

Scup 2023 Recreational Measures

Council and Board
December 13, 2022



Timeline of Recent Developments

- **Oct. 20:** Letter from GARFO on AMs evaluation
- **Oct. 26:** First Monitoring Committee meeting
- **Nov. 15:** Second Monitoring Committee meeting
- **Nov. 30:** Advisory Panel meeting
- **Dec. 6:** Council received updated outputs from Recreational Demand Model (RDM)
- **Dec. 8:** Letter from GARFO on recreational models



Objectives

- Recent recreational fishery performance
- Review Monitoring Committee recommendations
- Review Advisory Panel input
- Identify appropriate model to use for setting 2023 measures and resulting percent change needed under Percent Change Approach
- Adopt federal waters measures



2022 Federal Recreational Measures

Possession
limit

- 50 scup

Size limit

- 10 inches total length

Updated
in 2022

Season

- January 1-December 31

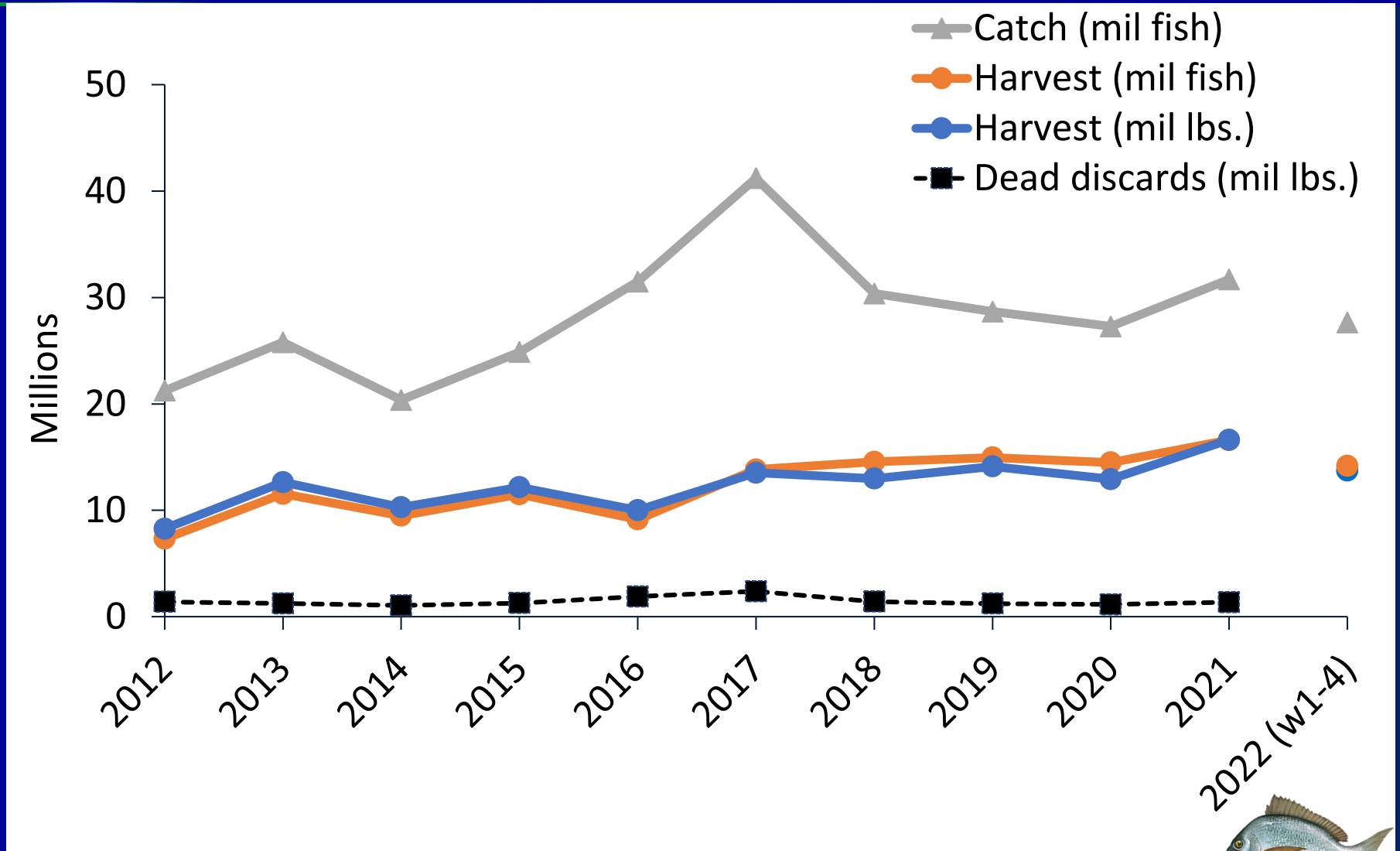


2022 State Recreational Measures

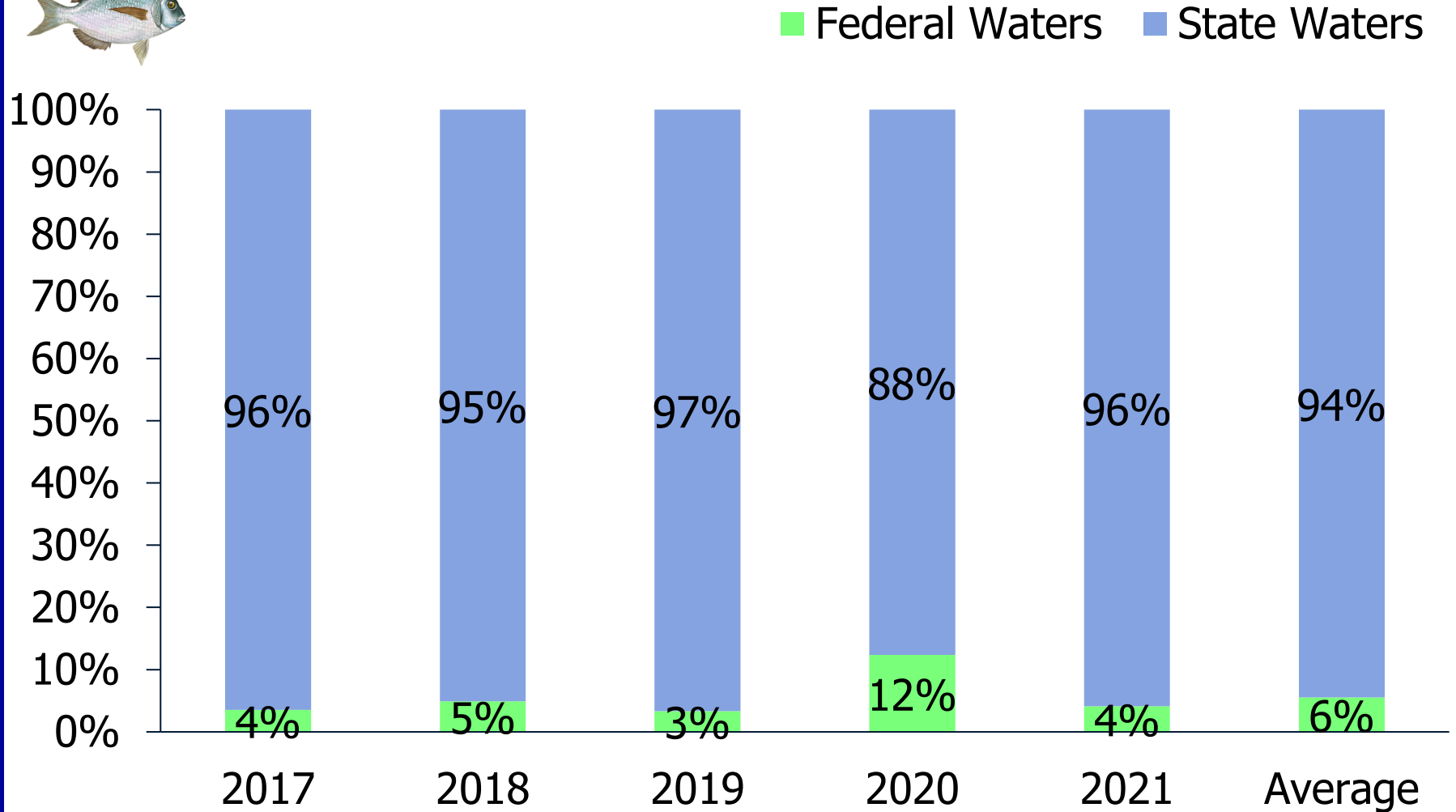
