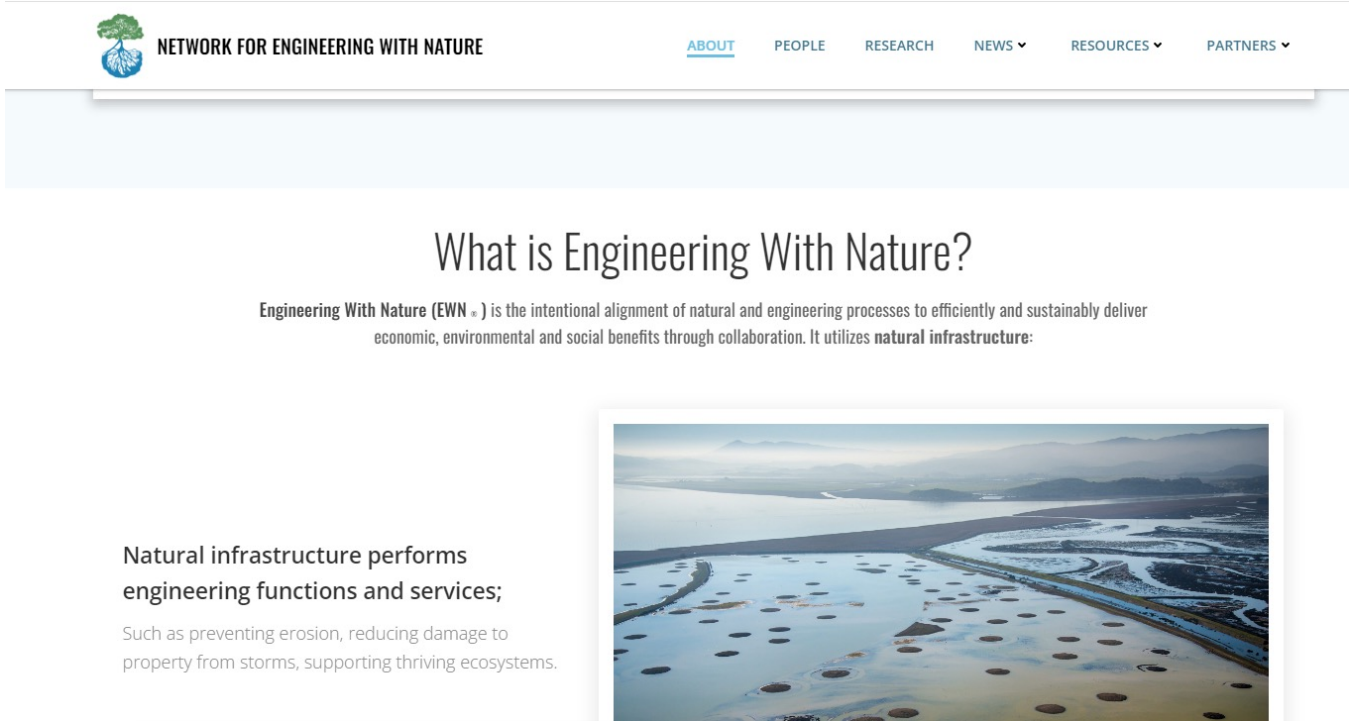
# Grant Application to the Network for Engineering with Nature (NEWN) for the Cibolo Creek Watershed Study

