

# Annual Winter Variations of Family Assemblage within the GTM NERR

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## INTRODUCTION

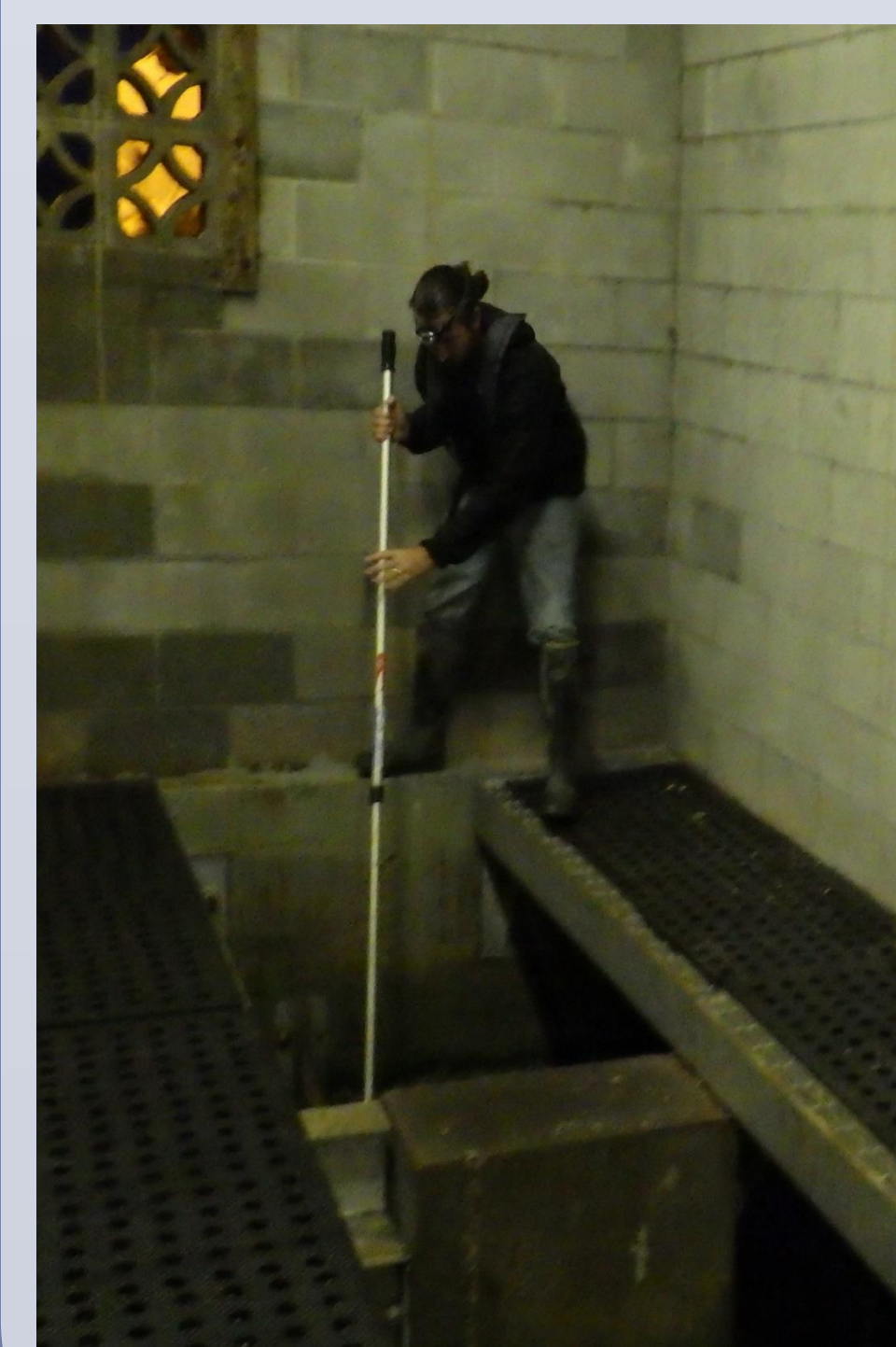
- Many commercial and recreational fish of economic importance are known to spawn along the continental shelf throughout the Mid- and South-Atlantic Bights (SAB), where they are eventually transported to estuaries, which serve as critical habitats as nursery grounds
- While recruitment abundance may vary between years, there is strong evidence that seasonal patterns in larval community structure exists
- While studies on seasonal trends in abundance and community data along the SAB have been well documented there has been limited information regarding ichthyoplankton recruitment into the Guana Tolomato Matanzas National Estuary (GTM NERR)

