Working document – input on seasonal closure and seasonal gear modification WP AM alternatives

The Council is considering a range of alternatives for WP AMs including No Action (no AM); seasonal area closures, seasonal gear restricted areas, and a proactive gear modification to implement a maximum number of rows in the apron of a dredge.

The PDT has recently finalized potential WP AM areas and seasons for the seasonal area closure alternative and the seasonal gear restricted areas. It would be useful to get initial input on these recommendations.

Below is the description of the current seasonal closure AM in FW25 (Section 1.0) as well as some of the analyses used to identify these AM areas (Section 2.0). In addition, the boundary and season for the gear modification AM that is in FW25 still needs to be specified. The PDT has developed two possible areas and seasons for that AM alternative as well (Section 3.0).

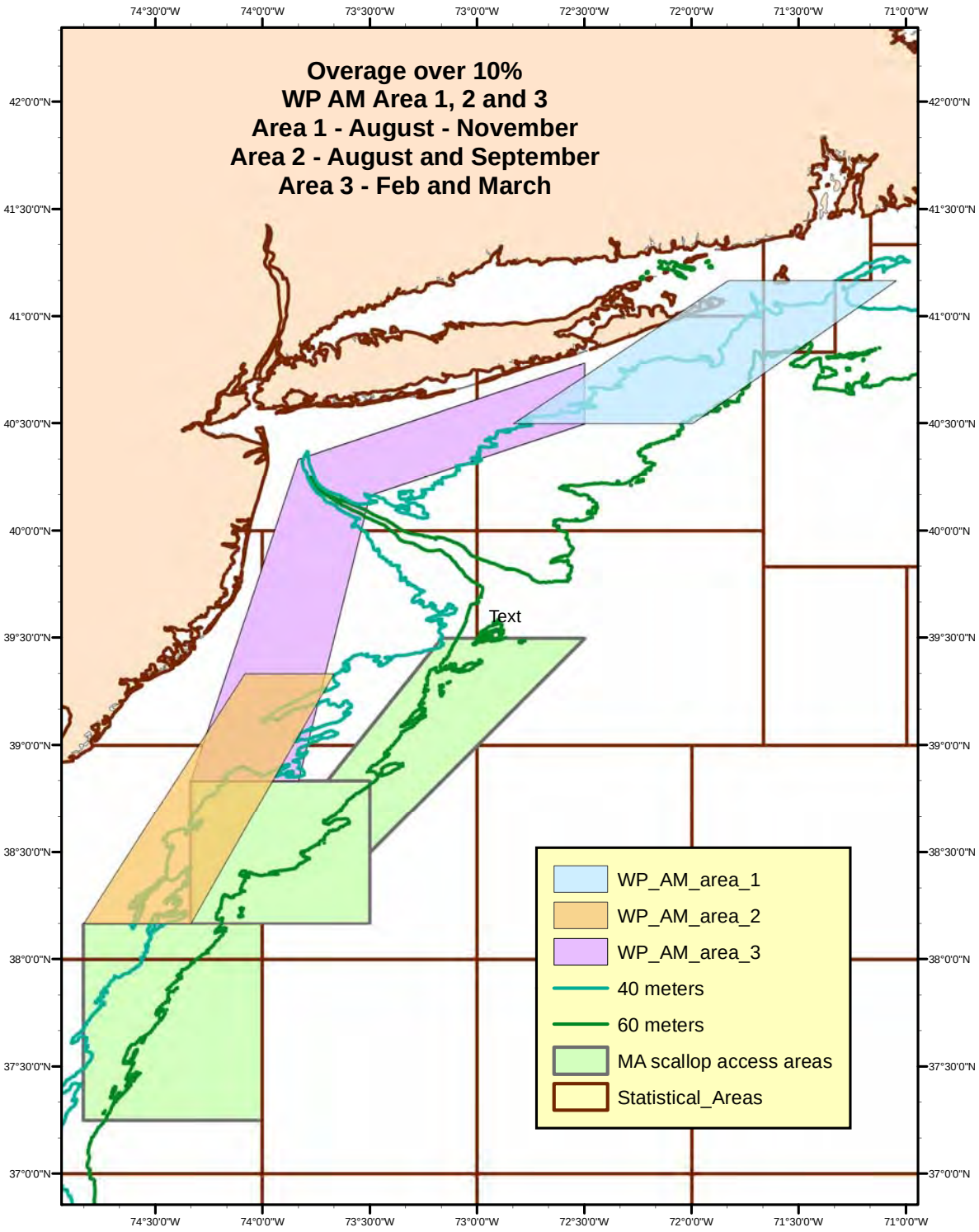
1.0 REACTIVE AM - SEASONAL AREA CLOSURE (ALTERNATIVE 2)

This alternative would close a specified area for a period of time with higher bycatch rates of SNE/MA windowpane flounder. This AM would apply to all scallop vessels, LA and LAGC IFQ vessels.

The current AM areas are in **Figure 1**.

- Area 1 would be implemented if AMs were triggered and the overage was >0 and <=5% of the sub-ACL. Area 1 would be closed to all LA and LAGC scallop vessels between August 1 and November 30.
- Area 1 and 2 would be implemented if AMs were triggered and the overage was >5% and <=10% of the sub-ACL. Area 1 would be closed to all LA and LAGC scallop vessels between August 1 and November 30 and Area 2 would be closed to all LA and LAGC vessels in August and September. Note that Area 2 overlaps with part of the Elephant Trunk Access Area. This area would NOT be impacted by this AM, only the part of Area 2 that is in open areas.
- Area 1, 2, and 3 would be implemented if AMs were triggered and the overage was >10% of the sub-ACL. Area 1 would be closed to all LA and LAGC scallop vessels between August 1 and November 30; Area 2 would be closed to all LA and LAGC vessels in August and September; and Area 3 would be closed to all LA and LAGC vessels in February and March. Note that Area 2 overlaps with part of the Elephant Trunk Access Area. This area would NOT be impacted by this AM, only the part of Area 2 that is in open areas.

Figure 1 – WP AM areas under consideration (Area 1, 2, and 3 based on the percentage overage)



