



### **2025-2026 Forage Fish Research Program Fellowship and Data Workshop Update**

On May 29<sup>th</sup>, 2025, the Florida Forage Fish Coalition, made up of the IGFA, Pew Charitable Trusts, Wild Oceans, Fish Florida, Florida Wildlife Federation, Angler Action Foundation, American Sportfishing Association, and the Tampa Bay Estuary Program, hosted the **9<sup>th</sup> Annual Forage Fish Research Program Data Workshop**. The Workshop is an annual opportunity for the [Forage Fish Research Program \(FFRP\)](#) to update interested stakeholders and the academic community on the work being done on Florida's forage fish by the Florida Fish and Wildlife Conservation Commission's (FWC) Fish and Wildlife Research Institute (FWRI), FFRP Data Partners, and FFRP graduate student Fellows. The 2025 Workshop included a presentation on the history of the FFRP Fellowship program, presentations on FWRI's research priorities and data availability, as well as presentations from participating Data Partners including Southwest Florida Water Management District (SWFWMD), Tampa Bay Estuary Program (TBEP), and the Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR).



For the second year, we welcomed Florida Department of Environmental Protection's (FL DEP) Aquatic Preserve Program and the Statewide Ecosystem Assessment of Coastal and Aquatic Resources (SEACAR) Data Portal as participating Data Partners, which give Fellows the opportunity to conduct traditional forage fish research as well as expand water quality and habitat-based research into broader environmental and climate impacts that affect forage fish productivity and ecosystem functioning among Florida's 42 Aquatic Preserves.

### **2024-2025 Fellows Present Their Work at the 9<sup>th</sup> Annual FFRP Data Workshop**

The highlights of the Workshop each year are the presentations by current FFRP Fellows. The first Fellow to present was Megan Siemann from University of Florida's School of Natural Resources. Megan presented her project, titled, "Optimizing Forage Fish Trophic Sampling for Ecosystem Modeling in the Nature Coast Aquatic Preserve." See below for a brief summary of Megan's work:



Food web models help researchers and policymakers explore potential management strategies and future ecosystem changes. Forage fish and other low-level consumers play a key role in transferring energy up the food web from primary producers to top predators like sport fish. Accurately representing energy flow through forage fish improves model reliability. This project used diet data from the Fisheries Independent Monitoring (FIM) program and compiled stable isotope data from published literature to evaluate predator-prey relationships in food web models for the recently established Nature Coast Aquatic Preserve (NCAP). Because stable isotope signatures of predators reflect those of their prey, we can use these data to estimate average consumption of prey items identified from FIMs stomach content data. Stable isotope data have been published for a range of estuarine species in the region, including pinfish, an indicator species in models for other Florida estuaries. We also identified species and groups (e.g., plankton) for which isotope signatures from outside the NCAP are available, but for which additional sampling within the region is recommended. The assembled dataset provides a baseline for evaluating how well nearby food web models reflect observed predator-prey dynamics along this part of Florida's coast.

Next, Mack White, from Florida International University, presented his research, titled, "Dynamic Sustainability: Spatiotemporal patterns in forage fish biomass responses to disturbance across Florida estuaries." See below for a brief summary of Mack's work:



Forage fish are critical components of marine food webs, linking primary production to top predators. However, these species are especially vulnerable to both press and pulse disturbances associated with global change. Using ~30 years of data from seven major estuaries across Florida, USA, we examined the drivers that underpin the temporal stability of forage fish assemblages. Specifically, we (1) assessed long-term trends in assemblage structure, diversity, and functional traits; (2) quantified forage fish biomass responses to marine heatwaves, cold snaps, and hurricanes; and (3) identified drivers of temporal biomass stability. Preliminary results suggest widespread declines in forage fish biomass

and species richness, especially in northern estuaries. Assemblages were generally more resistant than resilient to disturbance. However, biomass was least resistant to heatwaves. Resistance emerged as the strongest predictor of long-term stability, though other elements of community structure, diversity, dynamics, and traits also influenced stability, in estuary-specific ways that displayed trends associated with latitudinal gradients observed in our study. Conserving forage fish diversity and promoting traits linked to resistance will be critical for sustaining the ecological roles of these species and the resilience of Florida's nearshore ecosystems.

