



New England Fishery Management Council

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

MEMORANDUM

DATE: August 9, 2018
TO: Scientific and Statistical Committee (SSC)
CC: Groundfish Committee
FROM: Groundfish Plan Development Team (PDT)
SUBJECT: **Georges Bank yellowtail flounder Acceptable Biological Catches for fishing years 2019 and 2020**

The Groundfish Plan Development Team (PDT) met on July 31, 2018 in Gloucester, MA and again by webinar on August 7, 2018 and discussed **Georges Bank (GB) yellowtail flounder catch advice in support of developing Acceptable Biological Catches (ABCs) for fishing years 2019 and 2020.**

The Groundfish PDT compiled information and analysis for the Scientific and Statistical Committee (SSC) to consider when developing catch advice. The Scallop PDT provides information on the scallop fishery and bycatch of GB yellowtail flounder in Attachment #1. Both PDTs refer the SSC to the 2016 and 2017 memos on the subject for additional background¹.

Information reviewed included assessment documents and memos:

- TRAC. 2018. Georges Bank Yellowtail Flounder. TRAC Status Report 2018/03.
- TRAC. 2018. DRAFT Stock Assessment of Georges Bank Yellowtail Flounder for 2018.
- Risk policy matrix for GB yellowtail flounder, dated August 9, 2018.
- PDT to SSC re GB yellowtail flounder ABCs, dated August 4, 2017 including appendices and a memo from the Scallop PDT to the Groundfish PDT
- SSC to Council re GB yellowtail flounder ABCs, dated August 14, 2017.
- Report from the SSC Sub-Group on Quantifying Substantial Change in the GB yellowtail flounder empirical assessment (August 4, 2017)

¹ 2017 memo: http://s3.amazonaws.com/nefmc.org/A6_170804-GF-PDT-memo-to-SSC-re-GB-yellowtail-flounder-with-Scallop-PDT-memo-attached_170807_114738.pdf

2016 memo: http://s3.amazonaws.com/nefmc.org/A8_160805-GF-PDT-memo-to-SSC-re-GB-yellowtail-flounder-with-attachments_corrected-081716.pdf

Overview of the 2018 Assessment

- The Transboundary Resource Assessment Committee (TRAC) met July 10-12, 2018 in Woods Hole, Massachusetts, US to conduct assessments for Eastern Georges Bank (EGB) cod, EGB haddock, and GB yellowtail flounder.
- Briefly, the 2018 TRAC stock assessment results for GB yellowtail flounder indicate low stock biomass and poor productivity, with low recent recruitment in all three surveys (Northeast Fisheries Science Center, NEFSC, fall and NEFSC spring and Division of Fisheries and Oceans, DFO, winter). The Total Allowable Catch (TAC) has been reduced substantially in recent years due to declining estimates of absolute biomass in the survey, and recent catch continues to be low relative to the low quotas. Combined Canada and US catches in 2017 were 95 mt. Overall, the declining trend in survey biomass to low levels for the past five years remains, despite reductions in catch to historical low amounts. Recent catch is low relative to the quota and biomass estimated by the surveys, while catch curve analyses indicated declining but high total mortality rates (Z above 1 for most years).
- To generate catch advice, an empirical approach based on survey catches developed during the 2014 Georges Bank Yellowtail Flounder Diagnostic and Empirical Approach Benchmark and updated during the 2017 TRAC intersessional was applied². The 2018 TRAC recommended an upper bound of 6% on the exploitation rate for catch advice, resulting in 68mt for 2019.

PDT Analysis and Discussion

The PDT noted some considerations when developing catch advice in its 2017 memo to the SSC: net efficiency, the exploitation rate approach, fishing mortality and stock dynamics, and the market for yellowtail flounder (see the memo for additional details¹). The PDT also compiled updated information since the 2017 memo on (1) catch performance for GB yellowtail flounder, (2) the ratio of discards to landings for GB yellowtail flounder, and (3) demand functions for yellowtail flounder (all three stocks combined).

1. Catch performance of GB yellowtail flounder

Figure 1 and Table 1 summarize the catch performance of GB yellowtail flounder. The utilization rate of the groundfish fishery (i.e., percent groundfish ACL caught) was greater than 85 percent in FY2011, but it has been below 40 percent since FY2012, and below 20 percent since FY2015 (Table 1). At the same time, ACLs for the groundfish fishery have declined to about 15 percent of those in FY2011 (i.e., from 1,142mt in FY2011 to 169.4 in FY2018) (Table 1).

² The 2017 TRAC consensus was to change survey catchability from 0.37 to 0.31 and to use wing width instead of door width to compute the swept area of a tow based on the three working papers discussed during the intersessional. Under these assumptions average survey biomass is approximately three times higher, but the trend does not change.

Figure 1 - Catch performance for Georges Bank yellowtail flounder including: catches from CY 2005- CY 2017 and historical ABCs since FY 2010. Overfishing status in the terminal year of the assessment indicated on the x-axis (Yes = overfishing, No= not overfishing, and unknown = unknown overfishing status).

