New England Fishery Management Council
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MEMORANDUM

DATE: November 9, 2015

TO: Groundfish PDT

FROM: Scallop PDT

SUBJECT: **Projections of bycatch in Scallop Framework 27**

On October 28, 2015 the Scallop PDT reviewed preliminary bycatch projections for four individual GF stocks for the range of scallop fishery allocations under consideration in Scallop Framework 27 (FY2016) via conference call. Framework 27 (FW27) is setting specifications for FY2016 and default measures for FY2017. During the call it was requested by staff to also include bycatch projection estimates for CC/GOM YT and for FY2017 and FY2018 as well because the Council is considering groundfish fishery specifications for those years in Framework 55 to the Multispecies FMP.

Currently the scallop fishery has three bycatch sub-ACL allocations: GB YT, SNE/MA YT and southern WP. A sub-ACL for northern WP was considered in the development of previous actions (FW48 and FW53) but it was not selected. The Scallop PDT still provides an estimate of bycatch for that stock, and this year the GF PDT requested a bycatch projection for CC/GOM YT to evaluate if the level of bycatch from the scallop fishery is still projected to be low enough to be considered part of the "other sub-component". Two of the three bycatch sub-ACLs have a fixed percent allocation associated with them, which were defined in previous frameworks to the GF FMP. The allocation for the GB YT sub-ACL is based on 16% of the total US ABC after uncertainty buffers and other considerations are taken into account (GF FW48). The allocation for the southern WP sub-ACL is 34% of the total US ABC after uncertainty buffers and other considerations are taken into account (GF FW48). And the allocation for SNE/MA YT sub-ACL is not currently set in the regulations, but in the past the Council has set the allocation based on a percentage of the projected catch (90% in most recent years), and most recently in GF FW50.

