See the draft Framework Adjustment 52 document dated June 2, 2014, which also contains additional information in the economic impacts section starting on pp. 159.

7.4 **Economic Impacts**

7.4.1 Windowpane Flounder Accountability Measures in the Groundfish Fishery

The AMs in Option 1/No Action were previously analyzed as part of Framework Adjustment 47 to the Groundfish FMP. That analysis is updated here, reflecting recent landings trends from the areas potentially impacted by the windowpane flounder accountability measures. Economic impact estimates are based on the types of fishing trips likely to be affected as reported in the VTR and observer databases. No distinction is made between sector and common pool vessels. All revenues are adjusted for inflation and reported in 2013 dollars. VTR trips reporting latitude and longitudes falling inside the affected areas are used for estimating economic impacts, drawing from data for FY 2010-2012. The AM areas considered here are relatively small and therefore the trips with positions falling inside their boundaries comprise only a sample population of impacted trips. As the location of an entire trip is coded at one particular point, these coordinate data are assumed to be approximate and to broadly represent the type and level of activities in these areas. All gross revenues reported here are prorated from the sample population to total population estimate by inflating revenues by the appropriate percentage based on trips reporting and not reporting lat/lon data for the gear type and statistical area(s) best corresponding to each proposed management area. Gross revenues are reported as all revenues from groundfish permitted vessels on trips on which at least one pound of groundfish was landed. Option 2/Sub-Option A and Option 2/Sub-Option B include the same AM areas and the analysis of Option 1/No Action is used to compare between these options. However, the AM areas under Option 3 are different from Option 1/No Action, but a similar analysis was completed in order to facilitate comparison between the options.

7.4.1.1 Option 1: No Action

The groundfish fishery AM for either stock of windowpane is implemented if the total ACL is exceeded by more than the management uncertainty buffer (currently set at approximately 5%), and in the case of southern windowpane, if the groundfish fishery also exceeds its sub-ACL.

The AM is implemented at the start of a fishing year, never in-season, and remains in place for the duration of that fishing year. If adopted, this option would implement trawl gear restrictions in certain areas during either year 2 or year 3 based on ACL overages that occurred in year 1. Both common pool and sector-based vessels would have the choice of either using an approved selective gear or not fishing in the accountability measure area.

In-season catch information is not readily available for state or non-groundfish fisheries, so a final ACL determination cannot typically be made until after the fishing year ends. If there is an overage, the AM is implemented:

- At the start of Year 2 if, based on reliable data, NMFS determined in-season during Year 1 that the total ACL was exceeded; or
- At the start of Year 3, if final catch estimates after the end of Year 1, indicate that the total ACL was exceeded.

Under Option 1/No Action, either the large or small AM area could be triggered depending on the magnitude of the ACL overage. Triggering the Northern or Southern AM areas is tied to overages for either the northern or southern windowpane flounder stocks (or both). The timing of the overage affects whether the AM area will be

triggered in year 2 or year 3. If the AM area is enacted, either large or small, vessels fishing with trawl gear will be required to use selective gear inside the area.

Economic Impacts

Option 1/No Action would result in no additional economic impacts over the status quo. However the status quo has potential negative impacts should AM areas be triggered. The economic impacts of triggering the AM areas are a function of (1) differences in profitability within the AM area between using selective vs. traditional gears, and/or (2) differences in profitability using selective gears inside vs. outside the AM area. Profitability itself is a function of costs and revenues, as well as species-specific resource availability. The AM areas could have net negative economic impacts if they result in:

- lower stock-specific aggregate catches, due to lack of species availability outside of the AM area during the closure year;
- higher variable costs due to lower catch rates for economically important stocks either inside the AM area(s) when using selective gears, or outside the AM area(s) when using traditional gears;
- higher gear costs associated with rigging and using selective gears.

Economic impacts are evaluated for large and small AMs within each stock area.

Northern Windowpane Flounder AM – LARGE

The average annual revenue (FY10-12) by groundfish fishing vessels estimated from trips in the northern windowpane large AM area is nearly $10.6 million dollars, accounting for 9% of total revenues (Table 1). Over $8 million dollars of total revenues are from trips fishing with traditional trawl gear, which would no longer be allowed in this area if the AM is adopted and implemented (Table 1). These revenues represent the upper bound cost associated with this option. It is, however, likely that only a portion of these revenues will be affected by this option, as vessels may still elect to fish inside this area with selective gear or increase their fishing efforts outside this area.

The most impacted port is New Bedford, MA, where activities reported inside the AM area account for nearly 23% of the average revenues landed in that port by permitted groundfish vessels (Table 2).

The use of selective gear substantially changes the composition of the catch inside the Northern large AM area. VTRs and observer data collected from tows inside the area both show a much higher proportion of haddock and pollock and lower proportion of flatfish when using selective gears, relative to traditional trawl gears (Table 3 and Table 4). Average revenues per tow for the selective gears in these areas were approximately 38% higher than per-tow revenues using traditional gears on observed trips, though fewer tows were observed (Table 4). VTR data indicates that traditional gears are more prevalent in this area. The higher average revenue per tow with selective gears is likely explained by seasonality and target species. It is unlikely, based on revealed gear preferences, that selective gears could generate higher revenues in this area throughout the course of the year. It is not clear if the loss of flatfish catch, primarily GB winter flounder and GB yellowtail flounder, could be made up for with traditional gears fished outside of the AM area.

