## MSE testing of recreational measure-based control rules for summer flounder

- Extend 2021-2022 Council MSE that focused on recreational discards
  - Those analyses tested scenarios for recreational regulations
    - Fixed regulations over time
- Incorporate rec regulation-setting based on feedback from system into Management Procedures
  - Test alternatives
- Take advantage of previous work on F-based control rules

Tracey Bauer, Julia Beaty, Andrew Carr-Harris, Geret DePiper, **Gavin Fay**, Sarah Gaichas, Chelsea Tuohy, Kamran Walsh

🔀 gfay@umassd.edu

School for Marine Science & Technology UMass Dartmouth

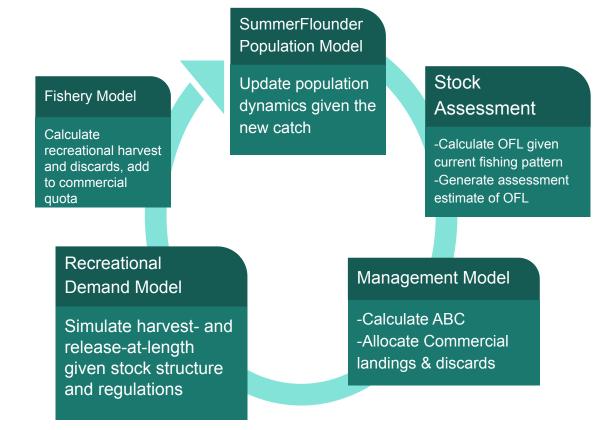






## **Previous Coupled Modeling Approach**

- Link extant ecological, fishery, & economic models
- Emulate scientific assessment & management advice
- Represent length structure of population available to recreational fishery
- Simulate response of recreational fishery to both stock availability and regulations (at various scales).
- Feedback effect of recreational fishing response to regulations into the stock dynamics.



## Changes to Modeling Approach: Including rec HCRs

given stock structure

and regulations

- Update assessment model to a SCA rather than a pseudo-assessment
  - More indicators than just OFL needed
  - Dynamically respond to estimated system status and ABC calculations
- Alternatives:
  - RHL based
  - Percent change
  - **Reference** Point
  - **Biomass matrix**



- Initially, test
  - Versions where change only one measure or all 3 types of measure
  - Consider coastwide measures

Fishery Model		dynamics giver		Assessment		
Calculate recreational harvest and discards, add to commercial quota		new catch		estin	ain assessm nate of OFL, <sub>ISY</sub> , R & B tre	B/B
Recreational Demand Model			Management Model			
Simulate harv release-at-ler			-Calculate ABC -Allocate Commercial landings & discards			

Stock

-Determine recreational

& assessment output

regulations based on HCR

L, B/B<sub>MSY</sub>,

SummerFlounder **Population Model** 

Update population

## **Metrics and Goals**

- As in 2021-2022, performance Metrics tied to four overarching Objectives:
  - 1. Improve the quality of the angler experience
  - 2. Maximize the equity of anglers' experience
  - 3. Maximize stock sustainability
  - 4. Maximize the socio-economic sustainability of the fishery
- Goal is to understand likely consequences of the types of control rules being considered, and identify those that perform poorly relative to objectives and to eachother.
  - Implications of variability in control rules relative to other uncertainties in the system
  - Robustness to different system states