Scallop Framework 27

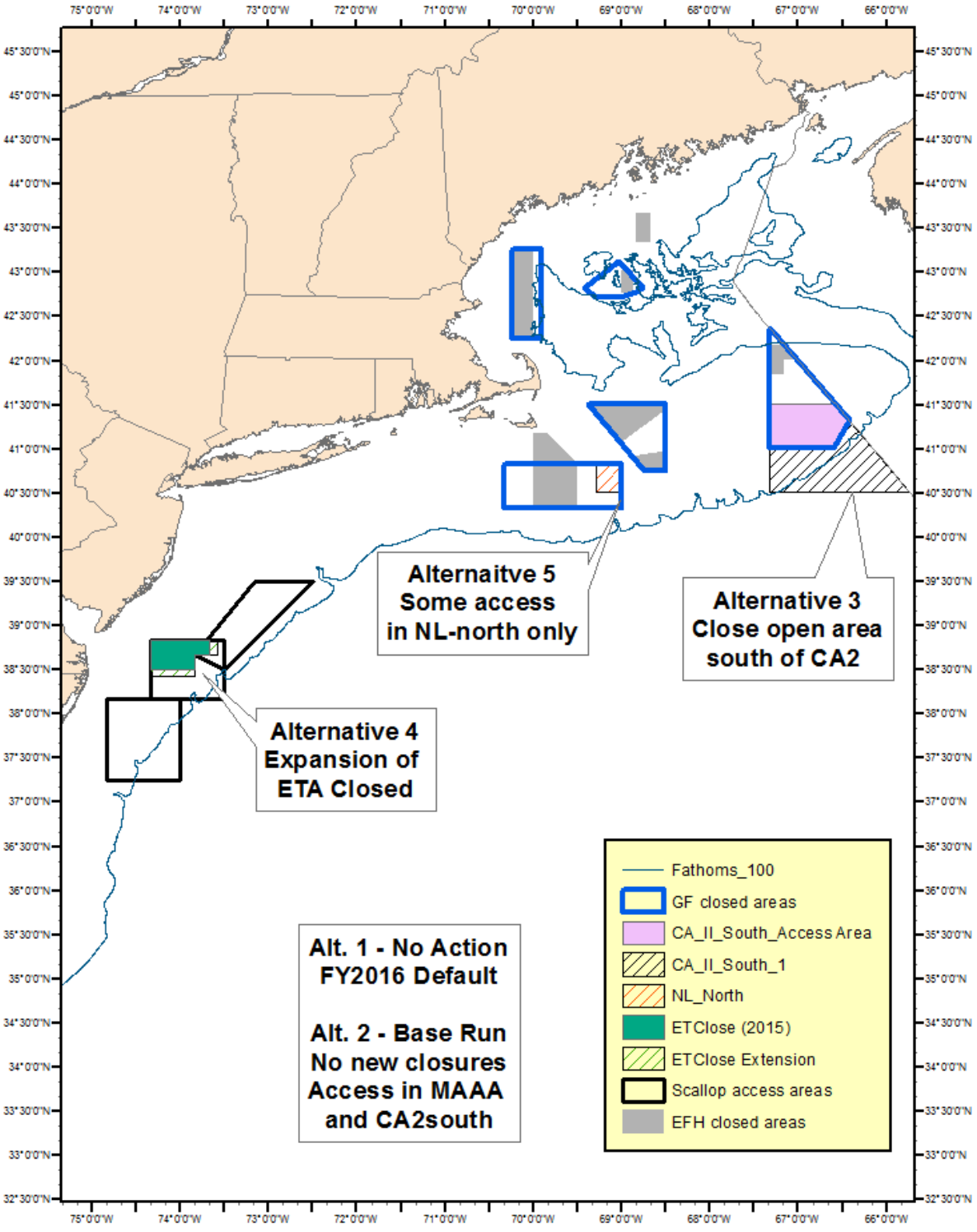
Framework 27 is considering a range of allocations for FY2016 fishery specifications including five overall alternatives, which include slightly different DAS allocations and area closures. Overall projected landings are expected to be about 46-48 million pounds, roughly a 10 million pound increase from FY2015 levels, primarily from increased open area allocations. The No Action, Alternative 1, is FY2016 default measures set in Scallop Framework 26, which are very precautionary (only 75% of projected open area effort and limited access area effort for limited access vessels). This alternative is included in the analysis, but it is assumed that FW27 will replace those default measures (Alternatives 2-5). Alternatives 2-5 are very similar overall, and

only differ in terms of area closure options: Alternative 2 does not change any closed areas from FY2015; Alternative 3 includes a new closed area south of Closed Area 2; Alternative 4 increases the closed area within the Elephant Trunk Access Area; and Alternative 5 includes access in the northern part of the Nantucket Lightship access area only. Table 1 summarizes the range of specification alternatives under consideration in Scallop FW27 and Figure 1 shows the various area closure options under consideration.

Table 1 – Summary of Scallop Framework 27 fishery specification alternatives

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Description of Alternative	**No Action**	**Basic run**	**Basic Run + CA2S ext closure**	**Basic Run + expansion of ETA closed**	**Basic run + Access in NL-N**
2016 Total catch (mil)	30.6 mil	48.5 mil	46.9 mil	48.5 mil	48.5 mil
FT LA DAS	26 DAS	36.53 DAS	34.69 DAS	36.53 DAS	36.53 DAS
PT LA DAS	10.4 DAS	14.61 DAS	13.88 DAS	14.61 DAS	14.61 DAS
Total AA (mil and mt)	5,511,558 2,500	16,644,904 7,550	16,647,108 7,551	16,649,313 7,552	16,651,518 7,553
FT AA Allocation (poss limit)	17,000 (17,000)	51,000 (17,000)	51,000 (17,000)	51,000 (17,000)	51,000 (17,000)
# of PT AA trips (poss limit)	10,200 (10,200)	20,400 (10,200)	20,400 (10,200)	20,400 (10,200)	20,400 (10,200)
MAAA	open	open	open	open	open
CA2	closed	open	open	open	open
NL	closed	closed	closed	closed	open
CA1	closed	closed	closed	closed	closed
Gen Cat (mil and mt)	2.81 mil 1699 mt	4.47 mil 2029 mt	4.47 mil 2029 mt	4.47 mil 2029 mt	4.47 mil 2029 mt