## PURPOSE

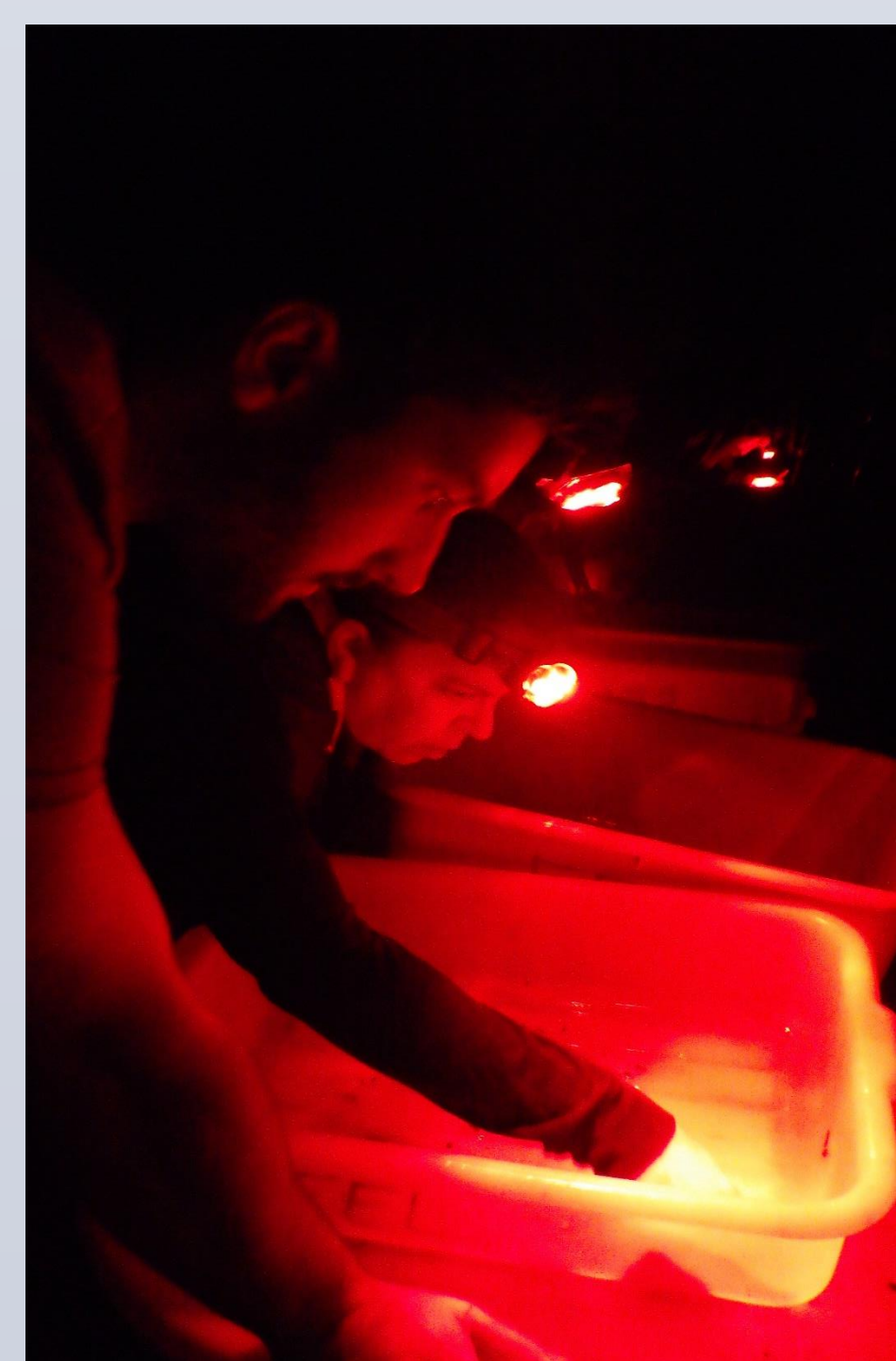
- Provide a preliminary analyses of baseline community assemblage throughout sample years
- Determine if any significant temporal variation in community assemblage exists
- If differences in community assemblage are occurring can they be attributed to any local environmental variables

