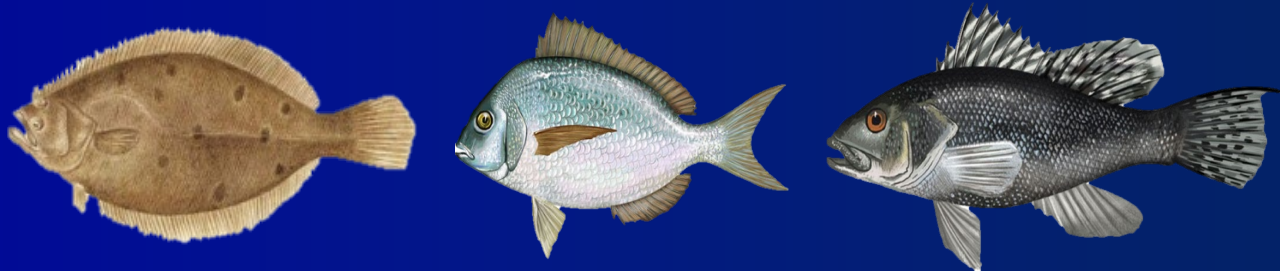




Summer Flounder, Scup, Black Sea Bass **Advisory Panel Meeting**

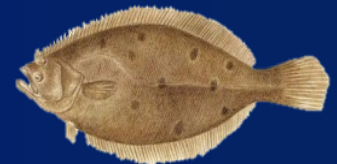


November 30, 2022

1:00 – 1:30	<p>Introduction</p> <ul style="list-style-type: none"> Review meeting objectives, Percent Change Approach, and new analytical tools
1:30 – 2:40	<p>2023 Scup Recreational Measures</p> <ul style="list-style-type: none"> Review recent recreational fishery information and Monitoring Committee recommendations for 2023 measures Provide input to Council and Board on how to achieve the necessary percent change in harvest for 2023
2:40 – 3:40	<p>2023 Black Sea Bass Recreational Measures</p> <ul style="list-style-type: none"> Review recent recreational fishery information and Monitoring Committee recommendations for 2023 measures Provide input to Council and Board on how to achieve the necessary percent change in harvest for 2023
3:40 – 3:45	Break
3:45 – 5:00	<p>2023 Summer Flounder Recreational Measures</p> <ul style="list-style-type: none"> Review recent recreational fishery information and Monitoring Committee recommendations for 2023 measures Provide input to Council and Board on how to achieve the necessary percent change in harvest for 2023

Meeting Objectives

- Review recent fishery performance and MC recommendations for 2023 measures
- Provide AP input on 2023 recreational bag, size, and season limits



Percent Change Approach

- Approved by Council and Policy Board for use starting with 2023 rec. measures for these 3 species.
 - To be replaced with a new approach in time for 2026 measures.
- Target level of harvest is no longer the RHL.
- Target level of harvest will vary based on:
 - RHL compared to a confidence interval around estimate of expected harvest under current measures and
 - Biomass compared to the target level.

<i>Column 1</i> 2023 RHL vs expected harvest under 2022 measures		
RHL greater than upper bound of expected harvest CI (RHL underage expected)		
RHL within expected harvest CI (harvest expected to be close to RHL)		
RHL less than lower bound of expected harvest CI (RHL overage expected)		

<i>Column 1</i> 2023 RHL vs expected harvest under 2022 measures	<i>Column 2</i> Biomass compared to target level (SSB/SSB_{MSY})	
RHL greater than upper bound of expected harvest CI (RHL underage expected)	Very high greater than 150% of target	
	High at least target, but no higher than 150% of target	
	Low below target stock size	
RHL within expected harvest CI (harvest expected to be close to RHL)	Very high greater than 150% of target	
	High at least target, but no higher than 150% of target	
	Low below target stock size	
RHL less than lower bound of expected harvest CI (RHL overage expected)	Very high greater than 150% of target	
	High at least target, but no higher than 150% of target	
	Low below target stock size	

