

# Fish Feeding Guild Dynamics in the Changing Western Atlantic Ocean



University of  
New Hampshire



Nathan T. Hermann<sup>1</sup>, Andrew J. Allyn<sup>2</sup>, Carly Lovas<sup>2</sup>, Mark J. Wuenschel<sup>3</sup>, Brian E. Smith<sup>3</sup>, Katherine E. Mills<sup>2</sup>, and Nathan B. Furey<sup>1</sup>



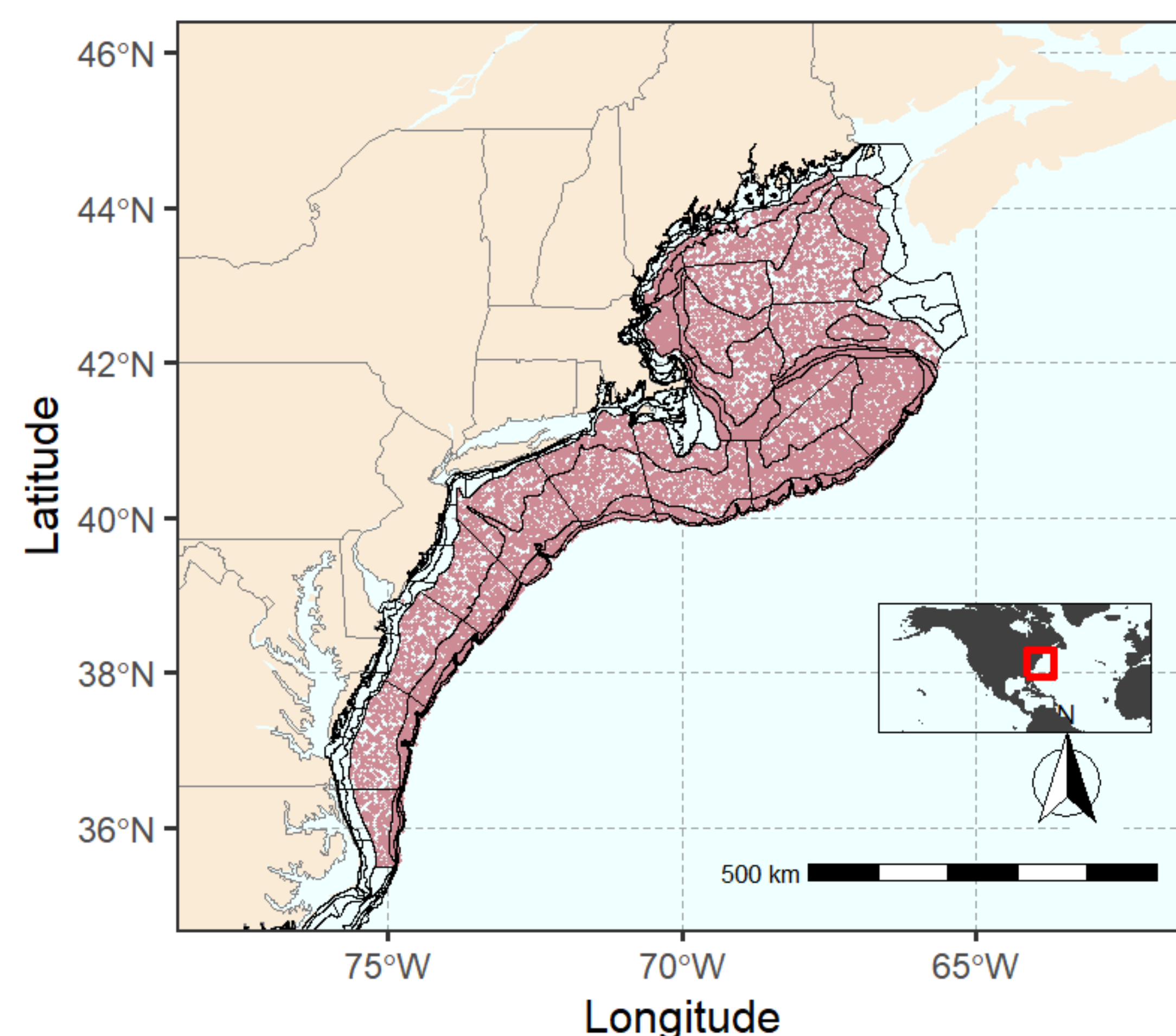
<sup>1</sup>Department of Biological Sciences, University of New Hampshire <sup>2</sup>Gulf of Maine Research Institute, Portland, ME <sup>3</sup>Northeast Fisheries Science Center, Woods Hole, MA

