New England Fishery Management Council
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John F. Quinn, J.D., Ph.D., *Chairman* | Thomas A. Nies, *Executive Director*

MEMORANDUM

DATE: October 23, 2019

TO: Groundfish Committee

FROM: Groundfish Plan Development Team

SUBJECT: **Analysis for the priority to address allocation issues if raised by new MRIP data**

The Groundfish Plan Development Team (PDT) met on September 30, 2019, via webinar and discussed analysis for the priority to address allocation issues if raised by new Marine Recreational Information Program (MRIP) data.

Recent Council meeting

At the recent September Council meeting, the Council passed the following motion:

> That the Council direct staff to continue working on and include alternatives in FW 59 to update GOM cod and GOM haddock commercial/recreational allocations raised by new Marine Recreational Information Program (MRIP) data.
>
> To recommit to the Groundfish Committee and Groundfish and Recreational Advisory Panels for discussion and consideration.
>
> The motion ***carried*** on a show of hands (9/5/0).

Background on recreational allocation

Amendment 16 (A16) to the Northeast Multispecies (Groundfish) fishery management plan (FMP) implemented the process for allocation to commercial and recreational groundfish fisheries. Specifically:

> *An allocation will be made of certain regulated groundfish stocks to the commercial and recreational components of the fishery.*
>
> *An allocation will be determined after accounting for state waters catches taken outside of the FMP.*
>
> *An allocation will not be made in the case of stocks that are not fully harvesting the ACL.*
>
> *An allocation will also not be made if the recreational harvest, after accounting for state waters catches outside the management plan, is less than five percent of the removals.*

A16 also outlined the steps to determining an allocation, such that:

> *A defined time period will be used to calculate the allocation.*
>
> *When possible, the shares will be determined by using the numbers of fish in the years caught (as used by the assessment: harvested, landed, or discarded) by each component. The shares determined in this manner will be applied to the ACL to determine the weight of catch available for each component.*
>
> *If the number of fish caught by each component is not available, the shares will be calculated based on weight.*
>
> *The proportion for each year will be calculated, and then the average proportion over the time period will be the share for each component of the fishery.*
>
> *The proportions will be reviewed consistent with the periodic assessment cycle, and if determined necessary, changes can be implemented through a framework action.*

A16 implemented recreational allocations for two stocks: Gulf of Maine cod and Gulf of Maine haddock. The time period for each stock was 2001-2006, resulting in the allocations in Table 1. These allocations are taken off of the U.S. ABC and are reduced by a 7% management uncertainty buffer to determine a sub-ACL.

Table 1- Allocations set in A16 for GOM cod and GOM haddock.

Stock	Years	Recreational Allocation
GOM cod	2001-2006	33.7%
GOM haddock	2001-2006	27.5%

Setting a target catch and management measures

In Framework Adjustment 57 (FW57), the Council recommended a catch target for recreational catches of GB cod for FY 2018-FY 2020 for the purpose of developing recreational fishery management measures. The catch target was based on the most recent five-year (CY 2012-CY 2016) average catch (landings and discards) from the 2017 operational assessment for GB cod for the recreational fishery. The catch target value is 138 mt (if post-calibration MRIP data were used to recalculate the catch target, it would be 406 mt). As the catch target is not a sub-ACL, the catch target was apportioned into the state waters and other sub-components for FY 2018-FY 2020 (see Appendix II of FW 57 for details).

FW57 also implemented a temporary administrative measure to allow the Regional Administrator the authority to adjust the recreational measures for GB cod. The Regional Administrator had the authority to adjust the recreational measures for GB cod in consultation with the Council for FY 2018 and FY 2019 to achieve the catch target of 138 mt. The consultation with the Council allows for review of any measures under consideration. If time permits, the Recreational Advisory Panel and the Groundfish Committee would review the

measures and make recommendations to the Council. Starting in FY2020, the management measures would be those set for the FY2019.