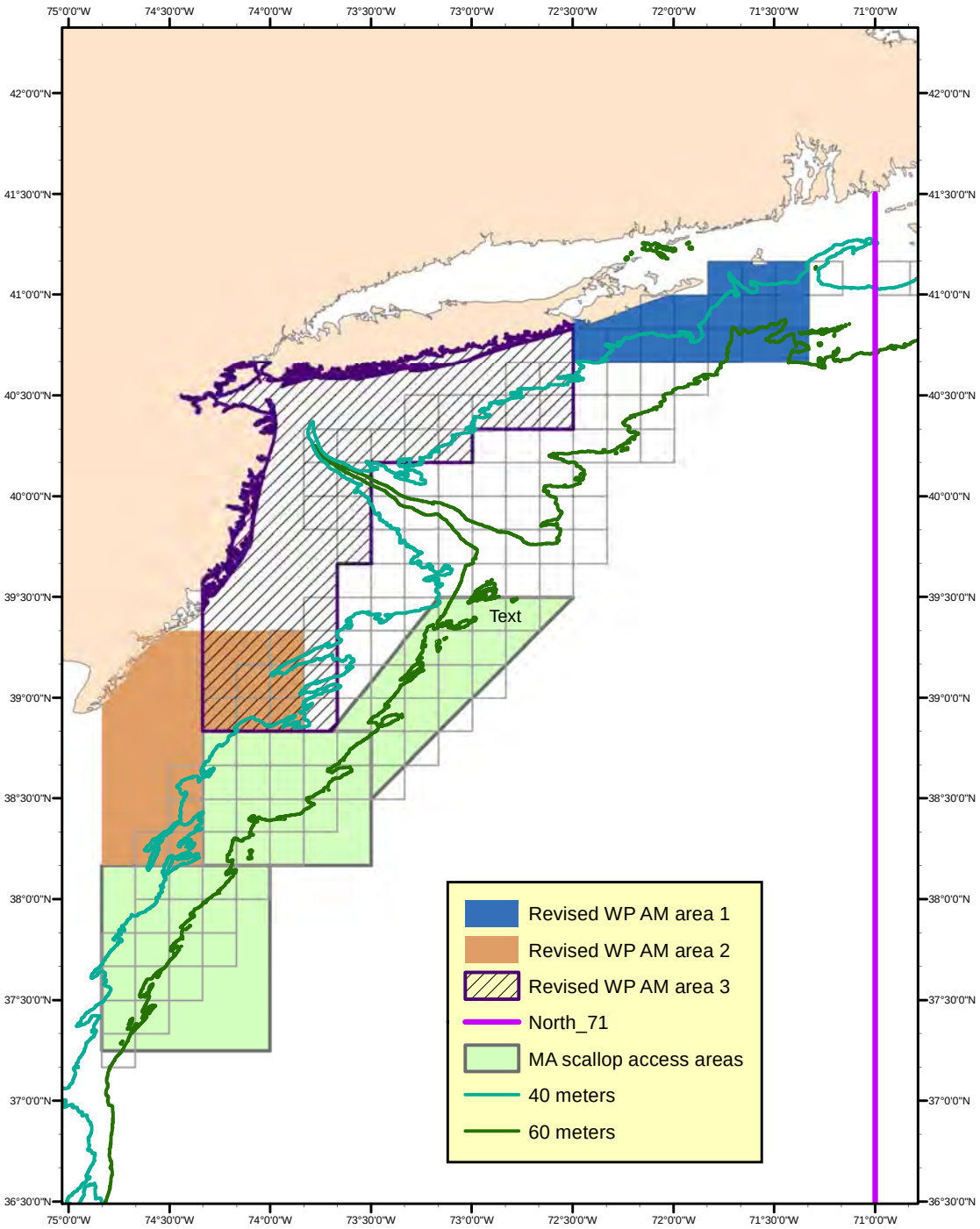
The WP catch reduction and % of effort expected to be displaced by these various areas are summarized below.

Note that 2008 estimates are likely not as accurate as other years since VMS data for summer months in 2008 are not available.

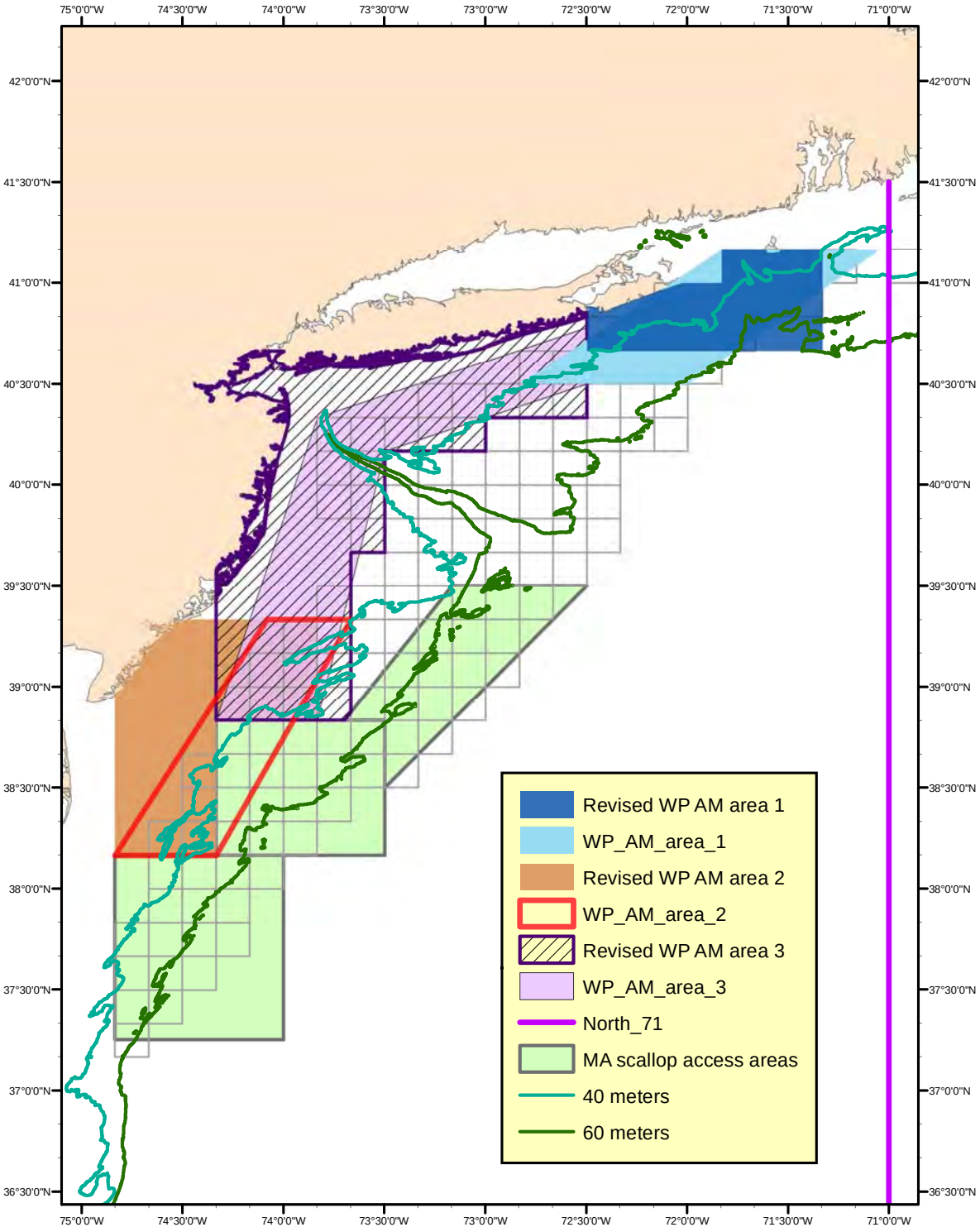
Table 1 – Summary of estimated WP reduction and % of scallop fishery effort displaced by the three AM alternative areas