## Introduction

- Climate change may alter the feeding requirements and opportunities for marine predators
- Feeding guilds are central features to predator feeding behavior

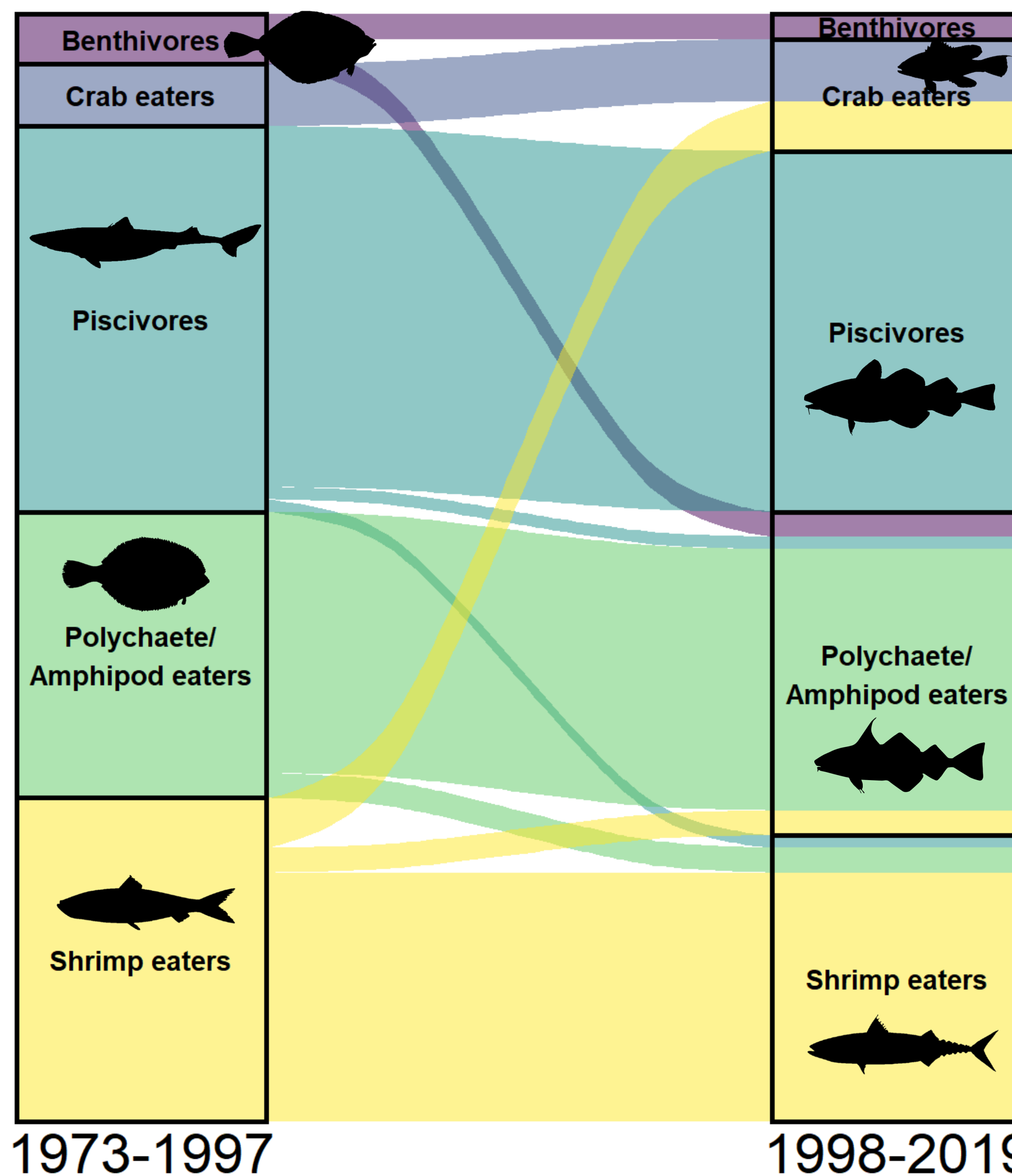
## Objectives

- Identify how fish feeding guilds change over time—both in membership and relative to each other
- Characterize species responses to help define sensitive populations



Trawls conducted from 1973-2019; a subset of fish caught were sampled resulting in 181,143 diets collected.