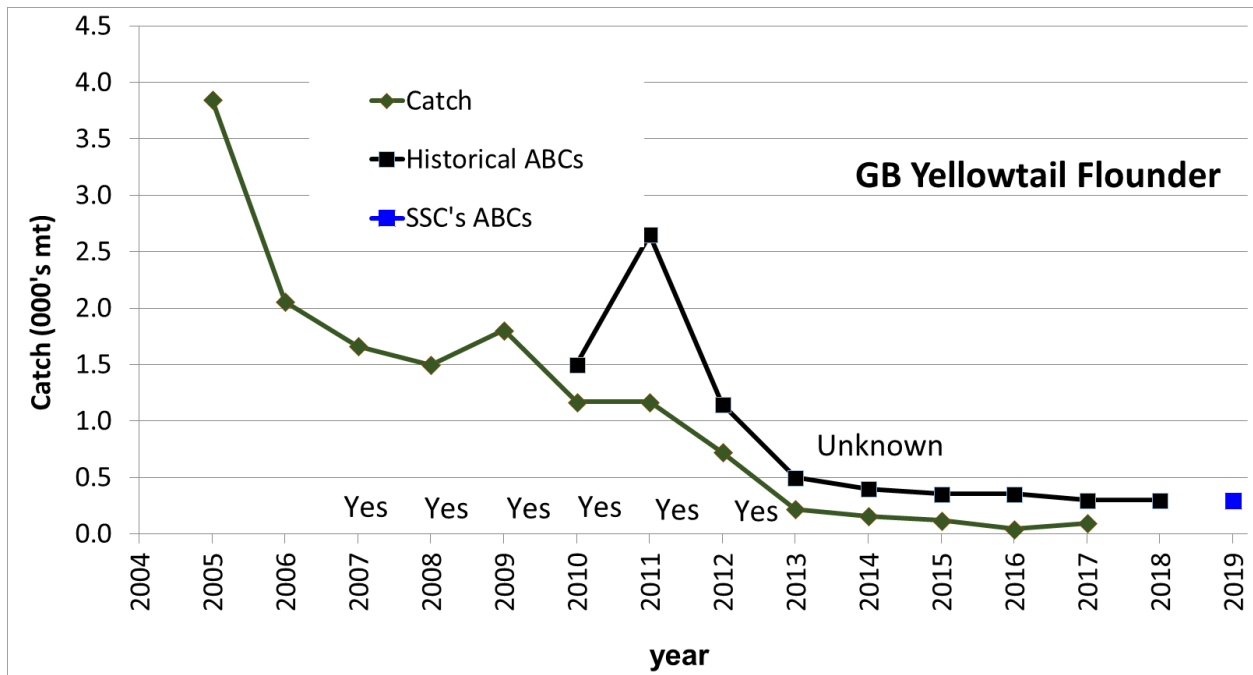


Table 1 - Recent GB yellowtail flounder TACs, groundfish fishery sub-ACLs, and catches for fishing years 2011 through preliminary 2018. Values shown in metric tons (mt).

	Total Shared TAC – US & CA (mt)	US % Share	US TAC (mt)	% US TAC Caught	Groundfish sub-ACL (mt)	Groundfish catch (mt)	Percent Groundfish ACL Caught (%)
FY2011	2,650	55%	1,458	76.0%	1142.0	990.0	86.7%
FY2012	1,150	49%	564	68.0%	368.3	215.5	58.5%
FY2013	500	43%	215	43.0%	154.5	55.8	36.1%
FY2014	400	82%	328	37.0%	254.5	62.5	24.5%
FY2015	354	70%	248	27.5%	202.9	38.4	18.9%
FY2016	354	76%	269	12.3%	250.8	23.9	9.5%
FY2017*	300	69%	207	44.4%	162.6	31.4	19.3%
FY2018**	300	71%	213		169.4	26.0	15.3%
FY2019		76%					

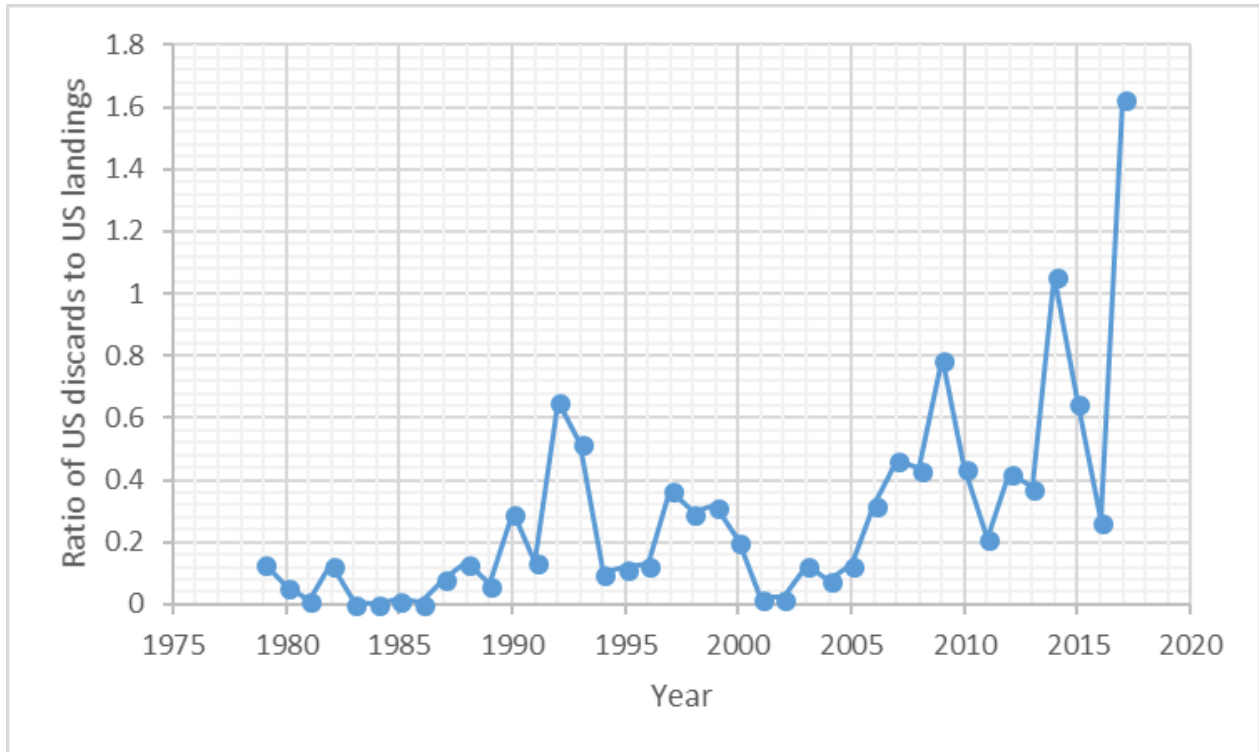
*Indicates preliminary year-end catch data.

**Preliminary in-season catch estimate as of August 3, 2018, GARFO catch reports.

2. Ratio of US discards to US landings of GB yellowtail flounder

Figure 2 displays the ratio of US discards to US landings of GB yellowtail flounder. In 2014 and 2017, US discards are greater than US landings (i.e., ratio >1). The scallop fishery had access to the Closed Area II rotational management area in both years, which led to the increase in the magnitude of yellowtail flounder discards.

Figure 2 – Ratio of US discards to US landings of Georges Bank yellowtail flounder, 1979-2017. Source: DRAFT Stock Assessment of Georges Bank Yellowtail Flounder for 2018, TRAC, Table 1, pp. 9.

