



Climate Change Impacts for Chesapeake Bay Fish Production

Modeled with the

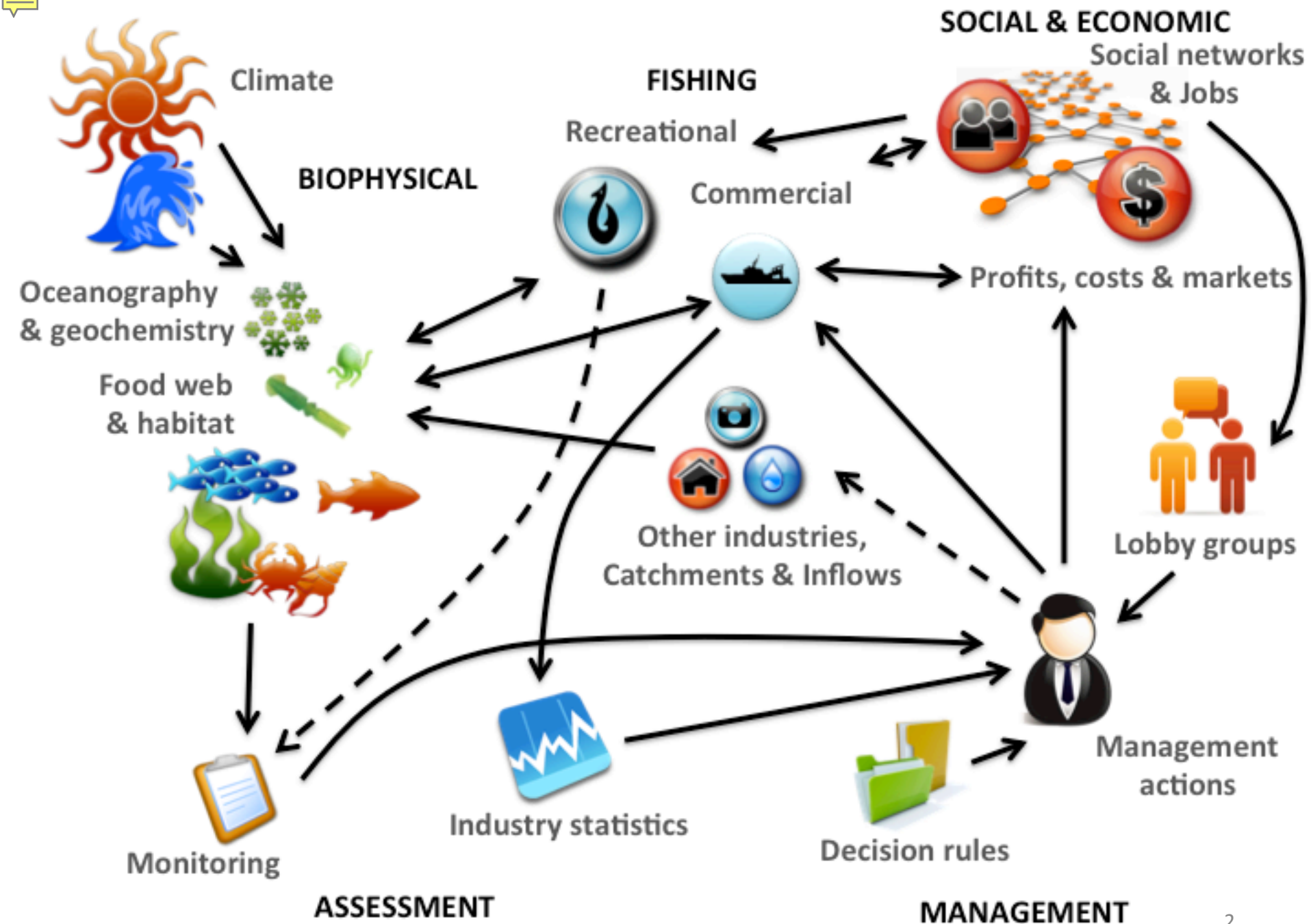
Chesapeake Atlantis Model

Tom Ihde – ERT, Inc.

