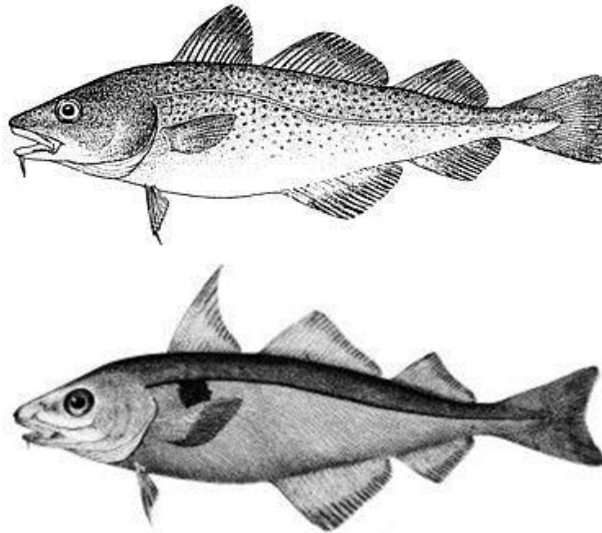


DISCUSSION DOCUMENT
for
2019 Recreational Fishery
Management Measures
for
Gulf of Maine cod, Gulf of Maine
haddock, and Georges Bank cod



Prepared by the
Northeast Fisheries Science Center and
New England Fishery Management Council

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1. Gulf of Maine

Table 1. MRIP Pre-calibrated Gulf of Maine Recreational Catch Estimates¹

	FY2017	FY2018 ²	
Cod/Haddock Angler Trips ³	168,076	124,994	-26%
Cod Catch (numbers, a+b1+b2)	814,496	478,622	-41%
Cod Kept/Released Dead (numbers, a+b1)	14,072	2,232	-84%
Cod Released Alive (numbers, b2)	800,425	476,390	-40%
Cod Removals (numbers, a+b1+(b2*0.15))	134,136	73,691	-45%
Cod Removals (weight ⁴ , mt)	246	140	-43%
Cod Avg. Catch Per Trip (numbers)	4.8	3.8	-21%
Cod Avg. Weight of Caught Fish (lbs)	4.4	4.2	-5%
Haddock Catch (numbers, a+b1+b2)	1,356,415	1,105,253	-19%
Haddock Kept/Released Dead (numbers, a+b1)	516,805	494,462	-4%
Haddock Released Alive (numbers, b2)	839,610	610,791	-27%
Haddock Removals (numbers, a+b1+(b2*season/size release mortality))	953,007	782,555	-18%
Haddock Removals (weight ⁴ , mt)	795	700	-12%
Haddock Avg. Catch Per Trip (numbers)	8.1	8.8	10%
Haddock Avg. Weight of Caught Fish (lbs)	2.5	2.1	-16%

¹Source: Available MRIP data as of Jan 30, 2019

²Wave 6, 2017 and Wave 2, 2018 used as a proxies for FY 2018.

³Angler trips = number of trips that targeted and/or caught cod or haddock

⁴All weights are based on round weights calculated from MRIP length frequencies and length to weight equations used in the assessments

Table 2. MRIP Pre-calibrated Gulf of Maine Angler Trips by Mode

	FY2017			FY2018		
	Cod & Haddock Angler Trips ¹	All Angler Trips ²	% Cod & Haddock Angler Trips	Cod & Haddock Angler Trips ¹	All Angler Trips ²	% Cod & Haddock Angler Trips
Head	45,407	75,890	60%	42,000	64,429	65%
Charter	19,502	94,155	21%	14,267	76,641	19%
Private	103,167	1,135,333	9%	68,113	1,043,965	7%
Shore	-	652,066	0%	614	427,133	0.1%
	168,076	1,957,444	9%	124,994	1,612,168	8%

¹Number of angler trips that targeted and/or caught cod or haddock

²All angler trips in the Gulf of Maine

Table 3. MRIP Pre-calibrated Gulf of Maine Cod Recreational Catch Estimates by Mode