State	Min. Size (inches)	Possession Limit	Open Season
MA (private & shore)	10	30 fish; 150 fish/vessel w/5+ anglers	Jan. 1-Dec. 31
MA (party/charter)	10	30 fish	Jan. 1-April 30; July 1-Dec. 31
		50 fish	May 1-June 30
RI (private & shore)	10	30 fish	Jan. 1-Dec. 31
RI shore program (7 designated shore sites)	9		
RI (party/charter)	10	30 fish	Jan. 1-Aug. 31; Nov. 1-Dec. 31
		50 fish	Sept. 1-Oct. 31
CT (private & shore)	10	30 fish	Jan. 1-Dec. 31
CT shore program (45 designed shore sites)	9		
CT (party/charter)	10	30 fish	Jan. 1-Aug. 31; Nov. 1-Dec. 31
		50 fish	Sept. 1-Oct. 31
NY (private & shore)	10	30 fish	Jan. 1-Dec. 31
NY (party/charter)	10	30 fish	Jan. 1-Aug. 31; Nov. 1-Dec. 31
		50 fish	Sept. 1- Oct. 31
NJ	10	50 fish	Jan. 1- Dec. 31
DE	9	50 fish	Jan. 1- Dec. 31
MD	9	50 fish	Jan. 1- Dec. 31
VA	9	30 fish	Jan. 1- Dec. 31
5 NC (North of Cape Hatteras)	9	50 fish	Jan. 1- Dec. 31

Recreational Catch and Landing Trends

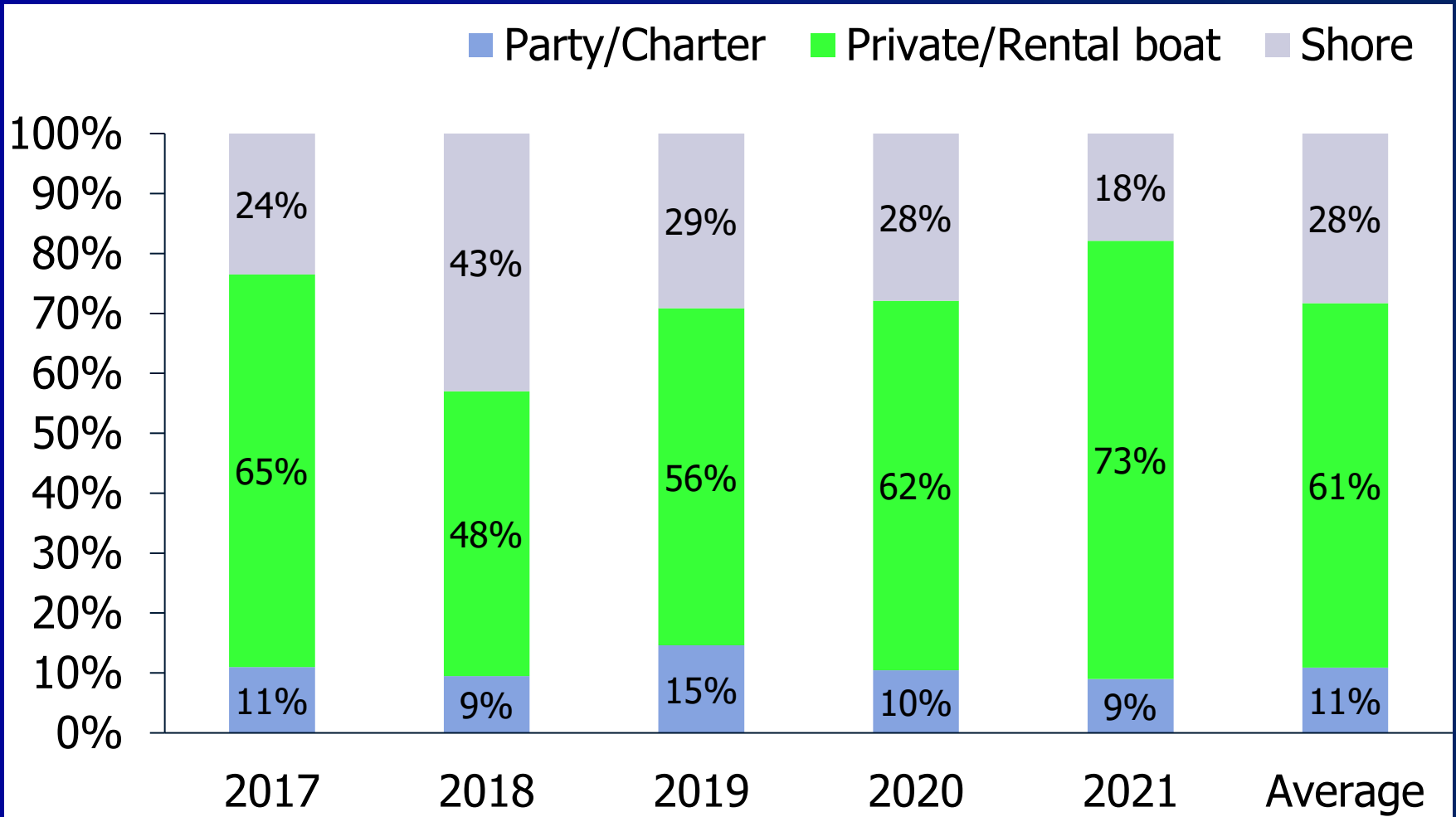
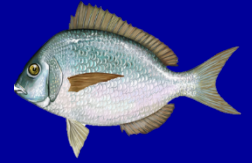
With 2022 Waves 1-4