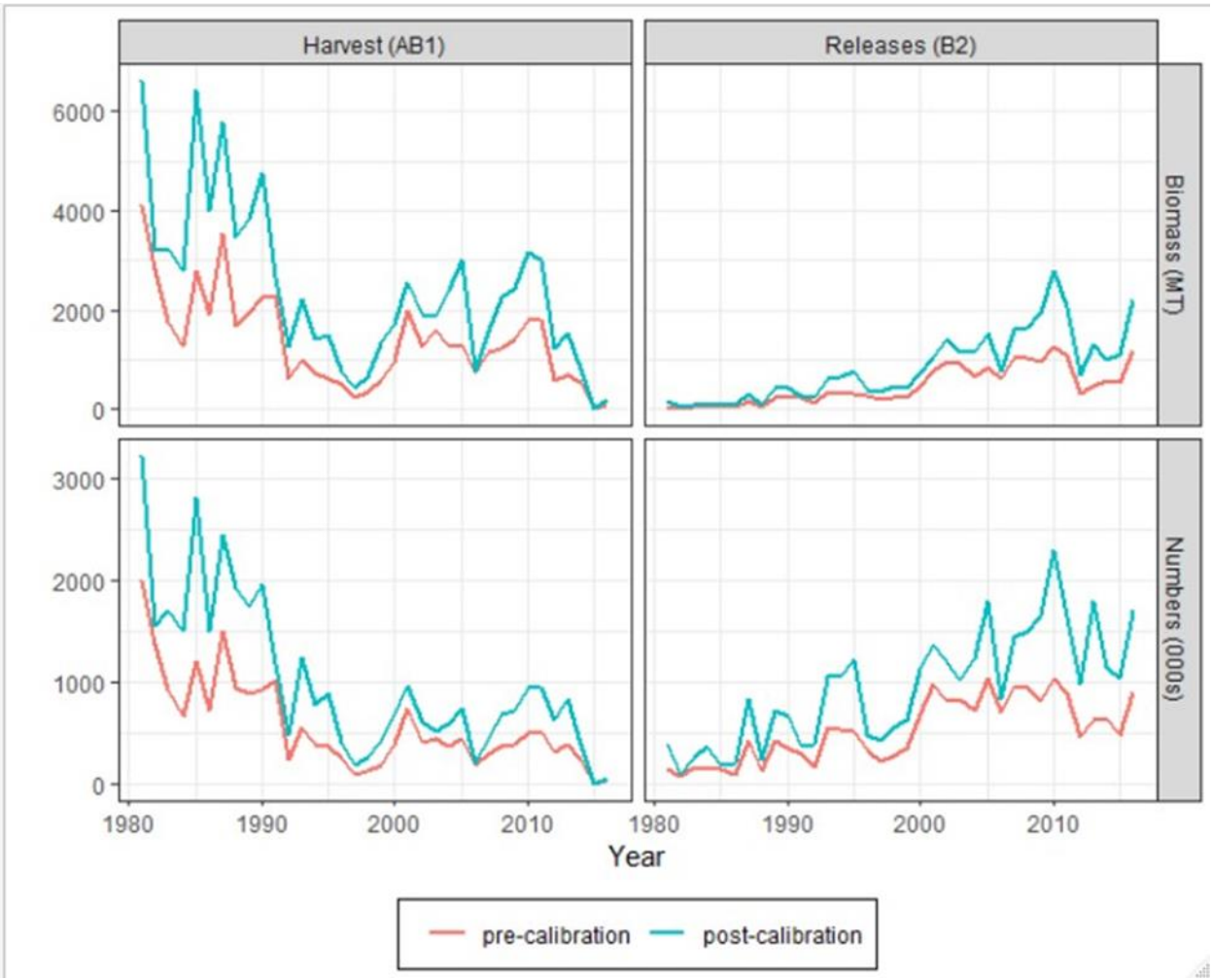
Results of Recent Groundfish Assessments

Of the 15 groundfish stocks assessed in 2019, four (Gulf of Maine cod, Gulf of Maine haddock, Georges Bank cod, and pollock) stocks include recreational catches. The time series of recreational catches were updated in the assessments (see Figure 1 to Figure 4).

1) Gulf of Maine cod

The 2019 update assessment for Gulf of Maine cod revised the time series of recreational catches to account for the re-calibrated MRIP data. The re-calibration scales up recreational catches in all years, although the magnitude of the increase is not always consistent across years. In general the re-calibration results in a substantial increase in the magnitude of recreational harvest at the beginning of the time series, and an increase in the magnitude of estimated discards (releases) in more recent years. Prior to 2004 there was limited length frequency sampling, resulting in years with either sparse or missing length frequency data. In such cases, the proportional catch-at-age data from recent years were applied to the historical data, to estimate the age structure of the recreational catch.

