Climate Change Impacts for Chesapeake Bay Fish Production
Modeled with the
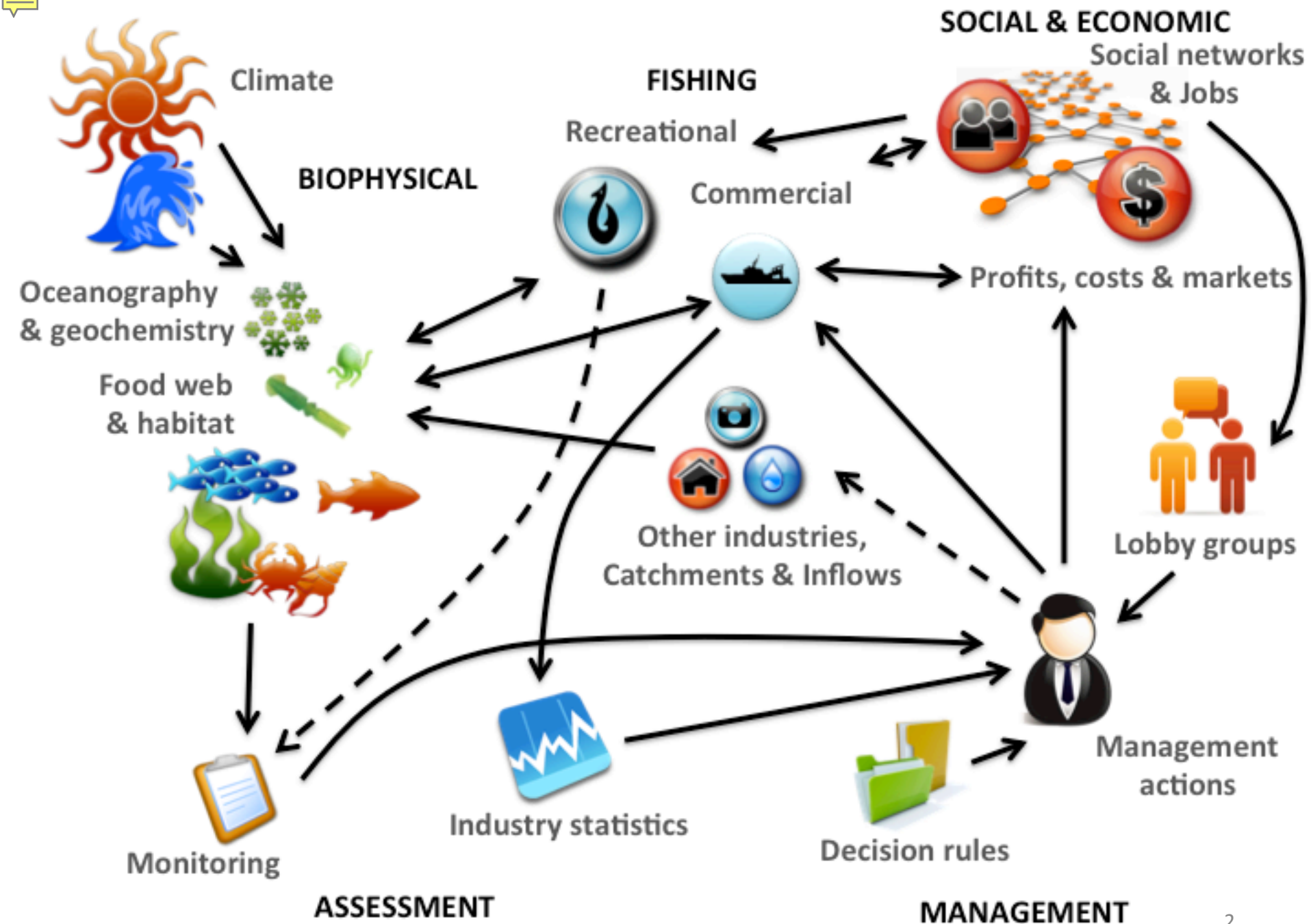# Chesapeake Atlantis Model