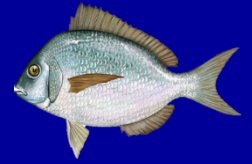
Harvest in Federal and State Waters



Harvest By Mode



Harvest By State



State	2017	2018	2019	2020	2021	2022 (w1-4)
ME	0	0	0	0	0	0
NH	2,156	0	0	0	0	0
MA	2,363,922	3,021,958	1,924,202	1,174,791	3,763,515	1,994,630
RI	1,113,035	2,030,259	2,856,461	1,330,398	2,467,933	2,362,071
CT	1,712,421	2,574,308	2,242,549	2,951,959	2,856,535	1,162,622
NY	6,626,059	4,906,041	6,970,872	6,253,478	7,177,771	8,150,145
NJ	1,708,354	443,700	118,832	1,200,942	194,090	47,087
DE	118	362	0	316	1,179	0
MD	6	369	444	578	331	0
VA	0	0	229	0	157,455	0
NC	508	420	2,637	1,346	2,831	1,302
Total	13,526,579	12,977,417	14,116,226	12,913,808	16,621,640	13,717,857

<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%

2023 RHL vs. Expected Harvest under 2022 Measures

Step 1:

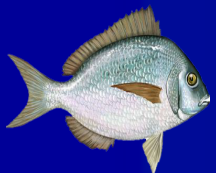
- Compare 2023 RHL to confidence interval around expected 2023 harvest under current (2022) measures

Column 1
**2023 RHL vs
expected harvest
under 2022 measures**

**RHL greater than
upper bound of
expected harvest CI**
(RHL underage
expected)

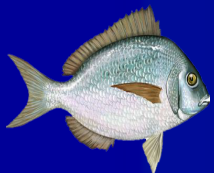
**RHL within expected
harvest CI**
(harvest expected to be
close to RHL)

**RHL less than lower
bound of expected
harvest CI**
(RHL overage expected)



MC Recommended Approach to Estimate Harvest under 2022 Measures

- MC recommends using the **RFDM** to estimate 2023 harvest under 2022 measures and adjusting measures
 - Predicted past MRIP estimates reasonably well
 - Capable of considering recreational mode
 - Can easily be used by MC/TC



Confidence Interval Recommendation

- MC recommends use of **80% CI** for all 3 species in 2023
 - Recommended by Harvest Control Rule FMAT/PDT based on evaluation of MRIP data
 - Higher percentage CIs result in wider range of values; may result in action under Percent Change Approach that is not appropriate for “true” fishery condition
- MC supported continued discussion of this topic in 2023 for setting measures for 2024 and beyond.

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**2023 RHL vs
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harvest CI**
(RHL overage expected)

MC Recommendation - 2023 Harvest Under 2022 Measures

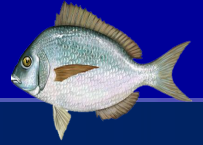


Model	Model estimate for 2023 harvest (median)	80% CI	2023 RHL
RDM <i>(as of 11/8)</i>	17.21	13.56 – 22.68	9.27
RDM <i>(as of 12/6)</i>	14.31	11.55 – 16.26	
RFDM*	14.42	8.95 – 23.08	

**Converted from numbers of fish to weight using avg weight of harvested fish in 2021 (most recent year for model run shown here)*

- 2023 RHL:
 - Outside of the 80% CI for **RDM**
 - Within lower bounds of 80% CI for **RFDM**
- MC did not reach consensus, but majority recommend using **RFDM** for 2023 process

Resulting Percent Change for 2023 using RFDM



2023 RHL vs expected harvest under 2022 measures	Biomass compared to target level	Change in Harvest
RHL greater than upper bound of CI (RHL underage expected)	Very high	Liberalization % = difference between harvest estimate and 2023 RHL, not to exceed 40%
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Rec. Accountability Measures

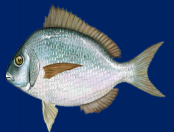
3. If biomass is above the target: Adjustments to measures will be made, taking into account the performance of the measures and conditions that precipitated the overage

Year	Rec. Harvest (mil lbs.)	Rec. Dead Discards (mil lbs.)	Total Dead Rec. Catch (mil lbs.)	Rec. ACL (mil lbs.)	% Over/Under ACL
2019	5.41	0.41	5.82	8.01	-27%
2020	12.91	1.15	14.06	7.87	+79%
2021	16.62	1.36	17.98	7.66	+135%
Average	11.65	0.97	12.62	7.85	+61%

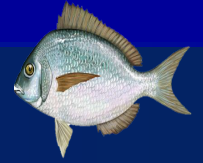
2019 data based on Old MRIP estimates (provided by GARFO)

2020 recreational estimates were developed using imputation methods

2020 and 2021 dead discards for 2020-2021 calculated using alternative methods.