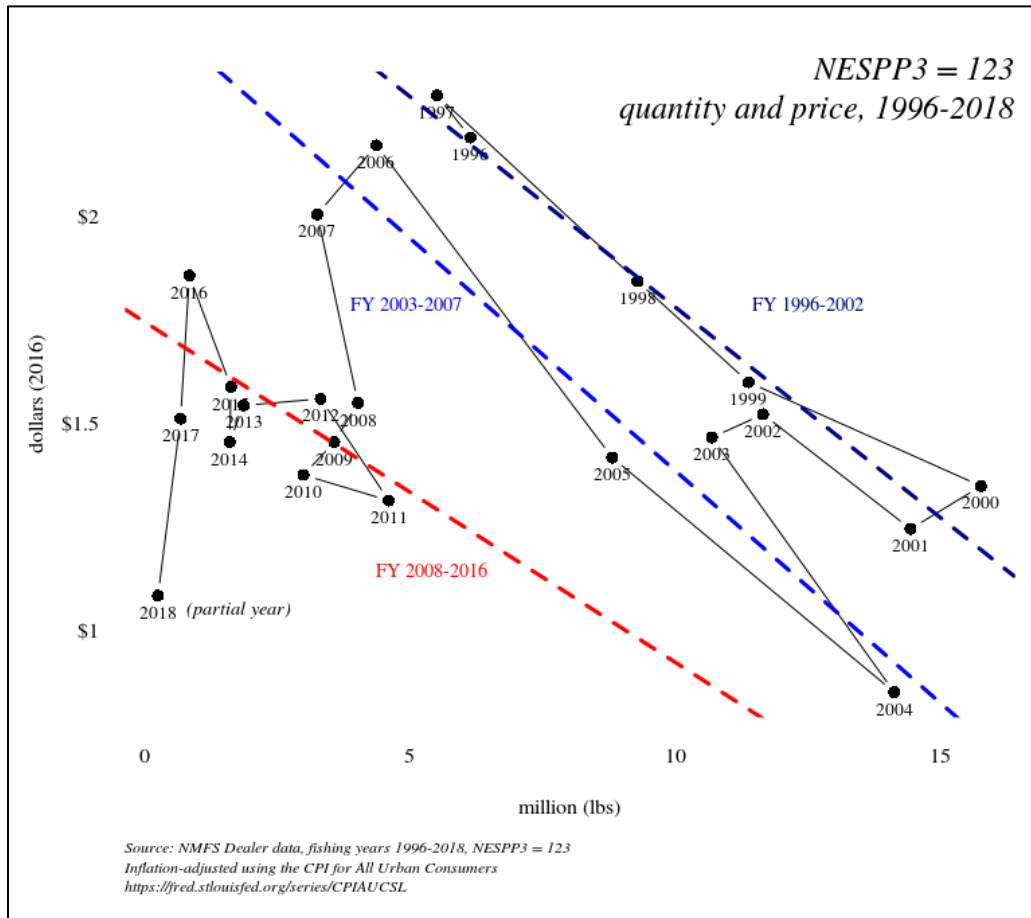


3. Demand function for yellowtail flounder, FY1996-preliminary FY2018

Figure 3 represents the quantity and price relationship for all three stocks of yellowtail flounder (GB, Cape Cod/Gulf of Maine (CC/GOM), and Southern New England/Mid-Atlantic (SNE/MA)) aggregated across all market categories. Changes in the quantity/price relationship may be driven by changes in demand or by changes in the composition of the market categories that make up the total quantities in each year, noting that lower prices may be driven by a higher proportion of lower value market categories. Disentangling changes in demand from changes in composition is beyond the scope of this brief analysis. All quantities noted in Figure 3 are for domestically caught groundfish and do not include yellowtail flounder landed from NAFO areas

outside of the US Exclusive Economic Zone. Note that FY2018 data is preliminary and is only provided for reference purposes.

Figure 3- Demand of yellowtail flounder, all three stocks (GB, CC/GOM, and SNE/MA) combined, FY1996-preliminary FY2018. Source: Dealer database, accessed August 8, 2018.



PDT Recommendation

Considering the findings of the 2017 TRAC assessment and additional information evaluated:

- The PDT recommends a decrease in the GB yellowtail flounder quota from the 2018 quota of 300 mt. The PDT remains concerned about the continued declines in survey biomass estimates, low stock productivity, and poor state of the stock.
- Applying the empirical approach, the TRAC recommended an upper bound of 6% on the exploitation rate for catch advice, resulting in 68mt for 2019. The PDT concurs with TRAC that quotas should be reduced from 2018 quota of 300 mt
- As an alternative approach to the TRAC recommendation, the PDT recommends setting the ABC for FY2019 (and FY2020) at the recent three-year (2015-2017) average catch $([118+44+95]/3)$, 86mt (see Table 1 of the TSR for GB yellowtail flounder for catch performance by US and Canada).

- Such an approach would be a reduction from the current quota of 300mt and reduce bycatch on this stock, as the most recent catch estimate was 95mt in 2017. With respect to the empirical approach, this would result in an exploitation rate of 7.6 percent if the entire quota were taken.
- While not as conservative as the TRAC recommend upper bound on quota of 68mt, the lower quota of 86mt (rather than the current quota 300mt) would limit catches of the stock to encourage the potential for rebuilding while balancing operational aspects of non-target groundfish, scallop, and small-mesh fisheries.
- The PDT did not comment on either using a constant exploitation rate or constant quota approach for this stock.
- For informational purposes, in 2017, the SSC recommended an ABC for SNE/MA winter flounder based on three-year average catches (2014-2016). The SSC may decide to adopt a similar approach, given the uncertainties in the GB yellowtail flounder assessment.