Tom Ihde – ERT, Inc.
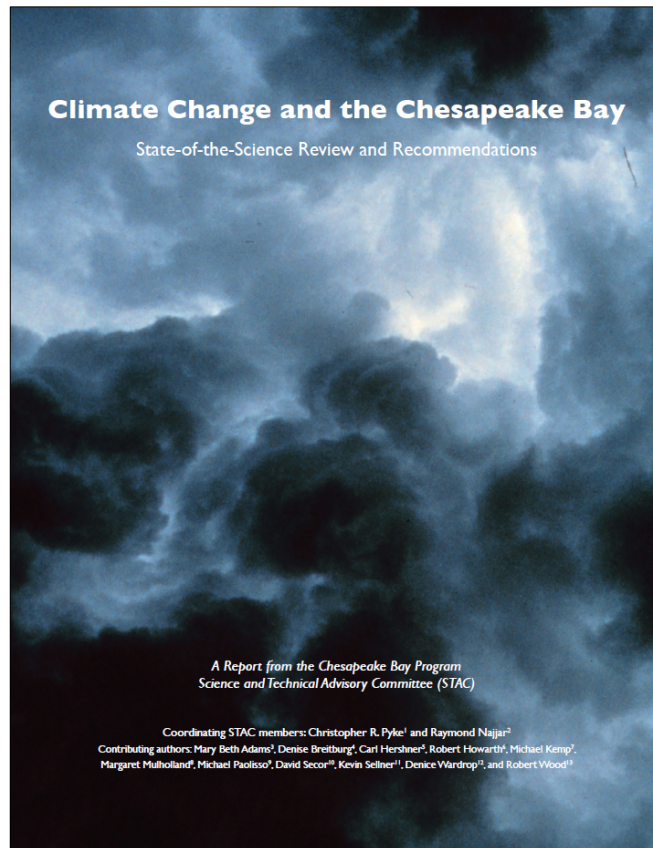
Tom.Ihde@noaa.gov

Howard Townsend – NMFS

SF-GIT – 1 June, 2015

SOCIAL & ECONOMIC

Social networks & Jobs

Climate

FISHING

Recreational

BIOPHYSICAL

Commercial

Oceanography & geochemistry

Profits, costs & markets

Food web & habitat

Other industries, Catchments & Inflows

Lobby groups

Management actions

Monitoring

Industry statistics

Decision rules

ASSESSMENT

MANAGEMENT

2

Climate Change Assumptions

- 50 years from now:
  - ✓ Increased water temperature (1.5°C)
  - ✓ Salinity (+/- 2 ppt)

3

Habitat Scenario Assumptions

- 50% loss of Marsh (area & biomass)