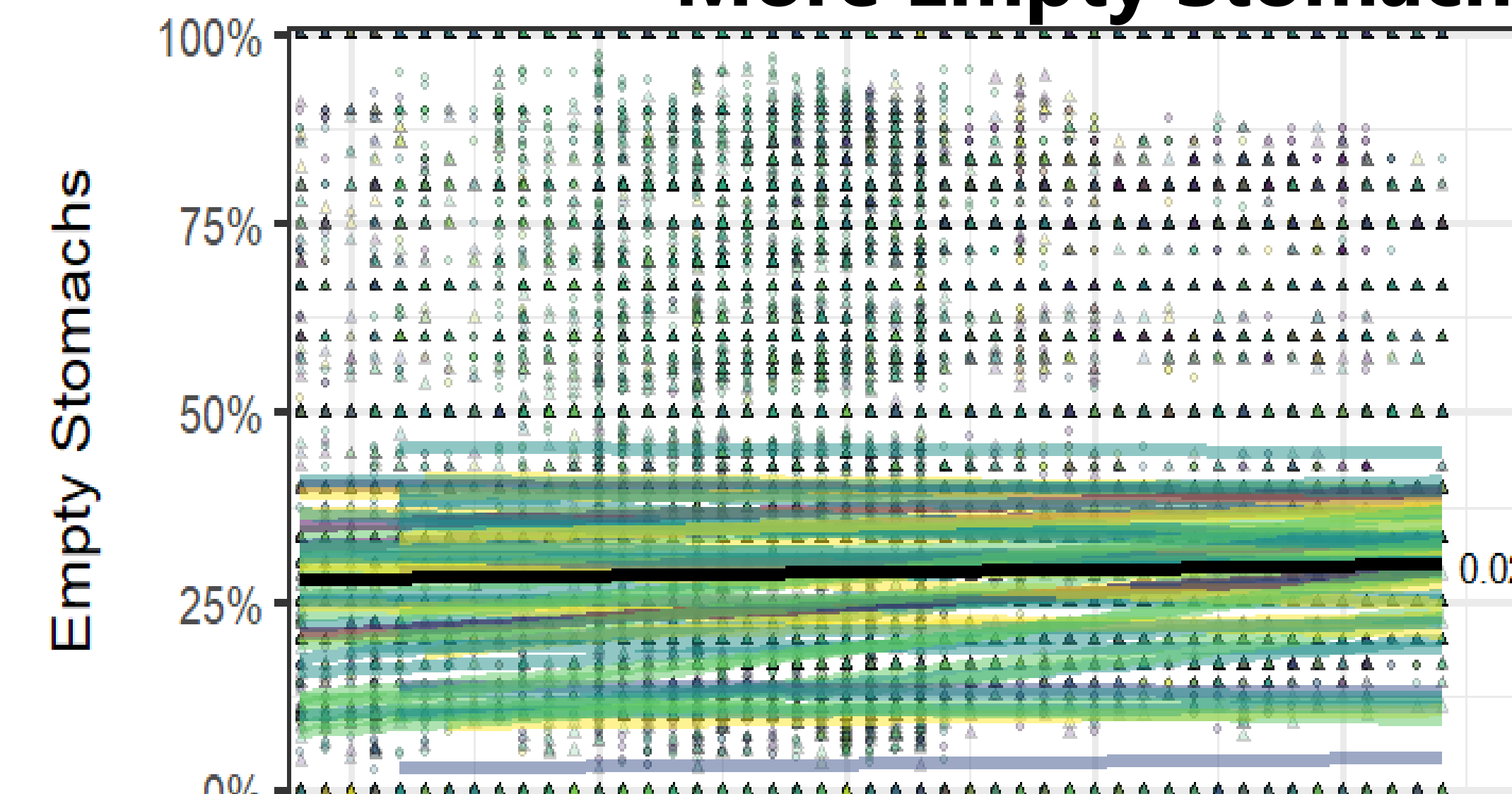
Fish belong to **Feeding Guilds** based on the types of prey they consume