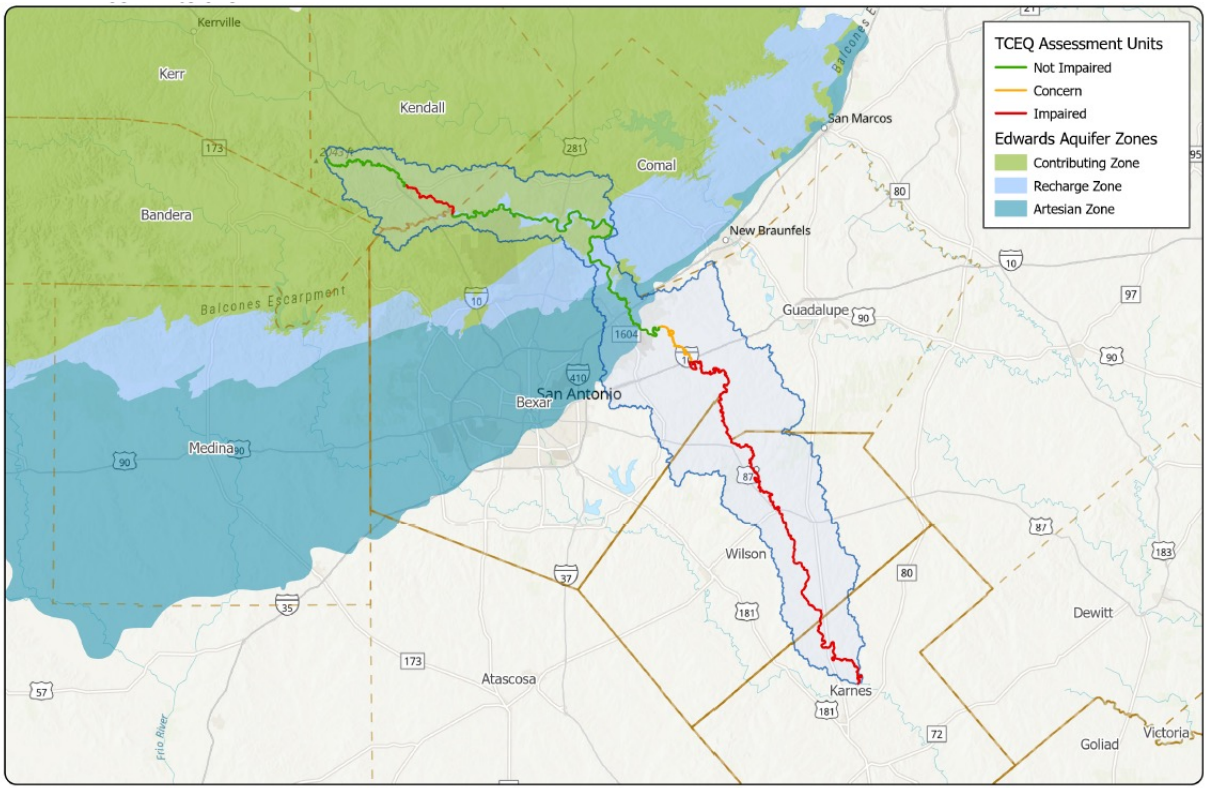
Dec 15, 2023

# Network for Engineering with Nature (N-EWN)




https://n-ewn.org/

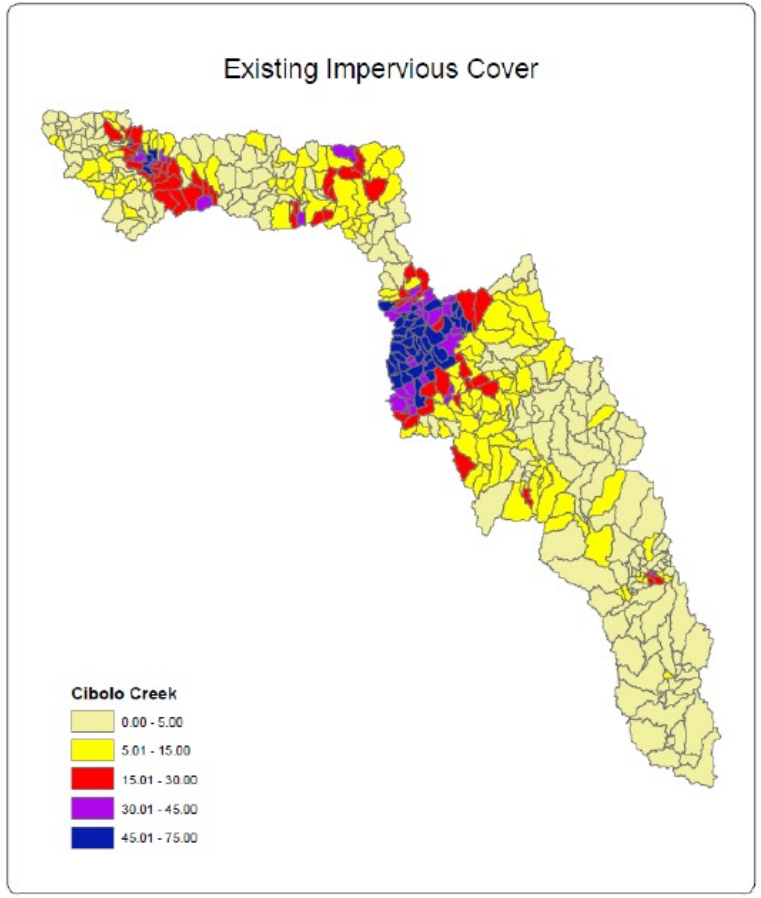
# Cibolo Creek Watershed

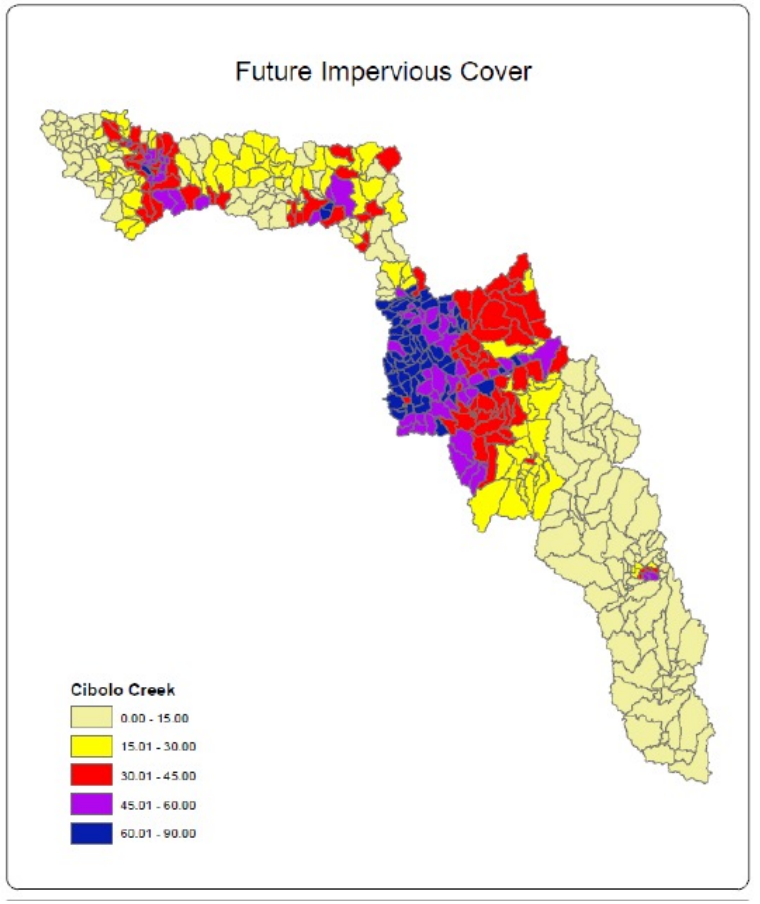


# Watershed Setting and Challenges

- Edwards Aquifer Contributing and Recharge Zones
- Impairment of Waterbodies
  - >100 miles of the streams impaired for PCR1
- Concerns from excessive nutrients and DO
  - > 85 miles of streams has nutrient concerns
- Development
- Military bases

