Preliminary Catfish Scenarios in the Chesapeake Bay Fisheries Ecosystem Model

Sustainable Fisheries Goal Implementation Team

Stratford, VA

June 8, 2011

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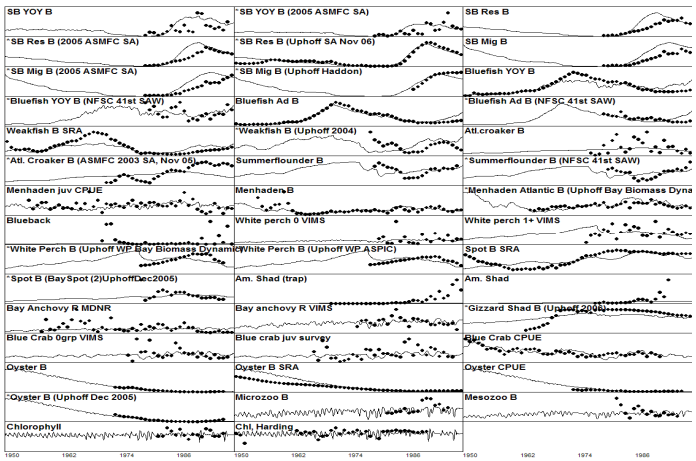
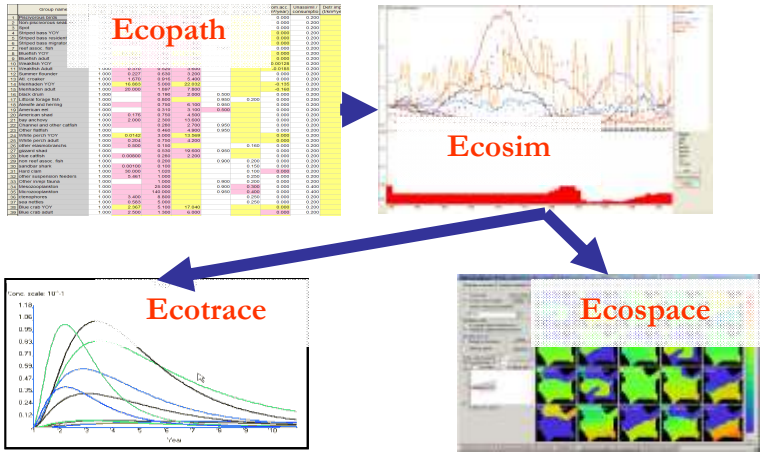
Chesapeake Bay Fisheries Ecosystem Model
Ecopath with Ecosim (EwE)

- A flexible model that allows takes into account trophic interactions and environmental drivers. Necessary for ecosystem-based fisheries management (EBFM) to understand trade-offs in managing stocks.
- Designed to allow managers to explore implications through management policy simulation. Can be used for catch shares, spatial management, etc. Can also be used for projecting climate impacts and marine spatial management
- Plans to use to simulate EBFM issues for the Fisheries GIT