Additional Information Related to Evaluating Biological/Ecological, Economic and Social Risk:

- **Biological/Ecological** – Analysis of catch curves from the three trawl surveys indicate that total mortality (Sinclair Z) on GB yellowtail flounder declined in recent years but remains high (Z above 1 for most years). Total mortality may still be high, but it has recently declined in two of the three surveys (NMFS fall and spring). Given the low relative exploitation rates observed on this stock in recent years, it appears that natural mortality has increased to high levels. However, the driver(s) of natural mortality are uncertain. High natural mortality could be due to some combination of resource and environmental/ecosystem issues such as predator and prey dynamics, climate change leading to changes in thermal conditions, or loss of suitable habitat and its availability. See GB yellowtail flounder risk policy matrix for additional details).
- **Economic** - When scallop fishery effort is high on Georges Bank, catches of yellowtail flounder are expected to be greater than when the scallop fishery effort is concentrated primarily in the Mid-Atlantic. This is especially the case when the scallop fishery has access to the Closed Area II rotational management area. See the Scallop PDT memo (attached) for information on when the scallop fishery was operational on Georges Bank.
- **Social** - A reduction from 300 mt of quota for GB yellowtail flounder could have a negative social impact in a fishing community such as New Bedford, which is highly engaged in commercial fishing, moderately reliant, and highly vulnerable in terms of socioeconomic well-being. See GB yellowtail flounder risk policy matrix for additional details.



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MEMORANDUM

DATE: July 27th, 2018
TO: Groundfish PDT
FROM: Scallop PDT
SUBJECT: **Scallop Fishery Catch of Georges Bank Yellowtail Flounder**

Preface

On August 1st, 2016 and August 2nd, 2017, the Scallop Plan Development Team (PDT) provided memos to the Groundfish PDT outlining recent management measures within the Georges Bank yellowtail flounder (GB yellowtail) stock area, catch estimates of GB yellowtail, and scallop fishing effort within the GB yellowtail stock boundary. The Scallop PDT revisited discussion on these topics at their July 25th, 2018 meeting and through correspondence. This document updates the information provided in the 2016/2017 memos to reflect recent Council actions as well as PDT input related to catch of GB yellowtail in the scallop fishery.

Key Points

- The scallop fishery is allocated 16% of the US share of GB yellowtail ABC.
- The scallop fishery's estimated catch of GB yellowtail has fluctuated in recent years. This is likely a product of: 1) rotational management, specifically access to Closed Area II access area and open areas directly south and west (Southeast Parts); 2) fishery allocations within the GB yellowtail stock boundary.
- The Council recently modified accountability measures for GB yellowtail in the scallop fishery from time/area closures to a gear modification.
- The Council has temporarily modified its scallop fishery AM policy for GB yellowtail so that an AM for the scallop fishery would only be implemented if the overall ACL is exceeded.
 - This provision provided relief from AMs for the scallop fishery based on the 2017 estimated catch.

Scallop Fishery Allocations of GB yellowtail

The scallop fishery is currently allocated 16% of the US share of the GB yellowtail acceptable biological catch (see [Groundfish Framework 57](#)). The scallop fishery's annual catch limit (ACL) is based on historic catch and reflects a reduction for management uncertainty. Both the allocation and in-season catch accounting of the scallop fishery GB yellowtail sub-ACL are based on the scallop fishing year, which, as of 2018, runs from April 1st to March 31st (previously March 1st to February 28th). In years where NMFS projects that less than 90% of the scallop fishery GB yellowtail sub-ACL will be caught, the agency may initiate an allocation transfer from the scallop fishery to the groundfish fishery. In FY2015, NMFS transferred 7.9 mt of GB yellowtail from the scallop fishery to the groundfish fishery (21% of the FY2015 scallop fishery GB yellowtail sub-ACL). NMFS initiated a transfer again in FY2016, where 39.8 mt of GB yellowtail from the scallop fishery sub-ACL was shifted to the groundfish fishery (~95% of the FY2016 scallop fishery GB yellowtail sub-ACL). The scallop fishery did not have access to Closed Area II access area (CAII) in either FY2015 or FY2016 (Figure 1, Table 3).

Rotational Management within the GB Yellowtail Stock Area and Recent Catch

The scallop fishery is managed through a rotational area management system. This system directs effort throughout the resource at varying levels using the following types of spatial management areas: 1) "open area", where scallop vessels may operate using Days-At-Sea (limited access vessels) or IFQ (limited access general category vessels); 2) permanent closures, where scallop fishing is prohibited to reduce impacts on essential fish habitat and(or) groundfish mortality; 3) scallop rotational areas, where scallop fishing is either temporarily prohibited or periodically allowed at controlled levels of access, depending on the condition of the resource inside their boundaries. Generally, scallop rotational areas (also known as "access areas") will 'close' to protect small scallops, and 'open' when scallops are large enough to be harvested by a commercial dredge (i.e. 4" ring). The duration of a closure depends on many factors, but typically will range from two to three years. Rotational closures are also utilized on a seasonal basis to mitigate impacts on non-target stocks.

Closed Area II Access Area (CAII AA) is a scallop rotational area located within the GB yellowtail stock boundary (Figure 2). Along with being productive scallop grounds, CAII AA and areas directly south and west have also historically supported yellowtail flounder. In light of this overlap, bycatch of GB yellowtail in the scallop fishery is highly variable and dependent on access to CAII AA. Table 3 describes allocations to the limited access fishery and the level of effort directed to Closed Area II from FY2011 to FY2018.

Since FY2013, CAII AA has been seasonally closed from August 15th to November 15th to reduce bycatch of GB yellowtail by the scallop fishery. In FY2017, RSA compensation fishing was prohibited in CAII AA to further reduce bycatch of GB yellowtail by the scallop fishery. The open-area directly south of CAII AA (known as 'CAII extension') was closed from FY2015 to FY2017 to protect a set of small scallops and was reverted back to open-area in FY2018. CAII extension has historically had relatively higher bycatch than other Georges Bank open area, meaning the three years of closure likely reduced overall bycatch by the scallop fishery.

Following partial approval and implementation of the Omnibus Habitat Amendment 2, Scallop Framework 29 re-opened the Closed Area I North HMA to scallop fishing as part of Closed Area I Access Area. The configuration of the Closed Area I Access Area in FW29 is bisected by the GB yellowtail stock boundary, with the eastern portion of the area covering SRA 522.

Table 1. Recent GB yellowtail TACs and scallop fishery sub-ACLs and catches. Values are shown in metric tons (mt).

