TCU Effects of Preservation on Mercury Concentration **TCU** Macyn Willingham, Texas Christian University

Background

- Vast, man-made sources of coal-fired power plants and artisanal gold mines have large outputs of emissions containing in organic mercury (IHg)
- Mercury alone is not toxic; however the conversion to Methylmercury (MeHg) that takes place in aquatic systems raises awareness.
- MeHg vairies in different aquatic systems.
- This study examines the bioaccumulation of MeHg in the individual bodies of water using shoreline spiders as sentinel species.



There is variation in the methodology of preservation of spiders in this field of study.

Objective





The objective of this study is to determine the effects on preservation on the total mercury (IHg) over time.

The methods of Preservation include 95% ethanol and freezing.

This objective was studied in a short-term study with Tetragnathidae from Lake Weatherford and Araneidae from Eagle Mountain Lake and a long-term study with both Tetragnathidae and Araneidae from the Clear Fork of the Trinity river.

Methods: Collection





Methods: Analysis





Methods

- preservation.
- as a proxy for body size.
- DMA80.
- method.

Upon collecting spiders, the samples were placed into different methodology of

During preservation, software was utilized for the measurement of leg length, serving

Mercury analysis is conducted by the

After making a direct mercury analysis, a correlation was examined between mercury concentration and spider preservation



Long-Term Study



- The P values from the ANCOVA analysis reveal that there is no effect of preservation in the long-jawed orb-weaver spider.
- However, there is a significant effect of preservation on the mercury concentration in orb-weaver spiders.
- This is due to the high lipid content and the lipophilic effects of ethanol.

References

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