Table 1 – Annual and three-year average revenues for all groundfish trips and trips reported inside the Northern Windowpane Flounder AM Area – Large (VTR data, 2013 constant dollars)

	Gear Type	2010	2011	2012	*3 year avg*
All groundfish trips	**bottom longline**	$2,168,832	$2,355,103	$374,947	*$1,632,960*
	gillnet	$10,695,643	$10,421,830	$8,860,372	*$9,992,615*
	trawl, selective	$9,171,141	$4,856,866	$1,157,086	*$5,061,698*
	trawl, traditional	$101,860,375	$114,204,644	$98,785,680	*$104,950,233*
	Total:	*$123,895,991*	*$131,838,442*	*$109,178,085*	*$121,637,506*
Groundfish trips reported in AM area	**bottom longline**	$753,123	$357,460	$10,111	*$373,565*
	gillnet			$288	*$96*
	trawl, selective	$3,473,954	$2,002,507	$375,466	*$1,950,642*
	trawl, traditional	$9,513,068	$9,326,815	$5,950,106	*$8,263,330*
	Total:	*$13,740,145*	*$11,686,782*	*$6,335,970*	*$10,587,824*
Percent of all revenues on groundfish trips	**bottom longline**	35%	15%	3%	*23%*
	gillnet	0%	0%	0%	*0%*
	trawl, selective	38%	41%	32%	*39%*
	trawl, traditional	9%	8%	6%	*8%*
	Total:	*11%*	*9%*	*6%*	*9%*

Table 2 – Ports with over $100K gross revenue on groundfish trips with landings from inside the Northern Windowpane Flounder AM Area – Large, average of FY 10-12 (VTR data, 2013 constant dollars)

Landing port	State	3-year average revenue		Proportion of all groundfish revenues coming from AM area
		AM Area	All groundfish	
PORTLAND	ME	$11,221	$4,597,840	0.24%
BOSTON	MA	$327,605	$12,691,511	2.58%
GLOUCESTER	MA	$1,731,320	$23,869,559	7.25%
CHATHAM	MA	$323,961	$1,920,625	16.87%
NEW BEDFORD	MA	$7,994,660	$34,845,427	22.94%
PROVINCETOWN	MA	$2,502	$469,022	0.53%
NANTUCKET	MA	$6,968	$274,813	2.54%
HARWICHPORT	MA	$49,604	$126,393	39.25%
POINT JUDITH	RI	$147,522	$10,900,442	1.35%

Table 3 – Average annual reported catch from inside the Northern Windowpane Flounder AM Area-Large, FY 10-12 (VTR data, 2013 constant dollars)

Trawl type	cod	haddock	flats	pollock	white hake	skates	squids	other
traditional	$759,960	$2,951,810	$3,760,119	$114,397	$1,532	$276,691	$2,605	$648,662
selective	$115,792	$1,648,808	$176,196	$61,390	$0	$23,608	$0	$46,063

Table 4 – Average revenue per tow for tows ending inside the Northern Windowpane Flounder AM Area - Large, FY 10-12 (Observer data, 2013 constant dollars)

Trawl type	# tows	cod	haddock	flats	pollock	white hake	skates	squids	other	*TOTAL*
traditional	1032	$242	$654	$874	$54	$5	$148	$5	$253	*$2,235*
selective	286	$205	$1,813	$136	$761	$14	$62	$0	$110	*$3,100*

Northern Windowpane Flounder AM – SMALL

The average annual revenue (FY10-12) by groundfish fishing vessels estimated from trips in the northern windowpane small AM area is nearly $4.3 million dollars, accounting for 4% of total revenues (Table 5). Over $3.5 million dollars of total revenues are from trips fishing with traditional trawl gear, which would no longer be allowed in this area if the AM is adopted and implemented (Table 5). These revenues represent the upper bound cost associated with this option. It is, however, likely that only a portion of these revenues will be affected as vessels will elect to either fish inside this area with selective gear or increase their fishing efforts outside this area.

The most impacted port is New Bedford, MA, where activities reported inside the AM area account for over 9% of the average FY 10-12 revenues landed in that port by permitted groundfish vessels (Table 6).

The use of selective gear substantially changes the composition of the catch inside the Northern small AM area. Both VTR and observer data collected from tows inside the area show a much higher proportion of haddock and lower proportion of flatfish relative to traditional trawl gears (Table 7 and Table 8). Average revenues per tow for the selective gears in this area were approximately 14% higher than per-tow revenues using traditional gears on observed trips, though fewer tows were observed (Table 8). VTR data indicates that traditional gears are more prevalent in this area. The higher average revenue per tow with selective gears is likely explained by seasonality and target species. It is unlikely, based on revealed gear preferences, that selective gears could generate higher revenues in this area throughout the course of the year. It is not clear if the loss of flatfish catch, primarily GB winter flounder and GB yellowtail flounder, could be made up for with traditional gears fished outside of the AM area.