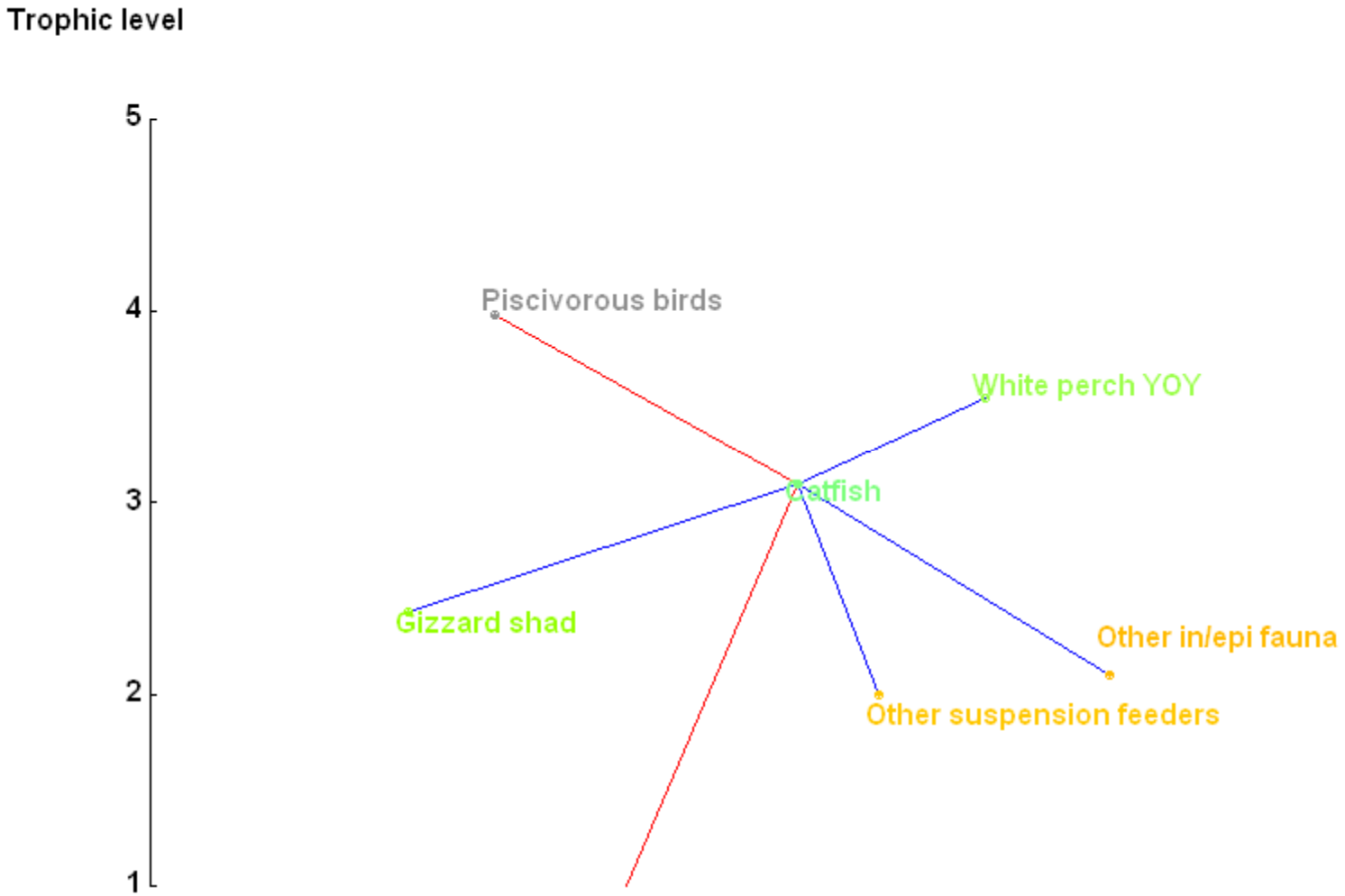




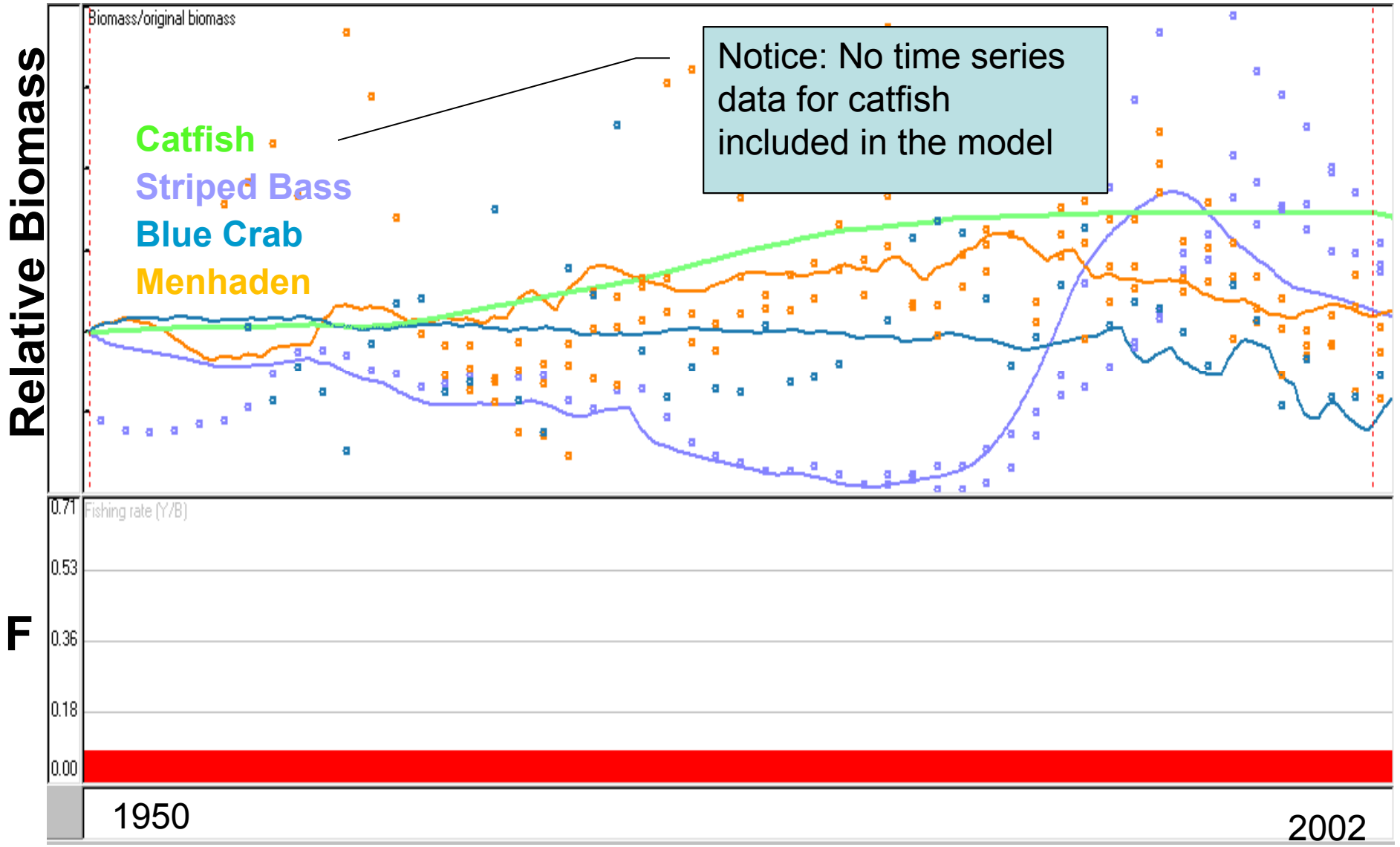
Objectives

- Demonstrate how the Chesapeake Bay Fisheries Model can be used to explore policy options for non-native catfish management and how the policies may affect other species of interest
- Elicit input form the Goal Team on options to be explored
- Layout plans for ecosystem model analyses and presentation of more complete results to Goal Team