FY	Total Shared TAC	US % Share	US TAC (mt)	% US TAC Caught	Scallop sub-ACL	Scallop catch	% Scallop ACL Caught
FY2010	1,500	64%	1,200	68%	146	17.6	12.1%
FY2011	2,650	55%	1,458	76%	200.8	83.9	41.8%
FY2012	1,150	49%	564	68%	156.9	164.0	104.5%
FY2013	500	43%	215	43%	41.5	37.5	90.4%
FY2014*	400	82%	328	37%	50.9	59.0	115.9%
FY2015*	354	70%	248	28%	38	29.7	78.1%
FY2016*	354	76%	269	12%	42	2.1	5.0%
FY2017*	300	69%	207	44%	32	52.6	164.3%
FY2018*	300	71%	213	n/a	33	n/a	n/a
* retention of GB yellowtail prohibited for scallop fishery							

Figure 1. Scallop fishery GB yellowtail sub-ACLs, estimated catch, and Closed Area II allocations for fishing years 2011 – 2017.

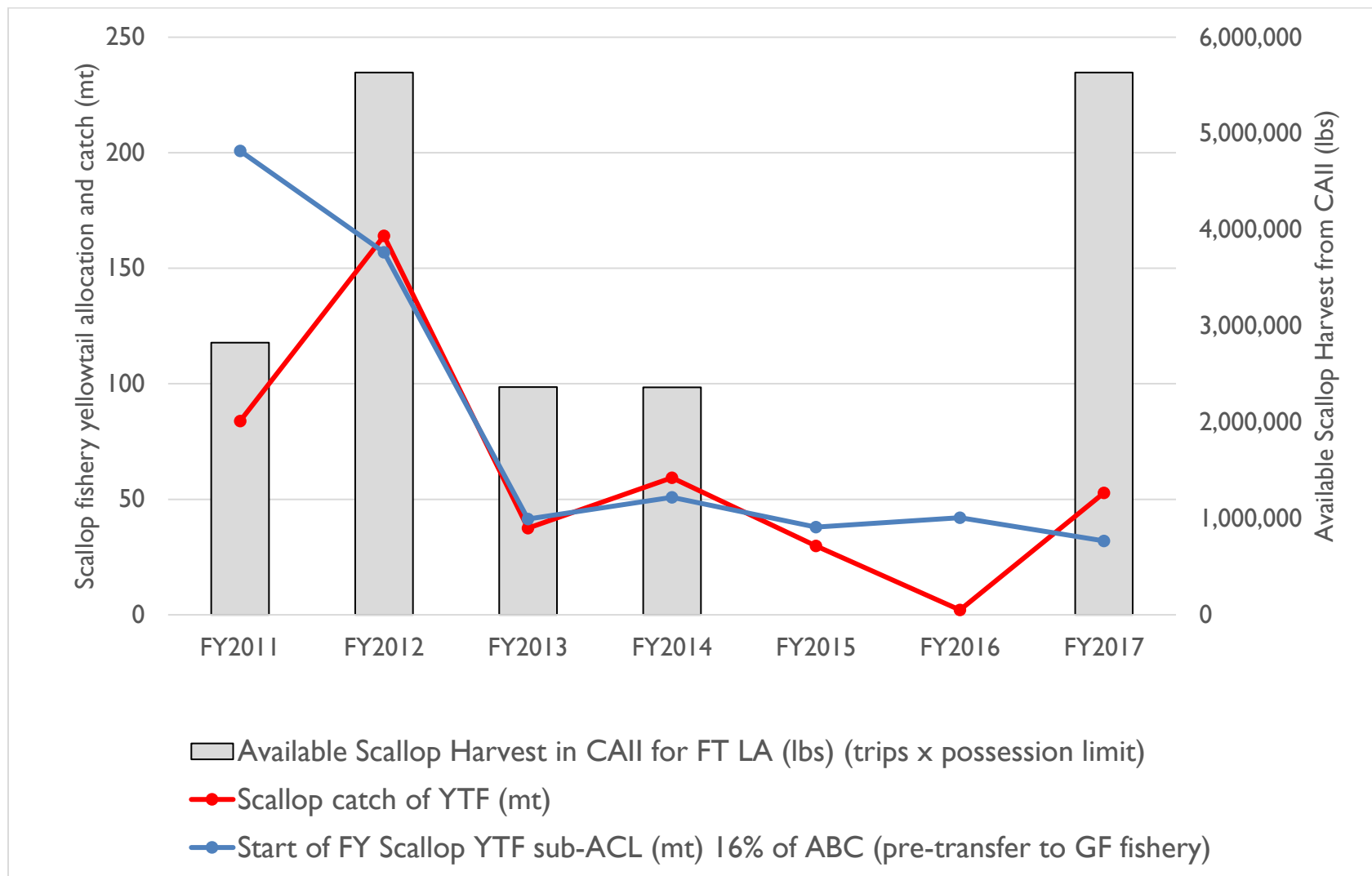
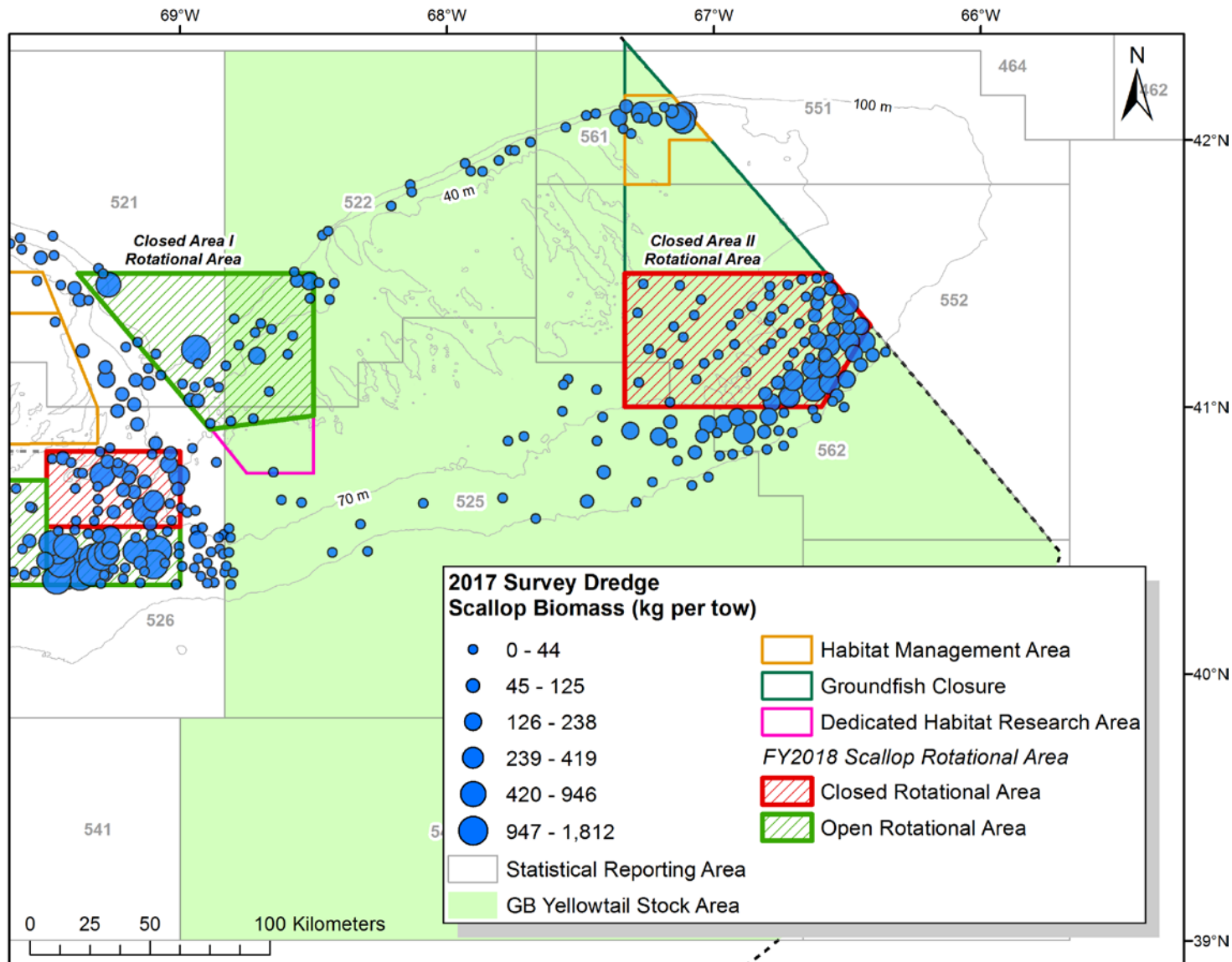