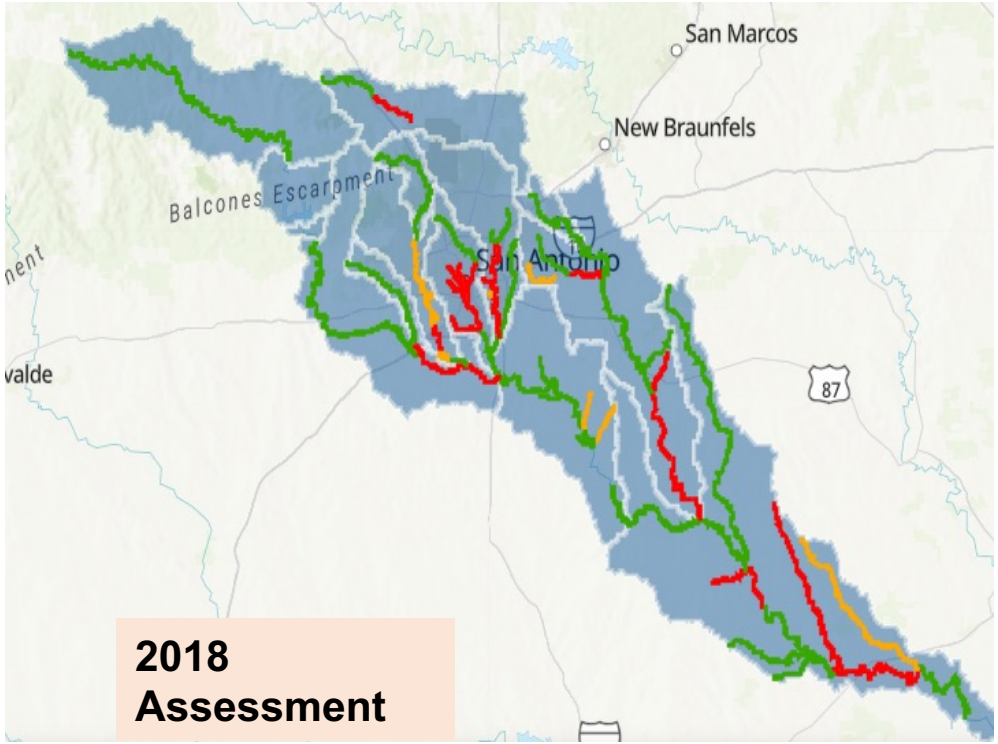
# Comparison of Landuse Cover

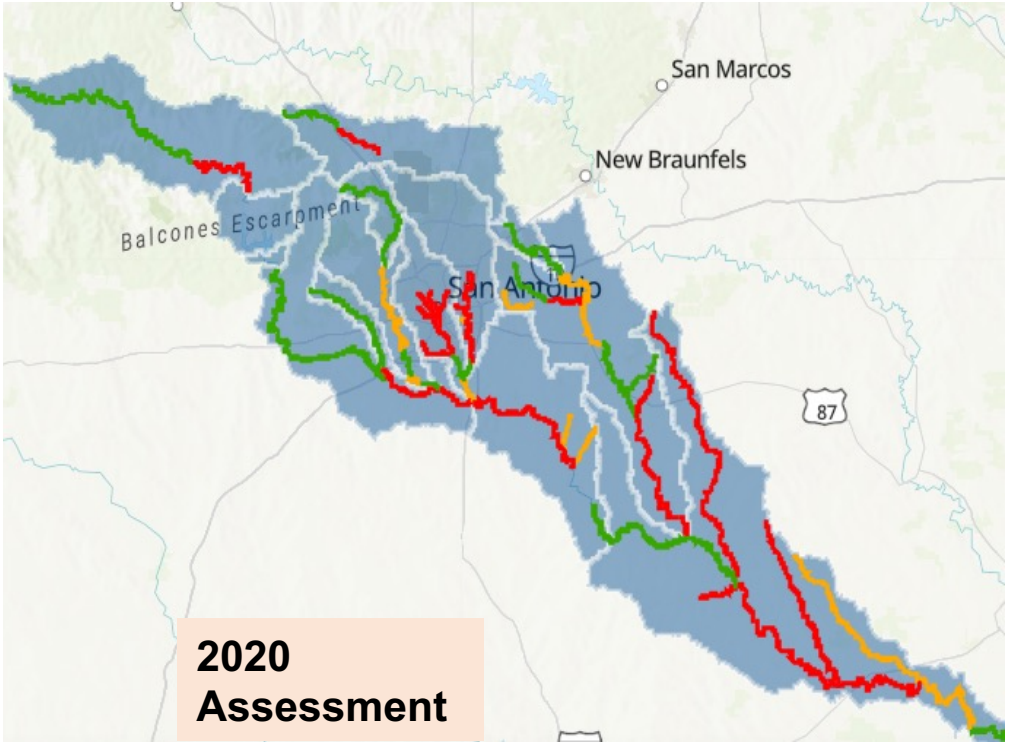



Source: San Antonio River Authority and Atkins, 2021. Cibolo Watershed Hydrology Report, Risk MAP Program 12100304

