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: **A review of the Georges Bank haddock sub-annual catch limit in the directed midwater trawl Atlantic herring fishery**

The Groundfish Plan Development Team (PDT) met on September 30, 2019, via webinar and discussed a review of the Georges Bank (GB) haddock sub-annual catch limit (ACL) in the directed midwater trawl Atlantic herring fishery. In addition, the Groundfish PDT chair and Herring PDT chair coordinated to complete the review by correspondence.

Background on the Review Process

Framework Adjustment 56 (FW56) increased the midwater trawl Atlantic herring fishery sub-ACL for GB haddock to 1.5% (up from 1%). The measure aims to incentivize the midwater trawl fleet to minimize the incidental catch of GB haddock to the extent practicable in the midwater trawl Atlantic herring fishery while providing the opportunity for the fleet to fully harvest its herring sub-ACL for Herring Management Areas 1B and 3. The measure would reduce the potential for negative impacts on the herring and Atlantic mackerel fisheries caused by reductions in fishing opportunities in Areas 1B and 3, and avoid potential market interruptions for the supply of herring as bait for the lobster fishery. The GB haddock accountability measures (AMs) for the midwater trawl Atlantic herring fishery (i.e., pound for pound payback provision and in-season closure) remain unchanged.

The measure also established a sub-ACL review process. Such that following an assessment of the entire GB haddock stock, the Groundfish PDT would conduct a review of the sub-ACL to recommend to the Council a sub-ACL for the midwater trawl Atlantic herring fishery of up to 2% of the U.S. ABC. FW56 states that the review of the sub-ACL would include a range of 1% up to 2% of the U.S. ABC. The review for GB haddock would consider but not be limited to: fishery catch performance, utilization, status of the resource, recruitment, incoming year-class strength, and evaluation of the coefficient of variation (CV) of the GB haddock incidental catch estimates for the Atlantic herring midwater trawl fishery.

The Council/Committee would then review the work of the PDT and determine if a change in the sub-ACL (up or down) would be considered in the action in which specifications for GB haddock would be adopted following an assessment of the entire GB haddock stock. Therefore,

the review process would allow for consideration of the most recent stock assessment and fishery information to allow for an adjustment of the sub-ACL. The review process would not take place following the assessment of only the EGB haddock stock.

Results of the Review

The Groundfish PDT reviewed information in the 2019 GB haddock assessment, additional biological information, and information provided by the Herring PDT (see Attachment).

1) Fishery catch performance

A summary of recent groundfish fishery catch performance for GB haddock is provided in Table 1.

Table 1- Summary of recent catches (mt) of Georges Bank haddock by the US commercial groundfish fishery, groundfish FY 2010-FY 2018 and preliminary in-season FY 2019. Sources: FY2010 – FY2017 final year-end multispecies catch reports, GARFO, and FY2018 and FY2019 in-season catch report, GARFO, October 2, 2019.

	Commercial Groundfish Fishery- Georges Bank Haddock				
Groundfish Fishing Year	**Sub-ACL**	**Landings**	**Discards**	**Catch**	**Percentage of sub-ACL**
2010	40,440	8,299.2	41	8,340.2	20.6%
2011	30,580	3,758.5	82	3,840.5	12.6%
2012	27,438	926.8	270.7	1,197.6	4.4%
2013	26,196	2,696.4	281.1	2,977.5	11.4%
2014	17,171	4,975.3	473.7	5,449.1	31.7%
2015	21,759	4,217.9	856.7	5,074.7	23.3%
2016	51,667	3,445.7	945.6	4,391.3	8.5%
2017	52,620	3,526.3	564.2	4,090.5	7.8%
Preliminary 2018	*44,659*	*4,708.6*	*435.1*	*5,143.7*	*11.5%*
In-season 2019	*53,276*	*2,269.6*	*132.9*	*2,402.5*	*4.5%*

2) Utilization

On average for the most recent three years (FY2016-FY2018), utilization of GB haddock by the groundfish fishery relative to the groundfish fishery sub-ACL is 9.3%. In general, groundfish fishery utilization of GB haddock is low relative to the groundfish fishery sub-ACL (range of 4.4% to 31.7% for FY2010 to FY2018). In-season data for FY2019 indicates that the groundfish fishery utilization is expected to remain low.