<i>Column 1</i> 2023 RHL vs expected harvest under 2022 measures	<i>Column 2</i> Biomass compared to target level (SSB/SSB_{MSY})	<i>Column 3</i> Change in Harvest
RHL greater than upper bound of expected harvest CI (RHL underage expected)	Very high greater than 150% of target	Liberalization % = difference between harvest estimate and 2023 RHL, not to exceed 40%
	High at least target, but no higher than 150% of target	Liberalization % = difference between harvest estimate and 2023 RHL, not to exceed 20%
	Low below target stock size	Liberalization: 10%
RHL within expected harvest CI (harvest expected to be close to RHL)	Very high greater than 150% of target	Liberalization: 10%
	High at least target, but no higher than 150% of target	No liberalization or reduction: 0%
	Low below target stock size	Reduction: 10%
RHL less than lower bound of expected harvest CI (RHL overage expected)	Very high greater than 150% of target	Reduction: 10%
	High at least target, but no higher than 150% of target	Reduction % = difference between harvest estimate and 2023 RHL, not to exceed 20%
	Low below target stock size	Reduction % = difference between harvest estimate and 2023 RHL, not to exceed 40%

New Tools for Predicting Harvest

- **Recreational Demand Model (RDM)**
 - Developed by Northeast Fisheries Science Center
- **Recreational Fleet Dynamics Model (RFDM)**
 - Developed by RI DEM
- Use of these models is not required under the Percent Change Approach, but both are an improvement compared to past methods of using only MRIP data to predict future harvest.

SSC Review

- Both models were reviewed by Council's SSC in September 2021 and have been improved since that time based on their recommendations

Recreational Demand Model (RDM): Overview

Goal is to simulate trip outcomes under a given stock structure and set of management measures