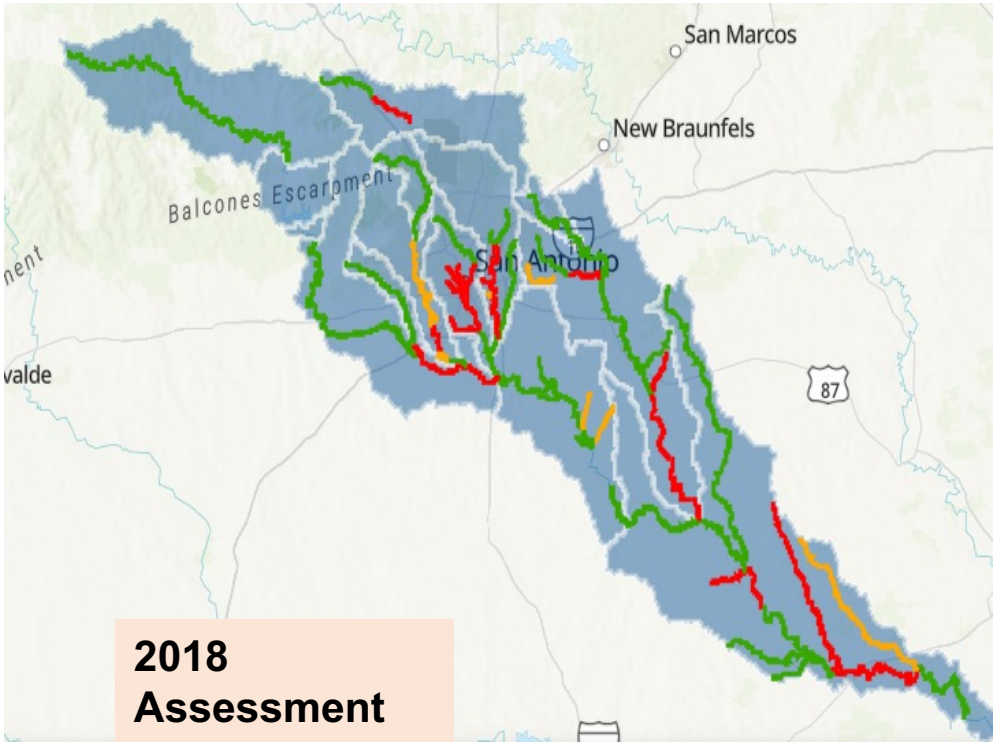
# Comparison of PCR1 Assessment

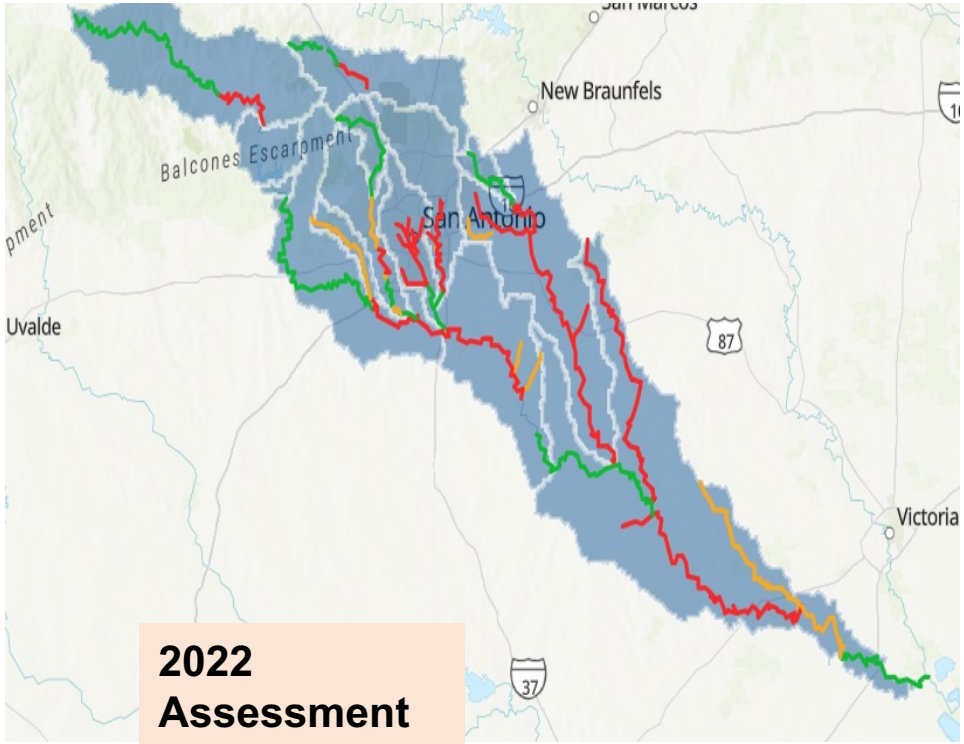



- Source: San Antonio River Watershed Water Quality Viewer

# Comparison of PCR1 Assessment




- Source: San Antonio River Watershed Water Quality Viewer

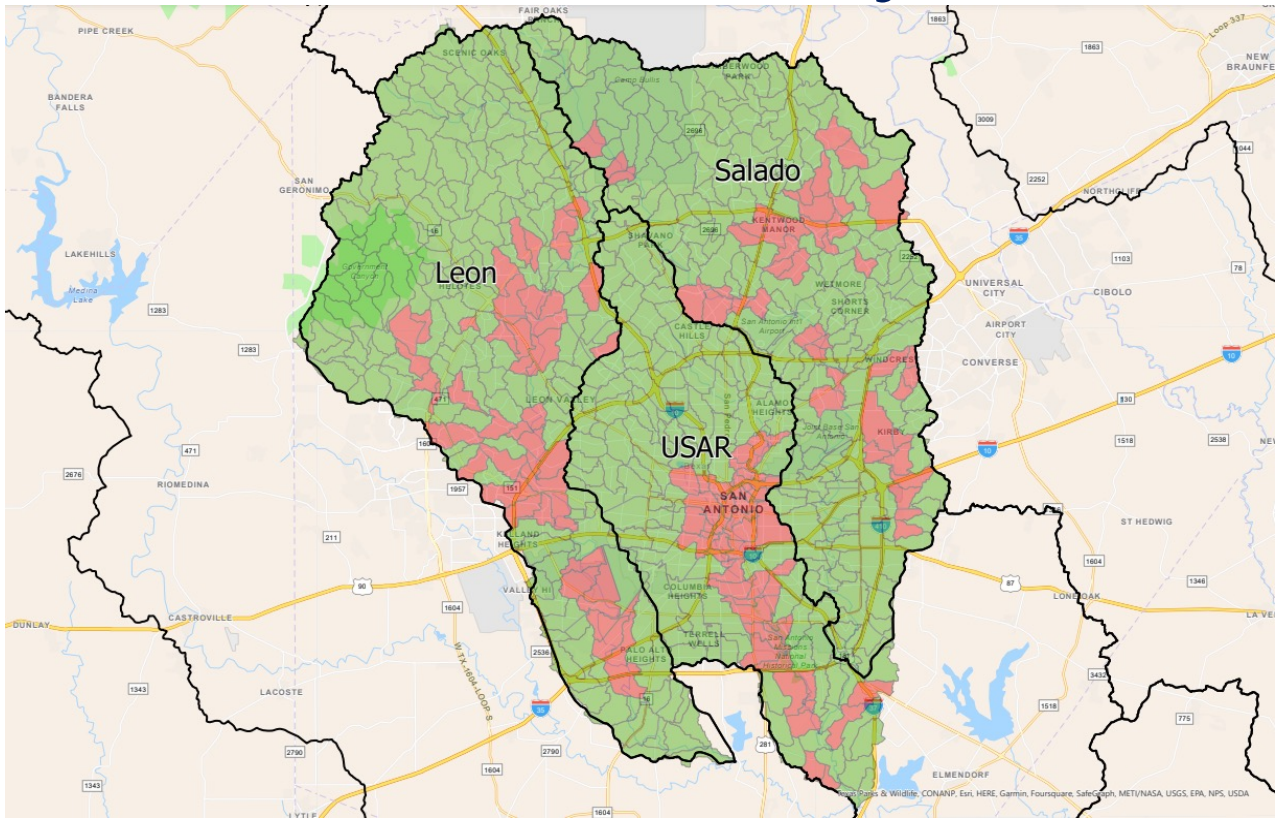
# Proposal Goals

- Understand the effects of continued development and climate change on the Watershed
- Better understand and quantify the effects of land practices and climate change on the ground water
- Develop a plan for innovative and efficient nature-based solutions
- Collaboration with the community

# Proposed Approach

- Baseline assessment
- Integrated modeling
- Future development scenario assessment
- Climate change integration
- Development of plan with NBS
- Environmental justice and community engagement
- Collaborative partnerships