	FY2017	FY2018	
Head			
Cod Catch (numbers, $a+b_1+b_2$)	78,918	68,711	-13%
Cod Kept/Released Dead (numbers, $a+b_1$)	1,208	596	-51%
Cod Released Alive (numbers, b_2)	77,710	68,115	-12%
Cod Removals (numbers, $a+b_1+(b_2*0.15)$)	12,865	10,813	-16%
Cod Avg. Catch Per Angler Trip (numbers) ¹	1.7	1.6	-6%
Charter			
Cod Catch (numbers, $a+b_1+b_2$)	117,875	24,490	-79%
Cod Kept/Released Dead (numbers, $a+b_1$)	432	488	+13%
Cod Released Alive (numbers, b_2)	117,443	24,003	-80%
Cod Removals (numbers, $a+b_1+(b_2*0.15)$)	18,048	4,088	-77%
Cod Avg. Catch Per Angler Trip (numbers) ¹	6.0	1.7	-72%
Private			
Cod Catch (numbers, $a+b_1+b_2$)	617,703	384,807	-38%
Cod Kept/Released Dead (numbers, $a+b_1$)	12,431	534	-96%
Cod Released Alive (numbers, b_2)	605,272	384,273	-37%
Cod Removals (numbers, $a+b_1+(b_2*0.15)$)	103,222	58,175	-44%
Cod Avg. Catch Per Angler Trip (numbers) ¹	6.0	5.6	-6%
Shore			
Cod Catch (numbers, $a+b_1+b_2$)	0	614	
Cod Kept/Released Dead (numbers, $a+b_1$)	0	614	
Cod Released Alive (numbers, b_2)	0	0	
Cod Removals (numbers, $a+b_1+(b_2*0.15)$)	0	614	
Cod Avg. Catch Per Angler Trip (numbers) ¹	0	1	

¹Based on the number of angler trips that targeted and/or caught cod or haddock

Table 4. MRIP Pre-calibrated Gulf of Maine Haddock Recreational Catch Estimates by Mode

	FY2017	FY2018	
Head			
Haddock Catch (numbers, a+b1+b2)	277,807	409,363	+47%
Haddock Kept/Released Dead (numbers, a+b1)	100,848	192,846	+91%
Haddock Released Alive (numbers, b2)	176,959	216,517	+22%
Haddock Removals (numbers, a+b1+(b2*season/size release mortality))	192,778	294,977	+53%
Haddock Avg. Catch Per Angler Trip (numbers) ¹	6.1	9.7	+59%
Charter			
Haddock Catch (numbers, a+b1+b2)	220,401	187,728	-15%
Haddock Kept/Released Dead (numbers, a+b1)	94,935	84,001	-12%
Haddock Released Alive (numbers, b2)	125,467	103,727	-17%
Haddock Removals (numbers, a+b1+(b2*season/size release mortality))	160,115	132,929	-17%
Haddock Avg. Catch Per Angler Trip (numbers) ¹	11.3	13.2	+16%
Private			
Haddock Catch (numbers, a+b1+b2)	858,206	508,161	-41%
Haddock Kept/Released Dead (numbers, a+b1)	321,022	217,615	-32%
Haddock Released Alive (numbers, b2)	537,183	290,546	-46%
Haddock Removals (numbers, a+b1+(b2*season/size release mortality))	600,114	354,683	-41%
Haddock Avg. Catch Per Angler Trip (numbers) ¹	8.3	7.5	-10%
Shore			
Haddock Catch (numbers, a+b1+b2)	0	0	
Haddock Kept/Released Dead (numbers, a+b1)	0	0	
Haddock Released Alive (numbers, b2)	0	0	
Haddock Removals (numbers, a+b1+(b2*season/size release mortality))	0	0	
Haddock Avg. Catch Per Angler Trip (numbers) ¹	0	0	

¹Based on the number of angler trips that targeted and/or caught cod or haddock

Table 5. FY 2019 Gulf of Maine Cod and Haddock Simulation Projections

Option	Haddock				Cod				Angler Trips (Median)	% Under Had ACL (out of 100 (Simulations)	% Under Cod ACL (out of 100 (Simulations)
	Had Limit	Had Size	Open Season	Had Total Mortality mt (Median)	Cod Limit	Cod Size	Open Season	Cod Total Mortality mt (Median)			
1 (Status Quo)	12	17"	May-Sep 16, Nov-Feb 28, Apr 15-Apr 30	791	0		Closed	114	126,415	100	100
2 (Remove Fall Had Closure)	12	17"	May-Feb 28, Apr 15-Apr 30	833	0		Closed	116	137,493	100	100
3 (Remove Fall Had Closure, 15" Had Min Size)	12	15"	May-Feb 28, Apr 15-Apr 30	945	0		Closed	121	143,785	100	100
4 (Remove Fall Had Closure, 15" Had Min Size, Open Cod Aug-Sep)	12	15"	May-Feb 28, Apr 15-Apr 30	947	1	21"	Aug-Sep	133	144,099	100	100
5 (Remove Fall Had Closure, 15" Had Min Size, Open Cod Aug-Sep, 15 Had Limit, 19" Cod Min Size)	15	15"	May-Feb 28, Apr 15-Apr 30	996	1	19"	Aug-Sep	143	145,556	100	100
6 (Remove Fall Had Closure, 15" Had Min Size, Open Cod Aug-Oct, 15 Had Limit, 19" Cod Min Size)	15	15"	May-Feb 28, Apr 15-Apr 30	997	1	19"	Aug-Oct	145	145,692	100	100