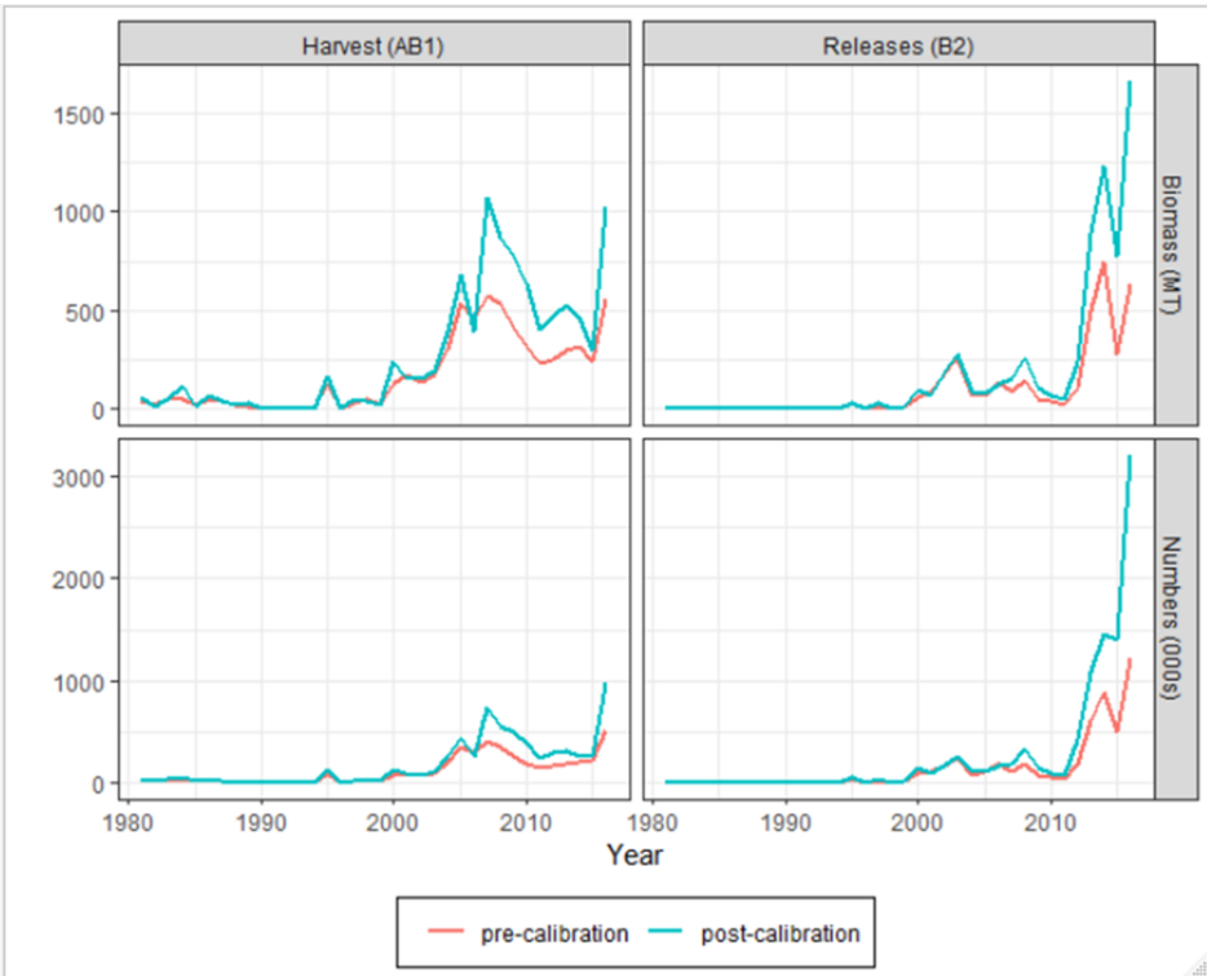
Figure 1- Time series from 1982 – 2016 of total biomass (top) and total numbers (bottom) of harvest (left) and releases (right) for the pre- and post-calibrated MRIP data for GoM cod. Reproduced from GOM cod stock assessment 2019 (Figure 1), NEFSC.