Figure 2. Scallop catch per tow from 2017 dredge surveys (VIMS/NMFS), FY2018 rotational management areas, habitat closures, and statistical reporting areas relative to the GB yellowtail stock area. Rotational areas within the GB yellowtail stock area are labeled in italics.



Since FY2011, scallop fishery catch of GB yellowtail has ranged from a high of 164 mt in FY2012 to a low of 2.1 mt in FY2016 (note that there was no access to CAII or CAII extension for FY 2016; Table 3 and Figure 1). The Scallop PDT projects GB yellowtail bycatch associated with the preferred scallop allocation alternatives for each Framework.

Framework 28 to the Scallop FMP directed limited access trips to Closed Area II access area in FY2017; the projection of GB yellowtail bycatch for FY2017 was 63.2 mt (~50 mt was projected for CAII and ~13 mt was projected for the remaining open areas of GB), while the actual catch was 52.6 mt, meaning the GB yellowtail sub-ACL allocated to the scallop fishery for FY2017 (32 mt) was exceeded. Table 2 summarizes monthly GB yellowtail catch by the scallop fishery in FY2017 (source: GARFO data monitoring). FY2017 yellowtail catch was highest in June and July because overall effort in CAII AA increased compared to other months. Table 2 illustrates the correlation between access to CAII AA and yellowtail bycatch, in that approximately 98.5% of FY2017 yellowtail catch came from CAII AA while less than 2% came from Georges Bank open areas.

Under Framework 29, FY2018 spatial management turned Closed Area II extension into part of the open area and did not include access to Closed Area II access area. The Scallop PDT projected catch of GB yellowtail by the scallop fishery would be approximately 11.7 mt in FY2018, which is approximately 78% less than realized yellowtail catch in FY2017. In-season estimates of yellowtail catch for FY2018 to date have not yet been made available by GARFO.

Table 2. Estimated scallop fishery catch of GB yellowtail by area, component, and month for FY2017 (source: GARFO quota monitoring page, <https://www.greateratlantic.fisheries.noaa.gov/aps/monitoring/atlanticseascallop.html>).

Date	Limited Access Fleet*		LAGC IFQ Fleet	Monthly total catch (lb)	Cumulative catch (lb)	Percent of sub-ACL (70,584 lb)	
	Open Areas	Closed Area II	Open Areas				
17-Mar	68	-	2	69	69	0.1	
17-Apr		2,251		2,251	2,320	3.3	
17-May		15,196		15,196	17,517	24.8	
17-Jun		35,740		35,740	53,257	75.5	
17-Jul	159	31,382		31,541	84,798	120.2	
17-Aug	888	13,590		14,477	99,275	140.7	
17-Sep	356	-		356	99,630	141.2	
17-Oct	182	-		182	99,813	141.5	
17-Nov		2,045		2,045	101,858	144.4	
17-Dec		9,834		9,834	111,692	158.3	
18-Jan		2,349		2,349	114,042	161.7	
18-Feb		1,864		1,864	1,864	115,906	164.3
18-Mar				-	0	115,906	164.3
Total	1,652	114,252		2	115,906		

Table 3. Full-time limited access scallop fishery allocations by FY and recent schedule of CAII access.