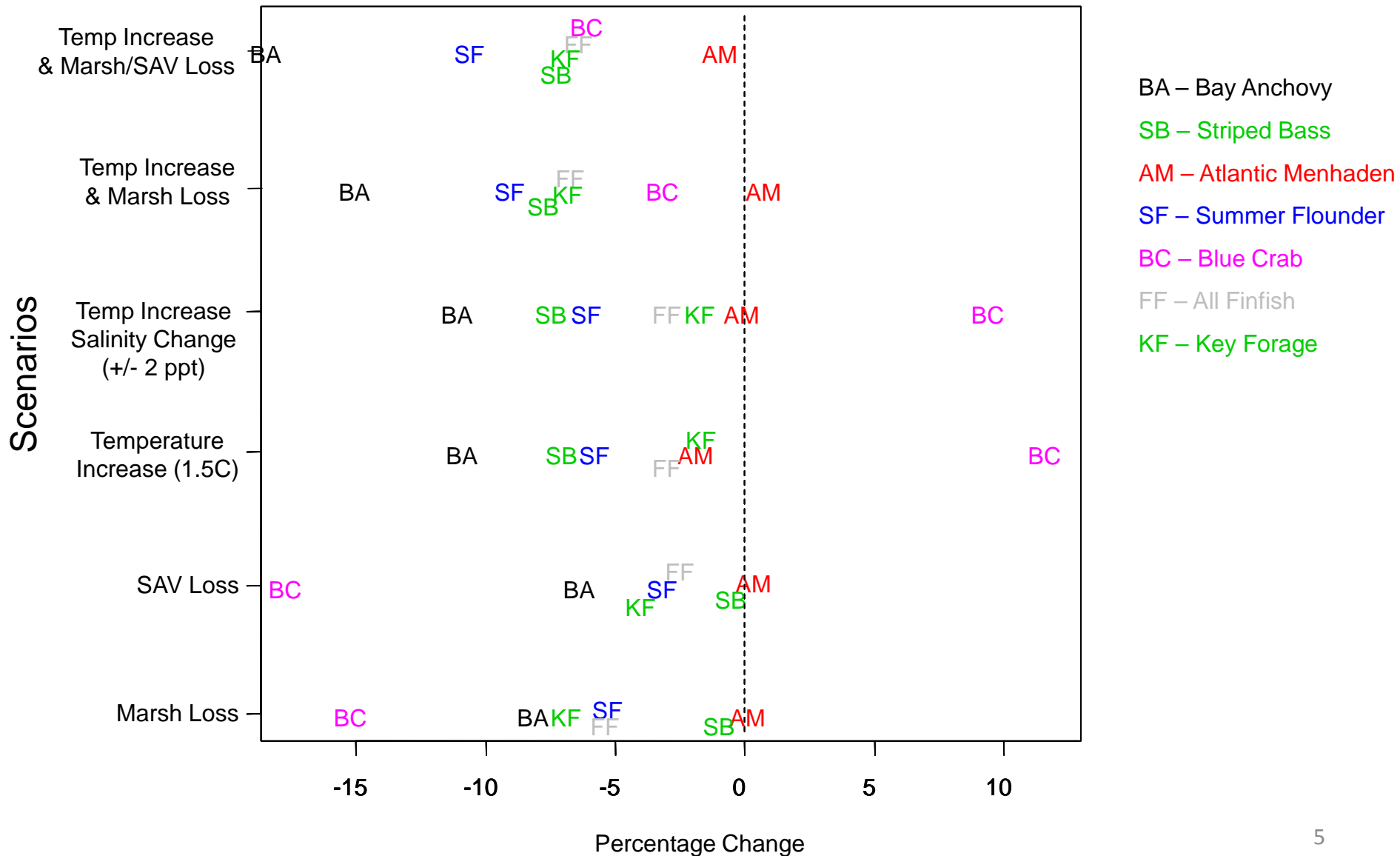 Due to multiple, interacting factors:

  - shoreline armoring
  - subsidence
  - sea level rise

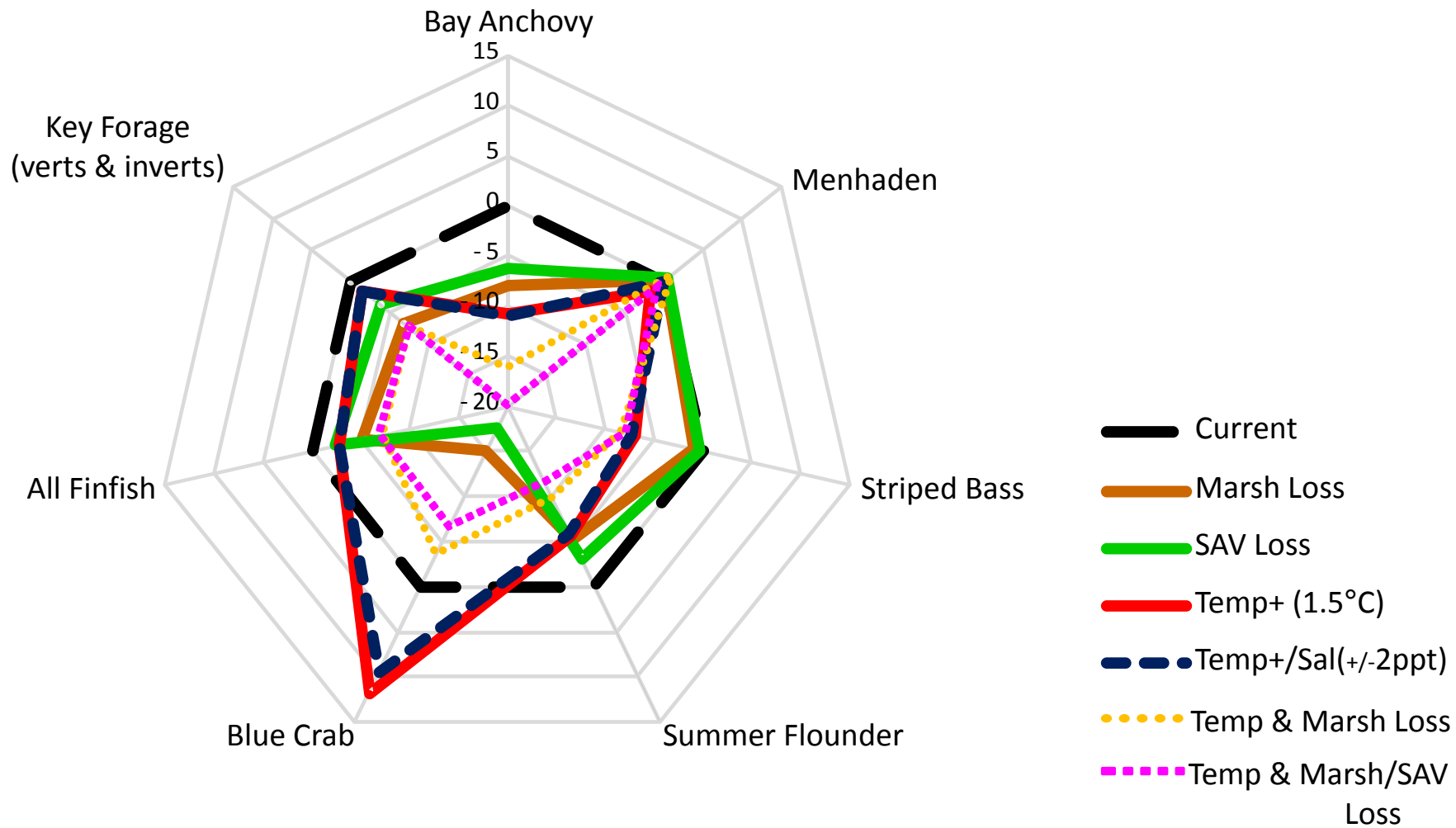- 50% loss of Seagrass

Sensitivity To Climate Change
Selected Group Effects of Interest to Management

Sensitivity To Climate Change
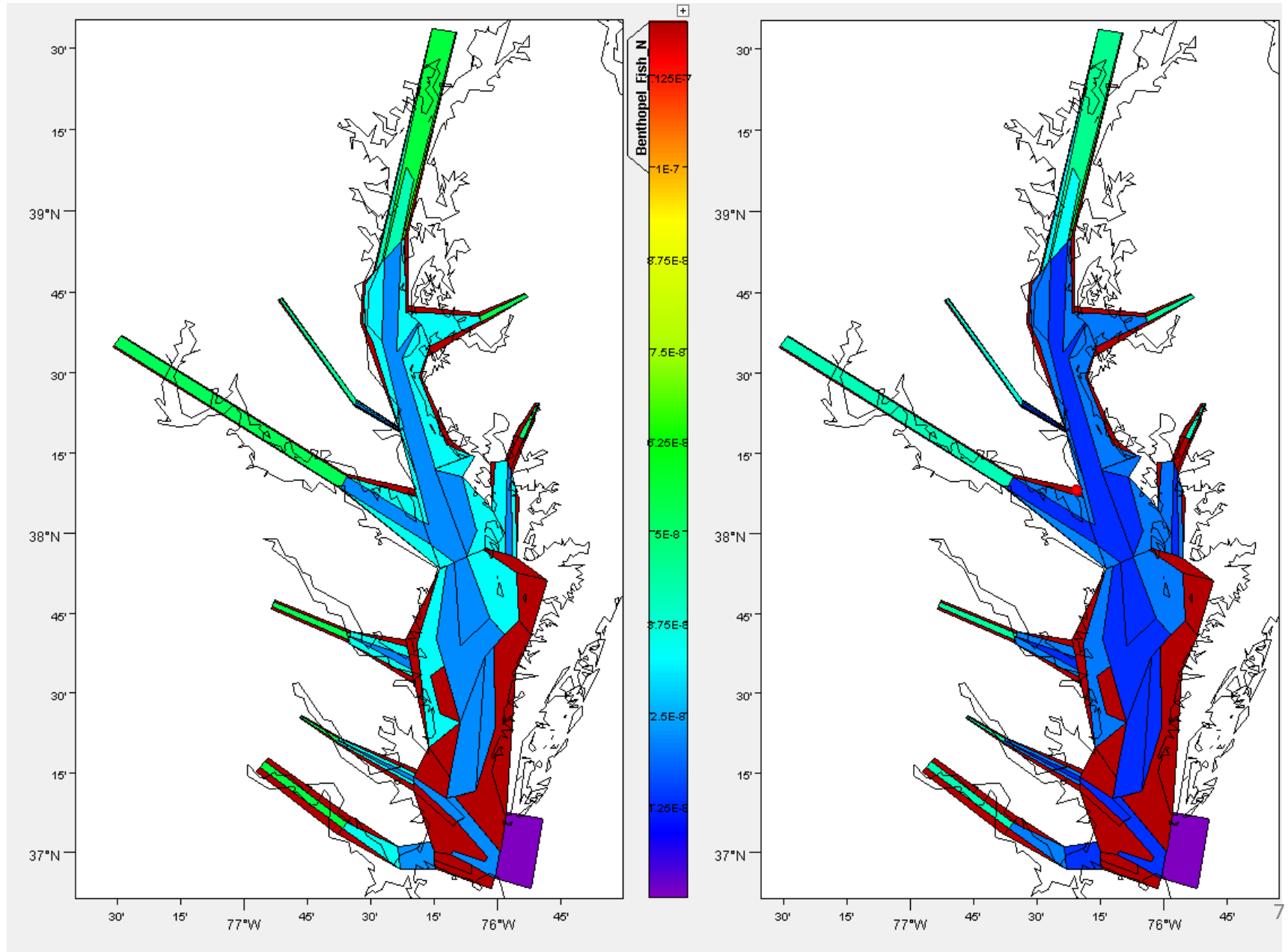## Selected Group Effects of Interest to Management

Striped Bass

Current Conditions

Temperature increase & Habitat Loss

Next…

- ✓ Animal preferences for temperature and salinity - establish new 'base' model

- ✓ Rerun all models to date, ensures apple-apple comparisons with new base model

- ✓ Interesting combinations – *what is most useful?*

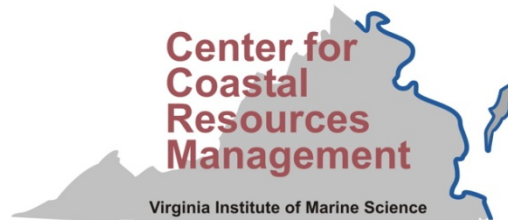- ✓ Add TMDL scenario to comparison/ combinations