We would like to congratulate Megan and Mack on a successful Fellowship year and wish them well as they move on to the next step in their research careers!

### 2025-2026 FFRP Fellows

Following the 9<sup>th</sup> Annual Data Workshop and proposal review, the FFRP Coalition selected the 2025-2026 Fellows, Alex Walus from the University of Florida and Meredith Pratt from the University of Central Florida, who will present the results of their Fellowship projects at the upcoming 10<sup>th</sup> FFRP Data Workshop on June 4<sup>th</sup>, 2026.



Alex Walus is a Ph.D. student at the University of Florida under the mentorship of Dr. Marc Hensel. Her project will improve our understanding of how forage fish movements towards the poles (tropicalization) due to changes in sea surface temperatures reshapes coastal food webs along Florida's Gulf Coast. This research will utilize a space-for-time, trait-based approach to synthesize long-term fish and environmental data to evaluate how tropicalization of forage fish communities are reshaping coastal food webs across the Eastern Gulf of Mexico. Her work poses three main questions: 1) How have forage fish communities shifted in abundance, composition, and body size over the last two decades? 2) How has the environmental change (i.e., temperature rise and habitat quality) influenced the rate of forage fish community change over time? 3) What fish traits best predict forage fish community winners and losers under tropicalization? Together, this research will pinpoint when, where, and why forage fish tropicalization is occurring, and how these shifts may alter food web structure to influence the management of Gulf fisheries.



Meredith Pratt is a Ph.D. student at the University of Central Florida under the mentorship of Dr. Geoffrey Cook. Her project aims to evaluate long-term changes in fish community structure across more than 400 km of Florida's east coast by integrating multidecadal datasets from FWRI's Fisheries Independent Monitoring (FIM) program with empirical data collected at the Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR). Focusing on tropicalization, a climate-driven poleward expansion of warm-adapted species, facilitated by rising temperatures and reduced cold extremes, this project will highlight short- and long-term warming trends that drive changes in species foraging, spawning, competition, and habitat. While long-term warming trends drive many of these changes, relatively short-term climactic events – particularly El Niño-Southern Oscillation (ENSO) – cause abrupt shifts in temperature, salinity, and precipitation with unknown effects on estuarine fish communities.

The FFRP Fellowship Program has been a major success over the years with 17 Fellows funded from five universities, \$280,000 raised to support the Fellowships, and 11 peer-reviewed publications with more on the way. Fellows have gone on to work in academia and at numerous federal and state agencies including USGS, NOAA, and FWRI. In fact, Dakota Lewis, the only Fellow to receive the fellowship twice while studying at two different universities, is quoted as saying, "The Forage Fish Research Program Fellowship has given me the freedom to be scientifically creative during my PhD. Ultimately, I have been able to leverage the support of the FFRP to expand the scope of my dissertation research across a broader geographic region and explore cutting edge machine learning methodologies."

### **10<sup>th</sup> Annual FFRP Data Workshop**

Looking forward, we are gearing up for our upcoming 10<sup>th</sup> annual FFRP Data Workshop, on June 4<sup>th</sup>, 2026. This year, FFRP Data Partners will include FWRI, TBEP, SWFWMD, SECAR, FLDEP/FL Aquatic Preserve Program, and GTMNERR. FFRP Data Partners provide vital fishery and environmental datasets for Fellows to utilize as they research the broader environmental and climate impacts on forage fish habitat and productivity around Florida's Aquatic Preserves.

Following the 10<sup>th</sup> Annual Data Workshop in June, a request for proposals will be published and will include FWRI and Data Partner research priorities to be used as guidelines for project proposals. We are pleased to announce the continued increase in the Fellowship award, thanks to the generosity of [Fish Florida](#), from \$15,000 to \$20,000 per Fellow, to support the great research that will be done by the next round of FFRP Fellows. For more information about the Fellows and the program go to <https://floridaforagefish.org/> or email Jackson Martinez (jmartinez@igfa.org), IGFA's Conservation Programs Manager.