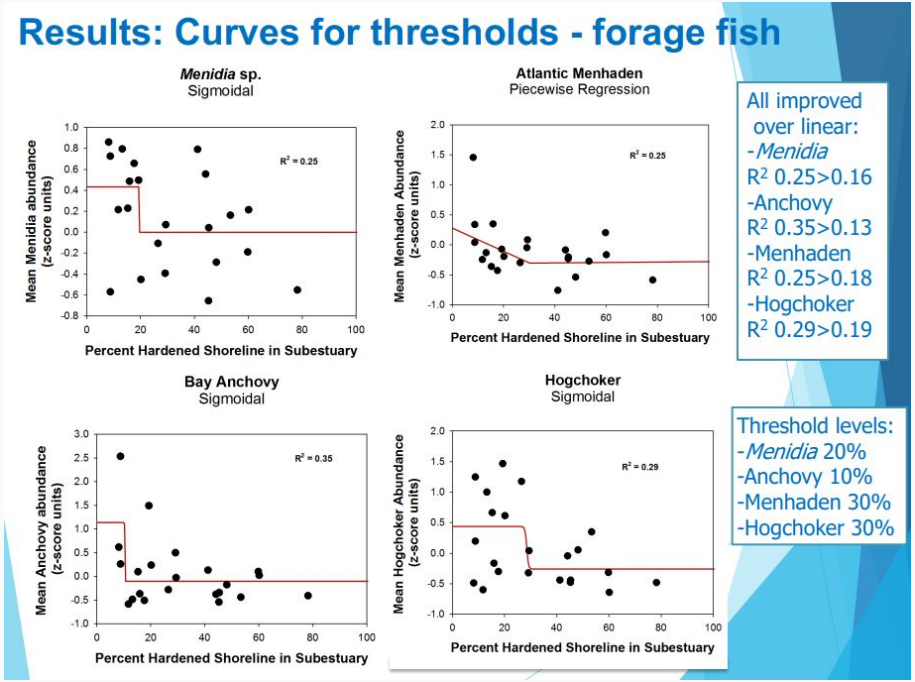
State of Science Needs for the Forage Action Team

Justin Shapiro

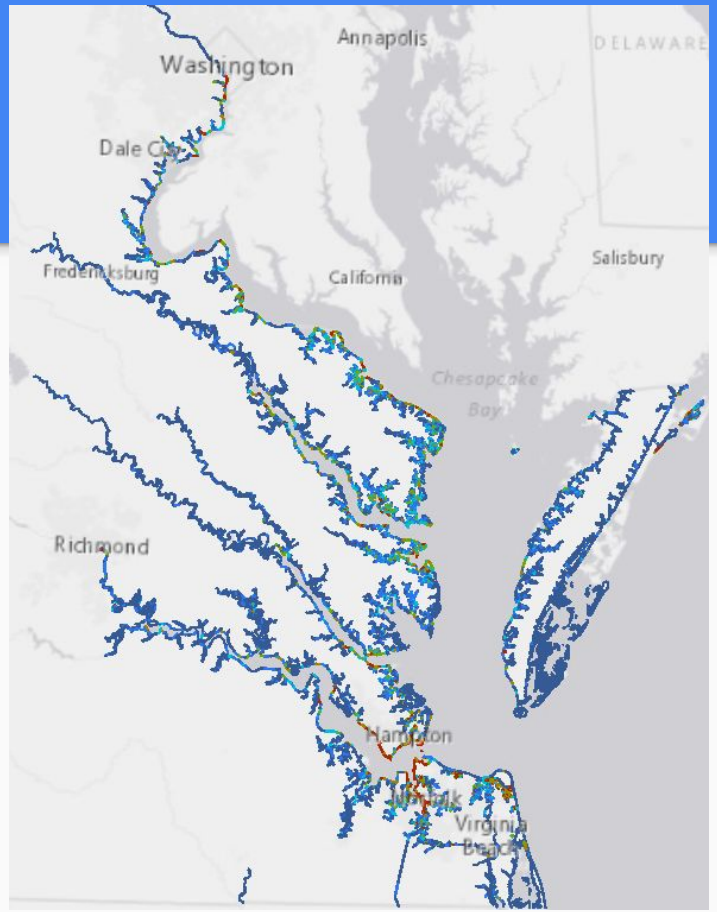
Completed Science Needs

- *Shoreline Threshold Analysis*
  - *GIT-funded study completed: "Threshold effects of altered shorelines on forage species"*



Ongoing Science Needs

- *Baywide inventory of shoreline condition/type*
  - *VA hardened shoreline layer completed*
  - *MD is partially completed. Waiting on VIMS inventory data*
  - *Explore avenues for inventory completion for remaining MD counties and future trends analysis*
- *Benthic Forage Abundance Indicator (Status and Trends)*
  - *Efforts currently underway, led by NOAA Chesapeake Bay Office*



Ongoing Science Needs (Continued)

- *Climate related changes in fish distribution*
  - *GIT-Funding:*
    - *Forage abundance compared to climate indices (AMO, degree day): Preliminary research shows correlations between long, cool springs and increased in forage abundance*
  - *NCBO-Funding:*
    - *Habitat Utilization and Ecosystem Connectivity in the Southern Mid-Atlantic Bight*
    - *Quantifying Habitat Suitability for Forage Fishes in Chesapeake Bay: A Coupled Modeling Approach Using Fishery Surveys and a Hydrodynamic Model*
    - *Leveraging multi-species and multi-year telemetry datasets to identify seasonal, ontogenetic, and interannual shifts in habitat use and phenology of Chesapeake Bay fishes*
  - *Participating in STAC workshop on rising temperatures in Chesapeake Bay*

New Needs Expressed at Recent Management Board Meeting
(To Capture on Science Needs Database)

- *Indicators to support Ecosystem Based Fisheries Management at bay and regional fishery management level*
  - *Linking Habitat Suitability and climate variables to changes in forage abundance*
- *Improved monitoring networks in shallow water and for plankton*
  - *Concepts include*
    - *Focus plankton surveys in striped bass spawning areas*
    - *Use new technology (flow through systems like ZOOVIS); satellite data*
    - *Use data from studies such as Poplar Island marsh restoration*
    - *Add fish monitoring to SAV sentinel sites*