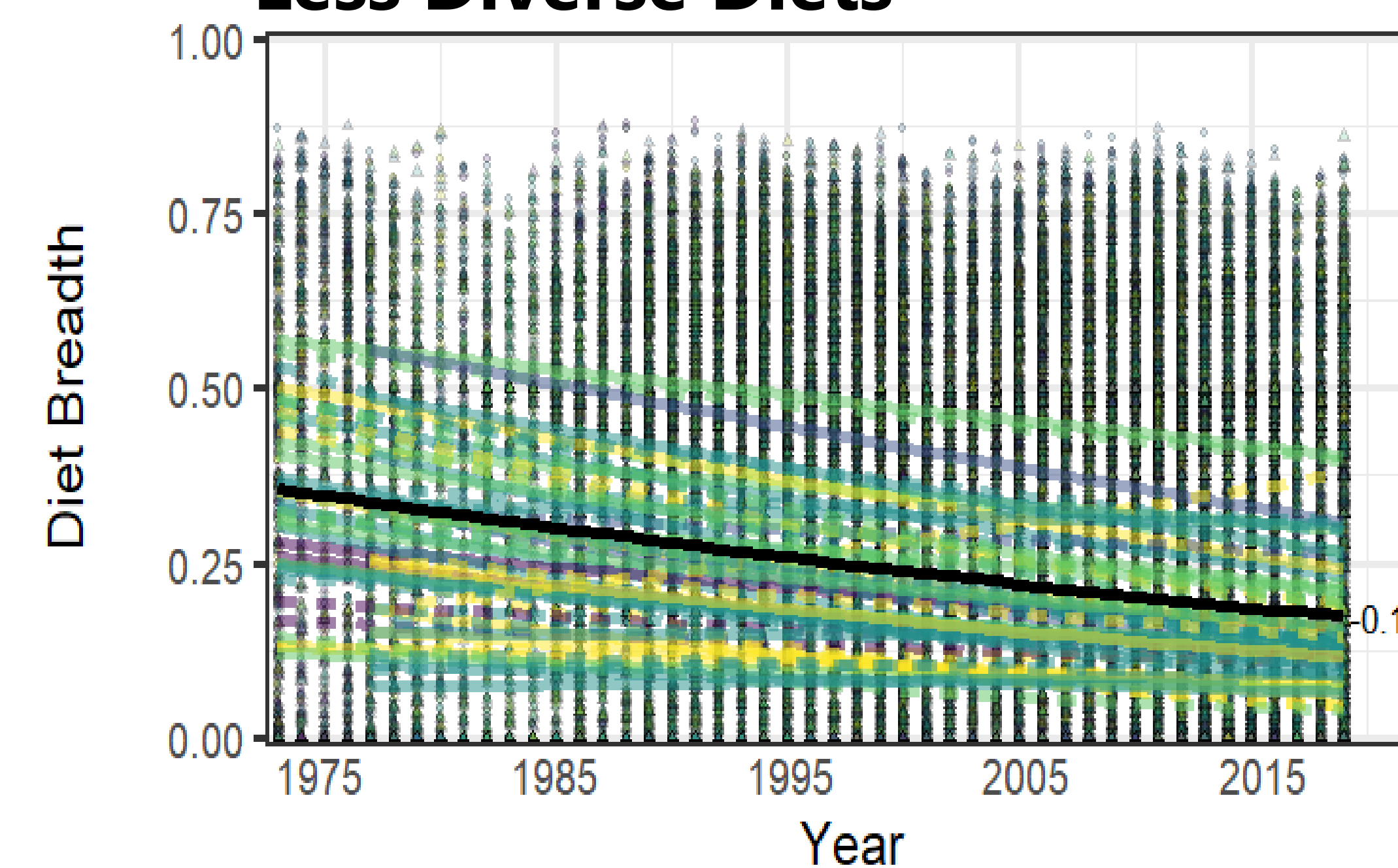
Species' guild assignments are stable features over time (86.5%).