FY	Action	LA DAS (Full Time)	FT LA AA trips	CA II AA	Notes re: CA II AA and other management
2011	FW22	32	4 (2 MA)	0.5 trips (157 vessels; 18K lbs/trip)	10% access area bycatch cap; GB stock-wide monitoring of YT sub- ACL; Bycatch Avoidance Program CAI and CAII
2012	FW22	34	4	1 trip (313 vessels; 18K lbs/trip)	GB stock-wide monitoring of YT sub-ACL; Bycatch Avoidance Program CAI and CAII
2013	FW24	33	2	182 trips (13K lbs/trip)	Seasonal closure of CAII Aug 15 – Nov 15; GB stock-wide monitoring of YT sub-ACL; Bycatch Avoidance Program CAII
2014	FW25	31	2	197 trips (12K lbs/trip)	16% GB YT sub-ACL; YT landings prohibited; Seasonal closure of CAII Aug 15 – Nov 15; GB stock-wide monitoring of YT sub-ACL; Bycatch Avoidance Program CAII
2015	FW26	30.86	51K lbs to MAAA	Closed	In-season transfer to groundfish fishery (7.9 mt).
2016	FW27	34.55	3 (51K lbs to MAAA)	Closed	‘CAII Extension’ closure of open areas to protect small scallops; In- season transfer to groundfish fishery (39.8 mt)
2017	FW28	30.41	4 (18K each)	1 trip (313 vessels; 18k lbs trip)	‘CAII Extension’ closure of open areas to protect small scallops; no RSA compensation fishing in CAII; seasonal closure of CAII Aug 15—Nov 15; Bycatch Avoidance Program CAII
2018	FW29	24.00	6 (18K each)	Closed	‘CAII extension’ reverted back to open area. Reactive AM for GB yellowtail changed from time-area closure to gear modification in CAII.

Accountability Measures

The Scallop FMP has several measures in place to proactively mitigate bycatch of GB yellowtail and other non-target flatfish species. Through scallop Framework 26, the Council approved measures that restrict the maximum number of rows in the dredge apron to 7 in all areas as shorter aprons have been shown to reduce flatfish bycatch and improve fish escapement (see Scallop FW 24, Appendix IV). Part of the rationale for this 7-row restriction was to reduce flatfish bycatch and prevent sub-ACLs from being exceeded and triggering reactive accountability measures. The 7-row apron restriction has been in effect since FY2015. The PDT also notes that the fishery-wide requirement of a minimum 10" twine top (Amendment 10, 2004) improved the escapement of yellowtail flounder.

Through Framework 29 (FY2018), the Council modified the reactive accountability measure (AM) for GB yellowtail. Prior to FY2018, this AM was a time-area closure of statistical reporting area 562 (i.e. CAII and surrounds), with the duration of the time-area closure being dependent on the percent of the sub-ACL overage. As of FY2018, the AM was changed to a reactive gear restricted area (GRA), with the duration of the GRA being dependent on the magnitude of the sub-ACL overage. When the AM is in place, vessels fishing in CAII and CAII extension are required to fish a dredge with: 1) a dredge bag with a maximum of 5-rows in the apron; and 2) a 1.5:1 maximum hanging ratio. This gear-modification was based on a study conducted by the Coonamessett Farm Foundation (2012 final report [here](#)), which suggested the 5-row apron modified dredge bag reduces bycatch of yellowtail and other species of flatfish compared to a standard dredge bag configuration used by industry.

In November 2016, the Council voted to allow a "temporary exception with a two year sunset provision, to the scallop fishery AM implementation policy for the GB yellowtail flounder stock" under Groundfish Framework 56. NMFS approved this measure in the final rule to Framework 56 in July of 2017, retroactive to the start of the groundfish fishing year (May 1, 2017). Under this temporary exception, the only criteria used to determine if an AM would be implemented for GB yellowtail is if the scallop fishery exceeds their sub-ACL and the overall ACL for the stock is also exceeded in fishing years 2017 and 2018. This exception removes the AM trigger criteria of the scallop fishery exceeding the GB yellowtail sub-ACL by 150% or more. The Council specifically noted that recent utilization of GB yellowtail by the groundfish fishery has been low due to low quotas. Beginning in FY2019, the standard policy for scallop fishery AM implementation will apply unless otherwise specified by the Council.

Recent Scallop Fishery VMS Effort

VMS data were used as a proxy of fishing effort for the scallop fishery in FY2018 to date (i.e. April-June 2018) (Figure 3), FY2017 (Figure 4), and FY2016 (Figure 5). A speed filter of 2 to 5 kts was applied to remove vessel activity that was likely a result of transiting to and from fishing grounds.

Overall scallop fishery effort (i.e. both in access areas and open areas) was noticeably more concentrated in 2017 (Figure 4) compared to FY2016 (Figure 5). This was especially true within the GB yellowtail stock area, where wide-spread open area effort along the 50-fathom contour on both the north and south sides of Georges Bank in FY2016 shifted to highly concentrated fishing in CAII AA (with the opening of the access area) and a small area of open bottom directly west of CAII extension in FY2017. Over the first three months of FY2018, scallop effort within the GB yellowtail stock area appears to be concentrated in what was formerly the Closed Area II Extension rotational closure (re-opened after being closed for 2 years), and the northeast corners of the Closed Area I Access Area.

Figure 3. Scallop fishery VMS hours fished for FY2018 (April, May, June).