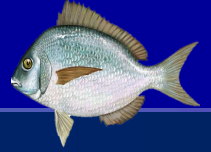


Rec. Accountability Measures continued



- AMs triggered for scup
 - Scup biomass greater than target, therefore, regulations require adjustments to measures
 - Regulations do not specify how
 - GARFO letter to the Council: Due to recent actions taken by Council/Commission, no additional action needed beyond changes required by Percent Change Approach
- **MC recommend status quo measures in place of 10% liberalization**

MC Discussion for 2023 Recreational Measures RDM



- Unclear if status quo would satisfy triggered AM
- The MC initially considered identifying the RDM as preferred model
- Therefore, the MC did discuss preferred action under the resulting percent change required using the RDM
- However, MC ultimately recommend use of RFDM and status quo

Resulting Percent Change for 2023 using RDM



- 10% reduction in harvest needed
- Applied to estimate of 2023 harvest under 2022 measures
- Under RDM: 14.31 mil lbs. – 10% = **12.88 mil lbs. harvest target for 2023**

2023 RHL vs expected harvest under 2022 measures	Biomass compared to target level	Change in Harvest
RHL greater than upper bound of CI (RHL underage expected)	Very high	Liberalization % = difference between harvest estimate and 2023 RHL, not to exceed 40%
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	Low	Reduction: 10%
RHL less than lower bound of expected harvest CI (RHL overage expected)	Very high	Reduction: 10%
	High	Reduction % = difference between harvest estimate and 2023 RHL, not to exceed 20%
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RDM Analysis of Additional Measures

Set of measures analyzed	Est. harvest under analyzed set of measures (mil lbs.)	Percent reduction achieved	Est. harvest under 2022 measures (mil lbs.)
15 fish possession limit , status quo size limits and seasons	13.79	4%	14.31
1-inch increase to size limit , status quo possession limits and seasons	10.49	27%	

- MC agreed given 2022 changes and challenges with setting a coastwide season, adjustments to possession limit would be appropriate
- Concerns about large possession limit decrease negatively impacting for-hire fleets
- **MC preferred option:**
 - 15 fish possession limit with additional adjustments to state waters measures through Commission process to achieve full 10% reduction

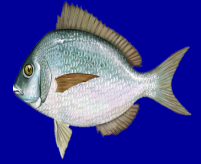
AP Feedback



General comments on all 3 species

- One advisor expressed interest in using other RDM outputs to inform measures in future years
- One advisor appreciated having two models in beginning years, but expressed concern about divided efforts to maintain both models in the future
- One advisor noted challenges following this year's process given the substantial changes made
- An advisor noted the RDM is similar to the model the NEFMC uses for cod and haddock
- One advisor noted concerns about MRIP and that MRIP is still a main component of models

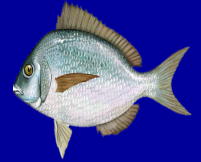
AP Feedback



Comments on MC recommendation

- Several generally frustrated with MC recommendations for status quo in place of liberalization
- Four questioned point of going through process and provided feedback
 - No point if no one is going to consider it
 - Seems like the MC is continuing to operate under an ad hoc approach rather than fully utilizing Percent Change Approach
- One advisor concerned about the differing model results and resulting percent change required

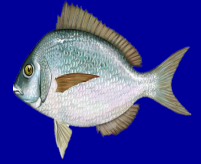
AP Feedback



Comments on MC recommendation

- Three advisors in favor of 10% liberalization
 - Two recommended decreasing the minimum size limit by 1 inch in state and federal waters
- Three advisors in favor of MC recommendation
 - Agreed it was appropriate due to scup biomass, restrictions put in place last year, and continued expected RHL overages
- One advisor expressed statue quo was appropriate due to one model requiring liberalization and other reduction
 - Median harvest estimate similar for both models

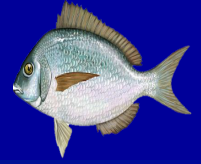
Advisor Feedback



Other Comments

- One advisor expressed disbelief in discard estimates and questioned why regulations that allow for dead discards are put in place
 - Recommended a total length limit with mandatory retention of all fish up to that cumulative limit
 - Recommended mandatory private recreational reporting
- One advisor concerned with how current AMs are designed
 - Mismatch between Percent Change Approach and AMs
 - Recommended the Council/Board take action to incorporate fishing mortality

Choice of Model for 2023



- MC recommend using RFDM for setting 2023 scup measures

- GARFO 12/8 letter:
 - GARFO makes determination on best available science when approving management measures
 - GARFO considers Recreational Demand Model to be best available science for setting 2023 measures for all 3 species
 - Incorporates data on angler behavior
 - Has narrower confidence intervals than RFDM

Summary



MC Recommendation

- Use RFDM for setting 2023 recreational scup measures
- Under Percent Change Approach results in a 10% liberalization
 - Due to Accountability Measures and recent fishery performance MC recommends **status quo** instead

Other Considerations

- GARFO's 12/8 letter stating RDM is best available science

Model	Model estimate for 2023 harvest (median)	80% CI	Percent change required	2023 harvest target
RDM	14.31	11.55 – 16.26	10% reduction	12.88

- MC didn't discuss letter but during 11/15 meeting discussed 10% reduction scenarios
 - 15 fish possession limit with additional adjustments to state waters measures to achieve full 10% reduction

Backup Slides

Revisions to Com/Rec Allocations

Allocation Changes		
Species	Previous Allocations	Revised Allocations
Summer flounder*	60% Com; 40% Rec <i>Landings-based</i>	55% Com; 45% Rec <i>Catch-based</i>
Scup	78% Com; 22% Rec <i>Catch-based</i>	65% Com; 35% Rec <i>Catch-based</i>
Black sea bass*	49% Com; 51% Rec <i>Landings-based</i>	45% Com; 55% Rec <i>Catch-based</i>

*Previous and revised allocations are not directly comparable due to the switch from landings-based to catch-based allocations.