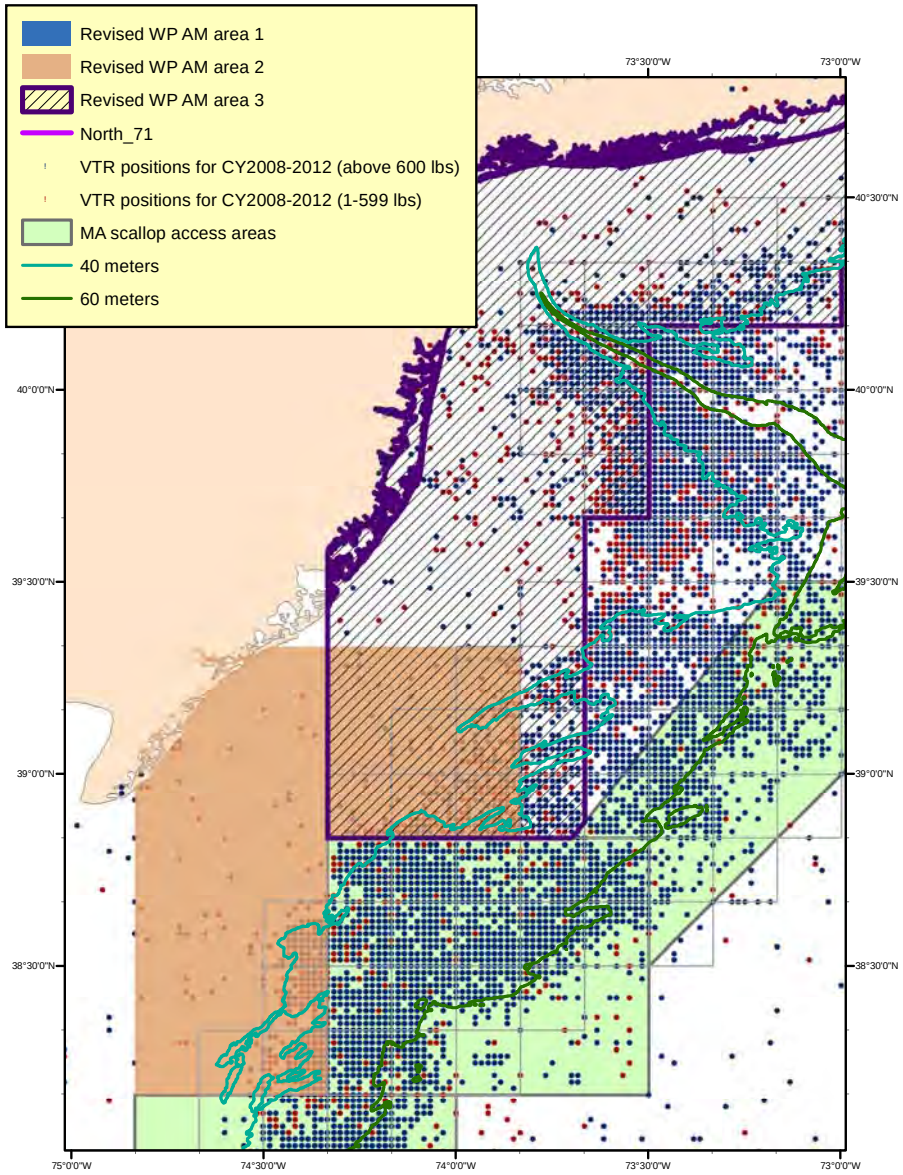
			Effort displacement							
5% Scenario		WP Catch								
	Year	Reduction	LA_Open	LAGC_AA	LAGC_Open	LAGC_UnClass	RSA_AA	RSA_Open	RSA_UnClass	SAA_AA
	2007	1.6%	4.0%	0.3%	0.0%	6.4%	0.0%	0.0%	0.0%	0.0%
	2008	0.1%	0.6%	0.0%	6.5%	0.0%	1.7%	0.1%	0.0%	0.7%
	2009	1.1%	0.6%	0.0%	2.2%	0.0%	0.3%	0.0%	0.0%	0.0%
	2010	19.9%	4.7%	0.0%	7.7%	0.0%	0.0%	30.3%	0.0%	0.0%
	2011	3.1%	1.0%	0.0%	11.7%	0.0%	0.0%	47.0%	0.0%	0.0%
	2012	1.6%	2.0%	0.0%	4.1%	0.0%	12.5%	35.7%	0.0%	0.1%
	mean	4.6%	2.1%	0.1%	5.4%	1.1%	2.4%	18.9%	0.0%	0.1%
10% Scenario										
	Year	Reduction	LA_Open	LAGC_AA	LAGC_Open	LAGC_UnClass	RSA_AA	RSA_Open	RSA_UnClass	SAA_AA
	2007	27.4%	5.6%	0.6%	0.0%	12.5%	0.0%	0.0%	0.0%	0.0%
	2008	3.3%	1.6%	0.0%	14.3%	0.0%	1.7%	0.1%	0.0%	0.7%
	2009	8.1%	2.8%	0.0%	4.0%	0.0%	0.3%	0.0%	0.0%	0.0%
	2010	20.1%	5.0%	0.0%	10.5%	0.0%	1.0%	30.3%	0.0%	0.0%
	2011	3.1%	1.0%	0.2%	12.1%	0.0%	0.0%	47.0%	0.0%	0.0%
	2012	1.7%	2.1%	0.0%	5.6%	0.0%	12.5%	35.7%	0.0%	0.1%
	mean	10.6%	3.0%	0.1%	7.8%	2.1%	2.6%	18.9%	0.0%	0.2%
20% Scenario										
	Year	Reduction	LA_Open	LAGC_AA	LAGC_Open	LAGC_UnClass	RSA_AA	RSA_Open	RSA_UnClass	SAA_AA
	2007	28.2%	6.1%	2.1%	0.0%	14.9%	0.0%	0.0%	0.0%	0.0%
	2008	6.1%	5.7%	1.7%	14.3%	8.4%	1.7%	0.9%	0.0%	0.7%
	2009	14.0%	4.4%	0.4%	5.4%	0.0%	0.3%	0.0%	0.0%	0.1%
	2010	31.8%	6.8%	0.0%	11.0%	0.0%	1.0%	30.3%	0.0%	0.0%
	2011	9.1%	6.0%	0.3%	17.3%	0.0%	0.0%	47.0%	0.0%	0.1%
	2012	7.8%	4.3%	0.1%	7.9%	0.0%	12.5%	36.4%	0.0%	0.1%
	mean	16.2%	5.6%	0.8%	9.3%	3.9%	2.6%	19.1%	0.0%	0.2%

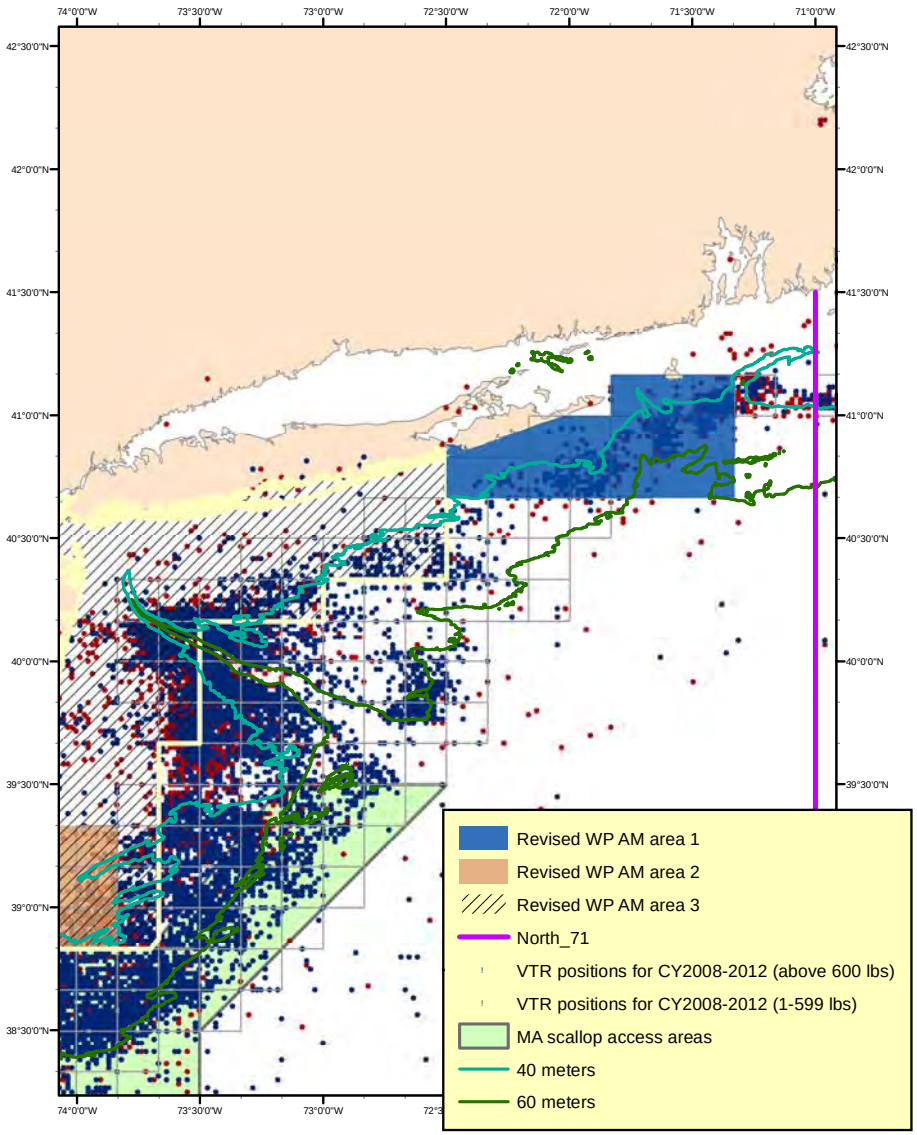
After the PDT developed these areas NMFS Enforcement reviewed the polygons and raised some concern about the overall enforceability of these areas. Therefore, boundaries were adjusted to have more north/south and east/west boundaries. Updated areas have been included below. Staff will bring updated analyses to the meeting with updated estimates of WP reduction and scallop effort displacement values for these new areas.