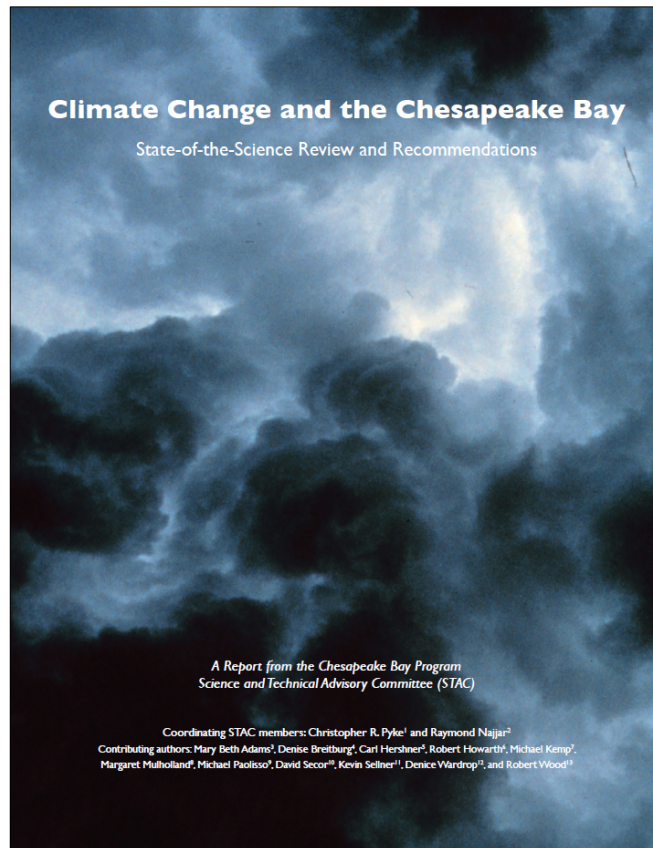
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SF-GIT – 1 June, 2015



Climate Change Assumptions



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



Habitat Scenario Assumptions

- 50% loss of Marsh (area & biomass)

Due to multiple, interacting factors:

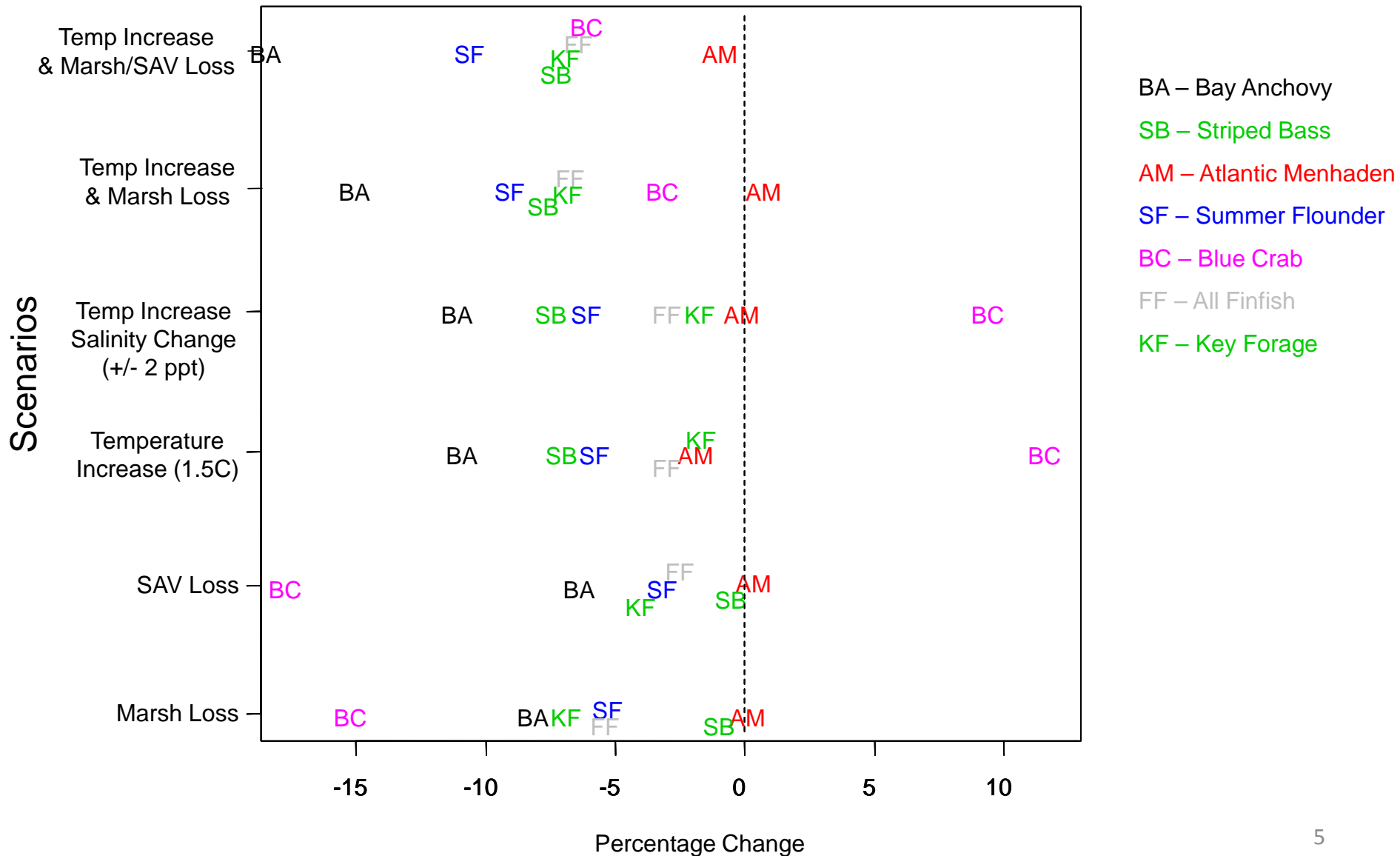
- shoreline armoring
- subsidence
- sea level rise