With respect to the midwater trawl directed Atlantic herring fishery, see information provided in the Herring PDT report attached.

3) Status of the resource

Based on the 2019 operational assessment and peer review, GB haddock is not overfished, and overfishing is not occurring. The 2019 assessment estimated SSB in 2018 to be 507,130mt, which is 365% of the biomass target. GB haddock is rebuilt.

4) Recruitment

The trend in recruitment is provided from the 2019 operational assessment report for GB haddock (see pp. 55, Figure 21)[1]. The extremely large 2013 year-class is currently contributing to the majority of the stock biomass and landings. The 2016 year-class is also estimated to be relatively large (approximately double the magnitude of the 2010 year-class), but estimates of year class strength are still uncertain. The 2018 year-class is also estimated to be larger than the 2010 year-class, but the confidence interval indicates the large uncertainty in the 2018 recruitment estimate.

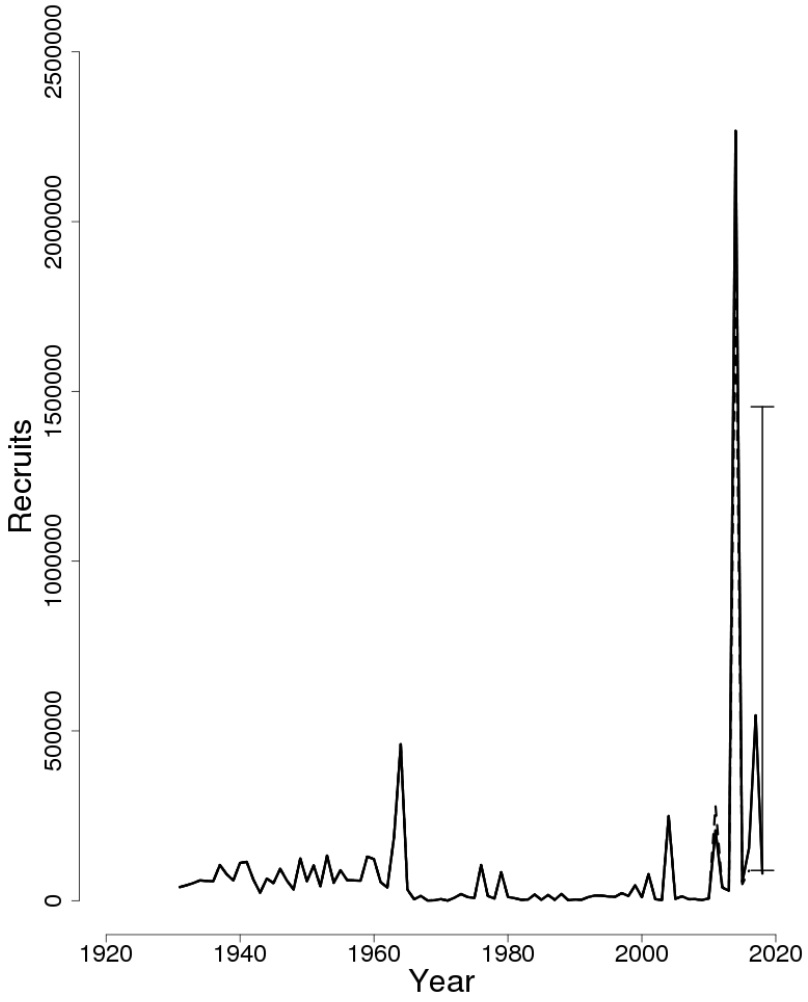

Figure 21: Trends in Recruits (age 1) (000s) of Georges Bank haddock between 1931 and 2018 from the current assessment. The 90% bootstrap probability intervals are shown for the 2018 year class.

[1] See 2019 Georges Bank haddock operational assessment, available at: https://www.nefsc.noaa.gov/saw/sasi/sasi_report_options.php

5) Incoming year-class strength

The extremely large 2013 year-class comprises the majority of the stock biomass, and contributes to the majority of catch. Both the 2016 and 2018 year-classes are estimated to be relatively large (larger than the 2010 year-class), but estimates of year class strength are still uncertain. In the projections for FY2020-2022, the 2016 year-class is expected to contribute for about 20% of the projected SSB, and between 10-30% of the fishery catches. The 2018 year-class is not expected to contribute substantially to catch or SSB until 2021.