Original WP AM areas compared to revised areas with more regular boundaries




Revised WP AM area 1
Revised WP AM area 2
Revised WP AM area 3
North_71
VTR positions for CY2008-2012 (above 600 lbs)
VTR positions for CY2008-2012 (1-599 lbs)
MA scallop access areas
40 meters
60 meters
75°0'0"W
74°30'0"W
74°0'0"W
73°30'0"W
73°0'0"W
40°30'0"N
40°0'0"N
39°30'0"N
39°0'0"N
38°30'0"N

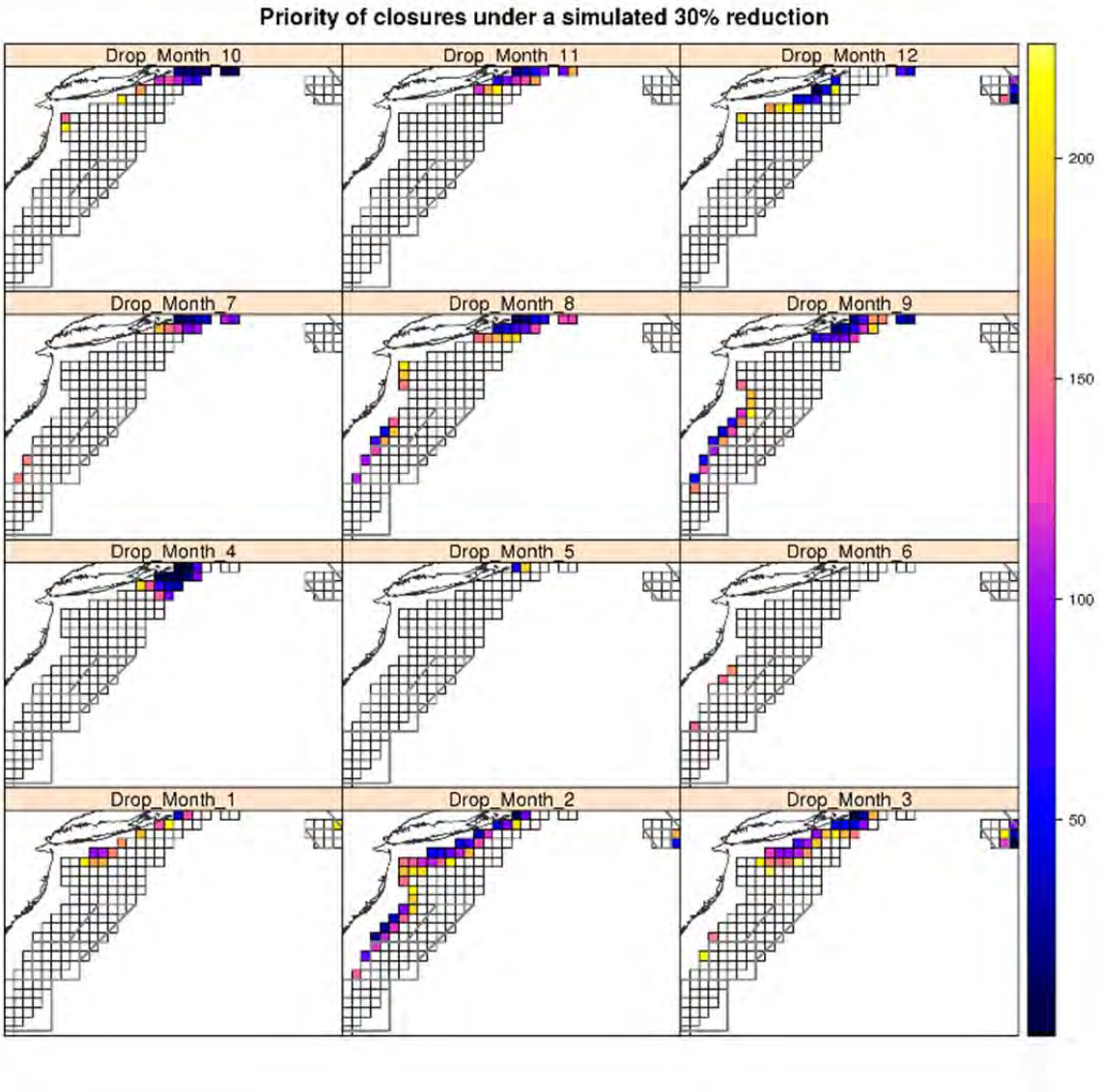

74°0'0"W
73°30'0"W
73°0'0"W
72°30'0"W
72°0'0"W
71°30'0"W
71°0'0"W
42°30'0"N
42°0'0"N
41°30'0"N
41°0'0"N
40°30'0"N
40°0'0"N
39°30'0"N
39°0'0"N
38°30'0"N
Revised WP AM area 1
Revised WP AM area 2
Revised WP AM area 3
North_71
VTR positions for CY2008-2012 (above 600 lbs)
VTR positions for CY2008-2012 (1-599 lbs)
MA scallop access areas
40 meters
60 meters

2.0 PRELIMINARY ANALYSES USED TO IDENTIFY THE AM AREAS

The PDT used a variety of sources of information to identify which areas should be included in this AM alternative. In general, a statistical model was created (GAM model) that estimates scallop and WP catch rates independently based on observer data from FY2006-2012. Data were binned into ten minute squares by month. A mean d:k ratio was calculated across years and a target decrease in WP bycatch of 30% was used to help identify candidate AM areas.

The model identifies "priority" TMS with higher d/k ratios by month. The darker colors are the TMS that would have the highest d/k ratios and would be recommended for closure first. The PDT evaluated several different target reduction plots, but the highest (30% reduction) is shown below as an example. The units are in terms of TMS cells needed to attain the target reduction; for example, about 200 TMS cells would be needed to attain an overall 30% reduction for the year.