- 50% loss of Seagrass



Sensitivity To Climate Change

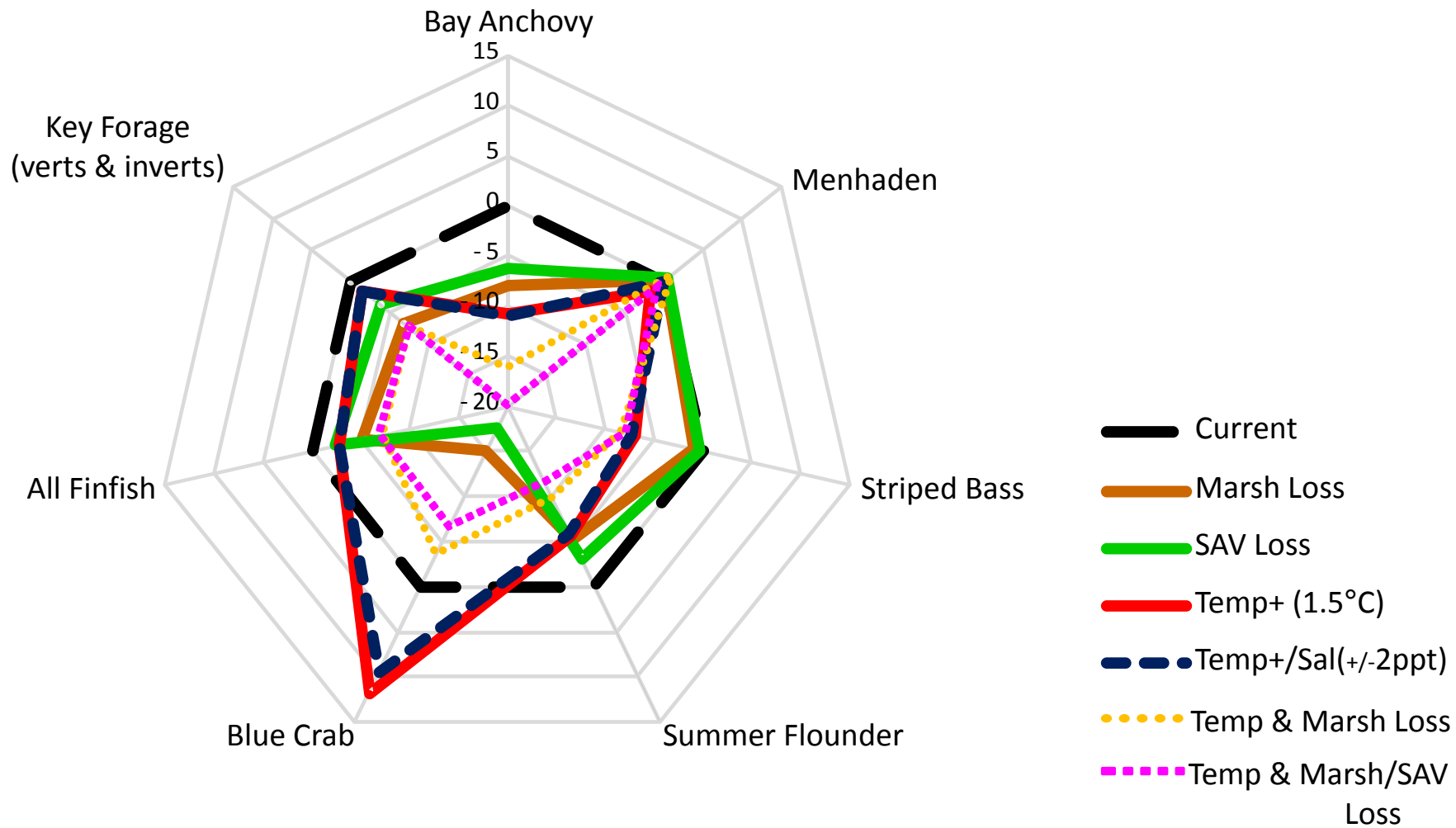
Selected Group Effects of Interest to Management





