



Monitoring of Juvenile and Young of the Year Assessment Species through Saltwater Electrofishing

Jason Adriance | CIAC and DPAC Meeting | December 12, 2025

Seine Sampling



- Fifty foot bag seine has been sampled since 1985
- Marsh degradation and land loss is problematic



How Did This Start?



State Agency: Louisiana Department of Wildlife and Fisheries

Grant Title: Cooperative research to inventory and monitor the current status, abundance, and distribution of the Saltmarsh Topminnow, and two associated killifish SGCN

- **Private NGO petitioned USFWS to list Saltmarsh Topminnow as an Endangered Species.**
- **We were awarded a SWG grant for a cooperative research effort between the Inland Fisheries Section and Marine Fisheries Section of The Louisiana Department of Wildlife and Fisheries (LDWF) to initiate a comprehensive monthly sampling survey of Saltmarsh Topminnow populations across the Barataria Bay estuary utilizing standardized quantitative electrofishing at 5 stations where regular monthly marine monitoring samples have revealed Saltmarsh Topminnows were regularly collected since 2013.**

State Wildlife Grant Sampling Used a Smith-Root 9.0 GPP Electrofisher



- Smith-Root setup had limitations when it came to more saline waters, and effectiveness decreased above 19 ppt.

What was the Result?

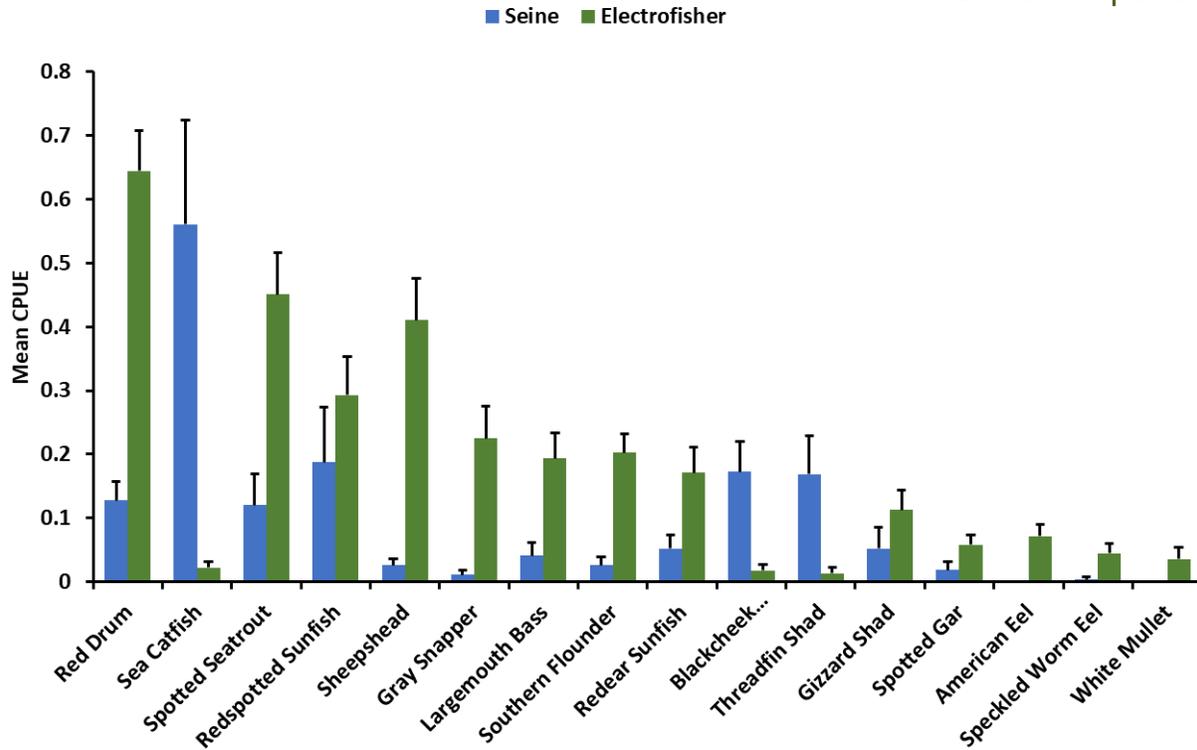
- Developed a Population Density Model of Saltmarsh Topminnow for USFWS that eventually resulted in Saltmarsh Topminnow not being listed under the ESA.
- Sampling for CPRA from 2018-2023.
- Beginning in 2018, the LDWF Marine Fisheries Section began comprehensive monthly electrofishing sampling survey in the Barataria Bay estuary utilizing standardized quantitative electrofishing gear at established seine stations.
- Standard seine samples were also collected at each station allowing monthly side-by-side comparisons of catch rates and variability in catches across these gears and stations through June 2023.
- When compared to the seine catch rates, the electrofishing samples had substantial increases in catch rates for all assessment species, with the exception of Black Drum and Gulf Menhaden.



Comparison of Seine versus Electrofishing CPUEs in Barataria Bay

Species	50' Seine		Electrofisher		%Change (seine to electro)	
	CPUE (per haul)	PSE	CPUE (per 270 seconds)	PSE	CPUE	PSE
Red Drum	3.32	44.26	14.70	35.64	342%	-19%
Black Drum	0.10	37.04	0.04	65.32	-63%	76%
Sheepshead	0.05	23.62	1.01	26.94	1753%	14%
Spotted Seatrout	0.96	44.45	7.07	34.18	633%	-23%
Striped Mullet	87.53	37.66	172.90	16.50	98%	-56%
Southern Flounder	0.02	40.49	0.34	19.99	1683%	-51%
Gulf Menhaden	2080.12	27.89	412.30	44.34	-80%	59%

Mean Catch per Unit Effort from Seine and Smith-Root Electrofisher Samples (2018-2023)



Midwest Lake Infinity Electrofisher

- In 2023, after CPRA Electrofishing sampling ended, LDWF became aware of new technology that allowed for electrofishing in full seawater.
- Other states use electrofishing to track juvenile striped bass along the eastern seaboard (Maryland and Delaware).
- LDWF saw a technology that could fill current data gaps in relation to juvenile and young of the year stock assessment species and eventually develop statewide young of the year and juvenile indices of abundance for stock assessment species in order to inform recruitment and year class strength in future stock assessments.



2023 Prototype Infinity Electrofisher

Midwest Lake Infinity Electrofisher



- Test samples with prototype in Calcasieu Lake showed higher CPUEs of stock assessment species and significantly higher overall biomass than seine sampling.

First Production Model Delivered to LDWF in July 2025



- Began sampling at 16 established seine sites in Barataria Bay in July of 2025.



- Young of the Year Spotted Seatrout sampled with Infinity electrofisher.

Expected Benefits

- Robust time-series of relative abundance of young of the year/juvenile life stages that correlate to observed fishery and survey catches in later life stages in subsequent years will allow better estimates of year class strength with less uncertainty in LDWF stock assessment models.
- The addition of these types of time-series **will allow fishery managers the ability to forecast future stock conditions for recreational and commercially important finfish species with more certainty.**
- Inshore Artificial Reef projects could be monitored with this technology.



Expected Benefits

- Additionally, sampling and monitoring of Coastal Restoration projects and Living Shoreline projects could be conducted with this technology as these are difficult projects to sample with previously available traditional net (seine, gill, or trammel) sampling or enclosure trap (drop samplers or throw traps) sampling methods.





Questions?