Impacts on 2023 RHL		
Species	2023 RHL prior to revised com/rec allocation	Revised 2023 RHL accounting for new com/rec allocation
Summer flounder	10.36	10.62 (+2.5%)
Scup	5.41	9.27 (+71%)
Black sea bass	5.95	6.57 (+10%)

Changes to Process Since Setting Last Year's Rec. Measures

■ Revisions to com/rec allocations

- Increased the 2023 RHLs compared to what would have been implemented under the previous allocations

■ Improved tools are available for analyzing impacts of measures on harvest and discards

- RDM and RFDM, both available for all 3 species
- Not required, but recommended for use by staff and MC

■ Percent Change Approach

- Approved through Harvest Control Rule FW/addenda for setting rec. measures starting with 2023
- Defines target level of coastwide harvest measures will aim to achieve
- Target is no longer the RHL

Percent Change Approach vs. Targeting 2023 RHL

Species	Model	Estimated 2023 Harvest Under 2022 Measures	80% Confidence Interval	2023 RHL	Stock Size Category	Percent Change Approach Requirement	Change Necessary to Meet RHL (Old Method)
Summer Flounder	RDM: Previous (Nov 10)	8.38	7.56-9.52	10.62	Low	10% liberalization	27% liberalization
	RDM: Current (Dec 6)	10.92	9.23-12.94			10% reduction	3% reduction
	RFDM: Current (Nov 15)	12.77 (with NJ adjustment: 10.45 or 10.18)	7.01-22.26			10% reduction	17% reduction
Scup	RDM: Previous (Nov 10)	17.21	13.56-22.68	9.27	Very High	10% reduction	46% reduction
	RDM: Current (Dec 6)	14.31	9.90-17.40			10% reduction	35% reduction
	RFDM: Current (Nov 15)	14.42*	8.95-23.08*			10% liberalization	36% reduction
Black Sea Bass	RDM: Previous (Nov 10)	11.05	10.00-11.96	6.74	Very High	10% reduction	39% reduction
	RDM: Current (Dec 6)	7.93	7.17-8.63			10% reduction	15% reduction
	RFDM: Current (Nov 15)	11.96*	8.17-16.81*			10% reduction	44% reduction

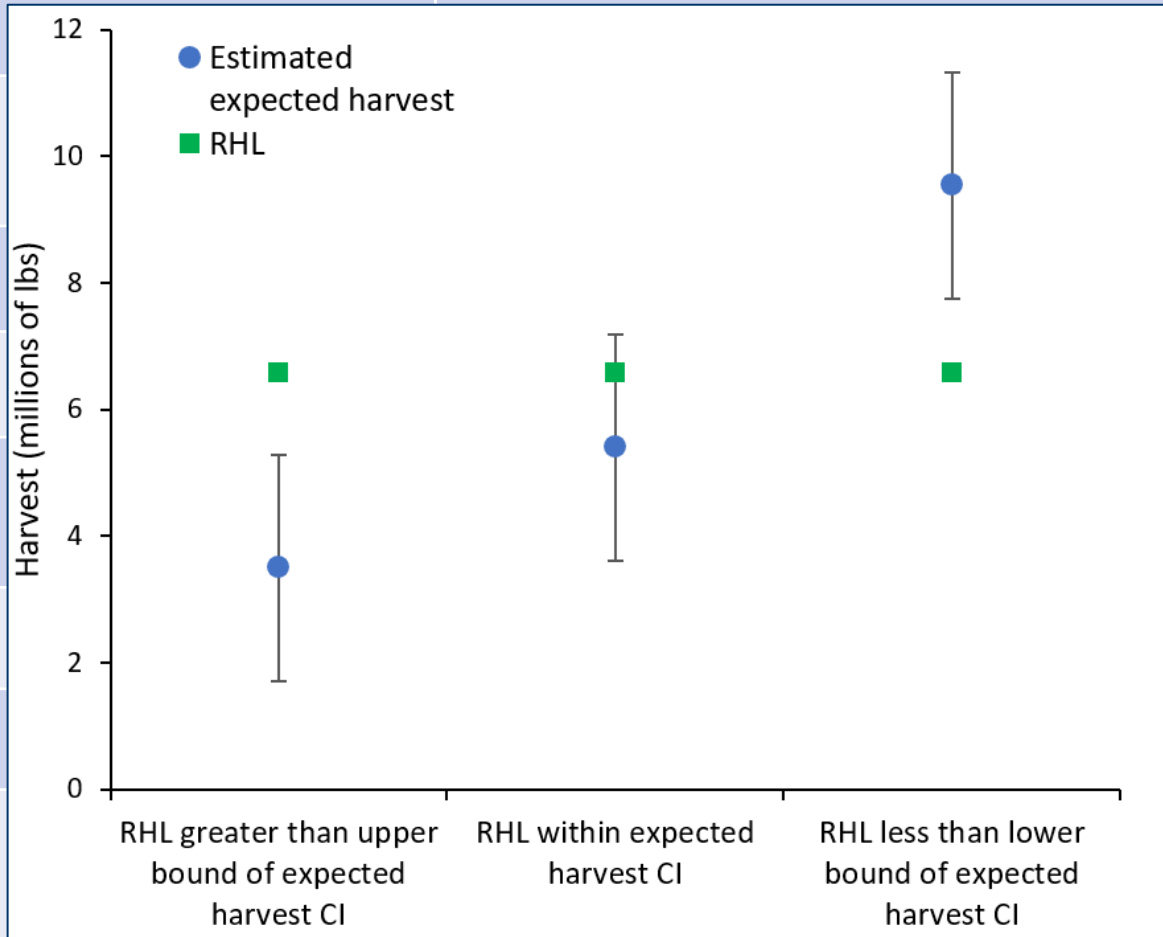
*Converted to pounds based on average weight of harvest in 2021 from MRIP data

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Consideration for 2023 Measures

Minimum Size limit

- Increase implemented earlier this year
- Prior to this change federal recreational measures remained unchanged for many year
- Effectiveness of increase has not yet been evaluated
- Another increase to min. size would increase min. size to 11 inches
 - Relatively large compared to 50% maturity (~7 inches)
- **Staff recommend avoiding further size limit increases in 2023**



Consideration for 2023 Measures continued

Seasonal closures

- In federal and many states waters would require significant shortening of season or mid-year closure to achieve meaningful reduction in harvest
- Proportion of harvest by wave differs by state
- Seasonal closure in federal waters could disproportionately impact some states
- Seasonal closure applied at state or regional level may be more appropriate

Possession limit

- Majority of angler do not keep a full limit
- Federal and majority of states possession limit is 50 or 30 fish
- Several states have a “bonus wave” for the for-hire sector with a higher bag limit

Additional RFDM Analysis

Set of measures analyzed	Est. harvest under analyzed set of measures (mil lbs.)	Percent reduction achieved	Est. harvest under 2022 measures (mil lbs.)
15 fish possession limit, status quo size limits and seasons	10.85	25%	14.42