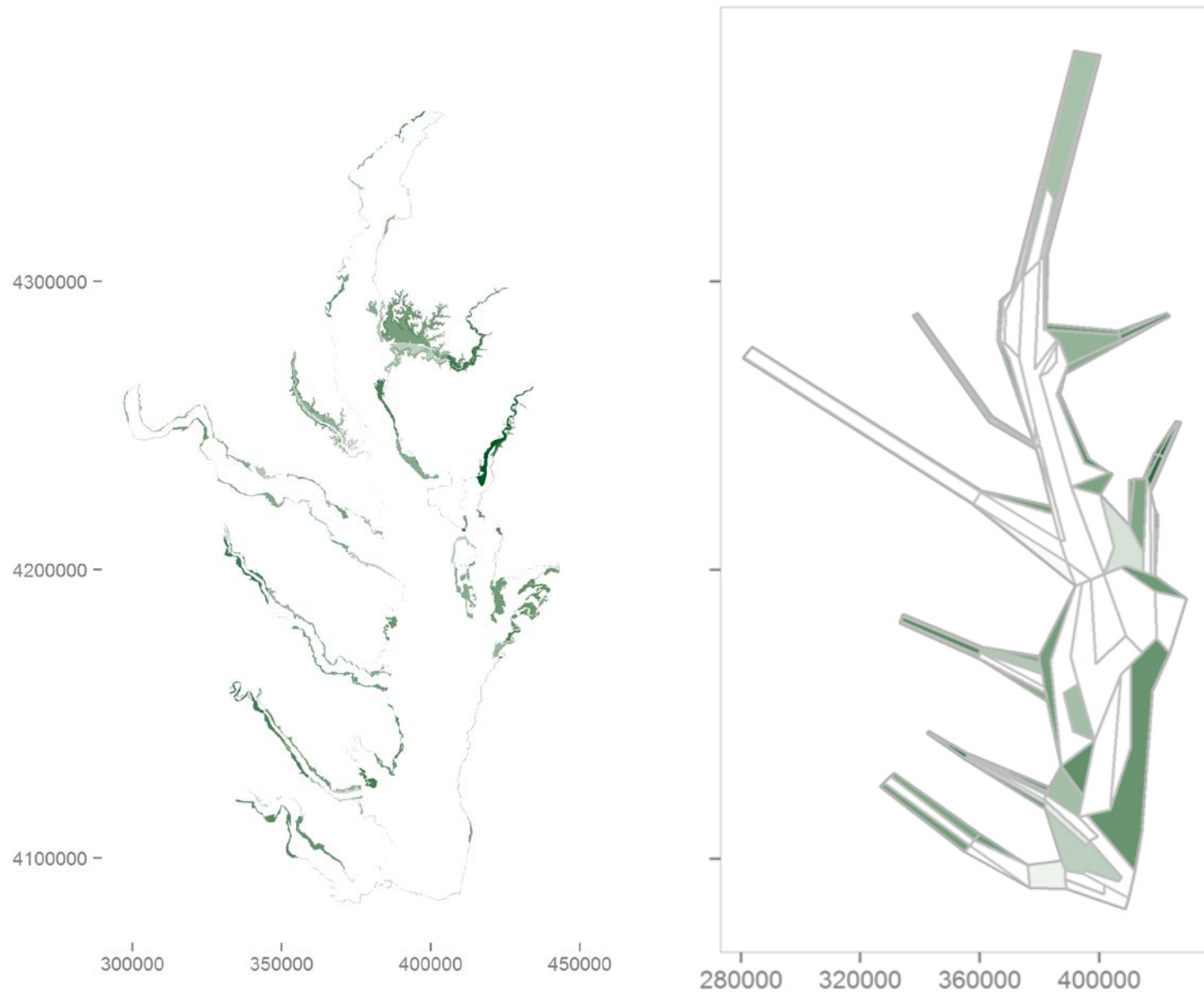# *Thanks to:*

Extra Slides
for Discussion

Blue Crab

Current Conditions