2) Gulf of Maine haddock

The 2019 update assessment for Gulf of Maine haddock revised the time series of recreational catches to account for the re-calibrated MRIP data. Prior to about 2005, the differences between the pre-calibrated and post-calibrated estimates are relatively minor. However, in more recent years, the magnitude of the difference is quite large, particularly for the estimation of discards (releases). As was noted for Gulf of Maine cod, length frequency data are sparse for the recreational catches prior to 2004.

Figure 2- Time series from 1982 – 2016 of total biomass (top) and total numbers (bottom) of harvest (left) and releases (right) for the pre- and post-calibrated MRIP data for GoM haddock. Reproduced from GOM haddock stock assessment 2019 (Figure 1), NEFSC.



3) Georges Bank cod

The recreational catches of Georges Bank cod have declined significantly since the 1980's. The re-calibrated MRIP data results in a significant revision of the time series of recreational catch, particularly in the 1980's. However, unlike Gulf of Maine cod and haddock, in some years the re-calibration results in a lower estimate of recreational catch. In recent years, the re-calibration results in an increase in total catch. As noted in the 2019 assessment, for CY2014-2016, the re-calibration resulted in a 22% increase in total catch.

MRIP estimates of Georges Bank cod catch are highly variable and uncertain. The MRIP catch estimates frequently have high (greater than 50) proportional standard errors (PSE) which means that the estimate is imprecise. There are a number of unique challenges relative to sampling the Georges Bank cod recreational fishery:

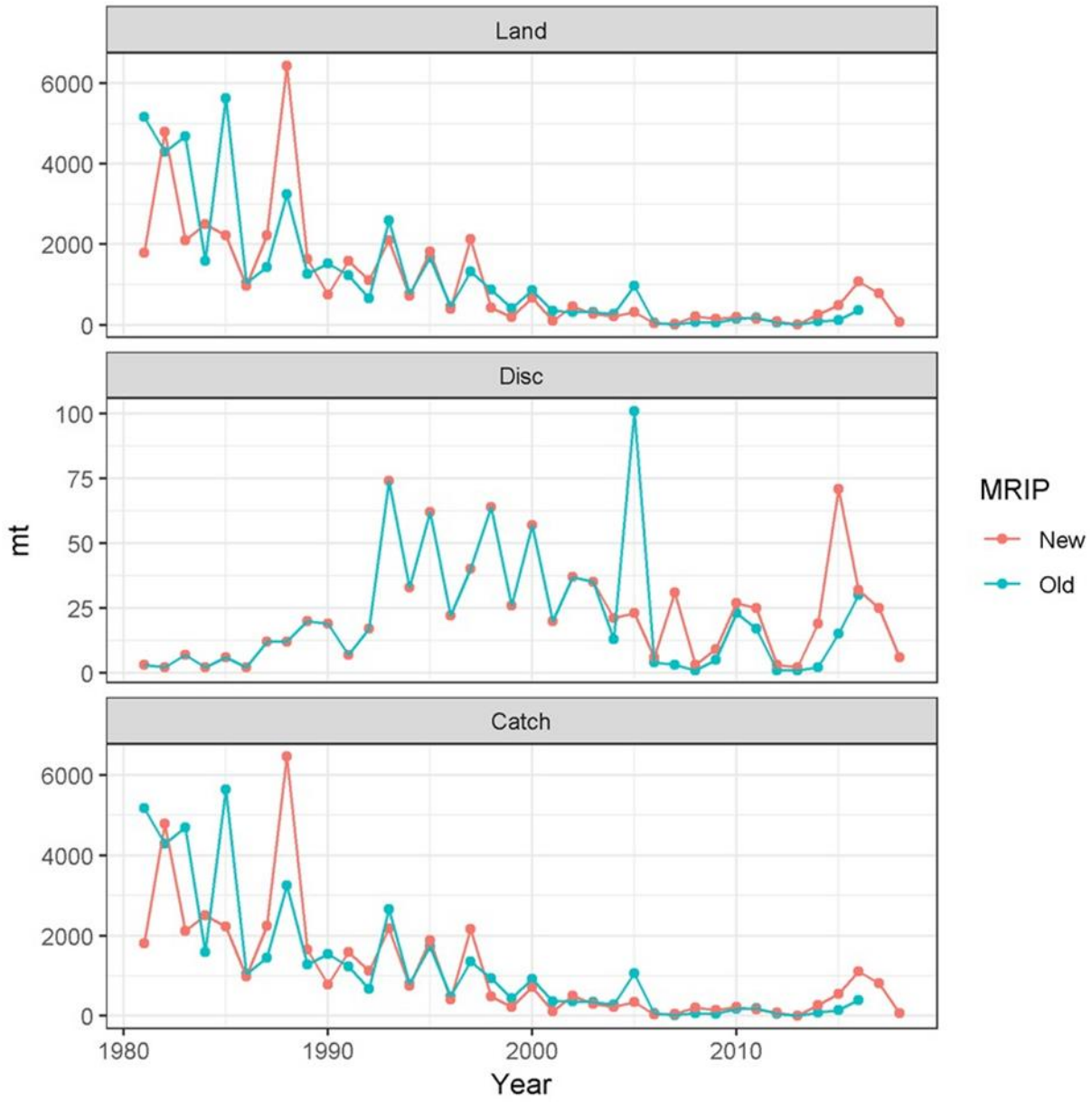
(1) Effort in the southern portion of the Georges Bank cod recreational fishery peaks in December-February, and there is no MRIP sampling during January and February,