Resulting Percent Change for 2023 using RFDM



- 10% liberalization in harvest needed
- Applied to estimate of 2023 harvest under 2022 measures
- Under RFDM: 14.42 mil lbs. + 10% = **15.86 mil lbs. harvest target for 2023**

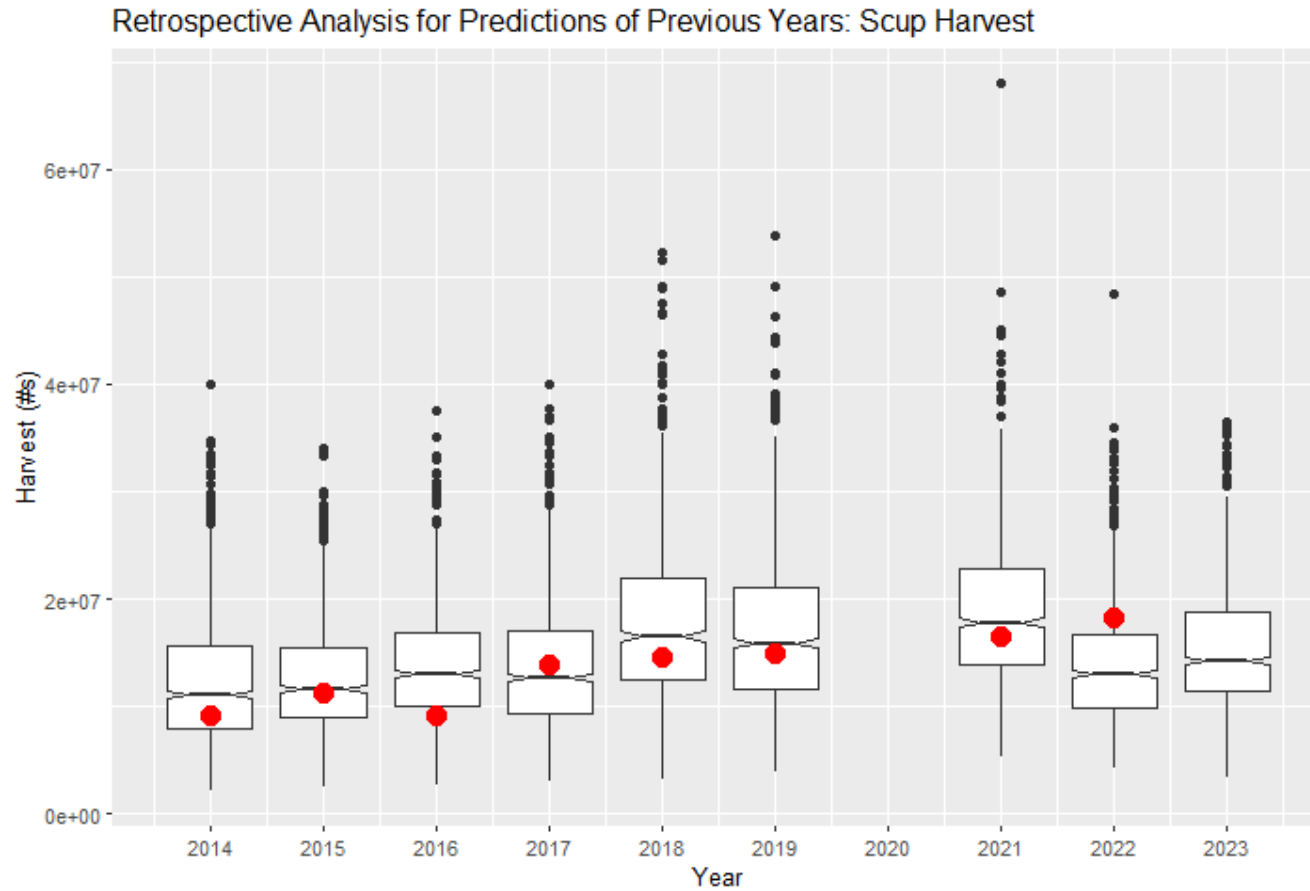
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Rec. Accountability Measures