Figure 1 – Summary of specification alternatives under consideration in Scallop Framework 27



Methods

Since bycatch sub-ACLs were first allocated to the scallop fishery in 2010 the Scallop PDT has calculated a projection of catch for the decision making process and evaluation of potential impacts. The methods have evolved slightly over time but in general there are three overall steps. First, a discard to kept ratio (D:K) is estimated from the most recent observer data available and applied to updated estimates of scallop and gf biomass. The estimates this year include a D:K ratio (fish catch / scallop retained) for all SAMS areas using observer data for the most recent 12 month period (September 2014 – August 2015). For NL and CA2 the most recent 12 month time period those areas were open to the fishery is FY2014, thus for those two SAMS areas observer data from those months were used instead. The D:K ratio was adjusted for projected changes in scallop exploitable biomass, based on the SAMS model. The D:K ratios were not adjusted for potential changes in bycatch biomass because no projections exist for the windowpane and GB YT flounder stocks, Projections do exist for the other two YT stocks, but they are very uncertain, and in any case, do not suggest substantial changes in the stock size in the near future.

The GF PDT requested that projections include FY2017 and 2018. These estimates are more uncertain for several reasons: 1) scallop allocations are unknown for those fishing years; 2) the projections assume no changes to EFH boundaries and scallop access areas so if there are changes the scallop fishery catches may differ, 3) there are several very large year classes expected to be available in the fishery in 2017 but the projected catches of these juveniles in high densities areas is uncertain. The Scallop PDT believes the mortality of juvenile scallops in high densities is probably underestimated in the current model. Therefore, future projections of scallop catch may be optimistic, which would impact the estimates of D:K and total bycatch estimates.

The PDT had to make assumptions about scallop allocations in 2017 and 2018, such as opening the southern part of the NL area and the temporary closure to the east in 2017. These are educated guesses, and the allocations selected by the Council in 2017 and 2018 may be different than those that were simulated. The PDT also had to make an estimate of D:K for the southern part of NL since there is no observer data available for that area. VIMS completed a dredge survey in NL in June 2013. YT abundance in that survey was 9 times higher in NL north as YT abundance in NL south, which is plausible since the depths in the southern part of NL are deeper than those typically preferred by YT. Thus the D:K ratio for NL south was assumed to be $1/9^{th}$ that of the north, and then was further adjusted for the differences in exploitable biomass in the north in 2014 compared to the projected exploitable biomass in the south in 2017-2018. No WP were observed in NL S in the VIMS survey, but that stock would not be expected to be there in June. Instead the PDT assumed that WP would only be in NL S in the colder months and based on total effort distribution in NL openings in the past, about 26% of effort was taken in colder months (Nov-Apr). Therefore, the PDT assumed the D:K ratio of WP in the south would be 26% of that of NL-north, which then was further adjusted for the differences in exploitable biomass. These are very crude estimates, but they are the best available science since there are no observer data available for this area.

The final projections for the Scallop FW27 alternatives are summarized in Table 2. The current SSC recommendations for ABCs for these stocks are in Table 3. And the potential sub-ACL allocations compared to the projections are summarized by stock in Table 4 through Table 6.