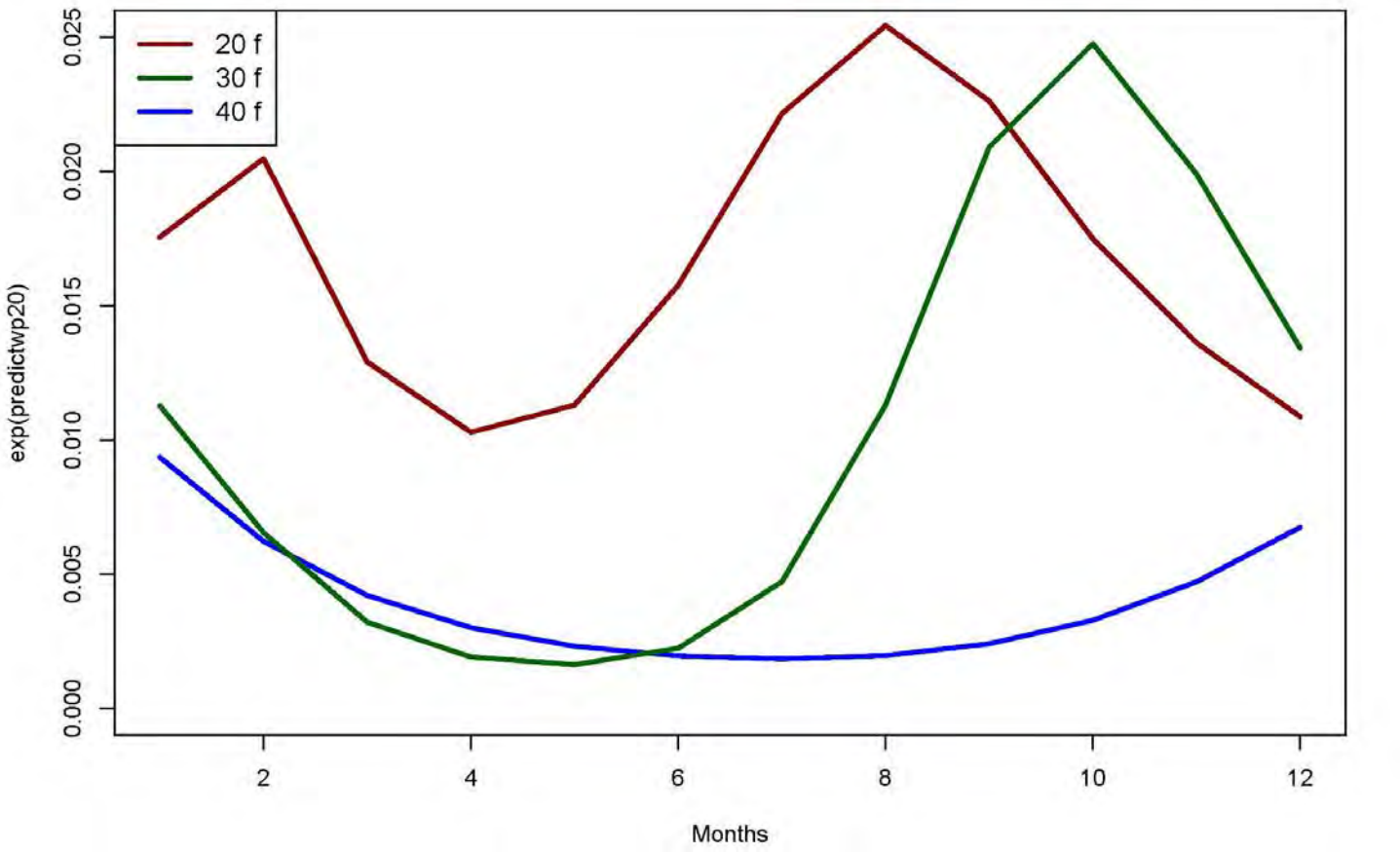
Figure 2 – Priority TMS for a target reduction of 30%



The raw model output consists of collections of cells that are often scattered spatially or temporally and thus, are not viable for implementation or enforcement. The PDT modified both the spatial extent and temporal extent of the closures to produce spatially-and temporally-contiguous closed areas and offset the impacts of the closures across the fleet.

The main source of information used to identify the season of the AM alternative was also observer data. A separate GAM model was developed that predicts bycatch by month and depth using all observed scallop trips from 1999-2011. Analyses were broken out by depth as well as month. During most months, bycatch is highest at 20 fathoms. However, during the fall, bycatch seems to be higher at 30 fathoms. Based on these results the PDT developed seasons for each of the AM areas developed, which are during the months with highest bycatch ratios.

Figure 3 – Predicted WP d/k ratios by month and depth (GAM model results from 1999-2011 scallop fishery observer data)



Finally, the PDT did use VTR fishing location information (**Figure 4**) as well as VMS data (Figure 5) to further refine AM areas. When possible areas with higher concentrations of effort were avoided. In the end, several areas were developed that encompassed as many of the higher WP bycatch cells, constrained by seasons with higher bycatch rates, and avoiding as many primary fishing locations as possible.

Figure 4 – Scallop fishing effort location based on VTR data 2008-2012 (trips under 600 pounds are in red and trips over 600 pounds in blue)