FY 2019 rec sub-ACLs: haddock = 3,194 mt, cod = 220 mt

Figure 1. FY 2018 Gulf of Maine Recreational Cod Catch Frequencies

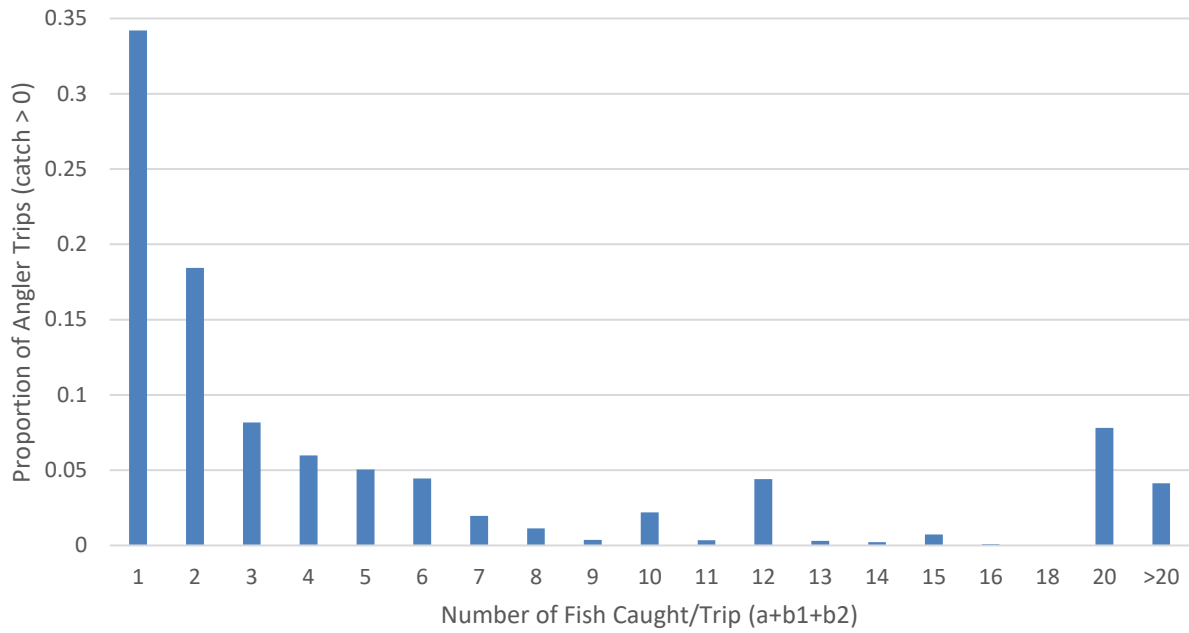
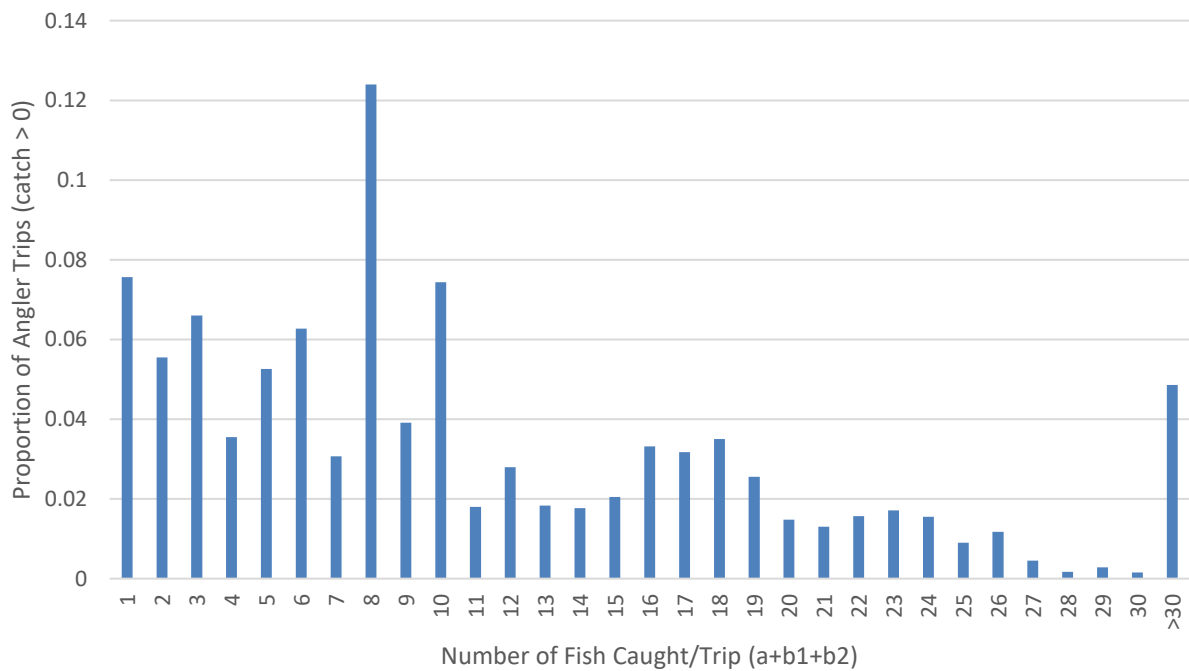
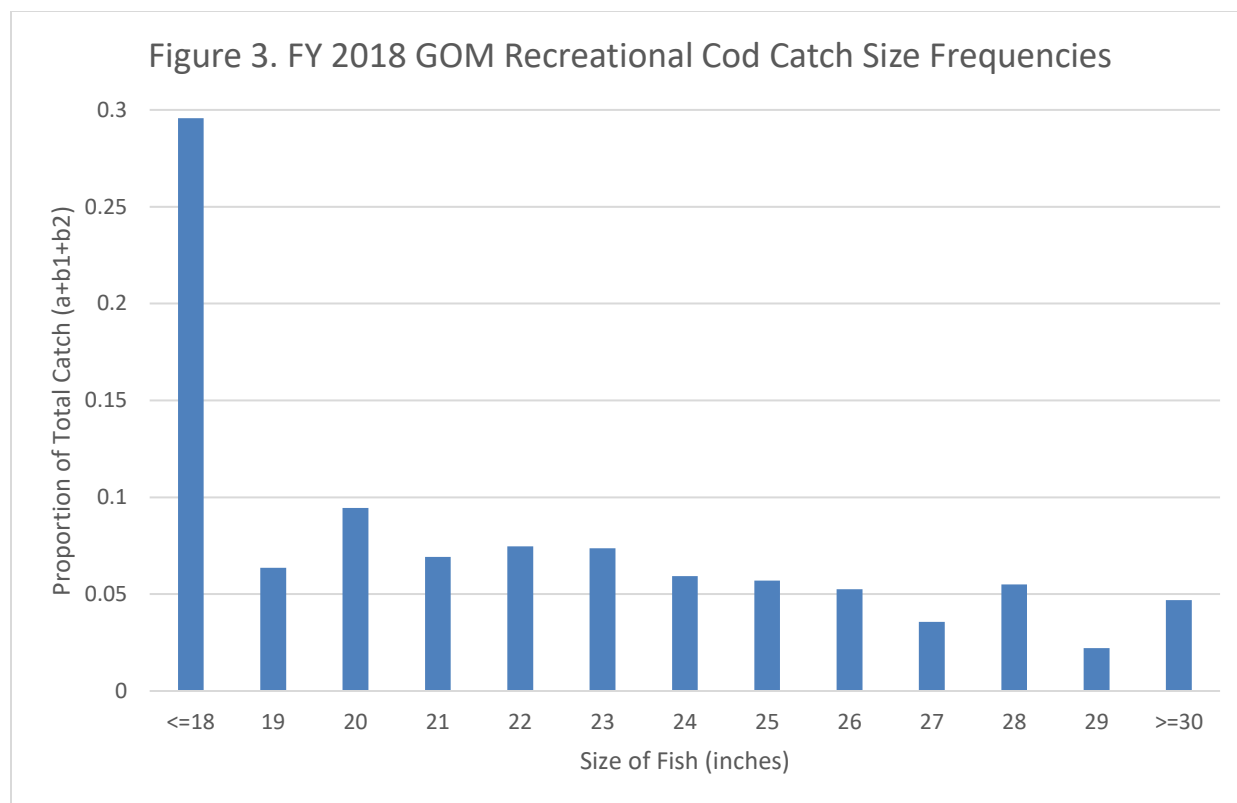