6) Evaluation of the coefficient of variation (CV) of the GB haddock incidental catch estimates for the Atlantic herring midwater trawl fishery

See information provided in the Herring PDT report attached.

7) Other information

The PDT also notes the following other relevant information for future tracking in the next review:

- All of the available survey indices indicate that the GB haddock stock is currently at record levels of abundance, and recent catches have been well below the quota.
- Mid-water trawl Atlantic herring fishery catches of GB haddock have been relatively low in recent years. Overall, the herring sub-ACL for Georges Bank has declined in recent years with herring catches from Area 3 decreasing, so it is not surprising that GB haddock catches in this fishery have also declined (see Attachment).

PDT Recommendation

Based on the review, the Groundfish PDT recommends that the Committee/Council could allocate up to 2% of the U.S. ABC to the mid-water trawl directed Atlantic herring fishery. No biological information supports the need for lower sub-ACL in terms of potential impacts on the GB haddock stock.

Attachment

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John F. Quinn, J.D., Ph. D., *Chairman* | Thomas A. Nies, *Executive Director*

MEMORANDUM

DATE: **October 22, 2019**

TO: Groundfish PDT

FROM: Herring PDT

SUBJECT: **Analyses to support Groundfish PDT analysis of GB Haddock sub-ACL review**

Framework Adjustment 56 increased the midwater trawl Atlantic herring fishery sub-ACL for Georges Bank haddock to 1.5% (up from 1%). The GF PDT is required to conduct a review of the sub-ACL and recommend to the Council a sub-ACL up to 2% of the U.S. ABC. As part of that review, the Herring PDT generally provides supporting analyses. This memo includes analyses for the Groundfish PDT to take under consideration when it makes recommendations to the Groundfish Committee about the sub-ACL of GB haddock for the Atlantic herring fishery.

The analyses included in this memo include:

1. Herring fishery catches by CY for the last five years (2015-2019 preliminary) by herring management area, including percent utilized;
2. Herring fishing activity (spatial and temporal);
3. Recent catches of GB haddock by the MWT fishery including coefficient of variance observer coverage rates;

1. Herring Fishery Catches

This section summarizes herring catch by area, including % utilized for the last five years. The herring fishing year starts on January 1, and is monitored based on a calendar year, compared to the sub-ACL of GB haddock, which is allocated and monitored based on the Groundfish fishing year (May 1 – April 30). Table 1 includes herring sub-ACL allocations, catch, and % utilized by herring management area for FY2015-2019 to date. FY2019 data is through September 27, 2019. Overall, the herring fishery is variable from year to year in terms of utilization of area specific sub-ACLs. However, Area 1A quota is almost always fully utilized, and area 1B has been exceeded in several years in part because it is a relatively small quota that is typically fished very quickly, thus challenging to monitor and close real time. In more recent years, the utilization of Area 2 and Area 3 available quota has declined for a variety of reasons. Overall, the total ACL for this fishery has declined dramatically since 2017. Table 2 show a more historical trend of herring catch by management area in terms of percent utilized.

Table 1 – Herring sub-ACL, catches, and % utilized by herring management area (FY2015-2019 to date)

Year	Area	sub-ACL (mt)	Catch (mt)	% Utilized
2015	1A	30,580	29,406	96%
2015	1B	4,922	2,889	59%
2015	2	32,100	15,214	47%
2015	3	44,910	33,256	74%
2016	1A	30,524	27,806	91%
2016	1B	2,844	3,624	127%
2016	2	31,227	14,594	47%
2016	3	42,765	18,777	44%
2017	1A	32,115	28,682	89%
2017	1B	4,825	2,639	55%
2017	2	31,227	3,617	12%
2017	3	43,873	14,134	32%
2018*	1A	27,743	24,815	89%
2018*	1B	2,639	2,156	82%
2018*	2	8,200	7,056	86%
2018*	3	11,318	9,762	86%
2019*	1A	4,184	3,512	84%
2019*	1B	628	0	0%
2019*	2	4,062	4,722	116%
2019*	3	5,700	1,205	21%

Source: NMFS.
* Preliminary data –pulled September 27, 2019
Note: Shaded rows indicate overages.