## Results

### More Empty Stomachs

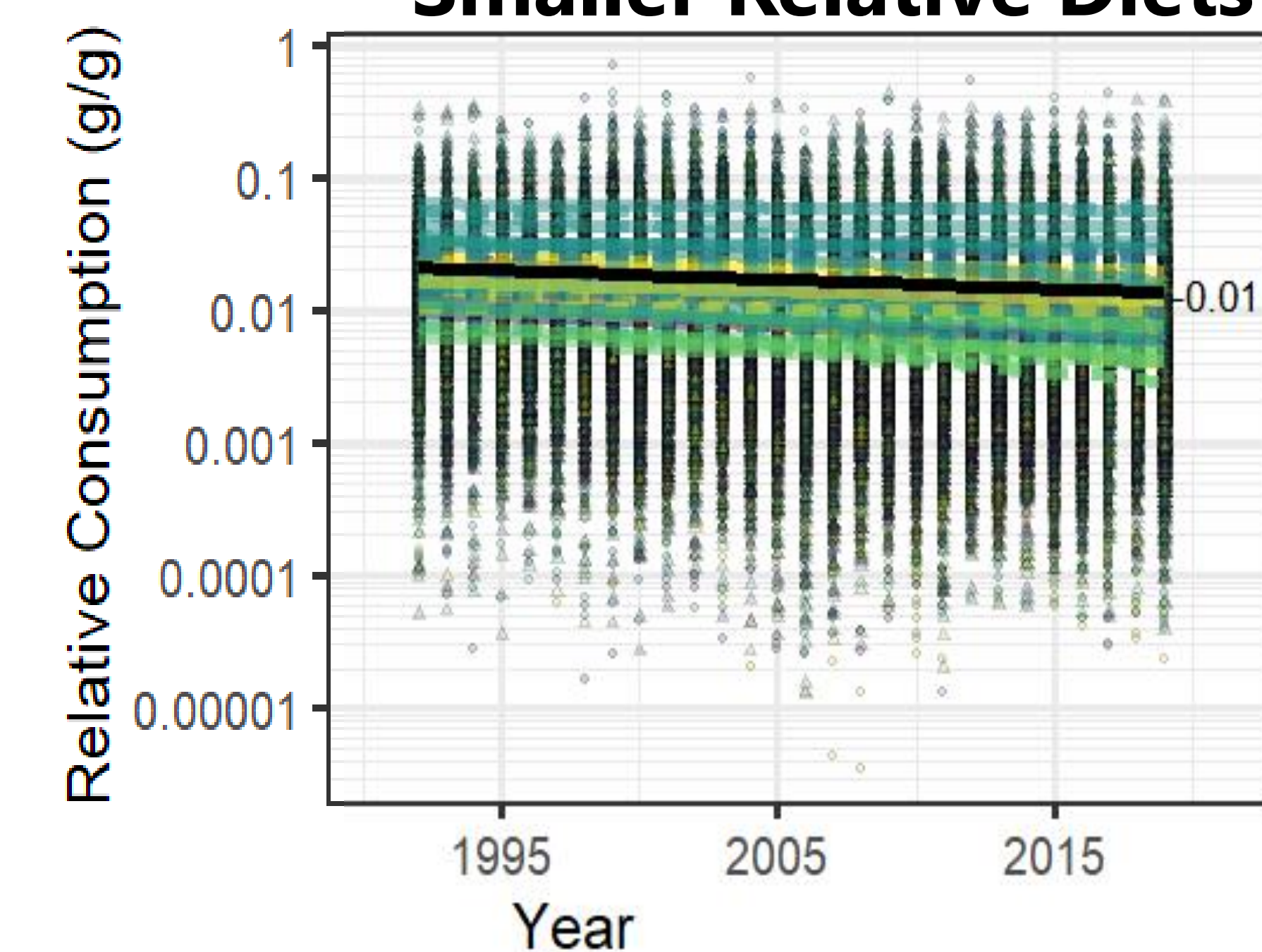


### Less Diverse Diets

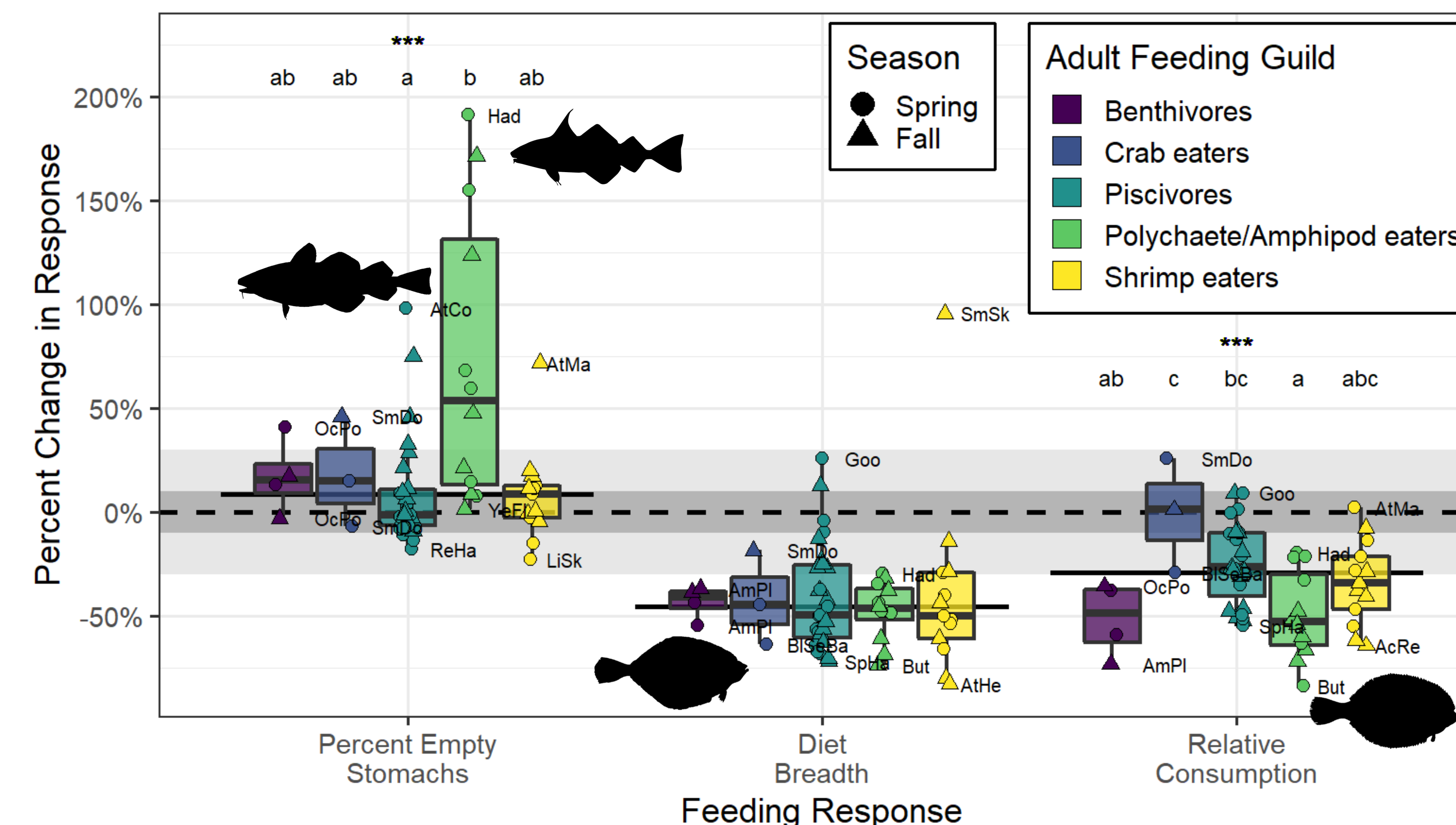


Diet metrics may not be as stable with generalized linear models finding individuals on average had...

### Smaller Relative Diets



*Post-hoc* tested features contributing to change. **Benthic feeders were especially sensitive**—e.g., flatfishes and non-piscivorous groundfishes



## Additional Research

- Consequences of dietary change on the energetics, growth, and broader productivity of a species and the community depends upon the energetics of prey items
  - Temperature increases drive higher metabolism in fish resulting in a measurable reduction in observations of diet frequency and magnitude

## Acknowledgements

- The Furey Fish and Movement Ecology Lab and committee members—R. Rowe and E. White
- NEFSC and trawl data collectors therein. Funding by NSF, Award #2023536