Sensitivity To Climate Change

Selected Group Effects of Interest to Management

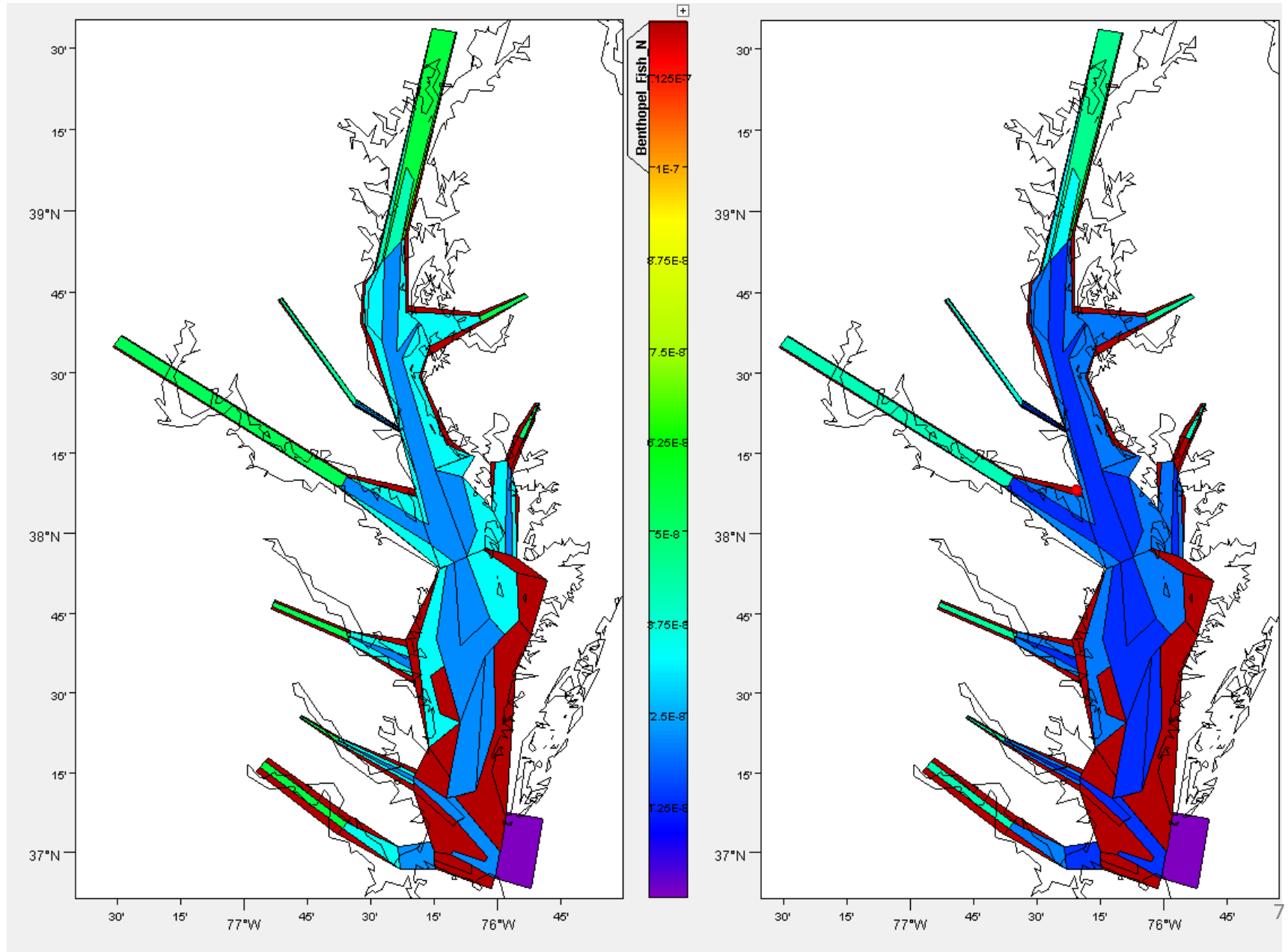




Striped Bass

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:



NOAA OFFICE OF SCIENCE AND TECHNOLOGY
NATIONAL MARINE FISHERIES SERVICE



NOAA HABITAT CONSERVATION
NATIONAL MARINE FISHERIES SERVICE



National Science Foundation
WHERE DISCOVERIES BEGIN

**Center for
Coastal
Resources
Management**

Virginia Institute of Marine Science



CSIRO

Marine and Atmospheric Research



Northwest Fisheries Science Center
NOAA Fisheries Service



Northeast Fisheries Science Center



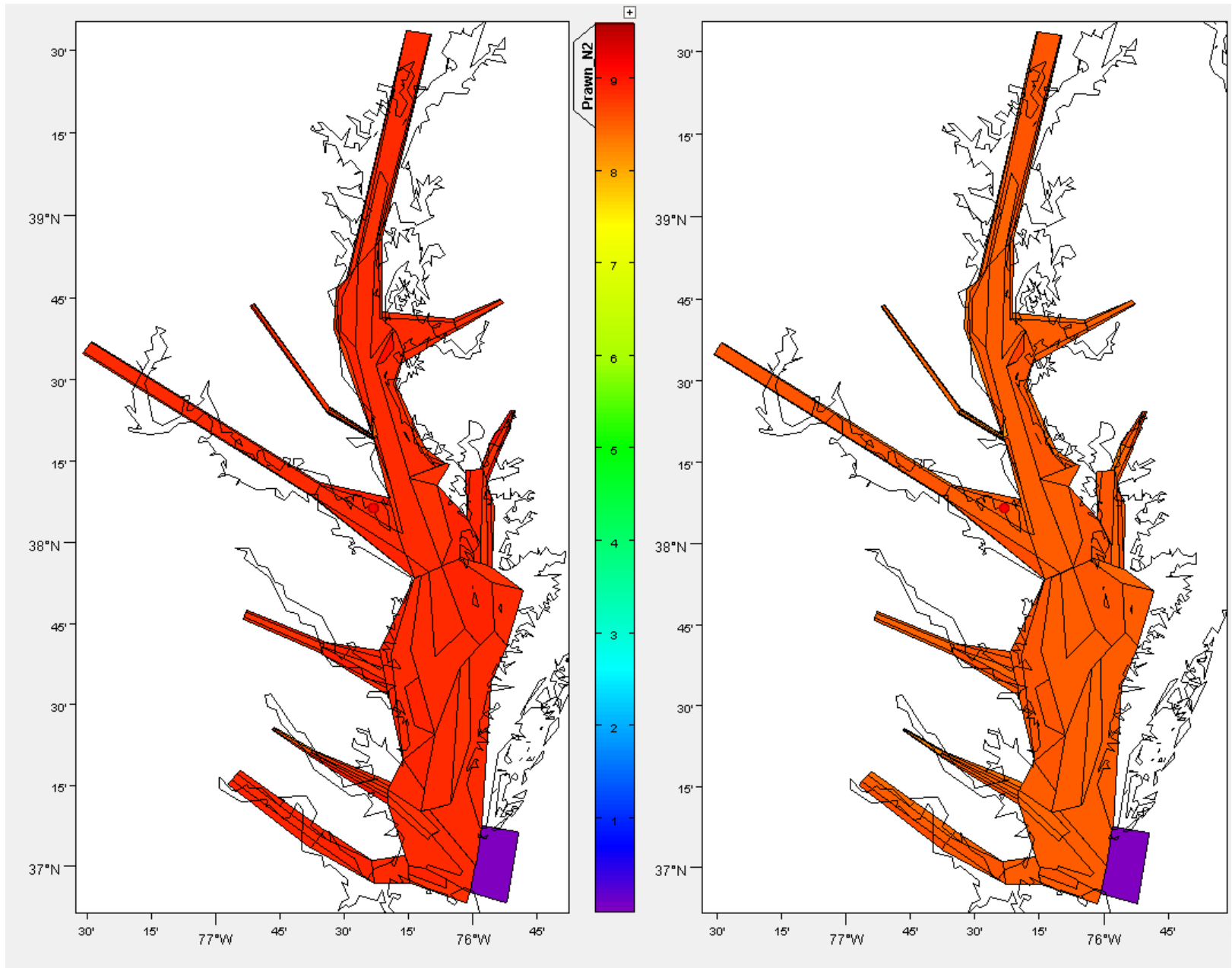
An underwater photograph showing a large, dense school of fish, likely sardines or anchovies, swimming in clear blue water. The fish are concentrated in the lower half of the frame, creating a textured, shimmering effect. The upper half of the frame is a lighter blue, representing the open water and sky above. The text "Extra Slides for Discussion" is overlaid in the center in a bold, red font.