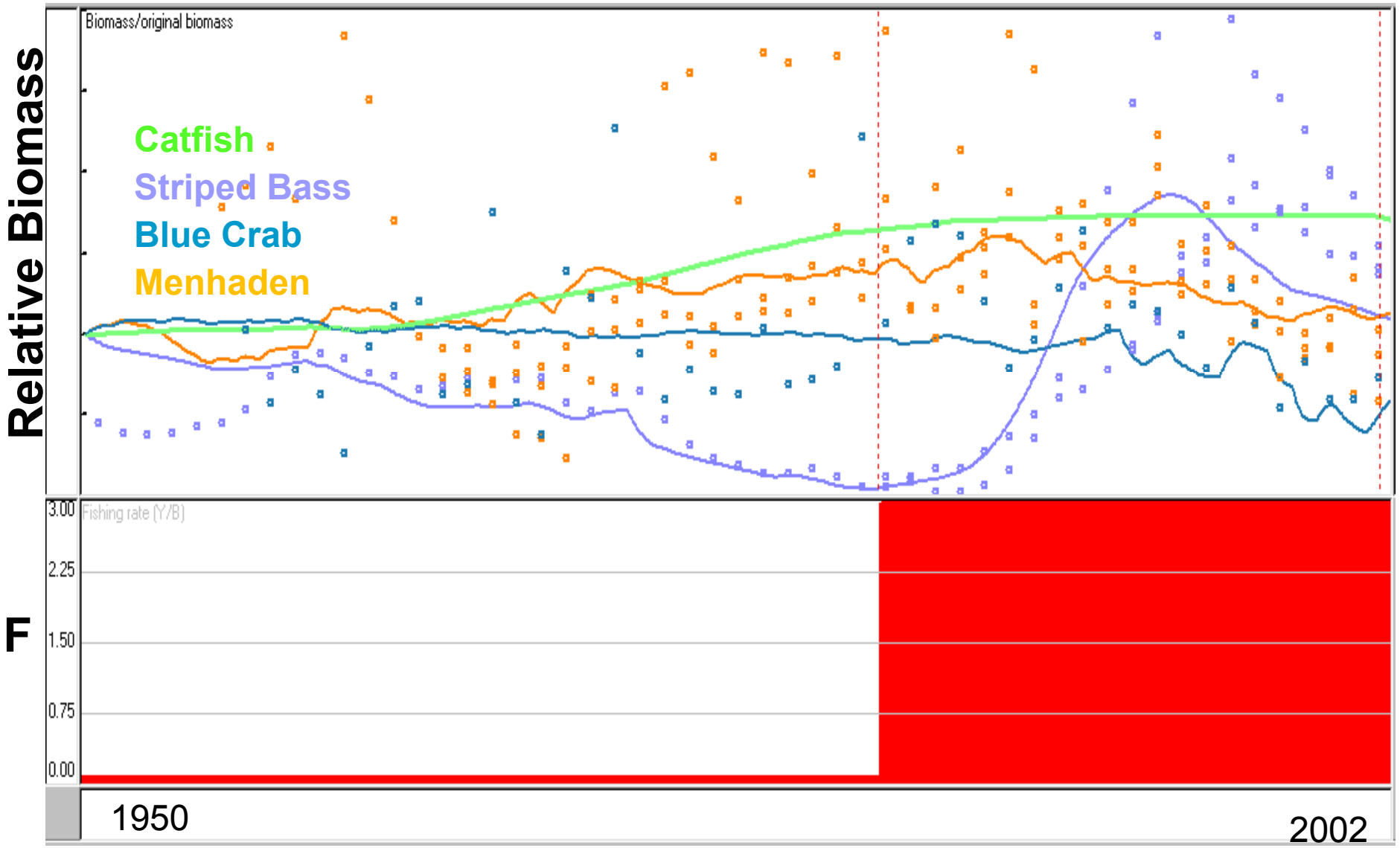
Catfish Trophic Connections – Old Model