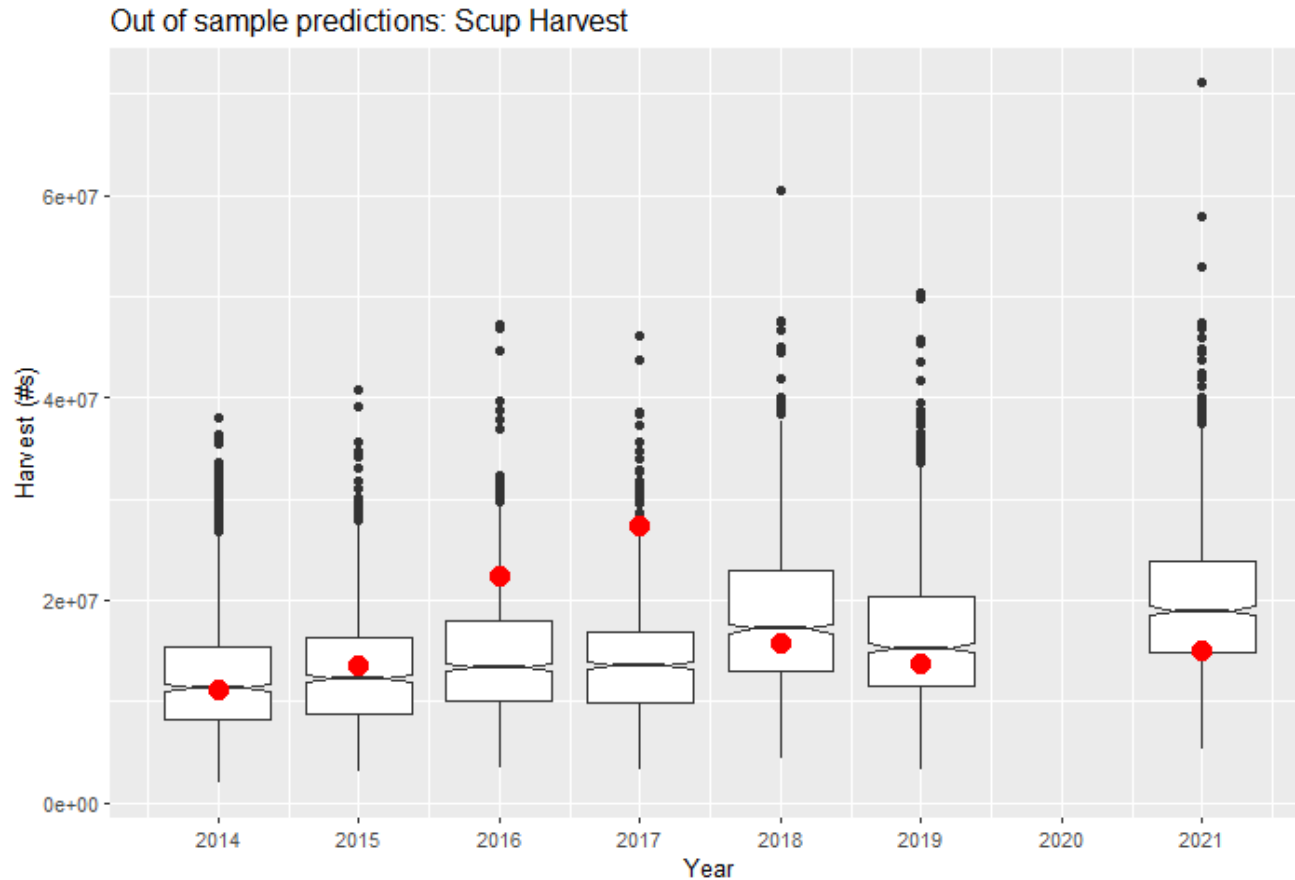


- 1. If the stock is overfished, under a rebuilding plan, or stock status is unknown:** Exact overage amount must be paid back as soon as possible. **Payback** may be evenly spread over 2 years if doing so allows for identical measures for the upcoming 2 years.
- 2. If biomass is above the threshold, but below the target, and the stock is not under a rebuilding plan:**
 - **If only the ACL exceeded:** Adjust bag/size/season, taking into account performance of the measures and conditions that precipitated the overage.
 - **If most recent F exceeds Fmsy:** adjustment to the rec. ACT will be made as soon as possible as a payback that will be scaled based on stock biomass where $\text{payback} = (\text{overage amount}) * (B_{\text{msy}} - B) / 1/2 B_{\text{msy}}$. **Payback** may be evenly spread over 2 years if doing so allows for identical measures for the upcoming 2 years. If F/Fmsy not available for most recent year of catch data, catch vs ABC comparison will be used.
- 3. If biomass is above the target:** Adjustments to measures will be made, taking into account the performance of the measures and conditions that precipitated the overage.

RFDM – Retrospective Analysis



RFDM – Out of sample predictions



2023 RHL vs. Expected Harvest



RFDM – MC recommendation

RDM

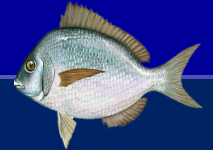
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Next Steps

- Council/Board meeting – Dec 13. Will adopt:
 - Overall % change
 - 2023 non-preferred coastwide and precautionary default measures for SF and BSB
 - 2023 federal waters measures for scup
- TC meeting #1 – early 2023
 - Establish guidelines for state/regional proposals
- States/regions submit proposals - early 2023
- TC meeting #2 – early 2023
 - Review state/regional proposals
- Board meeting – early 2023
 - Review state/regional proposals and TC recommendations. Consider approval of proposals.

New Tools for Predicting Harvest



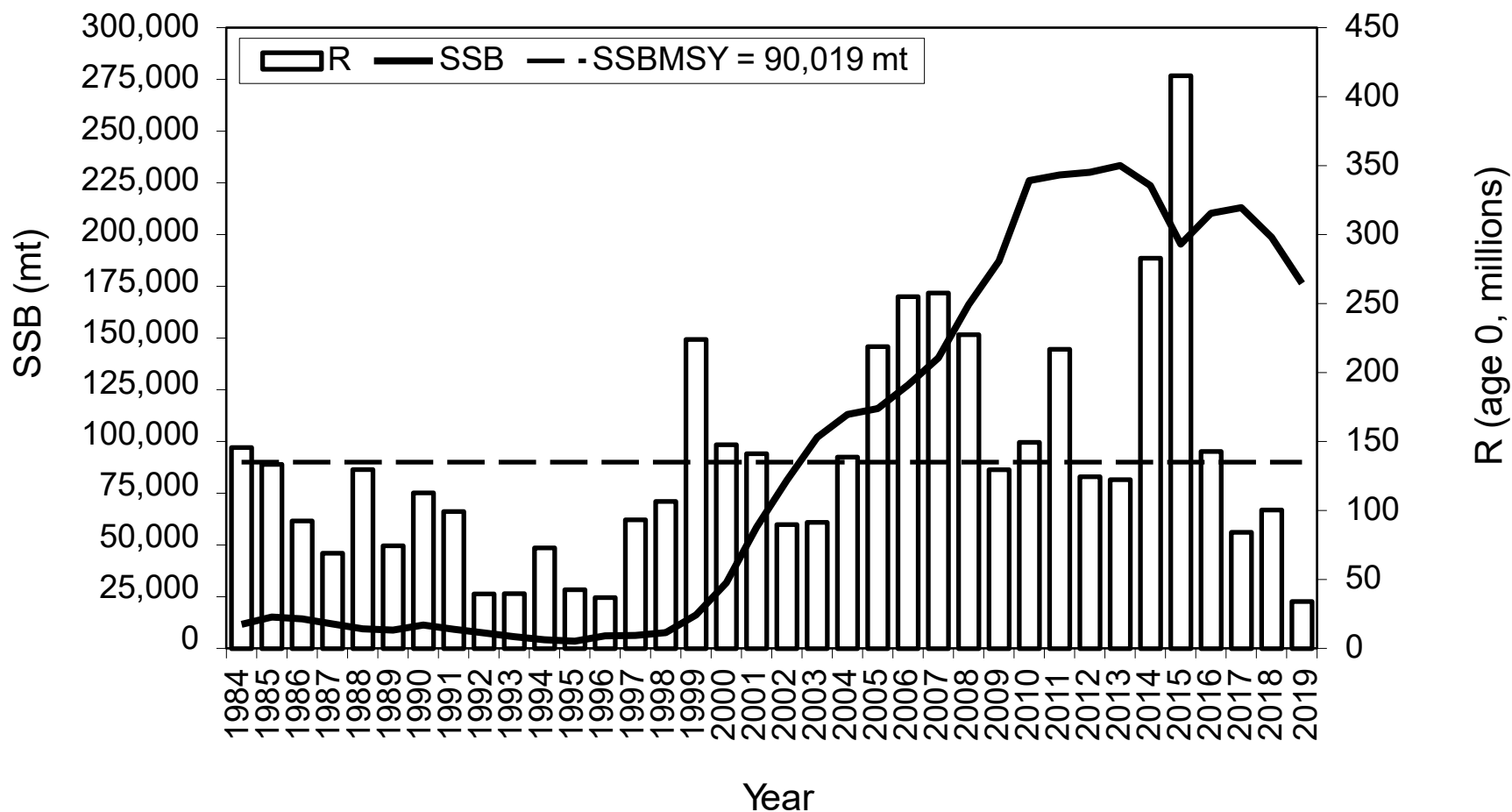
- Recreational Demand Model (RDM)
- Recreational Fleet Dynamics Model (RFDM)
- Not required under Percent Change Approach but are an improvement compared to past methods of using only MRIP data to predict future harvest
- MC recommends use of **RFDM** for setting 2023 recreational measures for scup
 - Predicts past MRIP estimates reasonably well
 - States/others can easily use the model on their own