Table 5 – Annual and three-year average revenues for all groundfish trips and trips reported inside the Northern Windowpane Flounder AM Area – Small (VTR data, 2013 constant dollars)

	Gear Type	2010	2011	2012	*3 year avg*
All groundfish trips	**bottom longline**	$2,168,832	$2,355,103	$374,947	*$1,632,960*
	gillnet	$10,695,643	$10,421,830	$8,860,372	*$9,992,615*
	trawl, selective	$9,171,141	$4,856,866	$1,157,086	*$5,061,698*
	trawl, traditional	$101,860,375	$114,204,644	$98,785,680	*$104,950,233*
	Total:	*$123,895,991*	*$131,838,442*	*$109,178,085*	*$121,637,506*
Groundfish trips reported in AM area	**trawl, selective**	$1,775,731	$217,300	$91,057	*$694,696*
	trawl, traditional	$6,102,540	$3,892,316	$717,804	*$3,570,887*
	Total:	*$7,878,272*	*$4,109,616*	*$808,861*	*$4,265,583*
Percent of all revenues on groundfish trips	**trawl, selective**	82%	9%	24%	*43%*
	trawl, traditional	57%	37%	8%	*36%*
	Total:	*6%*	*3%*	*1%*	*4%*

Table 6 – Ports with over $100K gross revenue on groundfish trips with landings from inside Northern Windowpane Flounder AM Area – Small, average of FY 10-12 (VTR data, 2013 constant dollars)

Landing port	State	3-year average revenue		
		AM Area	All groundfish	Proportion of all groundfish revenues coming from AM area
PORTLAND	ME	$11,078	$4,597,840	0.24%
BOSTON	MA	$150,097	$12,691,511	1.18%
GLOUCESTER	MA	$803,633	$23,869,559	3.37%
NEW BEDFORD	MA	$3,222,492	$34,845,427	9.25%
NANTUCKET	MA	$423	$274,813	0.15%
POINT JUDITH	RI	$81,694	$10,900,442	0.75%

Table 7 – Average annual reported catch from inside the Northern Windowpane Flounder AM Area-Small, FY 10-12 (VTR data, 2013 constant dollars)

Trawl type	cod	haddock	flats	pollock	white hake	skates	squids	other
traditional	$311,448	$1,605,508	$1,303,776	$8,731	$770	$100,457	$1,834	$151,527
selective	$55,930	$677,030	$41,424	$42	$0	$5,474	$0	$1,645

Table 8 – Average revenue per tow for tows ending inside the Northern Windowpane Flounder AM Area - Small, FY 10-12 (Observer data, 2013 constant dollars)

Trawl type	# tows	cod	haddock	flats	pollock	white hake	skates	squids	other	*TOTAL*
traditional	516	$228	$865	$872	$10	$0	$171	$5	$211	*$2,362*
selective	164	$171	$2,344	$109	$17	$0	$44	$0	$33	*$2,718*

Southern Windowpane Flounder AM – LARGE AREA 1

The average annual revenue (FY10-12) by groundfish fishing vessels estimated from trips in the southern windowpane flounder large AM area 1 is over $5.7 million dollars, accounting for 5% of total revenues (Table 9). Over $4.2 million dollars of total revenues are from trips fishing with traditional trawl gear, which would no longer be allowed in this area if the AM is adopted and implemented (Table 9). These revenues represent the upper bound cost associated with this option. It is, however, likely that only a portion of these revenues will be affected as vessels will most likely elect to increase their fishing efforts outside this area. In this case, even if revenues remain the same, vessel costs will rise due to longer steam time, decreased catch per unit effort, or both.

The most impacted port is Point Judith, RI, where activities reported inside the AM area account for over 31% of the average FY 10-12 revenues landed in that port by permitted groundfish vessels (Table 10). Other ports likely impacted are Montauk, NY which reported over $1.4 million in groundfish revenue from the AM area as well as Newport, RI where almost 75% of the port's groundfish revenues are from trips reported to have occurred within the AM area (Table 10).

Selective gears have not been used extensively in this area thus far, indicating that it is generally more profitable to fish with traditional gears (Table 11). Average revenues per tow for selective gears and traditional gears in this

area cannot be compared as there were no observed tows using selective gear for FY 2010-12 (Table 12). Whether it will be more profitable to fish in other areas or to continue fishing inside this area with selective gears depends on the profitability of other fishing options. Given the relatively small size of these areas, the additional trip costs (steaming time, etc.) are likely to be small. The true cost will be the difference between the profitability of fishing inside these areas and the profitability of making those trips in the next best outside area.

Table 9 – Annual and three-year average revenues for all groundfish trips and trips reported inside the Southern Windowpane Flounder AM – Large Area 1 (VTR data, 2013 constant dollars)

	Gear Type	2010	2011	2012	*3 year avg*
All groundfish trips	**bottom longline**	$2,168,832	$2,355,103	$374,947	*$1,632,960*
	gillnet	$10,695,643	$10,421,830	$8,860,372	*$9,992,615*
	trawl, selective	$9,171,141	$4,856,866	$1,157,086	*$5,061,698*
	trawl, traditional	$101,860,375	$114,204,644	$98,785,680	*$104,950,233*
	Total:	*$123,895,991*	*$131,838,442*	*$109,178,085*	*$121,637,506*
Groundfish trips reported in AM area	**bottom longline**	$220,728	$187,186		*$135,971*
	gillnet	$1,125,442	$1,837,034	$1,207,480	*$1,389,985*
	trawl, selective	$17,923	$17,723		*$11,882*
	trawl, traditional	$3,205,060	$5,380,460	$4,057,243	*$4,214,254*
	Total:	*$4,569,153*	*$7,422,403*	*$5,264,723*	*$5,752,093*
Percent of all revenues on groundfish trips	**bottom longline**	10%	8%	0%	8%
	gillnet	11%	18%	14%	14%
	trawl, selective	0%	0%	0%	0%
	trawl, traditional	3%	5%	4%	4%
	Total:	*4%*	*6%*	*5%*	*5%*