Table 2 – Percent utilization of herring sub-ACL by herring management area (2004-2018)
Shaded cells indicate overages of management area sub-ACLs

	1A	1B	2	3
2004	100%	90%	26%	18%
2005	102%	79%	47%	26%
2006	100%	130%	71%	9%
2007	100%	73%	58%	20%
2008	97%	89%	70%	19%
2009	101%	19%	93%	50%
2010	107%	138%	94%	46%
2011	105%	81%	68%	97%
2012	88%	158%	102%	103%
2013	100%	53%	92%	90%

2014	100%	153%	68%	92%
2015	96%	59%	47%	74%
2016	91%	127%	47%	44%
2017	89%	88%	12%	32%
2018*	89%	82%	86%	86%

**Preliminary*

2. Seasonal and spatial distribution of herring fishing effort

In addition, this memo includes information about the seasonal and spatial distribution of herring fishing. Figure 2 shows herring catch by month and area for the last five years, 2014-2018. Overall, the seasonal trends within each herring management area are fairly consistent between years; Area 1A catch is typically concentrated between June – October and Area 1B is not as consistent, with some fishing typically in late spring and again in the fall as the fish move through that area. Area 2 fishing typically takes place in the winter (December – February), and Area 3 tends to increase in late spring through the fall. The herring fishery varies spatially from year to year, Figure 2 shows the overall fishery footprint for 2011-2015 combined, and Figure 2 has more recent years, 2016 on the left and 2017 on the right. In terms of potential overlap with GB haddock, the herring fishery primarily focuses along the northern flank of Georges Bank and southeast of Cape Cod in statistical area 521 (thirty minute square 114).

Figure 1 – Herring catch by month and area by herring management area (2014-2018)