(2) Cod catch is apportioned to stock area, and the decision is based on the intercept location (a sample collected in Boston would result in allocation to the Gulf of Maine stock, even when the vessel may have fished on Georges Bank).

Utilizing vessel trip report (VTR) data from the for-hire component of the fishery to develop estimates of effort and catch would provide valuable information on a significant portion of the Georges Bank recreational cod fishery. VTR data may also offer improved spatial resolution, which would assist in the apportionment of recreational catches to stock area. Additional MRIP sampling during the winter may also improve the precision of catch estimates and increase the quantity of length frequency samples.

The uncertainty and variability of the data should be considered during future discussions about appropriate management targets or the allocation of this stock to the recreational fishery.

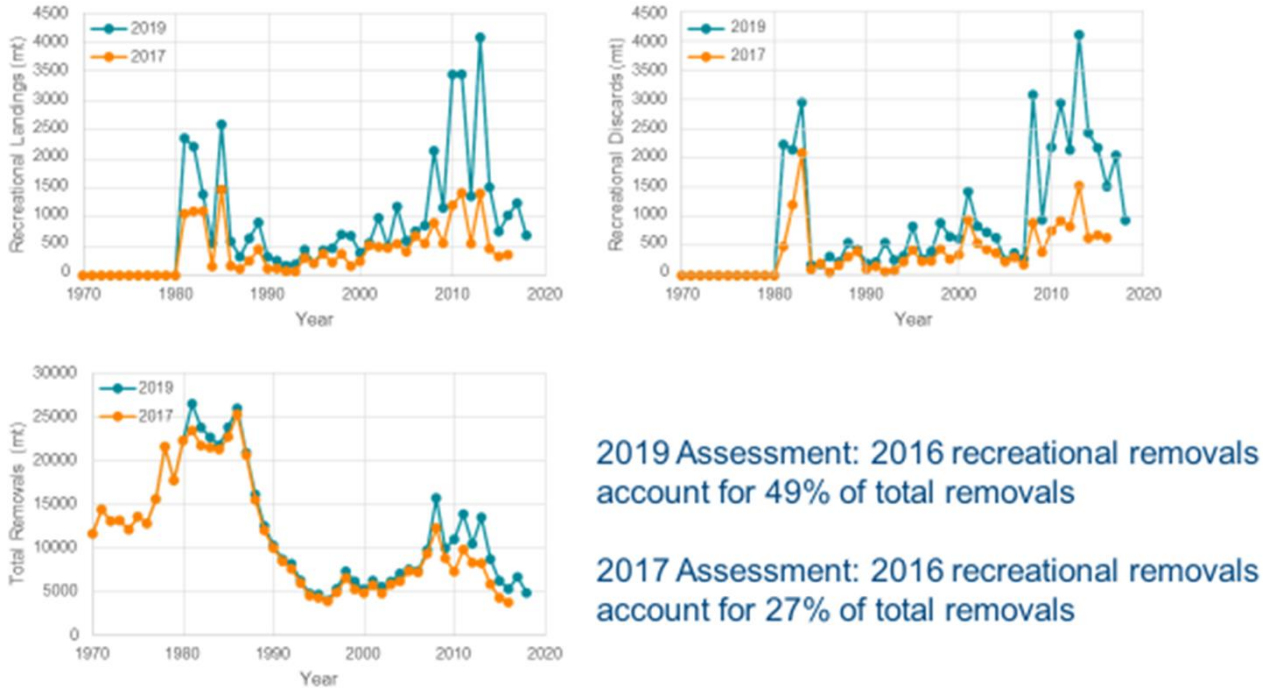
Figure 3- Comparison of US recreational catch in metric tons from old (2017) and new (2019) update assessments by catch component. Reproduced from GB stock assessment 2019 (Figure 29), NEFSC.