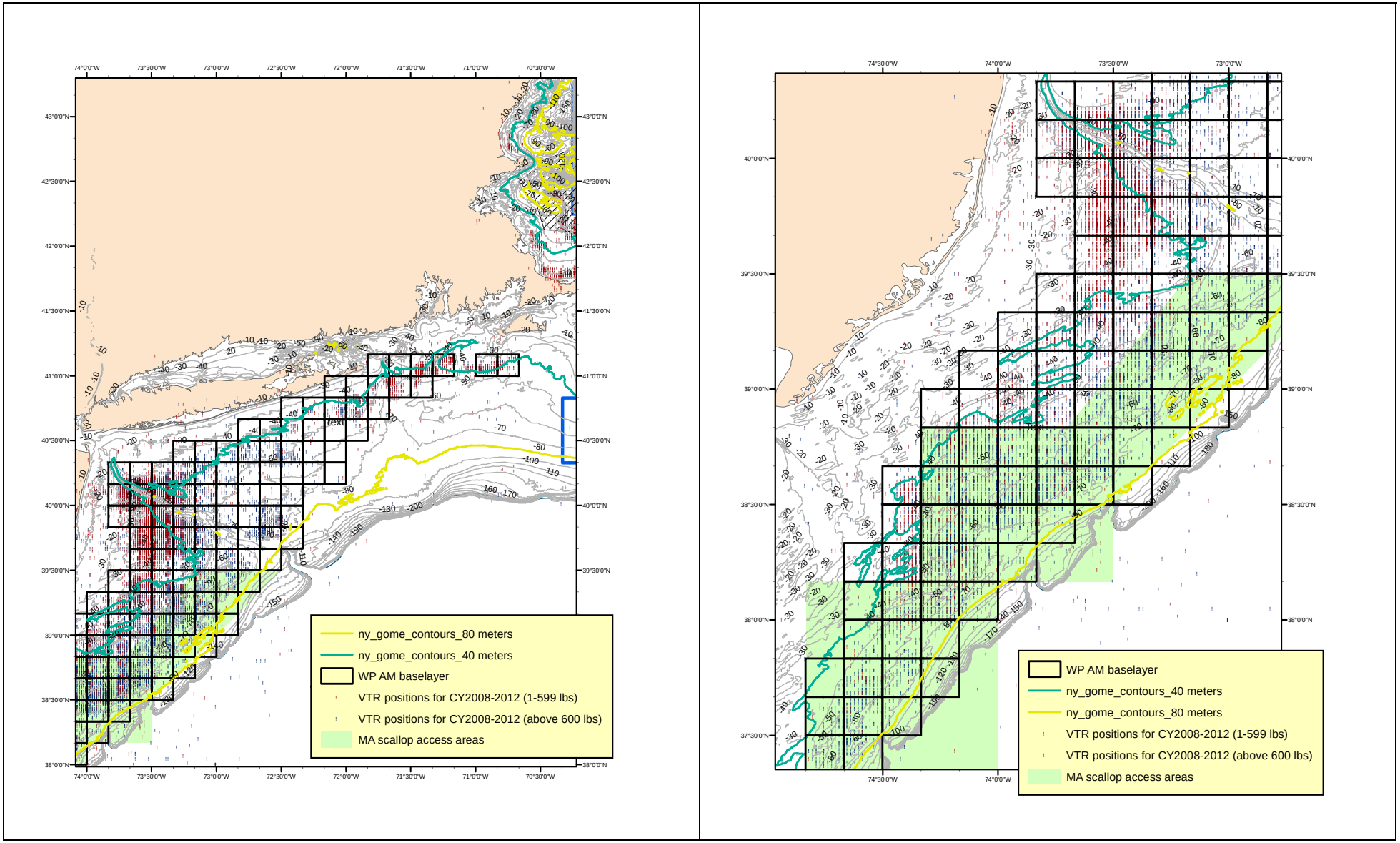
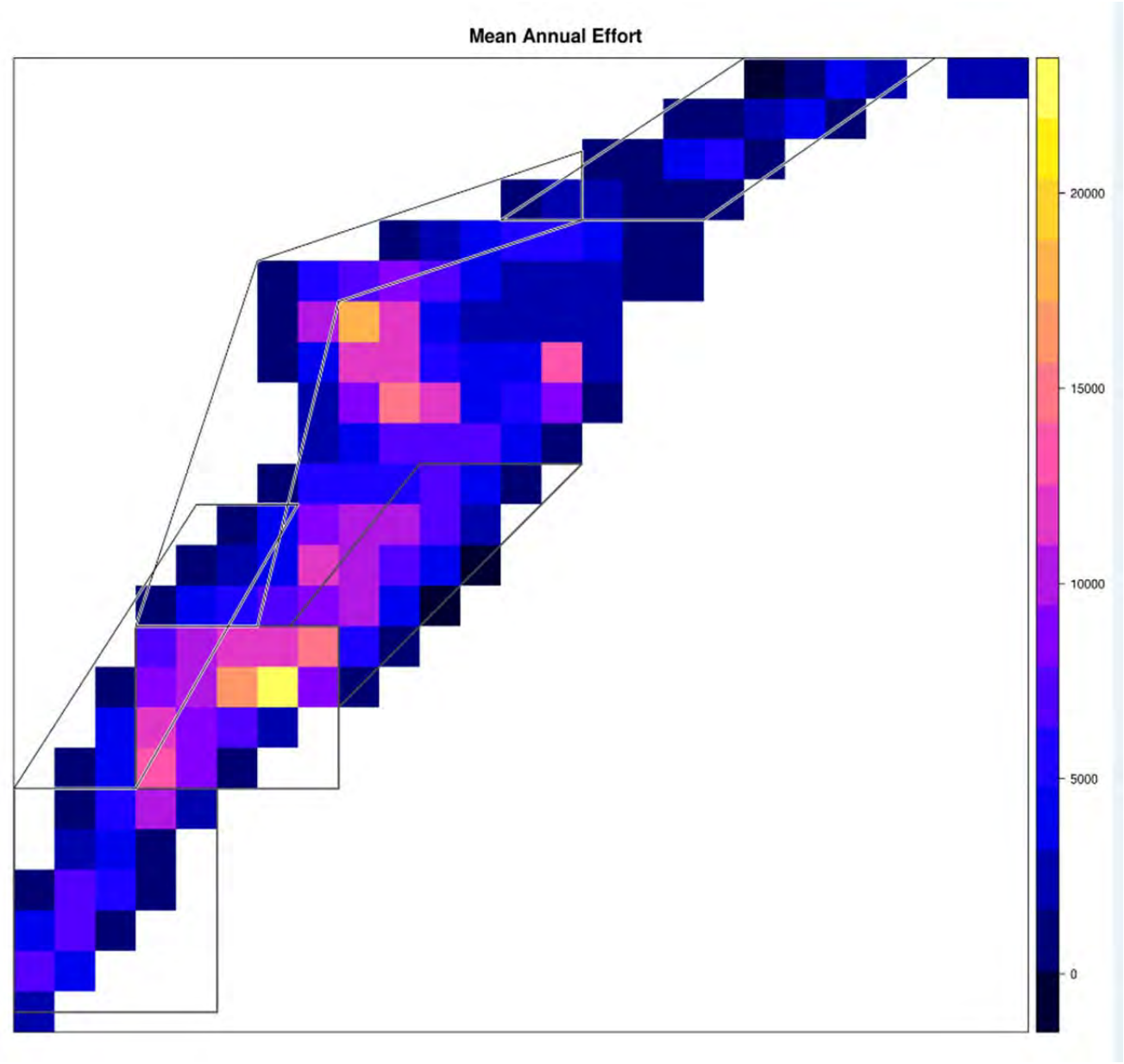
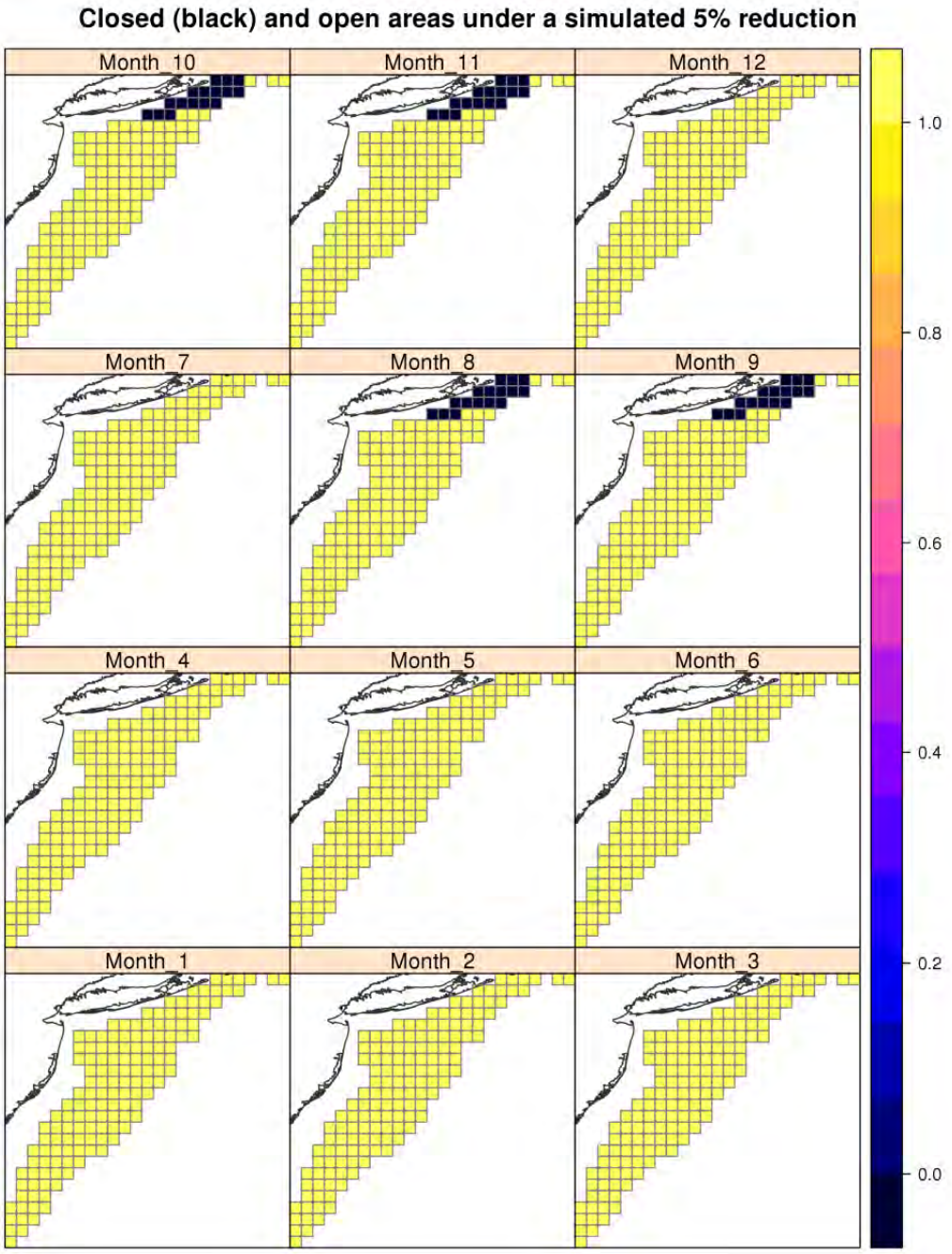