## METHODS

- **Sample Collection**
  - Fixed sampling location within GTM NERR from 2017-2020
  - 113 sampling nights during the months January and February
  - Sampling was conducted via standardized dip netting procedure
- **Data Analysis**
  - Analysis of similarity, Best analysis, and distance based linear modeling conducted using PRIMER-e (v7.0.13) software



Eel Sampling



## RESULTS

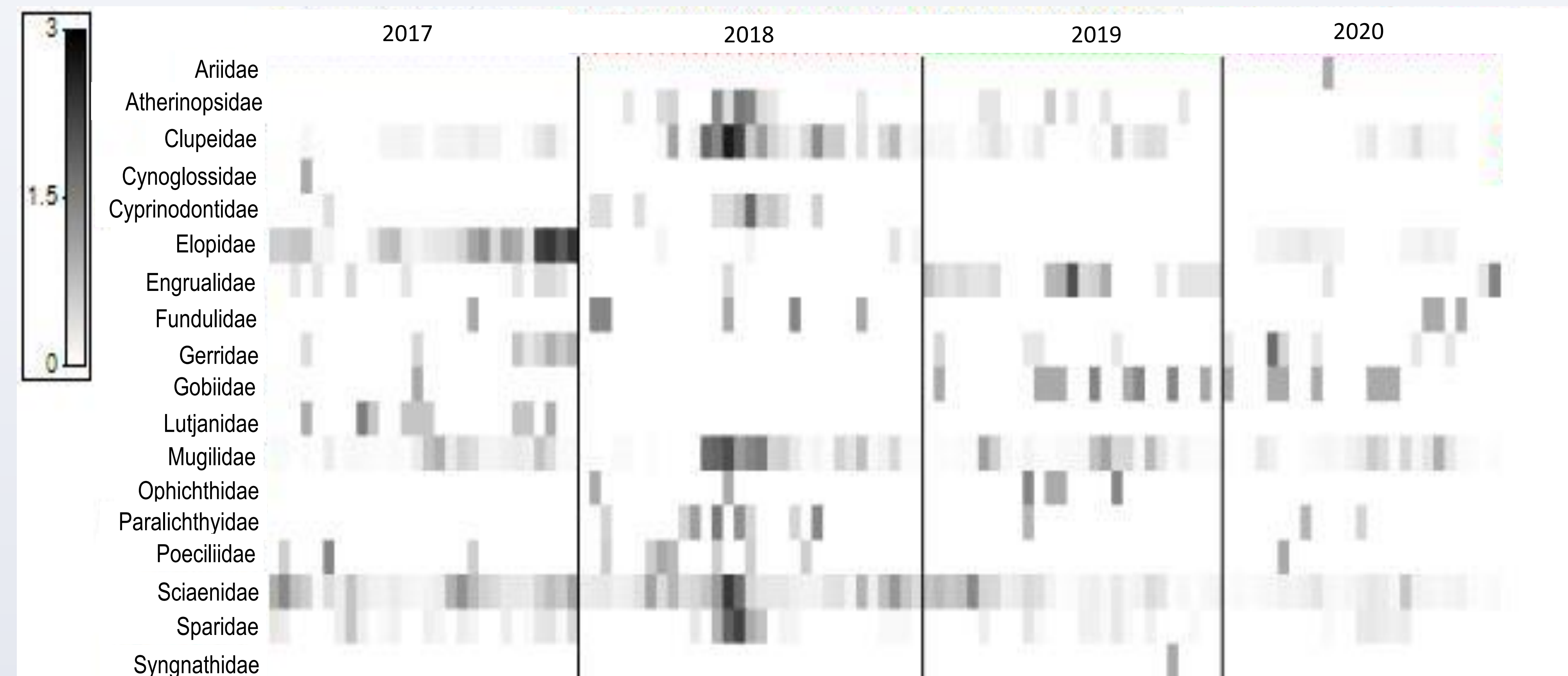