Table 10 – Ports with over $100K gross revenue on groundfish trips with landings from inside Southern Windowpane Flounder AM – Large Area 1, average of FY 10-12 (VTR data, 2013 constant dollars)

Landing port	State	3-year average revenue		Proportion of all groundfish revenues coming from AM area
		AM Area	All groundfish	
STONINGTON	CT	$159,091	$1,111,962	14.31%
NEW LONDON	CT	$26,757	$1,962,701	1.36%
BOSTON	MA	$2,667	$12,691,511	0.02%
NEW BEDFORD	MA	$67,759	$34,845,427	0.19%
POINT PLEASANT	NJ	$27,839	$389,909	7.14%
MONTAUK	NY	$1,415,266	$5,408,171	26.17%
SHINNECOCK	NY	$21,086	$443,958	4.75%
NEWPORT	RI	$116,635	$157,733	73.94%
POINT JUDITH	RI	$3,420,667	$10,900,442	31.38%
LITTLE COMPTON	RI	$81,719	$132,356	61.74%

Table 11 – Average annual reported catch from inside the Southern Windowpane Flounder AM – Large Area 1, FY 10-12 (VTR data, 2013 constant dollars)

Trawl type	cod	haddock	flats	pollock	white hake	skates	squids	other
traditional	$319,669	$26	$1,237,679	$94	$88,530	$859,647	$130,632	$3,097,610
selective	$11,679	$0	$4,637	$0	$0	$1,203	$175	$6,476

Table 12 – Average revenue per tow for tows ending inside the Southern Windowpane Flounder AM – Large Area 1, FY 10-12 (Observer data, 2013 constant dollars)

Trawl type	# tows	cod	haddock	flats	pollock	white hake	skates	squids	other	*TOTAL*
traditional	85	$371	$11	$303	$0	$53	$514	$52	$565	*$1,869*
selective	0									

Southern Windowpane Flounder AM –LARGE AREA 2

The average annual revenue (FY10-12) by groundfish fishing vessels estimated from trips in the southern windowpane flounder large AM area 2 is over $1.6 million dollars, accounting for 1% of total revenues (Table 13). Over 99% of this revenue is from trips fishing with traditional trawl gear, which would no longer be allowed in this area if the AM is adopted and implemented (Table 13). These revenues represent the upper bound cost associated with this option. It is, however, likely that only a portion of these revenues will be affected as vessels will most likely elect to increase their fishing efforts outside this area. In this case, even if revenues remain the same, vessel costs will rise due to longer steam time, decreased catch per unit effort, or both.

The most impacted port is Belford, NJ, where activities reported inside the AM area account for $383,534, 77% of the average FY10-12 revenues landed in that port by permitted groundfish vessels (Table 14).

Selective gears have not been used extensively in this area thus far, indicating that it is generally more profitable to fish with traditional gears (Table 15). Average revenues per tow for selective gears and traditional gears in this area cannot be compared as there were no observed tows using selective gear for FY 2010-12 (Table 16). Whether it will be more profitable to fish in other areas or to continue fishing inside this area with selective gears depends on the profitability of other fishing options. Given the relatively small size of these areas, the additional trip costs (steaming time, etc.) are likely to be small. The true cost will be the difference between the profitability of fishing inside these areas and the profitability of making those trips in the next best outside area.

Table 13 – Annual and three-year average revenues for all groundfish trips and trips reported inside the Southern Windowpane Flounder AM – Large Area 2 (VTR data, 2013 constant dollars)

	Gear Type	2010	2011	2012	*3 year avg*
All groundfish trips	**bottom longline**	$2,168,832	$2,355,103	$374,947	*$1,632,960*
	gillnet	$10,695,643	$10,421,830	$8,860,372	*$9,992,615*
	trawl, selective	$9,171,141	$4,856,866	$1,157,086	*$5,061,698*
	trawl, traditional	$101,860,375	$114,204,644	$98,785,680	*$104,950,233*
	Total:	*$123,895,991*	*$131,838,442*	*$109,178,085*	*$121,637,506*
Groundfish trips reported in AM area	**bottom longline**				
	gillnet	$8,291			*$2,764*
	trawl, selective				
	trawl, traditional	$570,106	$2,192,096	$2,049,118	*$1,603,773*
	Total:	*$578,397*	*$2,192,096*	*$2,049,118*	*$1,606,537*
Percent of all revenues on groundfish trips	**bottom longline**	0%	0%	0%	0%
	gillnet	0%	0%	0%	0%
	trawl, selective	0%	0%	0%	0%
	trawl, traditional	1%	2%	2%	2%
	Total:	*0%*	*2%*	*2%*	*1%*

Table 14 – Ports with over $100K gross revenue on groundfish trips with landings from inside Southern AM – Large Area 2, average of FY 10-12 (VTR data, 2013 constant dollars)

Landing port	State	3-year average revenue		Proportion of all groundfish revenues coming from AM area
		AM Area	All groundfish	
STONINGTON	CT	$53,666	$1,111,962	4.83%
NEW LONDON	CT	$32,812	$1,962,701	1.67%
POINT PLEASANT	NJ	$54,058	$389,909	13.86%
BELFORD	NJ	$383,534	$497,672	77.07%
MONTAUK	NY	$273,452	$5,408,171	5.06%
POINT LOOKOUT	NY	$96,008	$268,298	35.78%
NEWPORT	RI	$19,436	$157,733	12.32%
POINT JUDITH	RI	$342,838	$10,900,442	3.15%