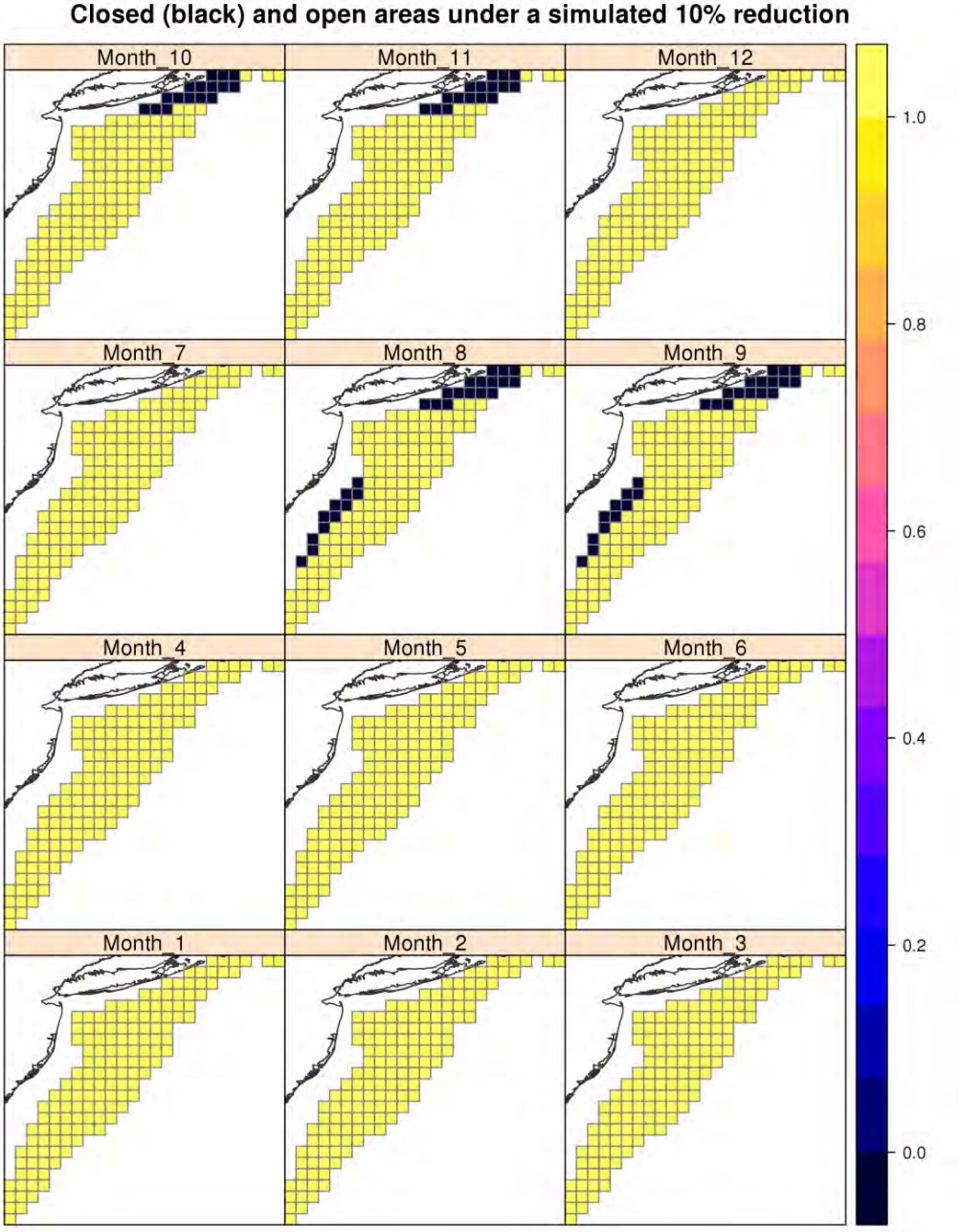
Figure 5 - Sum of VMS pings per TMS (2007-2012, but 2008 only half a year available)



First the PDT used the TMS grids to delineate the boundaries of the AM areas. The figures below represent areas that would generate 5%, 10% and over 20% reductions (Figure 6). The PDT had a conference call on January 6 and decided to turn these areas into more regularly shaped polygons (**Figure 1**).

Figure 6 – Initial scenarios for 5%, 10% and 20%




Closed (black) and open areas under a simulated 10% reduction
Month_10
Month_11
Month_12
Month_7
Month_8
Month_9
Month_4
Month_5
Month_6
Month_1
Month_2
Month_3
1.0
0.8
0.6
0.4
0.2
0.0

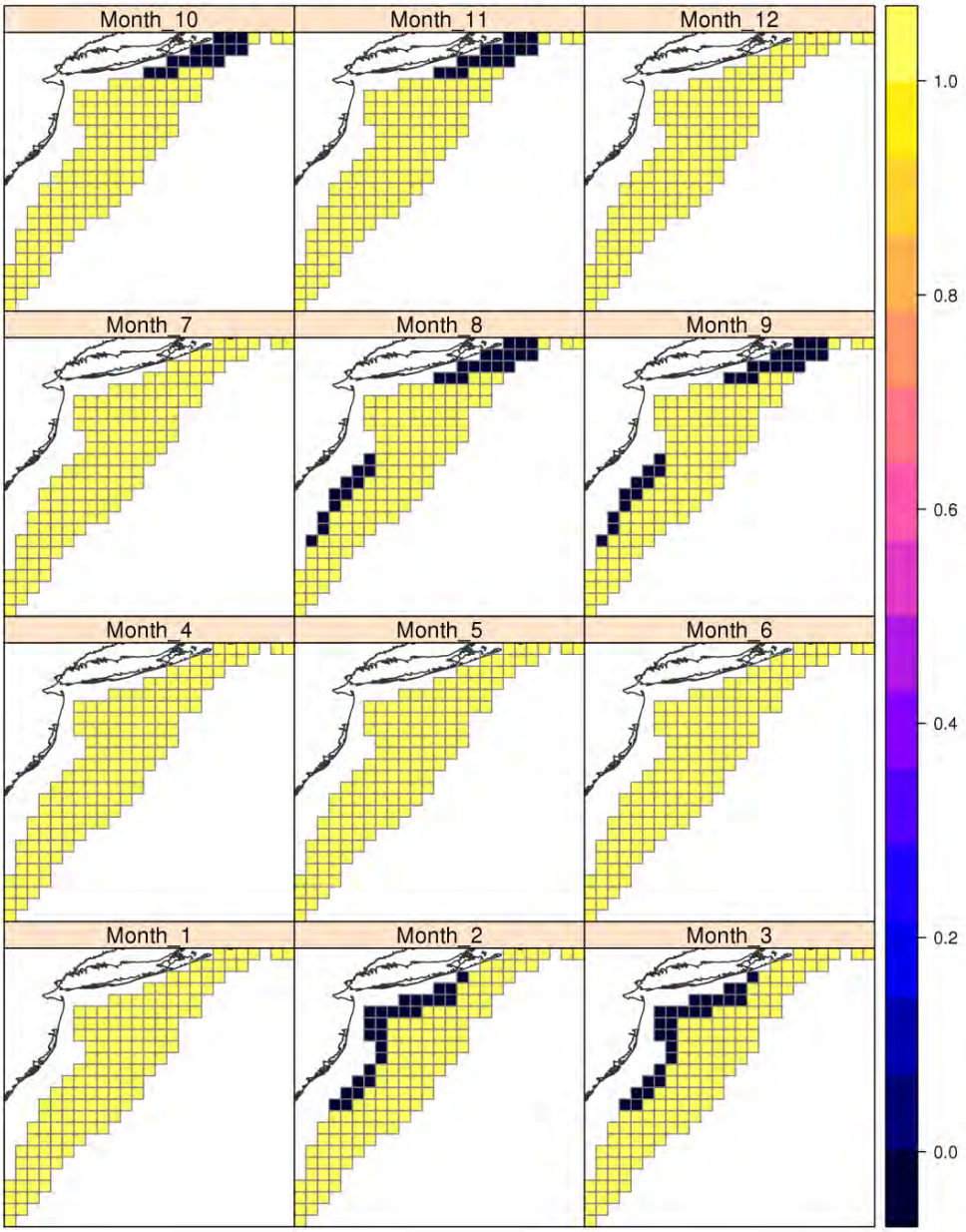

Closed (black) and open areas under a simulated 20% reduction
Month_10
Month_11
Month_12
Month_7
Month_8
Month_9
Month_4
Month_5
Month_6
Month_1
Month_2
Month_3
1.0
0.8
0.6
0.4
0.2
0.0

Figure 7 – Catch 1-600 pounds from VTR data 2008-2012 (off LI on left and MA on right)

