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AFS Estuaries Section News
Summer 2025 Newsletter

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President's Message

Estuary Section Members,

I reach out today to ask for your consideration to run for office to support this Section. We are looking to fill a vacant seat for president-elect for a two-year term which will then role into the two-year term of president. Speaking as the outgoing president, I can tell you that this is a rewarding position where you work to support a "small but mighty" unit within AFS. The Estuary Section has direct impact with our support of students and early career professionals to attend the annual meeting. Students are the future of our profession. The best way to invest in the future is to get students to meetings and let them experience the benefits of this society.

Beyond students, the Estuary Section provides a network for AFS membership that might not "have a home" in other Sections due to their professional interests. By hosting estuary-focused symposia, we can ensure that the "saltier" folks in AFS have a place to present their research.

Finally, the Estuary Section represents a seat on the AFS Governing Board. This position provides YOU with the ability to support the larger society's decision-making, priorities, and overall direction. If any of this sounds interesting or potentially intriguing don't hesitate to reach out to me or any of the Executive Committee. Thank you for your consideration.

Now, on to the updates. We are happy to announce that we have offered student travel awards to 2 students (one PhD and one MS) and one early career professional. We will introduce them and their work at the annual business meeting this summer. We chose to offer a travel award to an early career professional this year in light of the exceptional challenges with uncertain Federal funding.

As for the meeting itself, we have prepared a summary of Section supported symposia in this newsletter, with a guide to the meeting coming out a few weeks before the meeting. Enjoy!

Best,

Justin Stevens

AFS Estuary Section President

Student Travel Award Winner Article

Conservation status of the threatened Red River Pupfish (*Cyprinodon rubrofluviatilis*) in the Brazos River, TX

Lily DiFrank, Undergraduat Student
Stephen F. Austin State University
Advised by Dr. Carmen G. Montaña

Figure 1: Lily DiFrank working on stomach content analysis

The upper Brazos River located in the southern Great Plains of Texas varies spatially and temporally and is characteristic of low flows, frequent droughts, and high salinity. Native fish assemblages in this region are well adapted to these dynamic conditions. However, anthropogenic activities such as ground water pumping and river fragmentation have modified the natural stream flow consequently affecting the distribution and abundance of endemic fish species, including the Texas state threatened Red River Pupfish (*Cyprinodon rubrofluviatilis*, Fig. 2), a small fish endemic to the upper Brazos River in Texas and western areas of the Red River in Oklahoma (Fig. 3). The Red River Pupfish (RRPF) has evolved remarkable adaptations that allow it to thrive in its specific aquatic environments. It is known to be an euryplastic fish species meaning that it has the ability to tolerate a wide range of salinity levels. The RRPF can live in both freshwater and brackish water, shallow habitats, and warm water with low oxygen, making the species well suited for the variable and harsh conditions of stream sites in the southern Great Plains.

The RRPF is considered a threatened species in Texas since 2020, making its conservation of utmost importance. Being a small-scale native fish, its presence or absence from Texas rivers, particularly the upper Brazos River, can shed light on the overall health of this ecosystem. My research aims to study populations of RRPF in one of the three forks of the upper Brazos River Texas, the Salt Fork. This segment is usually intermittent and shallow, with high salinity content. We surveyed populations of RRPF at three sites within the Salt Fork segment (Fig. 4). In addition, we surveyed associated fish assemblages and local habitat and water parameters that may help to explain the abundance and distribution of the RRPF within this segment. We were interested in these three sites specifically due to their close geographical proximity yet varying environmental conditions and fish communities. Ecological aspects related to the feeding ecology of the RRPF were also studied using stomach content analysis. This information can help to make inferences in food resources used by the species among sites or even across seasons.

Figure 2: Red River Pupfish

Continued on page 4

Student Travel Award Winner Article

Conservation status of the threatened Red River Pupfish , *Continued from page 3*

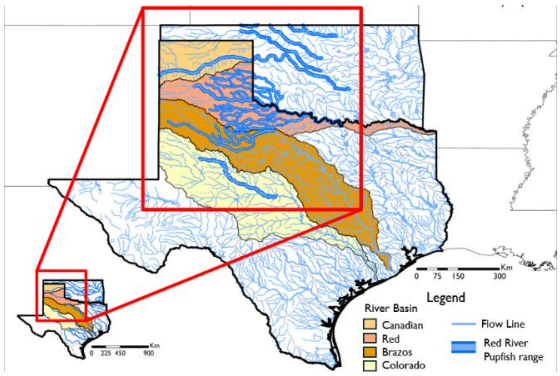

Figure 3: Red River Pupfish distribution

From September 2022 to August 2023, we conducted monthly standardize surveys of the fish assemblage and habitat - water parameters in selected sites within the Salt Fork. The fish assemblage was surveyed using a seine net within a 250 m stream reach; and 14 local habitat variables that characterize the stream hydrology, instream habitat, and in-situ water parameters were measured.