Figure 2. FY 2018 Gulf of Maine Recreational Haddock Catch Frequencies



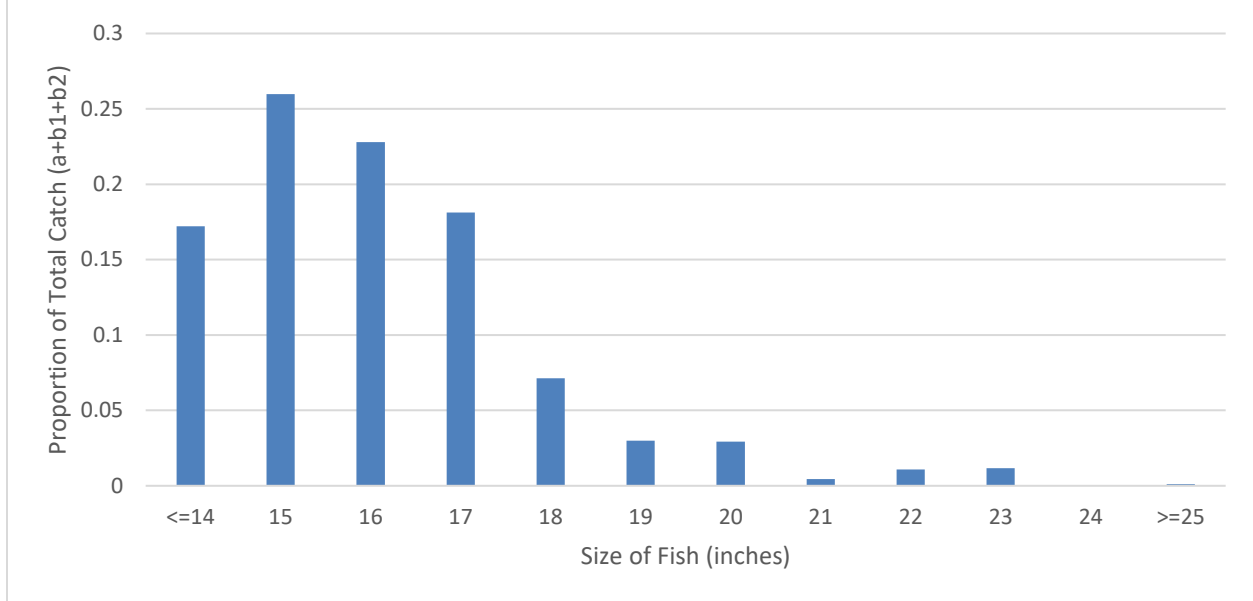


Catch $\geq 24''$ = 33% of total catch (numbers of fish)

Catch $\geq 21''$ = 55% of total catch (numbers of fish)

Catch $\geq 19''$ = 70% of total catch (numbers of fish)

Figure 4. FY 2018 GOM Recreational Haddock Catch Size Frequencies



Catch >= 17" = 34% of total catch (numbers of fish)
Catch >= 16" = 57% of total catch (numbers of fish)
Catch >= 15" = 83% of total catch (numbers of fish)

Table 6- Summary of Gulf of Maine cod recreational catch performance and federal management (fishing years 2010–2018).