Extra Slides for Discussion

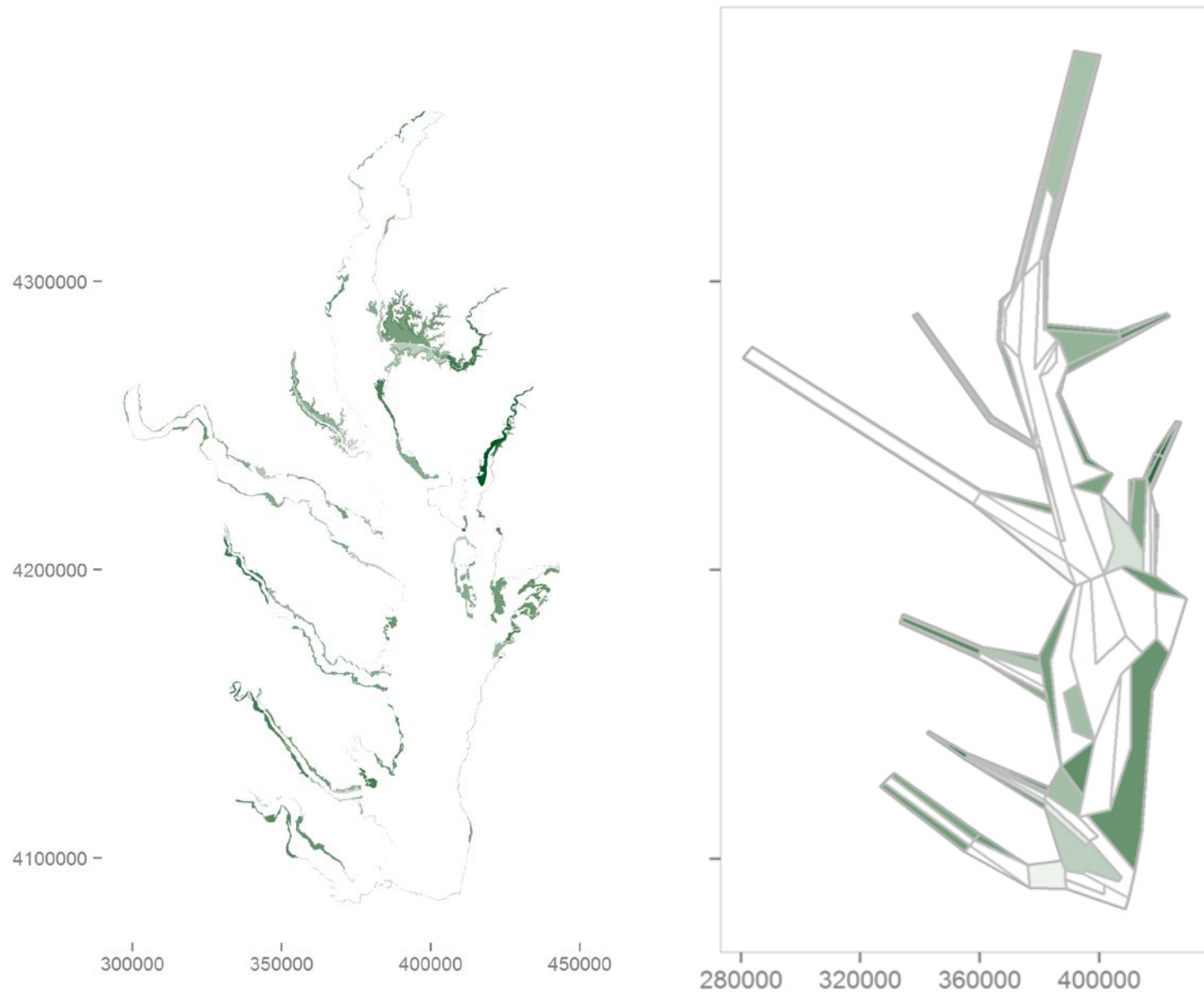
Blue Crab

Current Conditions

Temperature increase
& Habitat Loss



SAV Modeled in CAM



Marsh Modeled in CAM