Figure 1: Each Sampling night is depicted with the corresponding values after dispersion weighting and transformation allowing for a more concise depiction of which families contributed to community structure throughout the years.

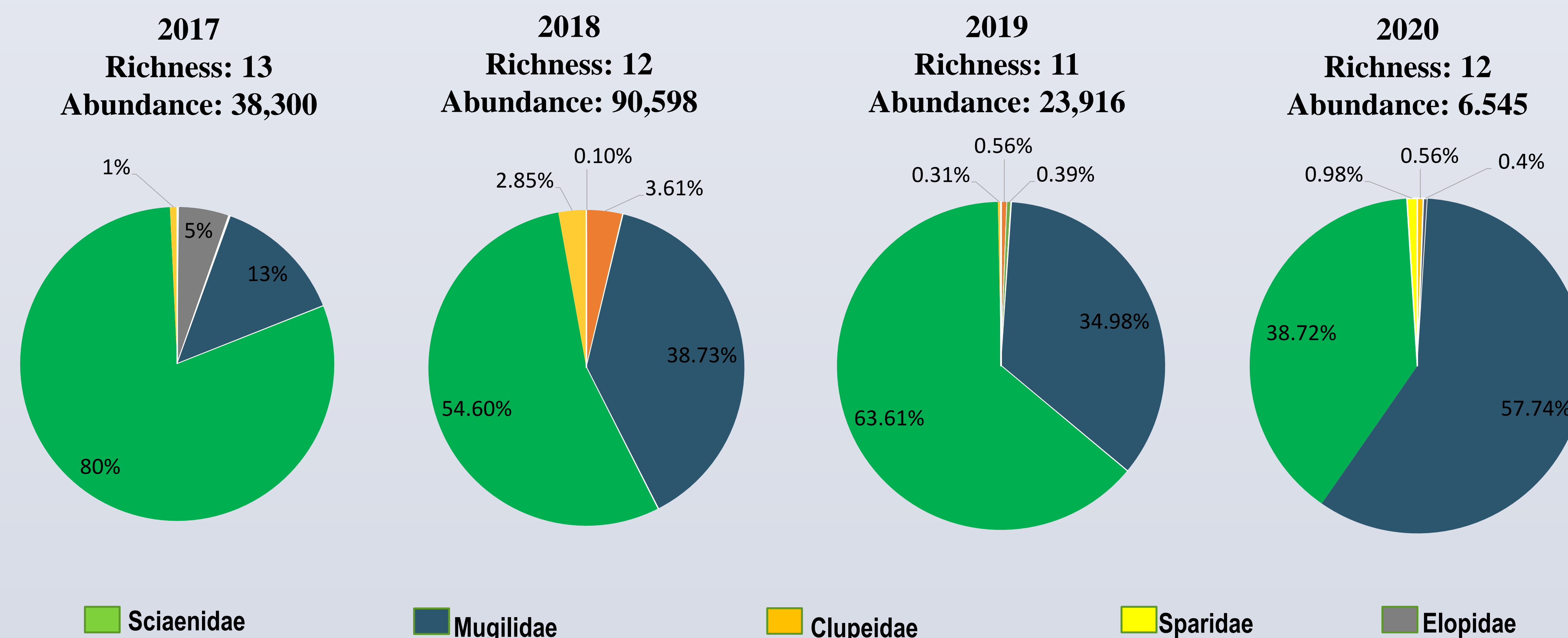


Figure 2: Pie graphs depicting top five most abundant families throughout sample years. Peak richness occurred in 2017 with 13 families being present in contrast richness was at it's lowest in 2019 with only 11 families present.