Fishing Year	Sub-Annual Catch Limit (mt)	Catch (mt)	Percent of catch limit taken (%)	Minimum Size (inches)	Bag Limit Fish per angler - daily	Season Open	Season Closed	Additional Measures/Notes
2010	2,673	1506.9	56.4	24	10	5/1/10 to 10/31/10 and 4/16/11 to 4/30/11	11/1/10 to 4/15/11	First year of sub-ACL 33.7% of ACL Groundfish Regulations: Only one line per angler, and Fillets landed by private recreational and charter/party vessels must have at least 2 sq inches (5.08 sq cm) of contiguous skin that allows for the ready identification of the fish species. Such fillets are required to be from legal-sized fish, but the fillets themselves would not need to meet the minimum size requirements in the regulations.
2011	2,824	1640.3	58.1	24	10	5/1/11 to 10/31/11 and 4/16/12 to 4/30/12	11/1/11 to 4/15/12	First Year: Gulf of Maine (Whaleback) Cod Spawning Protection Area: From April 1 through June 30 of each year, all recreational vessels, including private recreational and charter/party vessels, may only use pelagic hook-and-line gear, as defined below, when fishing in the Whaleback Cod Spawning Protection Area. ¹
2012	2,215	937.4	42.3	19	9	5/1/12 to 10/31/12	11/1/12 to 4/15/13	

¹ **Pelagic hook-and-line gear** is defined as handline or rod and reel gear that is designed to fish for, or that is being used to fish for, pelagic species. No portion of this gear may be operated in contact with the bottom at any time.

Possession Restrictions: Any vessel fishing in the Gulf of Maine Whaleback Cod Spawning Protection Area, or the Winter Massachusetts Bay Spawning Protection Area, including pelagic hook-and-line gear by recreational vessels, is prohibited from possessing or retaining regulated species or ocean pout from April 1 through June 30 of each year.

Transiting: Recreational vessels are allowed to transit the Gulf of Maine Cod Spawning Protection Area, and Winter Massachusetts Bay Spawning Protection Area provided all gear is stowed in accordance with the regulations.

Fishing Year	Sub-Annual Catch Limit (mt)	Catch (mt)	Percent of catch limit taken (%)	Minimum Size (inches)	Bag Limit Fish per angler - daily	Season Open	Season Closed	Additional Measures/Notes
						and 4/16/13 to 4/30/13		
2013	486	639.3	131.5	19	9	5/1/13 to 10/31/13 and 4/16/14 to 4/30/14	11/1/13 to 4/15/14	
2014	486	623.3	128.3	21	9	5/1/14 to 8/31/14 and 4/15/14 to 4/30/14	9/1/14 to 4/14/15	Replaced by interim action on 11/15/14
				n/a	0	closed	11/15/14 to 4/30/15	2014 interim action: Seasonal 30-minute block closures, no recreational gear capable of catching groundfish in closures
2015	121	84.5	69.8	n/a	0	Closed year-round		Interim action Seasonal closures removed on 5/1/16
2016	157	280.9	178.9	24	1	8/1/16 to 9/30/16	5/1/16 to 7/31/16 and 10/1/16 to 4/30/17	
2017	157			24	1	8/1/17 to 9/30/17	5/1/17 to 7/31/17 and	Replaced by final rule effective on 7/27/17

Fishing Year	Sub-Annual Catch Limit (mt)	Catch (mt)	Percent of catch limit taken (%)	Minimum Size (inches)	Bag Limit Fish per angler - daily	Season Open	Season Closed	Additional Measures/Notes
		245.4	156.3	n/a	0		10/1/18 to 4/30/18	
2018	220			n/a	0	Closed year-round		First Year: Winter Massachusetts Bay Spawning Protection Area: From November 1 through January 31 of each year, all recreational vessels, including private recreational and charter/party vessels, may only use pelagic hook-and-line gear, as defined below, when fishing in the Winter Massachusetts Bay Spawning Protection Area. ¹
2019	220			n/a	0	Closed year-round		Previous year's regulations stay in place unless replaced through Council/NMFS recreational management measure process

Table 7 - Summary of Gulf of Maine haddock recreational catch performance and federal management (fishing years 2010–2018).

Fishing Year	Sub-Annual Catch Limit (mt)	Catch (mt)	Percent of catch limit taken (%)	Minimum Size (inches)	Bag Limit Fish per angler - daily	Season Open	Season Closed	Additional Measures/Notes
2010	324	297.4	91.8	18	no limit		n/a	First year of sub-ACL 27.5% of ACL Groundfish Regulations: Only one line per angler, and Fillets landed by private recreational and charter/party vessels must have at least 2 sq inches (5.08 sq cm) of contiguous skin that allows for the ready identification of the fish species. Such fillets are required to be from legal-sized fish, but the fillets themselves would not need to meet the minimum size requirements in the regulations.
2011	308	238.5	77.4	18	no limit	5/1/11 to 1/5/12	n/a	First Year: Gulf of Maine (Whaleback) Cod Spawning Protection Area: From April 1 through June 30 of each year, all recreational vessels, including private recreational and charter/party vessels, may only use pelagic hook-and-line gear, as defined below, when fishing in the Whaleback Cod Spawning Protection Area. ¹
				19	9	1/6/12 to 4/19/12	n/a	Accountability Measure (AM) for 2010 overage
				18	no limit	4/20/12 to 4/30/12	n/a	AM lifted after re-evaluation of data showing no 2010 overage
2012	259	280.7	108.4	18	no limit		n/a	
2013	74	231.5	312.2	21	no limit		n/a	