Table 15 – Average annual reported catch from inside Southern AM – Large Area 2, FY 10-12 (VTR data, 2013 constant dollars)

Trawl type	cod	haddock	flats	pollock	white hake	skates	squids	other
traditional	$160	$0	$178,939	$0	$5,102	$50,421	$1,231,907	$118,970
selective	$0	$0	$556	$0	$0	$0	$62,876	$0

Table 16 – Average revenue per tow for tows ending inside the Southern AM –Large Area 2, FY 10-12 (Observer data, 2013 constant dollars)

Trawl type	# tows	cod	haddock	flats	pollock	white hake	skates	squids	other	*TOTAL*
traditional	320	$17	$0	$188	$8	$78	$392	$1,378	$89	*$2,149*
selective	0									

Southern Windowpane Flounder AM – SMALL

The average annual revenue (FY10-12) by groundfish fishing vessels estimated from trips in the southern windowpane flounder small area is over $1.4 million dollars, accounting for 1% of total revenues (Table 17). Over $1 million dollars of total revenues are from trips fishing with traditional trawl gear, which would no longer be allowed in this area if the AM is adopted and implemented (Table 17). These revenues represent the upper bound cost associated with this option. It is, however, likely that only a portion of these revenues will be affected as vessels will most likely elect to increase their fishing efforts outside this area. In this case, even if revenues remain the same, vessel costs will rise due to longer steam time, decreased catch per unit effort, or both.

The majority of groundfish revenues reported in the AM area for all gear types were reported on trips landing in Point Judith, RI, accounting for over almost 10% of the average FY10-12 revenues landed in that port by permitted groundfish vessels (Table 18).

Selective gears have not been used extensively in this area thus far, indicating that it is generally more profitable to fish with traditional gears (Table 19). Average revenues per tow for selective gears and traditional gears in this area cannot be compared as there were no observed tows using selective gear for FY 2010-12 (Table 20). Whether it will be more profitable to fish in other areas or to continue fishing inside this area with selective gears depends on the profitability of other fishing options. Given the relatively small size of these areas, the additional trip costs (steaming time, etc.) are likely to be small. The true cost will be the difference between the profitability of fishing inside these areas and the profitability of making those trips in the next best outside area.

Table 17 – Annual and three-year average revenues for all groundfish trips and trips reported inside the Southern Windowpane Flounder AM Area – Small (VTR data, 2013 constant dollars)

	Gear Type	2010	2011	2012	*3 year avg*
All groundfish trips	**bottom longline**	$2,168,832	$2,355,103	$374,947	*$1,632,960*
	gillnet	$10,695,643	$10,421,830	$8,860,372	*$9,992,615*
	trawl, selective	$9,171,141	$4,856,866	$1,157,086	*$5,061,698*
	trawl, traditional	$101,860,375	$114,204,644	$98,785,680	*$104,950,233*
	Total:	*$123,895,991*	*$131,838,442*	*$109,178,085*	*$121,637,506*
Groundfish trips reported in AM area	**bottom longline**	$8,611			*$2,870*
	gillnet	$301,723	$459,727	$339,757	*$367,069*
	trawl, selective	$2,584	$3,366		*$2,975*
	trawl, traditional	$727,876	$1,147,781	$1,374,366	*$1,083,341*
	Total:	*$1,040,794*	*$1,610,875*	*$1,714,123*	*$1,455,264*
Percent of all revenues on groundfish trips	**bottom longline**	0%	0%	0%	0%
	gillnet	3%	4%	4%	4%
	trawl, selective	0%	0%	0%	0%
	trawl, traditional	1%	1%	1%	1%
	Total:	*1%*	*1%*	*2%*	*1%*

Table 18 – Ports with over $100K gross revenue on groundfish trips with landings from inside the Southern Windowpane Flounder AM Area – Small, average of FY 10-12 (VTR data, 2013 constant dollars)

Landing port	State	3-year average revenue		Proportion of all groundfish revenues coming from AM area
		AM Area	All groundfish	
STONINGTON	CT	$28,789	$1,111,962	2.59%
BOSTON	MA	$2,667	$12,691,511	0.02%
NEW BEDFORD	MA	$51,468	$34,845,427	0.15%
MONTAUK	NY	$41,460	$5,408,171	0.77%
SHINNECOCK	NY	$6,901	$443,958	1.55%
NEWPORT	RI	$87,006	$157,733	55.16%
POINT JUDITH	RI	$1,070,513	$10,900,442	9.82%
LITTLE COMPTON	RI	$57,908	$132,356	43.75%

Table 19 – Average annual reported catch from inside the Southern Windowpane Flounder AM Area-Small, FY 10-12 (VTR data, 2013 constant dollars)

Trawl type	cod	haddock	flats	pollock	white hake	skates	squids	other
traditional	$232,712	$25	$510,857	$51	$4,896	$199,177	$11,185	$494,386
selective	$650	$0	$1,897	$0	$0	$317	$62	$81

Table 20 – Average revenue per tow for tows ending inside the Southern Windowpane Flounder AM Area-Small, FY 10-12 (Observer data, 2013 constant dollars)

Trawl type	# tows	cod	haddock	flats	pollock	white hake	skates	squids	other	*TOTAL*
traditional	278	$309	$0	$402	$0	$21	$203	$83	$377	*$1,395*
selective	0									