- Knowledge transfer and outreach

# Example of Water Quality Modeling and Analysis Result



# Proposed Schedule

| Tasks | | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|---|
| 1 | Baseline Assessment | | | | |
| 2 | Hydrologic Model Development with better charaterization of subsurface | | | | |
| 3 | Water Quality Model Development | | | | |
| 4 | Future landuse Assessment | | | | |
| 5 | Climate Change Senarios Assessment | | | | |
| 7 | Environmental Justice and Community Engagement | | | | |
| 6 | Assessment of the Watershed for NBS | | | | |
| 8 | Collaborative Partnerships | | | | |
| 9 | Knowledge Transfer and Outreach | | | | |

# Potential Collaborations

- USACE
- Edwards Aquifer Authority
- EAC
- UTSA
- GEAA
- Campbullis Sentinel Landscape
- Hill Country Alliance
- Nature Conservancy
- Cibolo Nature Conservancy

# Achievements

- **Holistic Solutions:** Collaboration ensures that the project considers a broad range of perspectives, leading to holistic and effective solutions that address the complexity of the Cibolo Creek watershed.
- **Innovative Approaches:** Collaboration with innovation centers contribute to the adoption of state-of-the-art technologies and approaches, enhancing the project's innovation quotient.
- **Community Empowerment**: Non-profit, and community collaborations ensure that the project actively involves and benefits the local population, promoting environmental justice and creating a sense of ownership.
- **Scientific Rigor:** Collaboration with academic institutions elevates the scientific rigor of the project, ensuring that the modeling and analysis are based on the latest research and methodologies.

Questions?

Sheeba M Thomas
sthomas@sariverauthority.org