Fishing Year	Sub-Annual Catch Limit (mt)	Catch (mt)	Percent of catch limit taken (%)	Minimum Size (inches)	Bag Limit Fish per angler - daily	Season Open	Season Closed	Additional Measures/Notes
2014	173	658.6	380.7	21	3	5/1/14 to 8/31/14 and 11/1/14 to 2/28/15	9/1/14 to 10/31/14 and 3/1/15 to 4/30/15	<i>See Cod interim action</i>
2015	372	381.9	102.7	17	3	5/1/15 to 8/31/15 and 11/1/15 to 2/29/16	9/1/15 to 10/31/15 and 3/1/16 to 4/30/16	
2016	928	887.0	95.6	17	15	5/1/16 to 2/28/17 and 4/15/17 to 4/30/17	3/1/17 to 4/14/17	
2017	1,160			17	15	5/1/17 to 2/28/18 and 4/15/18 to 4/30/18	3/1/18 to 4/14/18	Replaced by final rule effective 7/27/17

Fishing Year	Sub-Annual Catch Limit (mt)	Catch (mt)	Percent of catch limit taken (%)	Minimum Size (inches)	Bag Limit Fish per angler - daily	Season Open	Season Closed	Additional Measures/Notes
		795.0	68.5	17	12	5/1/17 to 9/16/17 and 11/1/17 to 2/28/18 and 4/15/18 to 4/30/18	9/17/17 to 10/31/17 and 3/1/18 to 4/14/18	
2018	3,358			17	12	5/1/18 to 9/16/18 and 11/1/18 to 2/28/19 and 4/15/19 to 4/30/19	9/17/18 to 10/31/18 and 3/1/19 to 4/14/19	First Year: Winter Massachusetts Bay Spawning Protection Area: From November 1 through January 31 of each year, all recreational vessels, including private recreational and charter/party vessels, may only use pelagic hook-and-line gear, as defined below, when fishing in the Winter Massachusetts Bay Spawning Protection Area. ¹
2019	3,194			17	12	5/1/19 to 9/16/19 and 11/1/19 to 2/28/20 and 4/15/20 to 4/30/20	9/17/19 to 10/31/19 and 3/1/20 to 4/14/20	<i>Previous year's regulations stay in place unless replaced through Council/NMFS recreational management measure process</i>

2. Georges Bank

Table 1. MRIP Pre-calibrated George's Bank Recreational Catch Estimates¹

	FY 2017	FY2018 ²
Cod Angler Trips ³	28,884	21,882
Cod Catch (numbers, a+b1+b2)	21,710	24,159
Cod Kept/Released Dead (numbers, a+b1)	14,064	16,250
Cod Released Alive (numbers, b2)	7,646	7,909
Cod Removals (numbers, a+b1+(0.30*b2))	16,358	18,623
Cod Removals (weight ⁴ , mt)	53	57
Cod Avg. Catch Per Trip (numbers)	0.8	1.1

¹Source: Available MRIP data (pre-calibrated) as of Feb 7, 2019

²Wave 6, 2017 and Wave 2, 2018 used as a proxies for FY 2018

³Number of angler trips that targeted and/or caught cod

⁴All weights are based on round weights calculated from MRIP length frequencies and length to weight equations used in the assessments