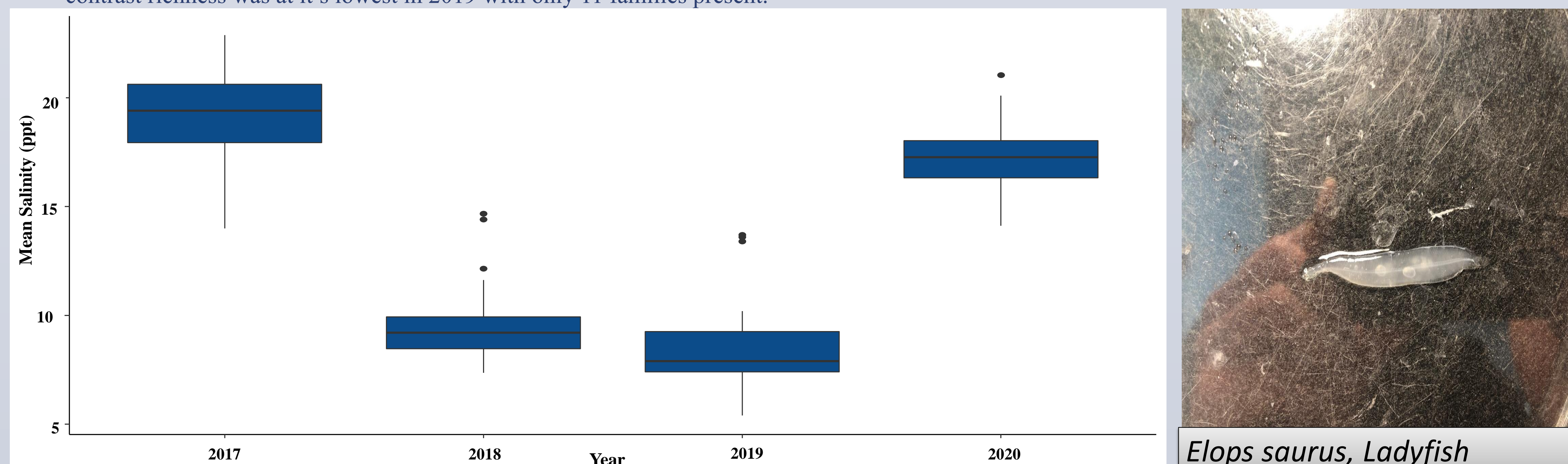


Figure 3: Box plot depicting salinity variation throughout four sampling years. Salinity averages were highest in 2017 and 2020 (19.3 and 17.3, respectively) which corresponded with highest capture rates for *Elops saurus*.

## RESULTS

- Total of 159,889 organisms caught, with peak abundance reaching 90,598 (2018) and yearly low of 6,545 (2020)
- Dominant Taxa: *Sciaenidea* (Drum Family) and *Mugilidae* (Mullet)
- Best analysis provided a correlation value of 0.377 for family Elopidae against collection of abiotic variables
- Distance Based Linear Modelling determined salinity accounted for ~40% of variation



*Micropogonias undulates*, Atlantic Croaker



*Mugil cephalus*, Striped Mullet

## DISCUSSION

- Abundant taxa observed throughout study years reinforces similar seasonal patterns observed in other studies throughout southeastern estuaries
- While R values differed, they remained relatively low between study years. Community composition did not alter drastically, likely because of physiological tolerant taxa that inhabit estuarine systems
- The family Elopidae was the only taxa to show a noticeable decline correlated with salinity indicating there may be a physiological tolerance or preference in metamorphosing larvae

## ACKNOWLEDGEMENTS



2018 Eel Team

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