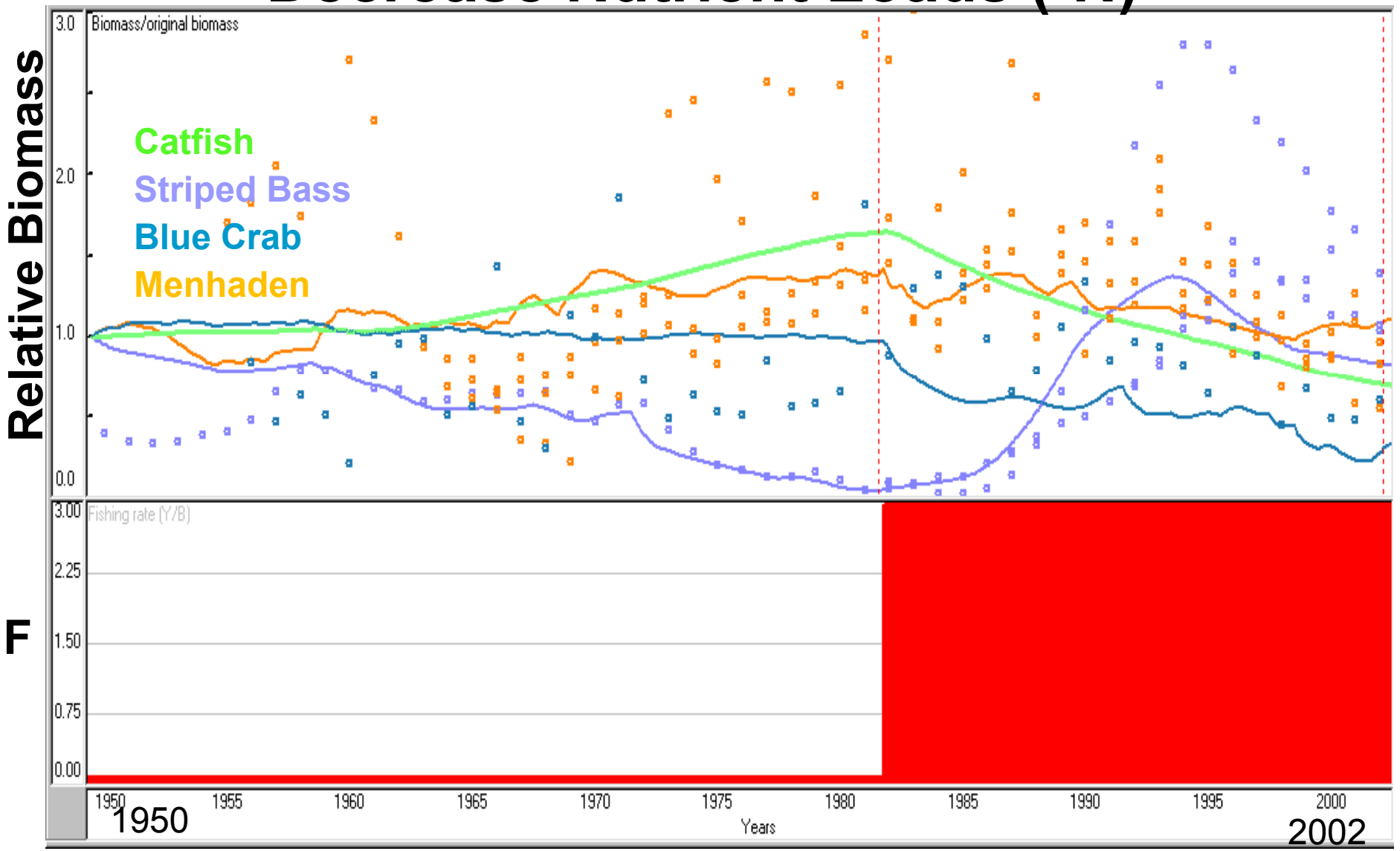
Baseline Run



Increase F on Catfish (+F)