Figure 1. FY 2018 George's Bank Recreational Cod Catch Frequencies

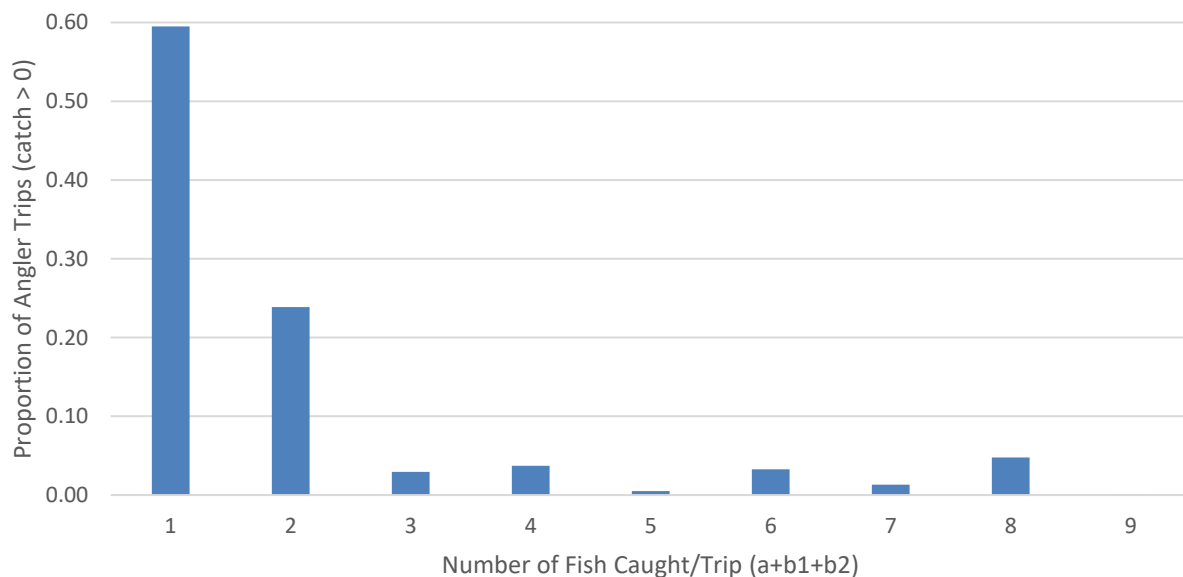
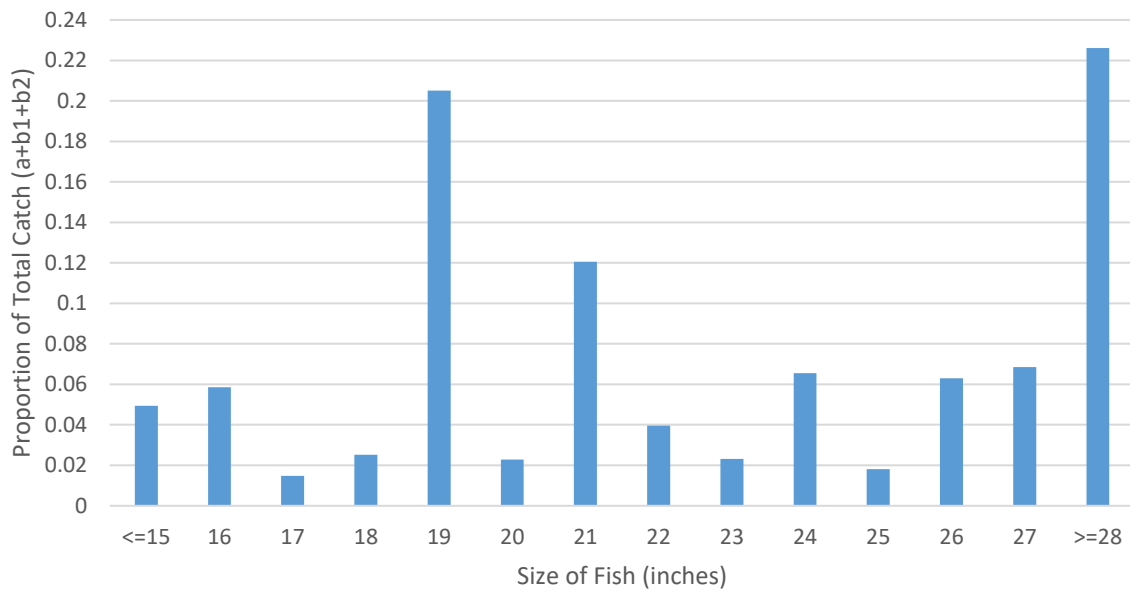


Figure 2. FY 2018 GB Recreational Cod Catch Size Frequencies



Catch >= 23" = 46% of total catch (numbers of fish)

Catch >= 21" = 62% of total catch (numbers of fish)

Catch >= 19" = 85% of total catch (numbers of fish)

Figure 3. MRIP George's Bank Cod Intercept Data (FY 2018)