Summary

In summary, as previously analyzed in FW47 and updated here, the No Action Alternative of implementing the small northern windowpane flounder AM area may have a maximum upper bound cost of $3.5 million in groundfish revenue; while the larger area could affect $8.2 million in revenue. Implementing the small southern windowpane flounder AM area may have a maximum upper bound cost of $1 million in groundfish revenue; while the larger southern areas (1 and 2) could affect $5.8 million in revenue. Not all of these revenues are foregone, as fishermen can choose to fish inside the areas with selective gear or could fish in other areas. Whether it will be more profitable to fish in other areas or to continue fishing inside these areas with selective gears depends on the profitability of other fishing options. Given the relatively small size of most of the small AM areas, the additional trip costs (steaming time, etc.) are likely to be small. This does not necessarily hold for the Large AM areas, where changes in catch composition between selective and traditional gears, combined with species-level availability outside the areas, could mean a reduction in total catch for affected vessels and, by extension, ports. Even if revenues remain the same, or increase, post-AM areas, costs associated with additional steam time and reduced catchability will mean that profits will be lower as a result of these measures. It is difficult to quantitatively predict the magnitude of the losses, conditioned on the upper bounds previously reported.

Application of the No Action Alternative in FY2014

Since FW47, these AMs have not been triggered for the groundfish fishery. However, the large AMs for both stock areas were implemented for FY2014. Option 1/No Action will have negative economic impacts , because it will actually affect fishing behavior and the AM applies to both common pool and sector vessels fishing on a groundfish trip fishing with trawl gear. At a minimum, fishermen will have to alter their behavior, which may impose additional costs. At a maximum, it could reduce revenue by $14 million - , since the larger areas have been implemented simultaneously. The maximum possible economic impacts of Option 1/No Action are expected to be more negative than may occur with Option 2. For the northern windowpane flounder areas, the economic impacts are expected to be less negative than may occur with Option 3. The No Action alternative would result in no additional impacts over the status quo.

7.1.1.2 Option 2: Area-Based Accountability Measure for Windowpane Flounder

Sub-Option A: Modified accountability measure trigger that incorporates stock status and biomass

This option only applies to overages of the total ACL greater than 20% (and the relevant sub-ACL is also exceeded) that triggers the large AM area. In this case, the appropriate body within NMFS would determine whether the following criteria are met: 1) the stock is rebuilt and 2) the biomass indicator (defined as the 3-year centered average of the 3 most recent surveys multiplied by 75%F_{MSY} of the most recent assessment) is greater than the monitored catch. If NMFS determines that these criteria are met, only the small AM Area would be implemented.

Economic Impacts

The AM areas in Option 2/Sub-Option A are identical to those in Option 1/No Action, therefore the range of potential economic impacts are the same as those discussed in Section 7.4.1.1. Thus, comparing economic impacts between Option 1/No Action and Option 2 depends on the likelihood of triggering the AM. The potential reduction in size of the AM area decreases the likelihood of triggering the large AM areas, decreasing the probability of incurring the full magnitude of the economic impacts. The economic impacts of Option 2/Sub-Option A are likely positive relative to Option 1/No Action and Option 3, though triggering the small area would have negative impacts.

Sub-Option B: Consideration of catch performance over the most recent two-year period when determining accountability measure implementation.

Under Sub-Option B, following an overage in Year 1, if it is determined that a subsequent underage has occurred in Year 2, the AM is removed in Year 3.

Economic Impacts

The AM Areas in Option 2/Sub-Option B are identical to those in Option 1/No Action, therefore the range of potential economic impacts are the same as those discussed in Section 7.4.1.1. Thus, comparing economic impacts between Option 1/No Action and Option 2 depends, on the likelihood of triggering the AM. The potential removal of the AM in Year 3 decreases the probability of incurring the full magnitude of the economic impacts. The economic impacts of Option 2/Sub-Option B are likely to be less negative than would occur with Option 1/No Action and Option 3. Relative to Sub-Option A, the economic impacts of Sub-Option B would be positive.

7.4.1.3 Option 3: Seasonal accountability measure for the northern windowpane flounder stock

Under Option 3, which applies to northern windowpane flounder only (no action for the southern stock), the AM would require the use of approved selective trawl gear in SA 522 during specified seasons. The duration of the AM would be dependent on the magnitude of the overage. The AM would be in place for May 1- August 31 for an overage greater than 5% and up to 20% and May 1-December 31 for an overage greater than 20%.

Economic Impacts

The economic impacts of triggering the AM areas are a function of (1) differences in profitability within the AM area between using selective vs. traditional gears, and/or (2) differences in profitability using selective gears inside vs. outside the AM area. Profitability itself is a function of costs and revenues, as well as species-specific

resource availability. The AM areas could have net negative economic impacts if they result in:

- lower stock-specific aggregate catches, due to lack of species availability outside of the AM area during the closure year;
- higher variable costs due to lower catch rates for economically important stocks either inside the AM area when using selective gears, or outside the AM area when using traditional gears;
- higher gear costs associated with rigging and using selective gears.

Whether it will be more profitable to fish in other areas or to continue fishing inside these areas with selective gears depends on the profitability of other fishing options. The use of selective gear can potentially change the composition of the catch inside the AM area, likely resulting in a lower proportion of flatfish relative to traditional trawl gears.