Model input

Biological inputs:
Historical/projected numbers-at-age stock assessment data

Catch-per-trip/catch-at-length distributions

Economic inputs
Trip cost distributions

Information about angler preferences for harvesting/releasing fish

Management measures



Simulation algorithm

Simulate individual trip outcomes

Calculate fishing utility

Calculate angler welfare, angler effort, and subsequent harvest and discards



Model output

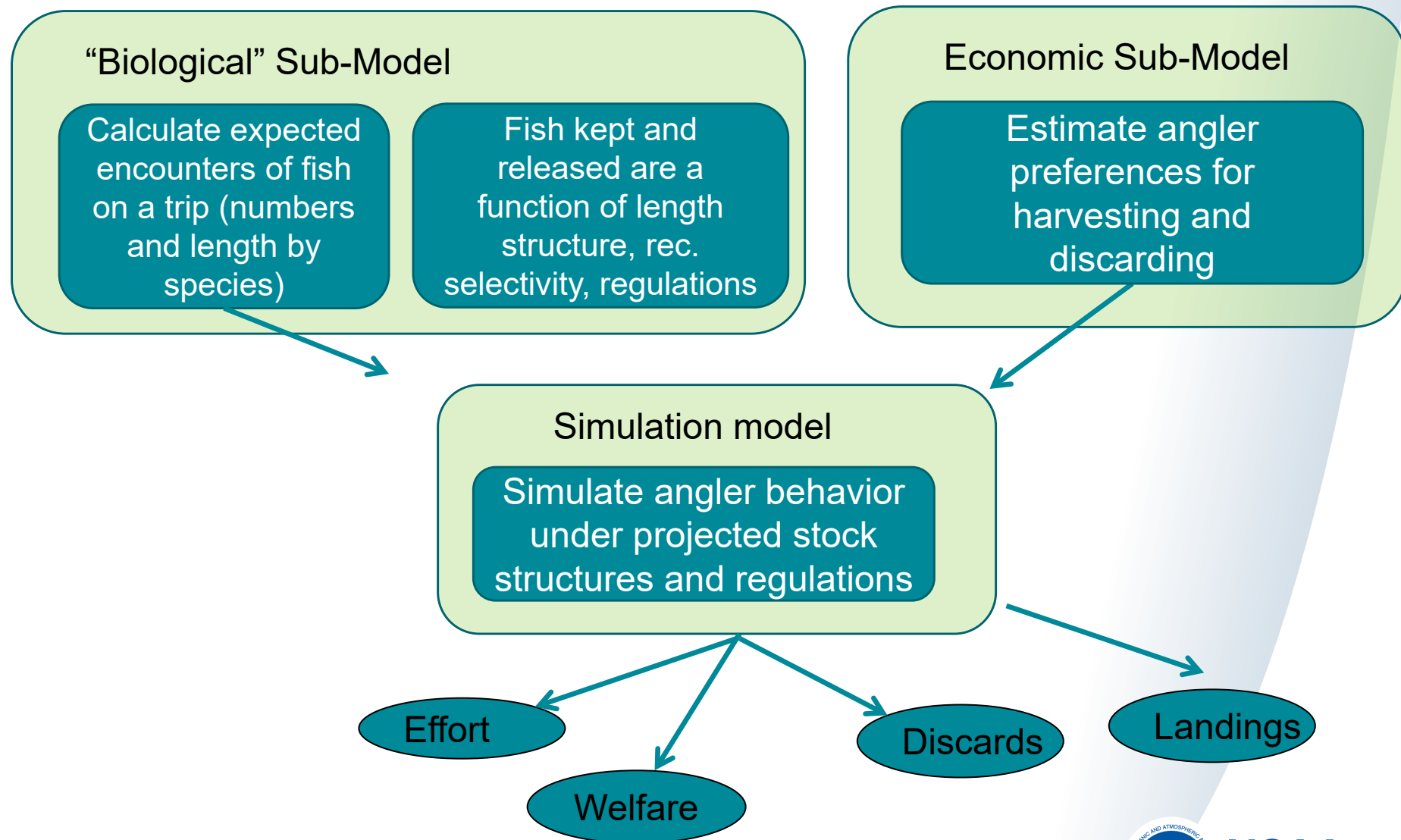
Total recreational harvest and discards

Total angler welfare/other metrics of fishing success



NOAA
FISHERIES

Recreational Demand Model: Overview



Recreational Fleet Dynamics Model (RFDM): Overview

- Aims to emulate response to regulation changes (how does harvest and/or discards change given adjustments to management measures)
- Use available data (MRIP, regulatory history, and stock information) to estimate how harvest and discards will respond to changes in management measures
- Multiple model configurations and combinations of variables were tested to determine best model for each species

Recreational Fleet Dynamics Model: Data Inputs

- Data through 2021, but excludes 2020
- Regulatory variables (wave, bag, season length, minimum size)
 - Scup with addition of mode
- Stock status and management variables (RHL, SSB, lagged R)

State	Year	Wave	Mode	Catch	K.D	Bag	MinLen	SeasonLen	RHL	SSB	LagRecr
CONNECTICUT	2022	2	Private/Rental/Shc	416	D	30	10	61	6.08	156947	100436
CONNECTICUT	2022	3	Forhire	8942	D	30	10	61	6.08	156947	100436
CONNECTICUT	2022	3	Forhire	16136	K	30	10	61	6.08	156947	100436
CONNECTICUT	2022	3	Private/Rental/Shc	112373	D	30	10	61	6.08	156947	100436
CONNECTICUT	2022	3	Private/Rental/Shc	86421	K	30	10	61	6.08	156947	100436
CONNECTICUT	2022	4	Forhire	28057	D	50	10	62	6.08	156947	100436

RFDM Description – Scup

Harvest = $s(\text{Year}) + \text{Mode} + s(\text{MinLength}) + s(\text{Wave}) + \text{State} + s(\text{Season}) + s(\text{Bag Limit}) + \text{SSB}$

Discards = $s(\text{Year}) + \text{Mode} + s(\text{MinLength}) + s(\text{Wave}) + \text{State} + s(\text{Season}) + s(\text{Bag Limit}) + \text{RHL}$

Questions?

Backup Slides

RFDM Description – Black Sea Bass

Harvest = $s(\textit{Year}) + s(\textit{MinLength}) + s(\textit{Wave}) +$
 $\textit{State} + s(\textit{Season}) + s(\textit{Bag}) + \textit{LaggedRecr} +$
RHL

Discards = $s(\textit{Year}) + s(\textit{MinLength}) + s(\textit{Wave}) +$
 $\textit{State} + s(\textit{Season}) + s(\textit{Bag}) + \textit{LaggedRecr} +$ RHL

RFDM Description – Summer Flounder

Harvest = $s(\textit{Year}) + s(\textit{MinLength}) + s(\textit{Wave}) +$
 $\textit{State} + s(\textit{Season}) + s(\textit{Bag}) + \textit{LaggedRecr} +$
RHL

Discards = $s(\textit{Year}) + s(\textit{MinLength}) + s(\textit{Wave}) +$
 $\textit{State} + s(\textit{Season}) + s(\textit{Bag}) + \textit{LaggedRecr} +$ RHL