S SUITE of TRIBAL OFFERINGS

At A Glance

TXG Time Spent on this Request:

92 hours + 16-hour Data Academy Workshop

Number of BPT staff trained:

Three: BryAnna Vaughan (2019), Phoebe Nichols (2020), and Brianda Hernandez (2022).

2-Day TXG-led Data Academy Workshop on R November 2019

Bishop Paiute's WQ program staff connected with The Carpentries trainers and TXG Members through TXG's Data Carpentry Ecology workshop, where BPT staff learned the basics of R program language.

The relationships borne out of this workshop created the groundwork for BPT WQ staff to pursue small-group and one-on-one tribal assistance from Angie Reed (Penobscot Nation), as offered through TXG.

TXG-hosted Bi-weekly R Chats January 2020 - June 2020

Facilitated by Angie Reed (TXG), Melinda Ronca-Battista (ITEP), Kunal Marwaha (Carpentries), and others, this webinar-style series offered demonstrations of various R features and uses to BPT WQ staff and others, and provided a continuation of learning from the November 2019 R Workshop.

Weekly TXG Tribal Assistance Calls June 2020 - December 2022

Bishop WQ staff requested one-one-one tribal assistance from Angie Reed through TXG's Tribal Assistance program for more specific training in R. Through virtual calls with Angie, BPT staff learned coding, graphing, and data cleaning in R and R Studio, and remotely outlined the format, content, and calculations needed for their annual BPT Water Quality report.

In 2023, BPT's newest Water Quality professional, Brianda Hernandez, became a TXG member after working with Angie through TXG's Tribal Assistance Program.

“ I have been able to pick out code from the various scripts that [were] developed to quickly analyze and visually display data for tribal management, grant proposals and community updates...I am grateful for the work that everyone has done to get the Tribe’s Water Quality Control Program into the new age of data management and extremely grateful for the skills that I have developed in these few months! ”

– Brianda Hernandez, Bishop Paiute Tribe WQ Coordinator