Northern Windowpane Flounder Seasonal AM –SHORT (May 1- August 31)

The average annual revenue (FY10-12) by groundfish fishing vessels estimated from trips in the northern windowpane flounder short seasonal AM area is over $7 million dollars, accounting for 6% of total revenues (Table 21). Over $7 million dollars of total revenues are from trips fishing with traditional trawl gear which would no longer be allowed in this area if the AM is adopted and implemented (Table 21). These revenues represent the upper bound cost associated with this option. It is, however, likely that only a portion of these revenues will be affected by this option, as vessels may still elect to fish inside this area with selective gear or increase their fishing efforts outside this area.

The most impacted port is New Bedford, MA, where activities reported inside the AM area account for over 16% of the average revenues landed in that port by permitted groundfish vessels (Table 22).

The use of selective gear substantially changes the composition of the catch inside the northern short seasonal AM area. VTRs and observer data collected from tows inside the area both show a higher proportion of haddock and lower proportion of flatfish when using selective gears, relative to traditional trawl gears (Table 23 and Table 24). Average revenues per tow for the selective gears in these areas were approximately 37% lower than per-tow revenues using traditional gears on observed trips, though fewer tows were observed (Table 24). VTR data indicate that traditional gears are more prevalent in this area.

Table 21 – Annual and three-year average revenues for all groundfish trips and trips reported inside the Northern Windowpane Flounder Seasonal AM Area – Short (VTR data, 2013 constant dollars)

	Gear Type	2010	2011	2012	*3 year avg*
All groundfish trips	**bottom longline**	$2,168,832	$2,355,103	$374,947	*$1,632,960*
	gillnet	$10,695,643	$10,421,830	$8,860,372	*$9,992,615*
	trawl, selective	$9,171,141	$4,856,866	$1,157,086	*$5,061,698*
	trawl, traditional	$101,860,375	$114,204,644	$98,785,680	*$104,950,233*
	Total:	*$123,895,991*	*$131,838,442*	*$109,178,085*	*$121,637,506*
Groundfish trips reported in Option 3 Area (May-Aug)	**bottom longline**	$88,636	$18,146	$8,688	*$38,490*
	gillnet	$71,655	$12,396	$26,028	*$36,693*
	trawl, selective	$310,115	$264,011	$68,846	*$214,324*
	trawl, traditional	$6,102,567	$6,815,515	$8,982,557	*$7,300,213*
	Total:	*$6,572,972*	*$7,110,068*	*$9,086,120*	*$7,589,720*
Percent of all revenues on groundfish trips	**bottom longline**	4%	1%	2%	2%
	gillnet	1%	0%	0%	0%
	trawl, selective	3%	5%	6%	4%
	trawl, traditional	6%	6%	9%	7%
	Total:	*5%*	*5%*	*8%*	*6%*

Table 22--Ports with over $100K gross revenue on groundfish trips with landings from inside the Northern Windowpane Flounder Seasonal AM Area – Short, average of FY 10-12 (VTR data, 2013 constant dollars)

		3-year average revenue		
Landing port	**State**	**AM Area**	**All groundfish**	**Proportion of all groundfish revenues coming from AM area**
STONINGTON	CT	$23,418	$1,111,962	2.11%
NEW LONDON	CT	$50,118	$1,962,701	2.55%
PORTLAND	ME	$51,860	$4,597,840	1.13%
BOSTON	MA	$498,713	$12,691,511	3.93%
GLOUCESTER	MA	$1,028,710	$23,869,559	4.31%
CHATHAM	MA	$39,926	$1,920,625	2.08%
NEW BEDFORD	MA	$5,715,360	$34,845,427	16.40%
PROVINCETOWN	MA	$2,873	$469,022	0.61%
NANTUCKET	MA	$23,713	$274,813	8.63%
MONTAUK	NY	$114,247	$5,408,171	2.11%
POINT JUDITH	RI	$195,361	$10,900,442	1.79%

Table 23– Average annual reported catch from inside the Northern Windowpane Flounder AM Seasonal Area- Short, FY 10-12 (VTR data, 2013 constant dollars)

Trawl type	cod	haddock	flats	pollock	white hake	skates	squids	other
traditional	$1,448,297	$1,106,860	$2,879,090	$159,524	$14,643	$159,619	$31,605	$1,483,817
selective	$52,517	$206,128	$58,771	$13,714	$0	$3,201	$116	$21,438

Table 24– Average revenue per tow for tows ending inside the Northern Windowpane Flounder Seasonal AM Area - Short, FY 10-12 (Observer data, 2013 constant dollars)

Trawl type	# tows	cod	haddock	flats	pollock	white hake	skates	squids	other	*TOTAL*
traditional	1303	$355	$436	$646	$250	$32	$104	$11	$410	*$2,244*
selective	125	$176	$741	$176	$66	$6	$186	$0	$46	*$1,397*

Northern Windowpane Flounder Seasonal AM – LONG (May 1- December 31)

The average annual revenue (FY10-12) by groundfish fishing vessels estimated from trips in the northern windowpane long seasonal AM area is over $13 million dollars, accounting for 11% of total revenues (Table 25). Over 96% of total revenues are from trips fishing with traditional trawl gear, which would no longer be allowed in this area if the AM is adopted and implemented (Table 25). These revenues represent the upper bound cost associated with this option. It is, however, likely that only a portion of these revenues will be affected by this option, as vessels may still elect to fish inside this area with selective gear or increase their fishing efforts outside this area.