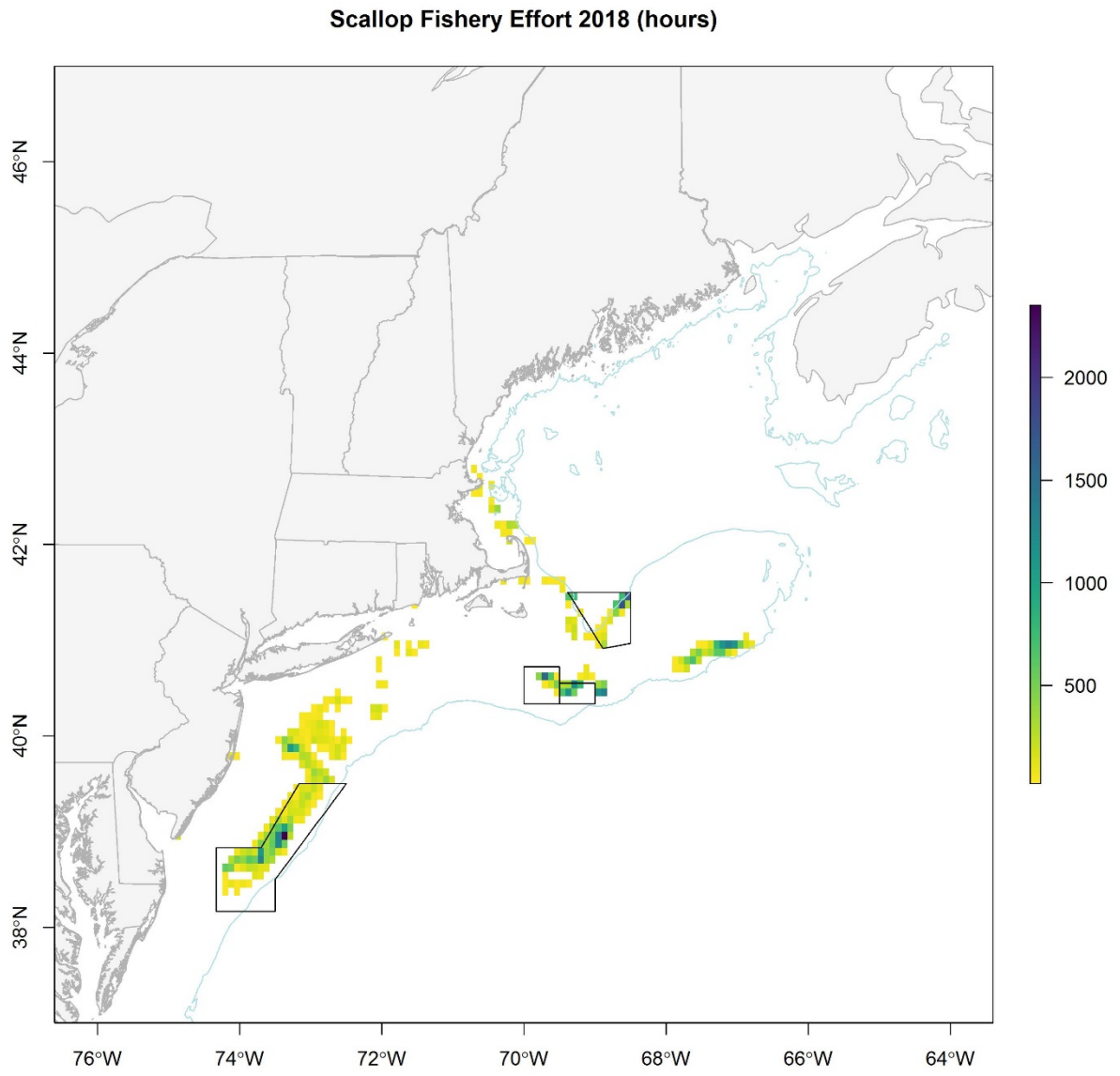


Figure 4. Scallop fishery VMS hours fished for FY2017.

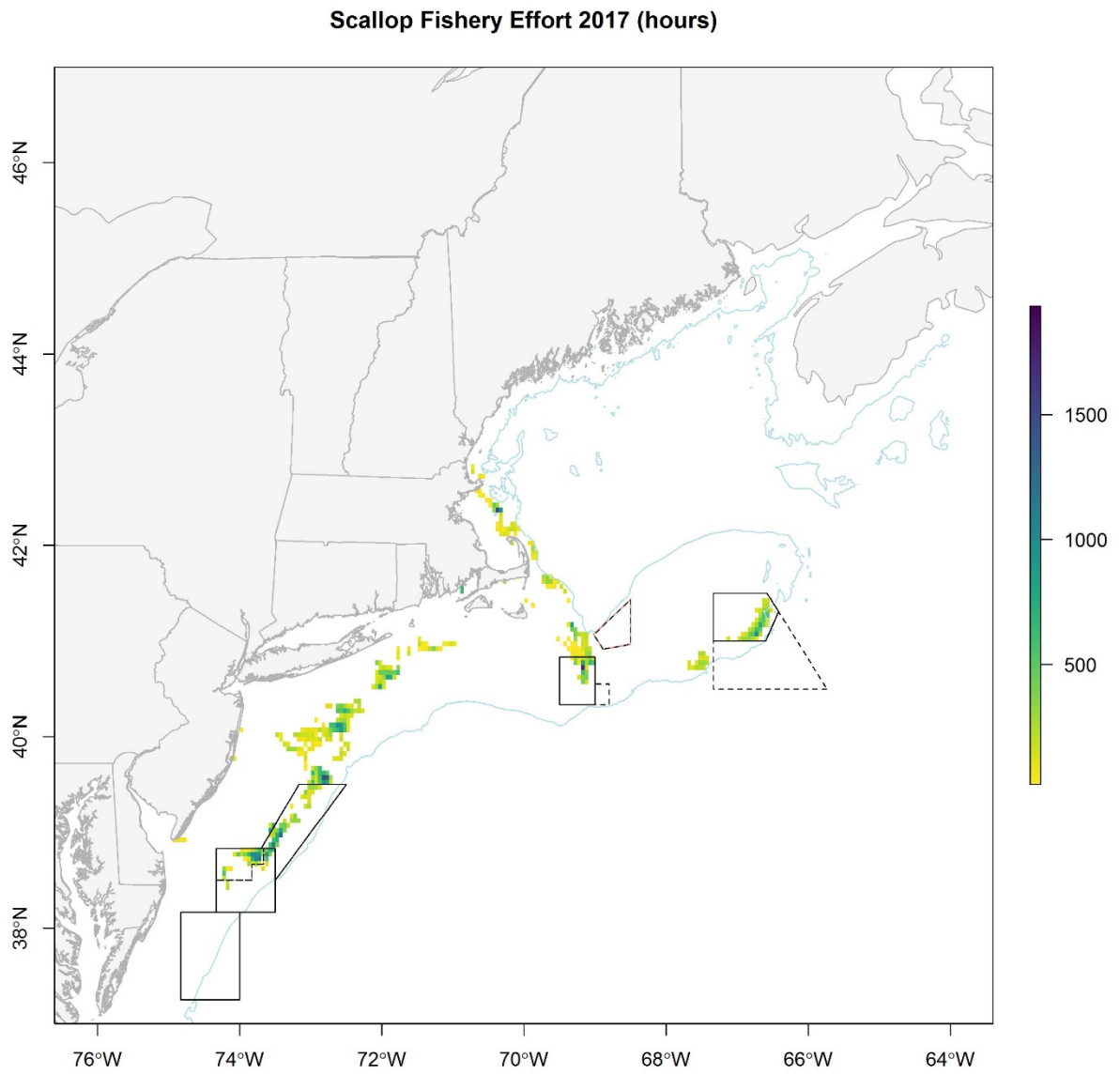


Figure 5. Scallop fishery VMS hours fished for FY2016.