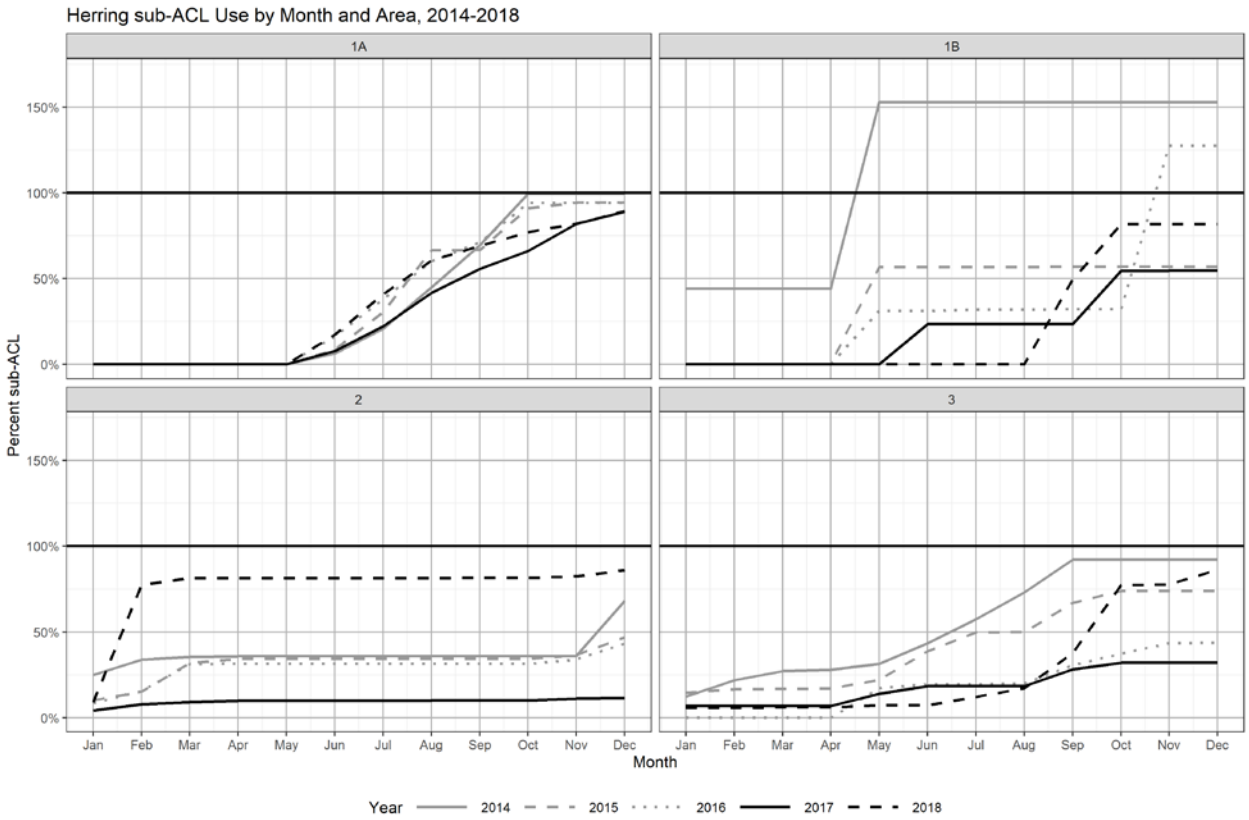


Figure 2. Fishing footprint for Atlantic herring fishery using model based estimate of fishing location from VTR, observer and dealer data combined (2011-2015). (DePiper et al, 2014 dataset)