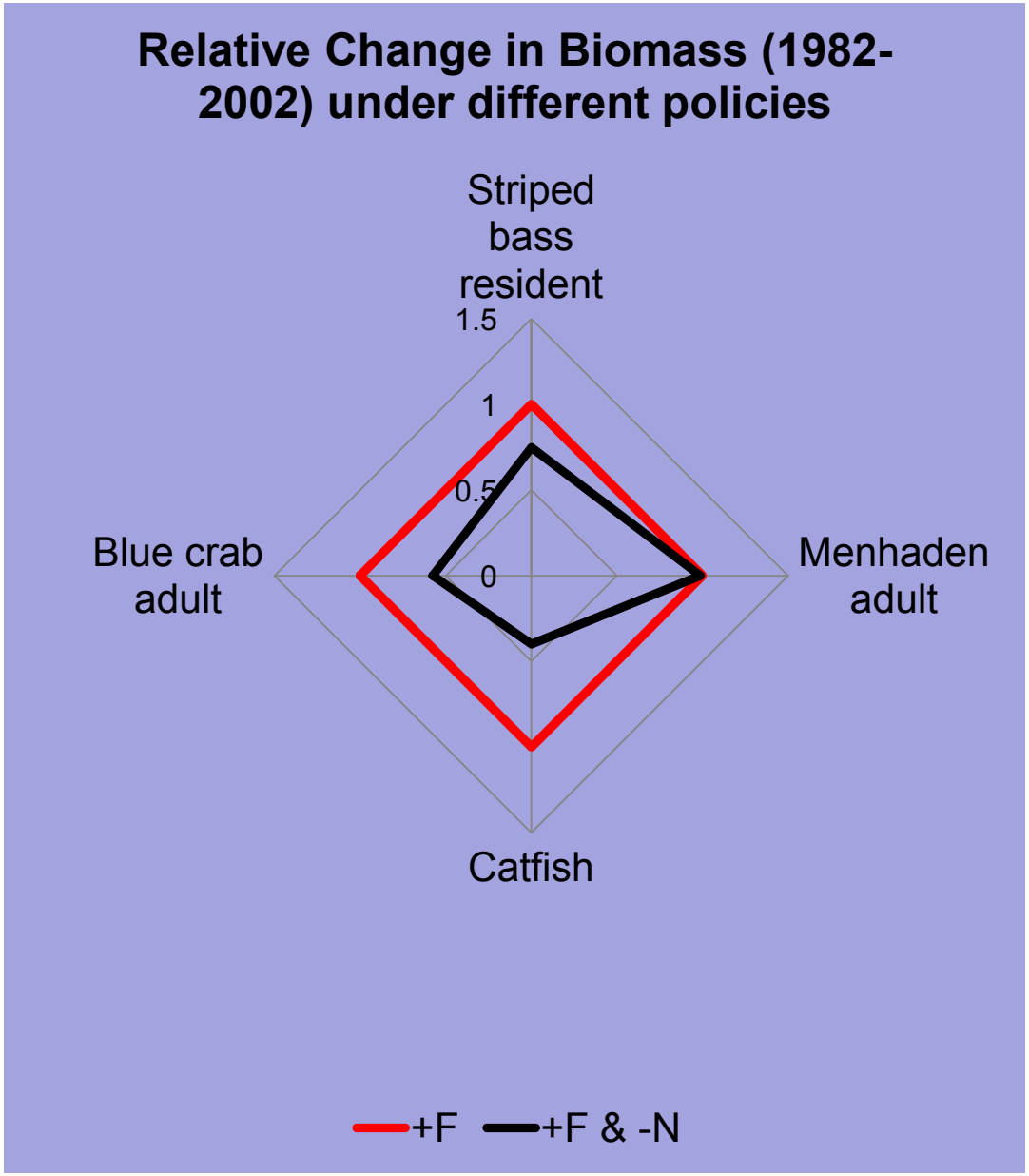


Increase F on Catfish, (+F)
Decrease Nutrient Loads (-N)



Summary of Preliminary Results

- Increasing F on catfish alone does not have an appreciable effect
- Increasing F and decreasing nutrients does have an effect on Catfish; however, it does lead to decrease in the biomass of other focal species



Next Steps

- CBFEM is being updated to version 2. Will simulate 2002 to present day. Update is almost completed. Final tuning will be run over the next few weeks.
- Improve catfish data being used in the model (especially diet composition and time series of relative abundance/biomass)
- Use the CBFEM v2 to run scenarios from Matrix of Management Options. Also do runs to take in to account uncertainty in diet composition and biomass input data.
- Work with Catfish Working Group to review model output and present results to SF GIT.

Putting Ecosystem Modeling in Context

- Management decisions are inherently ecosystem-based decisions – decisions made about a single species affect the ecosystem and are affected by the ecosystem (other species, habitat, physical parameters).
- We want to make the ecosystem trade-offs and implications in those decisions explicit, and limit the possibility of unintended negative consequences of those decisions.