Over one year survey, we collected 623 RRPF. Based on the catch per unit effort (CPUE), we observed differences in the population abundance at each site. For example, one site (Fig. 4D) had higher abundance of RRPF (n=357), and was characterized by high conductivity and salinity, constant flow throughout the year, and drain brine oil in the stream sediments. The other two sites (Fig. 4B, C), which had lower abundance of pupfish (n=263, n=3), had wider channels and isolated pools, with one of the sites relatively less saline, but with greater species richness including a generalist species, the Red Shiner (*Cyprinella lutrensis*). Preliminary results of stomach content analysis indicate differences in food resources being used by the RRPF across these sites and seasons. Currently, I am working on stomach content analysis using microscopy techniques (Fig. 1), and stable isotope analysis of Carbon and Nitrogen to better understand the feeding ecology of RRPF in the Salt Fork.

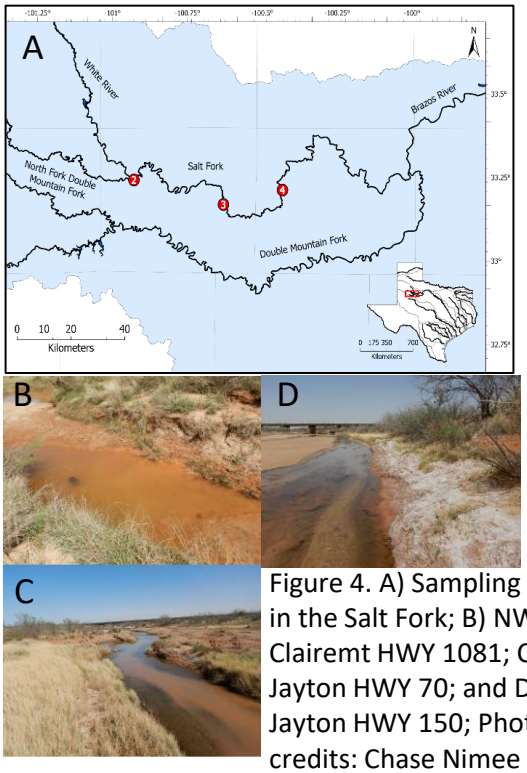

Figure 4. A) Sampling sites in the Salt Fork; B) NW Clairemt HWY 1081; C) S Jayton HWY 70; and D) E. Jayton HWY 150; Photo credits: Chase Nimee

While our data suggest that RRPF persist as 'fugitive species' that are tolerant of abiotic conditions that exceed tolerances of other taxa found in the upper Brazos River, it is essential to raise awareness about the current status and ecological aspects of the native RRPF within Salt Fork segment and entire range of distribution. Studying the RRPF in this river system represents a unique opportunity for us to make a difference and contribute to broader efforts of safeguarding biodiversity and ensuring sustainability of freshwater fauna inhabiting rivers/streams in southern Great Plains ecosystems. Even though this research is being conducted in an inland freshwater river system, the Salt Fork segment has equivalent conditions “salinity” to estuaries, therefore, our findings can provide knowledge about the factors that threaten cyprinodontids and promote conservation initiatives for congeners living in coastal areas.

2025 AFS Meeting in San Antonio, TX

Sponsored Symposia

The following links will take you to the abstracts for the symposia being sponsored by the Estuaries Section at the 2025 AFS Meeting

- Advances in Chemical Tagging Techniques and Structures
- Connectivity and Management of Estuarine-dependent Species
- Hypoxia and Fisheries: Understanding the Past and Predicting the Future

Business Meeting

The Estuaries Section will be holding our annual business meeting prior to the AFS meeting. The business meeting will be virtual and held on August 1st at 3 pm EST. An email will be sent out to our membership prior to the business meeting with a link to the meeting.

Announcements

Elections

- 2025 is an election year for the Estuaries Section
- The positions of President Elect, Secretary, and Treasurer will have elections held prior to the 2025 AFS annual meeting. Please note these are all 2-year positions, but the President Elect position is a 6-year commitment (2 years as President Elect, 2 years as President, and 2 years as Past President).
- If you are interested in running for one of these positions or would like more information about these positions please contact Estuaries Section President-elect, Mike Curtis (michaelcurtis3@my.unt.edu).
- We request that nominations for these positions be received ASAP.

Upcoming Meetings

- Joint Meeting of Ichthyologists and Herpetologists
  St. Paul, MN, July 9-13 2025

- Society of Wetland Scientists Annual Meeting
  Providence, RI, July 15-18, 2025

- Visit https://fisheries.org/events-page/calendar/ for other fish related events and regional meetings info.

Estuaries Section Treasurer's Report

respectfully submitted on 06/26/2025 by
Dr. Konstantine J. Rountos (Treasurer)

Date	Balance	Credit	Debit	Note
03/11/25	3,667.52			Winter Newsletter – Treasurer's Report
06/18/25	2,667.52		1,000.00	Check (Apria Valenza – 2025 Travel Award)
06/18/25	2,167.52		500.00	Check (Andrea Casey – 2025 Travel Award)
06/23/25	1,667.52		500.00	Check (Joseph Nolan – 2025 Travel Award)
06/23/25	1,427.52		240.00	AFS Invoice #10885 (Web Service Units – Web Hosting Fee)
06/26/25	1,427.52			Current balance

Check us out online!

Website: http://estuaries.fisheries.org

X (Twitter): @Estuaries_AFS

Facebook: http://www.facebook.com/EstuariesSectionAFS

LinkedIn: https://www.linkedin.com/groups/7443198