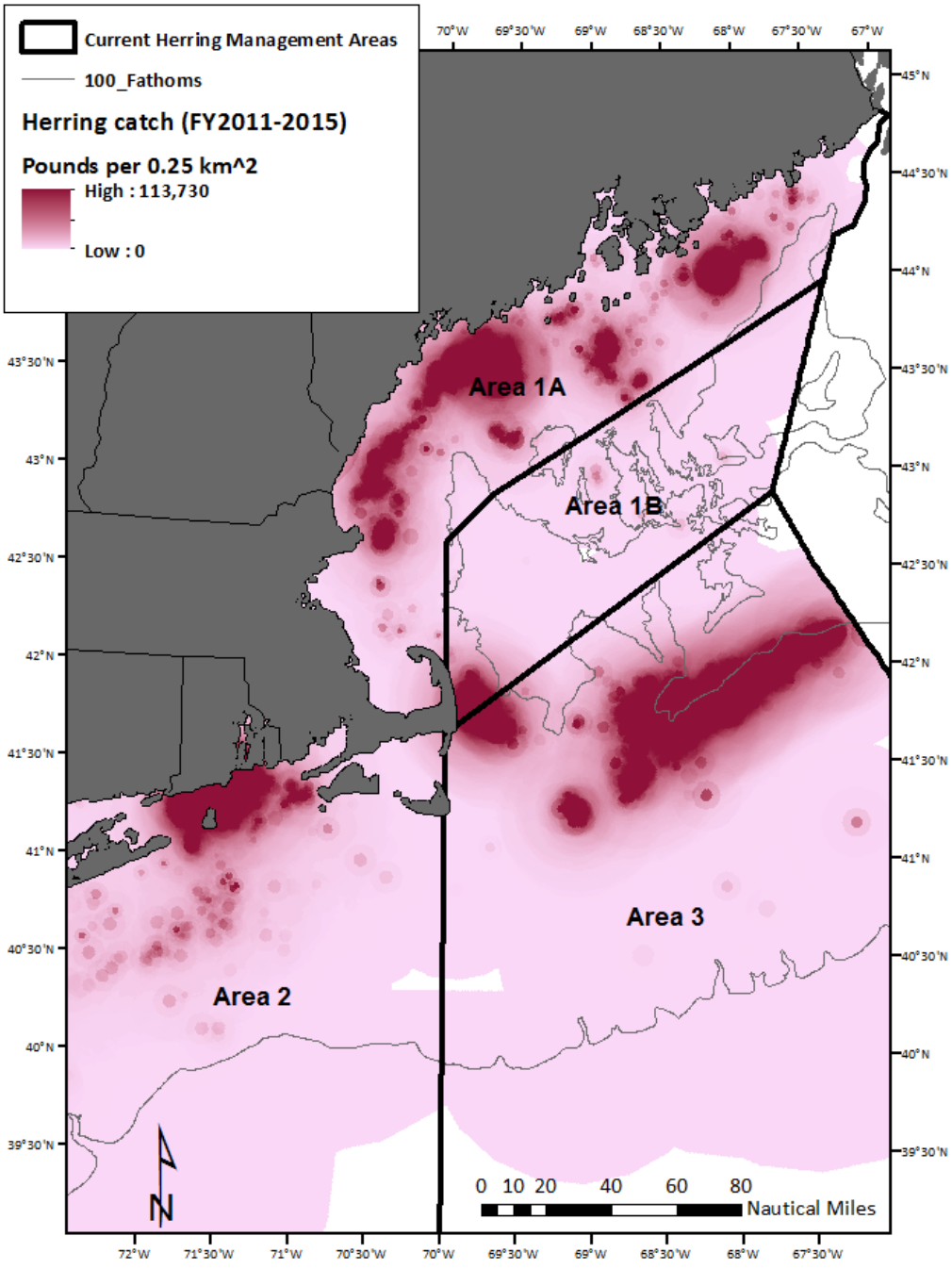
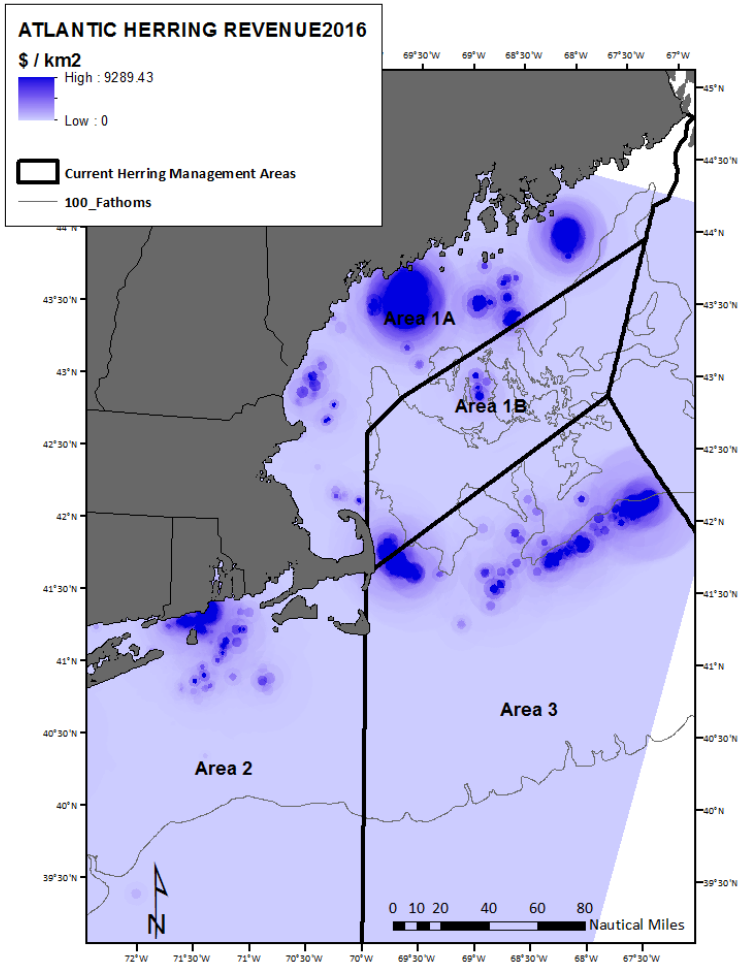
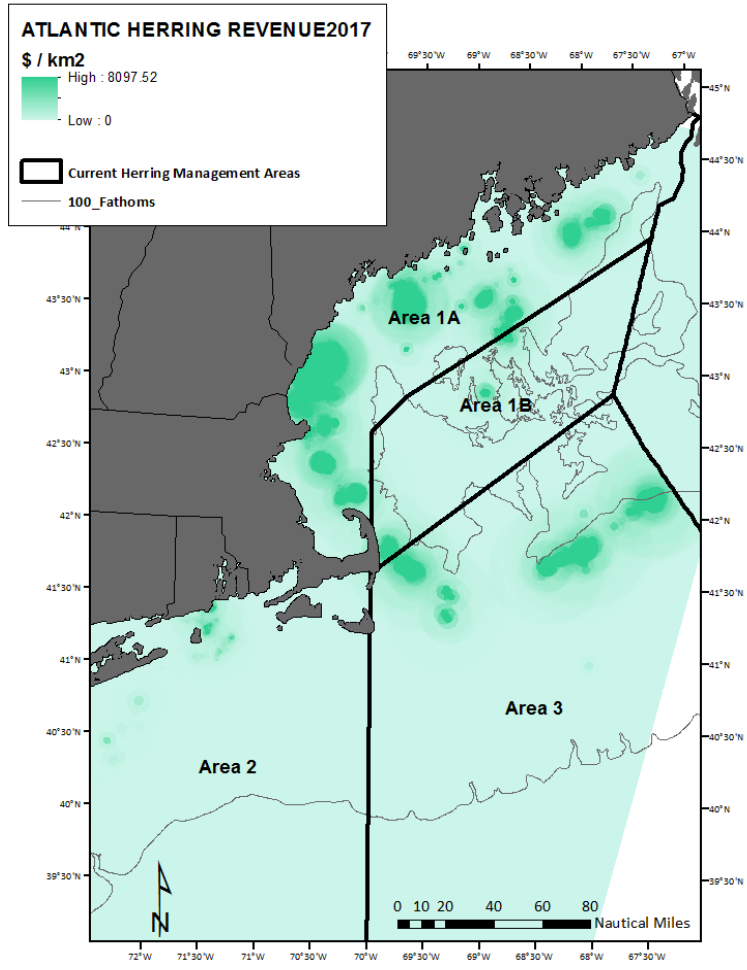