Table 2 – Summary of projected bycatch estimates for Framework 27 alternatives

	Alternative 1 - No Action				
	GB YT	SNE/MA YT	CC/GOM YT*	N. WP	S.WP
2016	19.0	28.7	6.3	73.4	127.2
2017	28.6	38.4	8.0	90.8	147.6
2018	26.0	40.2	7.8	90.1	140.2
	Alternative 2 - Base Run				
	GB YT	SNE/MA YT	CC/GOM YT*	N. WP	S.WP
2016	38.7	37.2	7.8	108.5	169.3
2017	28.9	38.9	8.1	91.7	150.3
2018	26.2	40.4	7.9	90.7	141.5
	Alternative 3 - Close Open Area south of CA2				
	GB YT	SNE/MA YT	CC/GOM YT*	N. WP	S.WP
2016	29.9	37.6	7.8	105.8	170.6
2017	26.5	40.4	8.5	94.0	154.6
2018	26.4	43.9	8.0	91.9	145.5
	Alternative 5 - Allow limited access in northern part of NL				
	GB YT	SNE/MA YT	CC/GOM YT*	N. WP	S.WP
2016	38.7	38.3-40.6	7.8	108.5	183.1-213.9
2017	28.9	38.9	8.1	91.7	150.3
2018	26.2	40.5	7.9	90.7	141.5

** The projection of CC/GOM YT only includes a portion of the total expected CC/GOM YT catch in the scallop fishery. This projection is only from a portion of one SAMS area (great south channel) that overlaps with the CC/GOM YT stock area, because the scallop projection model does not include the GOM. Bycatch rates are higher in the GOM compared to this area based on observer data. The most recent estimate of CC/GOM bycatch in the scallop fishery is 28.6 mt (2014). That is probably the value that should be used as a total projection of CC/GOM YT catch.*

Table 3 – SSC recommendations for ABCs in the Multispecies Fishery

	2016	2017	2018
GB YT	354*	354*	n/a
SNE/MA YT	267	267	267
CC/GOM YT	427	427	427
N. Windowpane	182	182	182
S. Windowpane	623	623	623

** The SSC recommended this value for two years. Note it is a combined ABC, including Canadian waters. The US share of this total ABC would be 269 mt, if approved. The 2017 value has not been negotiated with Canada yet.*

Table 4 – Potential GB YT sub-ACL allocations compared to projections for FW27 alternatives ***(Note: the management uncertainty buffer has not been taken into account yet. For GB YT the sub-ACL allocation would be reduced by 3%, i.e. a sub-ACL of 43mt would be reduced to 41.7mt)***

	GB YT – US ABC = 269mt in 2016 and 2017*			
	Potential Allocation (16%)	Alt. 2 (BaseRun) Projection	Alt. 3 (CA2ext) Projection	Alt. 5 (NL-N access) Projection
2016	43	38.7	29.9	38.7
2017	43	28.9	26.5	28.9
2018	n/a	26.2	26.4	26.2

** 2017 ABC may change based on negotiations with Canada*

Table 5 – Potential SNE/MA YT sub-ACL allocations compared to projections for FW27 alternatives ***(Note: the management uncertainty buffer has not been taken into account yet. For SNE/MA YT the sub-ACL allocation would be reduced by 7%, i.e. a sub-ACL of 33.5mt would be reduced to 31.2mt)***

	SNE/MA YT – US ABC = 267mt in 2016-2018			
	Potential Allocation (90% proj)	Alt. 2 (BaseRun) Projection	Alt. 3 (CA2ext) Projection	Alt. 5 (NL-N access) Projection
2016	Alt.2 = 33.5 Alt.3 = 33.8 Alt.5 = 34.5 - 36.5	37.2	37.6	38.3-40.6
2017	Alt.2 = 35.0 Alt.3 = 36.4 Alt.5 = 35.0	38.9	40.4	38.9
2018	Alt.2 = 36.4 Alt.3 = 39.5 Alt.5 = 36.5	40.4	43.9	40.5

Table 6 – Potential S. WP sub-ACL allocations compared to projections for FW27 alternatives ***(Note: the management uncertainty buffer applied to sub-ACLs has not been taken into account yet. For S. WP the sub-ACL allocation would be reduced by 7%, i.e. a sub-ACL of 211.8mt would be reduced to 197mt)***