4) ***Pollock***

The re-calibrated MRIP data scales up the time series of pollock catches, and the estimated increase is particularly large in recent years, and at the beginning of the time series. As noted at the 2019 assessment, in recent years recreational catches contribute a significant proportion of the total catches for this stock.

Figure 4- Pollock recreational landings (top left), discards (top right), and total fishery removals (bottom left) from the 2017 assessment (1970-2016) and 2019 assessment (1970-2018). Reproduced from pollock stock assessment for 2019, presentation to peer review, NEFSC.



Updating the data in the GOM cod and GOM haddock allocation

Updating commercial landings and discards and recreational landings, and including recreational discards for 2001 to 2006 results in potential change in allocation to the recreational fishery, for GOM cod from 33.7% to 37.5%, an increase of 3.8% (Table 2 and Table 3) and for GOM haddock from 27.5% to 33.9%, an increase of 6.4% (Table 4 and Table 5).

Table 2- Gulf of Maine Cod Existing Rec/Com Allocation (GARM III, Amendment 16)

Year	Rec Landings (A+B1)	Rec Discard Mortality	Com Landings	Com Discard Mortality	Total Mortality	Rec Share
			(1,000's of fish)			
2001	1,018	0	1,187	382	2,587	0.394
2002	551	0	898	383	1,832	0.301
2003	611	0	870	277	1,758	0.348
2004	531	0	799	99	1,429	0.372
2005	584	0	856	65	1,505	0.388
2006	250	0	761	114	1,125	0.222
						0.337

Table 3- Gulf of Maine Cod Preliminary Evaluation of Rec/Com Allocation Using New MRIP Landings and Discards, and Updated Commercial Landings and Discards (2019 Assessment Update).

Year	Rec Landings (A+B1)	Rec Discard Mortality	Com Landings	Com Discard Mortality	Total Mortality	Rec Share
			(1,000's of fish)			
2001	975	207	1,168	591	2,941	0.402
2002	626	182	882	410	2,100	0.385
2003	532	153	844	417	1,946	0.352
2004	606	188	766	546	2,105	0.377
2005	742	270	832	225	2,070	0.489
2006	212	127	733	299	1,371	0.247
						0.375

Table 4- Gulf of Maine Haddock Existing Rec/Com Allocation (GARM III, Amendment 16).

	Rec Landings (A+B1)	Rec Discard Mortality	Com Landings	Com Discard Mortality	Total Mortality	Rec Share
			(1,000's of fish)			
2001	120	0	514	39	673	0.179
2002	83	0	507	30	620	0.134
2003	120	0	577	25	722	0.166
2004	279	0	528	31	838	0.333
2005	445	0	531	42	1,017	0.437
2006	278	0	346	74	697	0.399
						0.275

Table 5- Gulf of Maine Haddock Preliminary Evaluation of Rec/Com Allocation Using New MRIP Landings and Discards, and Updated Commercial Landings and Discards (2019 Assessment Update).