Temperature increase & Habitat Loss
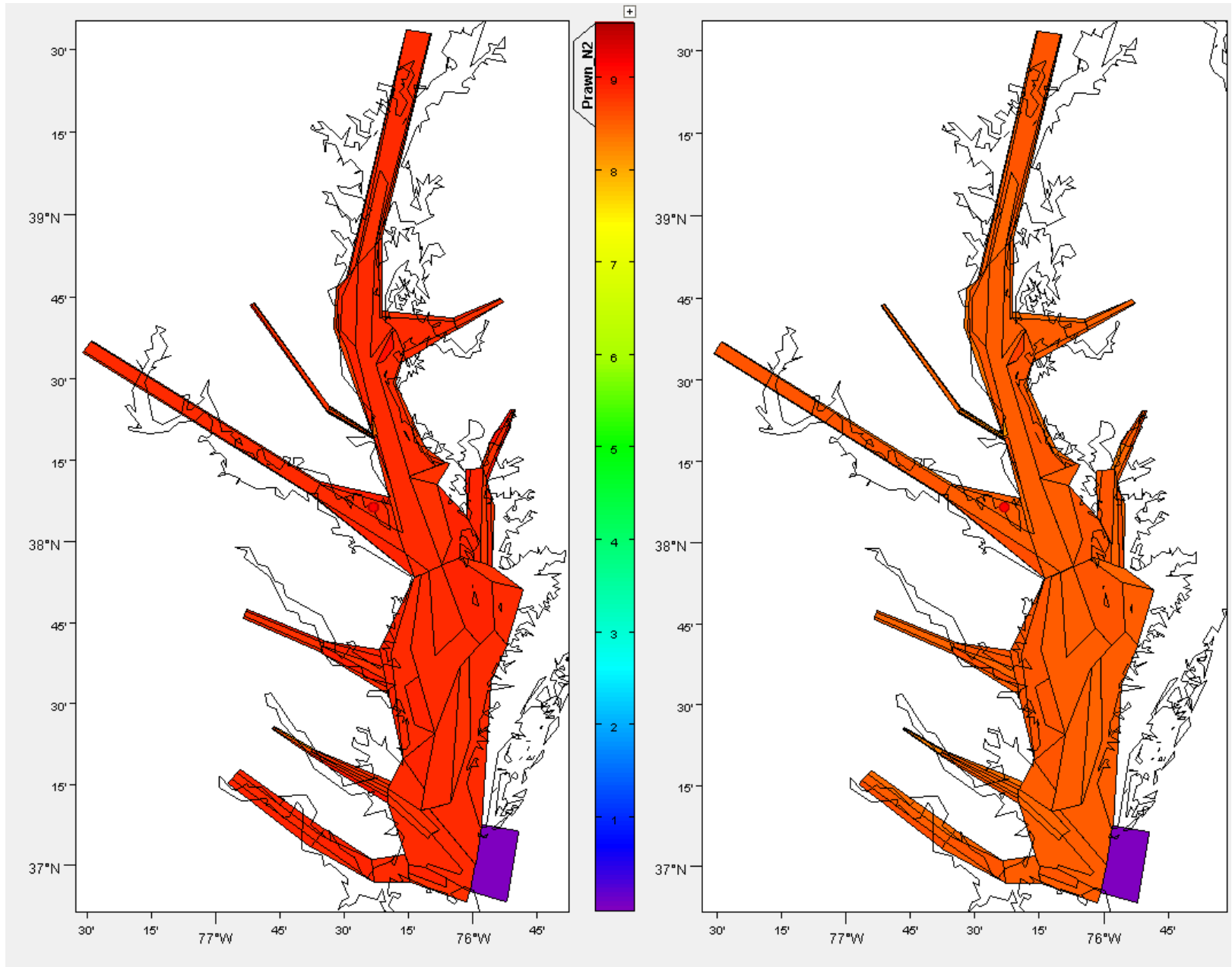
SAV Modeled in CAM

Marsh Modeled in CAM