	S. WP – US ABC = 623 mt in 2016-2018			
	Potential Allocation (34%)	Alt. 2 (BaseRun) Projection	Alt. 3 (CA2ext) Projection	Alt. 5 (NL-N access) Projection
2016	211.8	169.3	170.6	183.1-213.9
2017	211.8	150.3	154.6	150.3
2018	211.8	141.5	145.5	141.5

Performance of previous projections and allocations

Total catch of **GB YT** by the scallop fishery in 2015 to date is at about 70% of the sub-ACL allocation for the year (26 mt out of a total 38mt allocation) (Table 7). Almost all of this bycatch is from scallop effort in open areas, and a small amount from within the access area in CA2 south in March and April from 2014 access area trips that were carried over to the first 60 days of FY2015. In 2014 the scallop fishery exceeded the sub-ACL of GB YT (59 mt of catch compared to a sub-ACL of 51mt – 116.5%) (Table 8). Higher catches were expected in 2014 since the fishery was allocated access in CA2south. More than half of the total 2014 scallop fishery catch of GB YT came from the access area within CA2 (about 37 mt out of a total catch of 59.3 mt). Accountability measures were not implemented because the total ACL for GB YT was not exceeded, and the scallop fishery did not exceed the sub-ACL by more than 50%. In 2013, total catch of GB YT in the scallop fishery was lower than 2014 despite the fact that overall allocations of DAS and CA2 access were at similar levels. Total catch in 2013 was 37.5 mt, about 90% of the 41.5 mt sub-ACL allocated that year (Table 9).

Total catch of **SNE/MA YT** is currently estimated at 19mt, or almost 30% of the total sub-ACL allocation of 66mt (Table 7). A little over 10% of this total catch estimate to date is from LAGC trawl vessels. In 2014 the scallop fishery was also allocated a total sub-ACL of 66mt, and the fishery was estimated to catch almost all of it (63mt or 96% of the sub-ACL) (Table 8). In 2013 the sub-ACL was lower at 43.6 mt, and the scallop fishery exceeded that allocation, 48.6 mt or about 111%. Again, about 10% of the total catch was by LAGC vessels that use trawl gear, but the majority of catch was from LA vessels fishing in open areas in southern New England (about 50% of the total catch), followed by LA vessels in NL (14%). Accountability measures did not trigger for the scallop fishery because the total ACL was not exceeded and the scallop fishery did not exceed the sub-ACL by more than 50%.

Finally, total catch of **SNE/MA windowpane flounder** by the scallop fishery in 2015 to date is relatively low, about 40 mt so far, or about 21% of the sub-ACL (Table 7). The allocation of SNE/MA WP to the scallop fishery has been consistent since 2013 at 183mt per year. In 2014 the fishery caught about 74% of the allocation, and in 2013 about 70% (Table 8 and Table 9). This catch represents about 25% of the total ACL for that species for both years.

For reference, scallop fishery allocations reduced in 2013 and 2014, referenced as "bridge years" when allocations reduced to account for several years of below average recruitment. In FY2013 total projected catch was estimated to be 38.2 million pounds, including 33 open area DAS for FT LA vessels and the equivalent of two 13,000 pound access area trips, or 26,000 pounds per FT vessel. Access was granted in Hudson Canyon, Nantucket Lightship, CA2, and CA1, but many vessels did not complete trips in CA1 due to poor catch rates. Final catch was slightly over projections (39.8 million pounds). In 2014, total landings were still relatively low compared to recent years (again 38.2 million pounds), including 31 open area DAS for FT LA vessels and two 12,000 pound trips, or 24,000 pounds per FT LA vessel. In 2014 the areas open to the fishery were CA2, NL and the option to fish in Delmarva, or fish five open area DAS instead. Final catch projections were about 32 million pounds. In 2015, total projected catch increased to 47 million pounds, but actual catch will likely come in lower than that projections. Allocations were about the same for open areas and increased allocations in access areas (equivalent of three 17,000 pound trips). In 2015, all access area effort in MA access areas (Delmarva, ETA, and HC areas combined with part of the inshore ETA closed).