RHL Performance

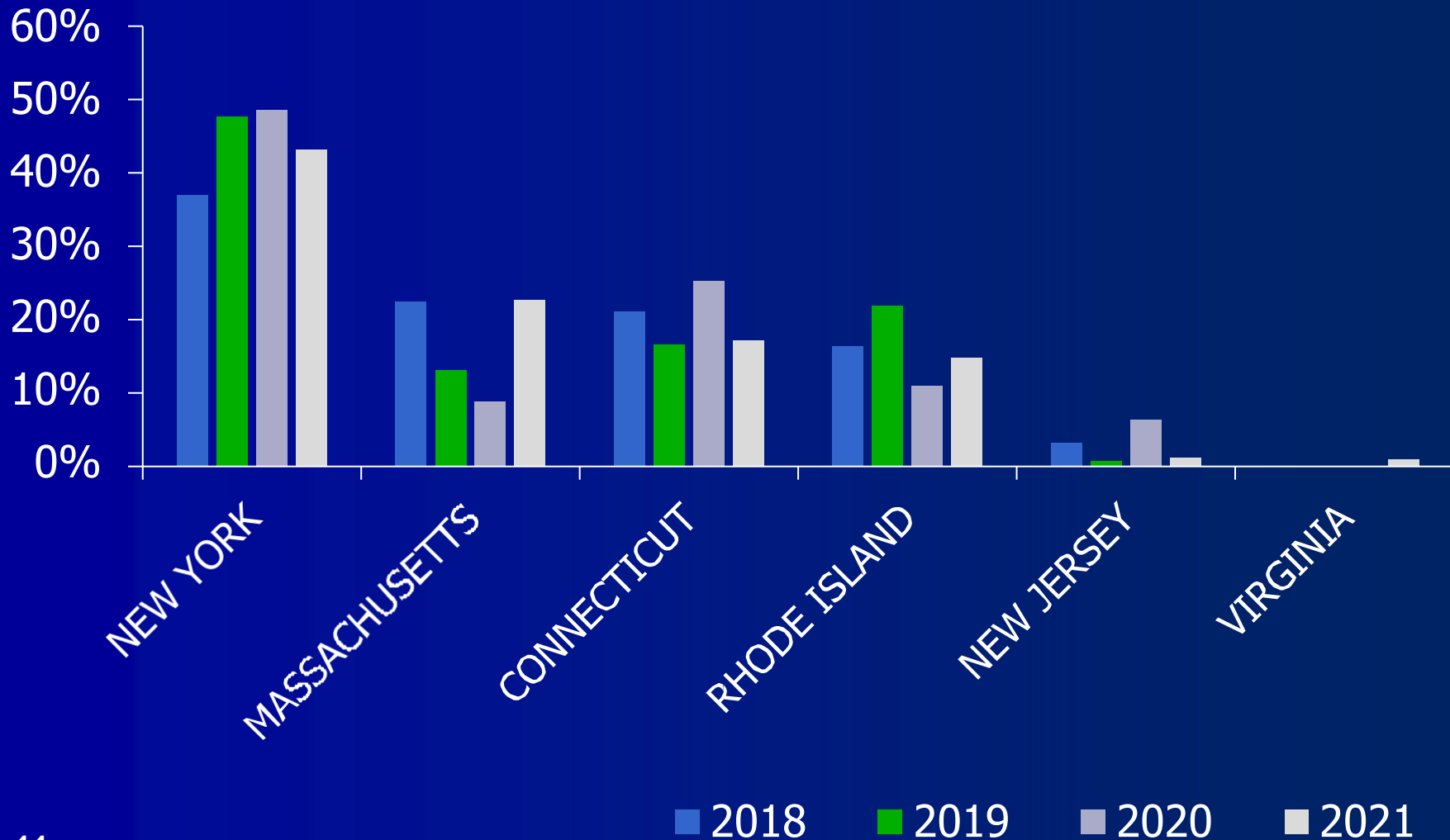
Year	Catch (mil of fish)	Harvest (mil of fish)	Harvest (mil lbs.)	Dead discards (mil lbs.)	% Released (released alive)	Avg. weight of landed fish (mil lbs.)
2012	21.24	7.33	8.27	1.40	65%	1.13
2013	25.79	11.49	12.57	1.25	55%	1.09
2014	20.37	9.17	9.84	1.06	55%	1.07
2015	24.87	11.33	11.93	1.28	54%	1.05
2016	31.49	9.14	10.00	1.90	71%	1.09
2017	41.20	13.84	13.54	2.38	66%	0.98
2018	30.37	14.55	12.98	1.42	52%	0.89
2019	28.67	14.95	14.12	1.23	48%	0.94
2020	27.27	14.49	12.91	1.15	47%	0.89
2021	31.70	16.60	16.62	1.36	48%	0.99
2022 (wave 1-4)	27.64	14.18	13.72	--	49%	0.97

SSB and Recruitment

Spawning Stock Biomass (SSB) and Recruitment (R)



Recreational Harvest by State as % of Coast



Commercial Quota and Landings

Year	Quota (mil lb)	Landings (mil lb)	% of quota landed
2015	21.23	17.03	80%
2016	20.47	15.76	77%
2017	18.38	15.44	84%
2018	23.98	13.37	55%
2019	23.98	13.78	57%
2020	22.23	13.58	61%
2021	20.50	12.93	63%