The most impacted port is New Bedford, MA, where activities reported inside the AM area account for over 30% of the average revenues landed in that port by permitted groundfish vessels (Table 26).

The use of selective gear substantially changes the composition of the catch inside the northern short seasonal AM area. VTRs and observer data collected from tows inside the area both show a higher proportion of haddock and lower proportion of flatfish when using selective gears, relative to traditional trawl gears (Table 27 and Table 28). Average revenues per tow for the selective gears in these areas were approximately 15% lower than per-tow revenues using traditional gears on observed trips, though fewer tows were observed (Table 28). VTR data indicate that traditional gears are more prevalent in this area.

Table 25 – Annual and three-year average revenues for all groundfish trips and trips reported inside the Northern Windowpane Flounder Seasonal AM Area – Long (VTR data, 2013 constant dollars)

	Gear Type	2010	2011	2012	*3 year avg*
All groundfish trips	**bottom longline**	$2,168,832	$2,355,103	$374,947	*$1,632,960*
	gillnet	$10,695,643	$10,421,830	$8,860,372	*$9,992,615*
	trawl, selective	$9,171,141	$4,856,866	$1,157,086	*$5,061,698*
	trawl, traditional	$101,860,375	$114,204,644	$98,785,680	*$104,950,233*
	Total:	*$123,895,991*	*$131,838,442*	*$109,178,085*	*$121,637,506*
Groundfish trips reported in Option 3 Area (May-Dec)	**bottom longline**	$209,909	$27,066	$8,688	*$81,888*
	gillnet	$77,680	$15,150	$26,028	*$39,620*
	trawl, selective	$441,885	$593,981	$76,106	*$370,658*
	trawl, traditional	$11,084,476	$13,059,091	$15,577,884	*$13,240,483*
	Total:	*$11,813,950*	*$13,695,288*	*$15,688,707*	*$13,732,648*
Percent of all revenues on groundfish trips	**bottom longline**	10%	1%	2%	*5%*
	gillnet	1%	0%	0%	*0%*
	trawl, selective	5%	12%	7%	*7%*
	trawl, traditional	11%	11%	16%	*13%*
	Total:	*10%*	*10%*	*14%*	*11%*

Table 26--Ports with over $100K gross revenue on groundfish trips with landings from inside the Northern Windowpane Flounder Seasonal AM Area – Long, average of FY 10-12 (VTR data, 2013 constant dollars)

		3-year average revenue		
Landing port	**State**	**AM Area**	**All groundfish**	**Proportion of all groundfish revenues coming from AM area**
STONINGTON	CT	$33,061	$1,111,962	2.97%
NEW LONDON	CT	$123,973	$1,962,701	6.32%
PORTLAND	ME	$45,388	$4,597,840	0.99%
BOSTON	MA	$807,390	$12,691,511	6.36%
GLOUCESTER	MA	$1,733,790	$23,869,559	7.26%
CHATHAM	MA	$46,449	$1,920,625	2.42%
NEW BEDFORD	MA	$10,610,217	$34,845,427	30.45%
PROVINCETOWN	MA	$2,805	$469,022	0.60%
NANTUCKET	MA	$53,192	$274,813	19.36%
HARWICHPORT	MA	$27,931	$126,393	22.10%
MONTAUK	NY	$151,538	$5,408,171	2.80%
POINT JUDITH	RI	$299,316	$10,900,442	2.75%

Table 27– Average annual reported catch from inside the Northern Windowpane Flounder AM Seasonal Area- Long, FY 10-12 (VTR data, 2013 constant dollars)

Trawl type	cod	haddock	flats	pollock	white hake	skates	squids	other
traditional	$2,208,421	$1,770,046	$5,241,164	$255,069	$28,895	$311,616	$90,660	$3,412,625
selective	$66,362	$275,743	$77,857	$36,202	$0	$3,685	$116	$52,844

Table 28– Average revenue per tow for tows ending inside the Northern Windowpane Flounder Seasonal AM Area - Long, FY 10-12 (Observer data, 2013 constant dollars)

Trawl type	# tows	cod	haddock	flats	pollock	white hake	skates	squids	other	*TOTAL*
traditional	2379	$319	$402	$631	$170	$30	$151	$16	$551	*$2,270*
selective	226	$226	$666	$201	$405	$6	$184	$0	$239	*$1,929*

Summary

In summary, implementing the short seasonal northern windowpane flounder AM area (May 1-August 31) may have a maximum upper bound cost of $7.3 million in groundfish revenue; while the longer seasonal closure (May 1-December 31) could affect $13.2 million in revenue. Not all of these revenues are foregone, as fishermen can choose to fish inside the areas with selective gear or could fish in other areas. Whether it will be more profitable to fish in other areas or to continue fishing inside these areas with selective gears depends on the profitability of other fishing options. Given the relatively large size of the seasonal AM area, the additional trip costs (steaming time, etc.) are likely to be substantial. Changes in catch composition between selective and traditional gears, combined with species-level availability outside the areas, could mean a reduction in total catch for affected vessels and, by extension, ports. Even if revenues remain the same, or increase, post-AM areas, costs associated with additional steam time and reduced catchability could result in lower profits as a result of Option 3. It is difficult to quantitatively predict the magnitude of the losses, conditioned on the upper bounds previously reported.

The economic impacts of Option 3 are likely to be more negative than would occur with Option 1/No Action or Option 2, since a broader range of revenues may be affected.