Table 7 – 2015 scallop fishery catch to date of GF species with sub-ACL allocations in mt (and pounds). Preliminary data for March-September 29, 2015 only

Stock	Total ACL	Sub-ACL to Scallop fishery	Catch of GF by scallop fishery	Percent of sub-ACL used	Percent of total ACL used by scallop fishery
GB YT	240 (529K)	38 (83,766)	32 (71,022)	84.8%	13.3%
SNE/MA YT	666 (1.47mil)	66 (145,505)	20 (44,386)	30.5%	3.0%
SNE/MA WP	527 (1.16 mil)	183 (403,446)	139 (307,246)	76.2%	26.4%

Table 8 – 2014 year end scallop fishery catch of GF species with sub-ACL allocations (mt).

Stock	Total ACL	Sub-ACL to Scallop fishery	Catch of GF by scallop fishery	Percent of sub-ACL used	Percent of total ACL used by scallop fishery
GB YT	318.1	50.9	59.3	116.4%	18.6%
SNE/MA YT	665	66	64.8	98.2%	9.7%
SNE/MA WP	527	183	140	76.5%	26.6%

Table 9 – 2013 year end scallop fishery catch of GF species with sub-ACL allocations (mt).

Stock	Total ACL	Sub-ACL to Scallop fishery	Catch of GF by scallop fishery	Percent of sub-ACL used	Percent of total ACL used by scallop fishery
GB YT	208.5	41.5	37.5	90.4%	18.0%
SNE/MA YT	665	43.6	48.6	111.5%	7.3%
SNE/MA WP	527	183	129.1	70.5%	24.5%

Overall, the recent sub-ACL allocations have provided sufficient catch to cover the estimate of actual catch in the scallop fishery, with the exception of the GB YT sub-ACL in 2014 and SNE/YT in 2013 (Table 10). In both cases the fishery was projected to catch more than the allocation. FY2015 is not over yet so actual catch is expected to increase, GB YT is approaching the total sub-ACL (currently at 32 mt out of 38 mt total allocation, 85%), SNE/MA YT is at about 31% of the sub-ACL and southern WP is at about 76% of the sub-ACL (**Table 7**).

Table 10 – Summary of sub-ACL allocations, projected catches, and actual catches for FY2013, FY2014, and preliminary estimates for FY2015 (year not over yet)

	GB YT	SNE/MA YT	S. WP
2013 Allocated	41.5	43.6	183
2013 Projected	85.3	66	N/A
2013 Actual	37.5	48.6	129.1
2014 Allocated	50.9	66	183
2014 Projected	62.4 – 103.7	61.1 – 67.7	74.4
2014 Actual	59	63	136
2015 Allocated	38	66	183
2015 Projected	27.9 – 49.6	54	134
2015 Actual (through Sept)	32	20	139

Scallop PDT Discussion

1. In general, the projected catch estimates for all three sub-ACL stocks are under or very close to the potential sub-ACL allocations if the same method of allocation is used (16% of ABC for GB YT, 90% of projected catch for SNE/MA YT, and 34% of ABC for S. WP). SNE/MA YT is less of course by design since the allocations is set at 90% of the projection.
2. Closing the area south of CA2 will likely reduce GB YT catch. The projections suggest a reduction of about 10 mt. Closing this area does not really change projected catches of N. Windowpane flounder.
3. Providing limited access in the northern part of NL will likely increase SNE/MA YT catches. The projections suggest an increase of about 3mt. Providing access in this area also increases the projection of S. Windowpane catch by about 40 mt.
4. The projections of catch for FY2017 and FY2018 are VERY uncertain. Scallop allocations are not known for those years and may be very different then the assumptions used for these projections.
5. Although N. Windowpane is not an allocated sub-ACL to the scallop fishery, it should be noted that the projected catch for that stock in FY2016 is about 110 mt, or 60% of the total proposed ABC.