Year	Rec Landings (A+B1)	Rec Discard Mortality	Com Landings	Com Discard Mortality	Total Mortality	Rec Share
			(1,000's of fish)			
2001	89	44	556	17	707	0.189
2002	80	87	531	22	719	0.232
2003	110	133	579	21	843	0.289
2004	249	70	528	13	860	0.371
2005	449	76	539	31	1,094	0.479
2006	259	94	348	40	742	0.477
						0.339

Recalculating the catch target for GB cod using new MRIP landings and discards, and updated commercial landings and discards (2019 assessment update)

Georges Bank Cod												
2019 Assessment Results												
Calandar Year	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*		
Commercial landings	2,999	2,688	3,387	2,007	1,312	1,514	1,300	1,109	464	574		
Commercial discards	385	253	122	120	83	19	31	33	20	13		
Recreational landings	142	195	142	81	7	257	486	1,075	785	66		
Recreational discards	9	27	25	3	2	19	71	32	25	6		
CA landings	1,003	748	702	395	384	430	472	428	474	510		
CA discards	206	94	43	75	39	28	20	12	14	7		
Catch for Assessment	4,744	4,005	4,421	2,681	1,828	2,267	2,380	2,690	1,782	1,176		
											Averages	
Evaluation for potential sub-ACL for recreational fishery											3-Year: 2016-2018	5-Year: 2014-2018
Recreational catch total (landings and discards)	151	222	167	84	9	276	557	1,107	810	72	663	564.4
US catch total (commerical and recreational catches)	3,535	3,163	3,676	2,211	1,404	1,809	1,888	2,249	1,294	659	1,401	1,580
Percentage of catches Rec total: US total	4.27%	7.02%	4.54%	3.80%	0.64%	15.26%	29.50%	49.22%	62.60%	10.93%	40.9%	33.5%
Percentages of catches Rec total: Total catches	3.18%	5.54%	3.78%	3.13%	0.49%	12.17%	23.40%	41.15%	45.45%	6.12%	30.9%	25.7%

Comparison of the catch target for GB cod with pre- and post-calibration MRIP data using different time periods for the evaluation

Data Source and Date Range	Catch Target
Pre-calibration MRIP Data Average 2012-2016	138 mt *(current catch target for FY2020)*
Post-calibration MRIP Data Average 2012-2016	406 mt
Post-calibration MRIP Data Average 2014-2018 (5-Year)	564 mt
Post-calibration MRIP Data Average 2016-2018 (3-Year)	663 mt

Evaluation of pollock catches for informational purposes using new MRIP landings and discards, and updated commercial landings and discards (2019 assessment update)

Pollock										
2019 Assessment Results										
Calandar Year	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*		
Commercial landings	7,211	6,742	5,058	4,545	3,043	2,582	3,249	3,078		
Commercial discards	176	121	169	135	155	97	49	70		
Recreational landings	3,447	1,355	4,078	1,511	752	1,030	1,239	687		
Recreational discards	2,958	2,151	4,123	2,441	2,190	1,522	2,059	944		
Catch for Assessment	13,792	10,370	13,428	8,632	6,139	5,231	6,597	4,779		
									Averages	
Evaluation for potential sub-ACL for recreational fishery									3-Year: 2016-2018	5-Year: 2014-2018
Recreational catch total (landings and discards)	6,405	3,506	8,201	3,952	2,942	2,552	3,298	1,631	2,494	2,875
US catch total (commerical and recreational catches)	13,792	10,369	13,428	8,632	6,140	5,231	6,596	4,779	5,535	6,276
Percentages of catches Rec total: Total catches	46.44%	33.81%	61.07%	45.78%	47.92%	48.79%	49.99%	34.13%	44.3%	45.3%

PDT Recommendations

- Consider updating the commercial and recreational data for years 2001-2006 to determine the GOM cod and GOM haddock allocations, based on the 2019 stock assessment in FW59 or another upcoming framework.
- Consider updating the catch target using the most recent five years of data (CY2014-CY2018) from the assessment and extending the Regional Administrator's temporary authority to adjust management measures for GB cod for FY2020 and FY2021 in FW59.
- Continue to monitor recreational catches of pollock and utilization of pollock in future assessments and monitoring, especially in relation to the allocation criteria identified in A16. If utilization relative to the ACL becomes high, consider creating a sub-ACL for the recreational fishery.