Figure 3. Fishing footprint for Atlantic herring fishery using model based estimate of fishing location from VTR, observer and dealer data combined (2016 on the left and 2017 on the right). (DePiper et al, 2014 dataset)





3. Update of GB Haddock catches in the MWT Herring Fishery

Table 3 and Table 4 below were included in Groundfish FW56, but have been updated with 2017 and 2018 year-end catch results. The estimate of haddock catch in the herring midwater trawl fishery has been relatively low in 2017 and 2018 compared to years before that, under 50mt both years. Overall, the herring sub-ACL for Georges Bank has declined in recent years with herring catches from Area 3 decreasing from over 30,000 mt in 2015 to under 20,000 mt in 2016, under 15,000 mt in 2017 and under 10,000 mt in 2018. Therefore, it is not surprising that GB haddock catches in this fishery have also declined. The haddock bycatch rate is a bit lower in recent years, but observer coverage was quite low, and CVs relatively high for both 2017 and 2018.

Table 3 – Summary of recent catches (mt) of Georges Bank haddock by the midwater trawl Atlantic herring fishery, groundfish FY 2010- FY 2018. Source: Groundfish FY2010 – FY2018 final year-end catch reports.

	Midwater Trawl- Georges Bank Haddock						
Groundfish FY	**Sub-ACL**	**Landings**	**Discards**	**Catch**	**Percentage of sub-ACL**	**CV on Catch**	**Observer Coverage % Trips**
2010	84	69.2	0	69.2	82.3%		
2011	318	101.8	0	101.8	32.0%	17.6%	41.7%
2012	286	271.9	16.7	288.6	100.9%	12.3%	62.9%
2013	273	272.7	17.2	290	106.2%	21.3%	35.6%
2014	162	113.5	0	113.5	70.1%	20.5%	27.2%
2015	227	235.0	0.6	235.5	103.9%	61.4%	4.9%
2016	512	115.3	3.6	118.9	23.2%	42.9%	20.1%
2017	801	47.9	0	47.9	6.0%	63.7%	14.0%
2018	680	43.9	0	43.9	6.5%	91.0%	5.6%

Table 4 - GB haddock catch cap summary, FY 2011-FY2018. Years highlighted indicate when the catch cap was exceeded.

Fishing Year	Fleet Trips	Observed trips	Obs. Coverage	Haddock Rate	CV (%)	KALL (mt)	Est. Haddock (mt)[1]	Catch Cap (mt)	Pct. Cap
2011	230	96	41.70%	0.002443	17.60%	41,323	101	318	31.70%
2012	237	149	62.90%	0.006675	12.30%	46,555	310.8	286	108.70%
2013	250	89	35.60%	0.00598	21.30%	48,857	292.2	273	107.00%
2014	202	55	27.20%	0.003063	20.50%	36,592	112.1	162	69.20%
2015	164	8	4.90%	0.008489	61.40%	28,018	237.8	227	104.80%
2016	179	36	20.1%	0.004731	42.9%	26,185	123.9	512	24.2%
2017	100	14	14.00%	0.003232	63.72%	15,318	49.5	801	6.2%
2018	89	5	5.62%	0.003632	90.96%	12,163	44.2	680	6.5%

Source: DMIS and OBDBS

[1]Haddock estimate does NOT use replacement methodology and may not match GARFO quota monitoring reports