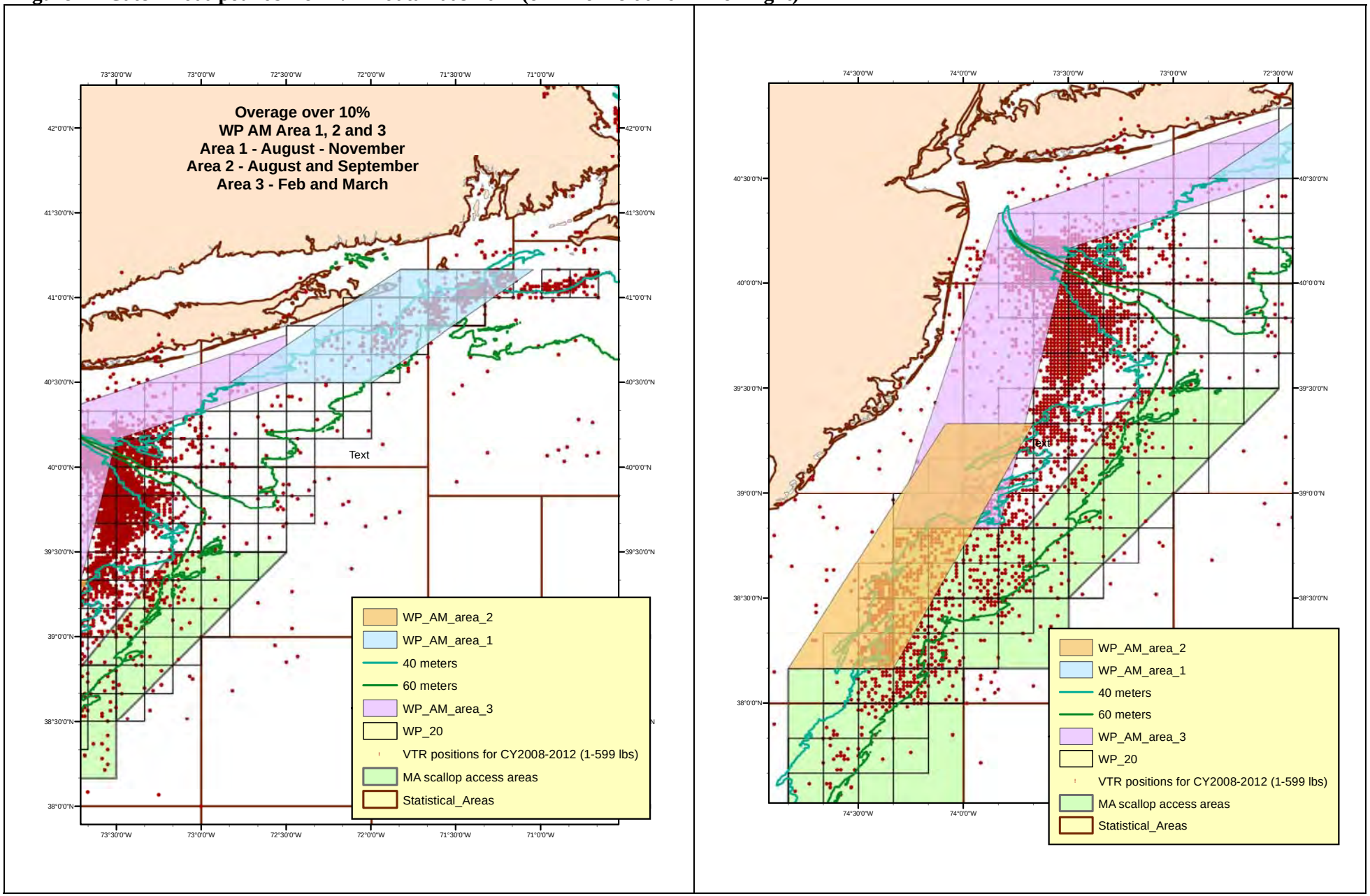
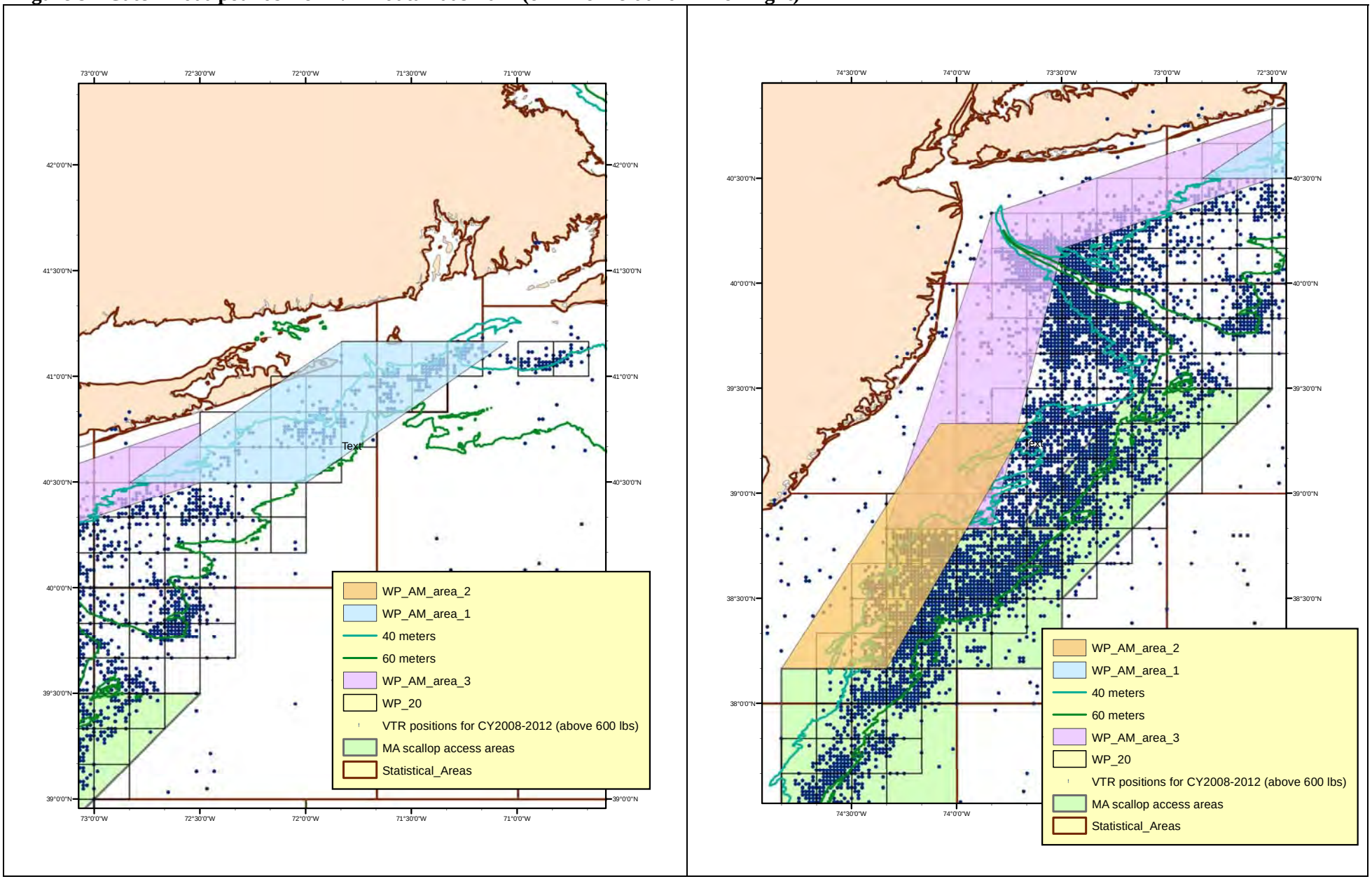


Figure 8 – Catch 1-600 pounds from VTR data 2008-2012 (off LI on left and MA on right)



3.0 SEASONAL GEAR GRESTRICTED AREAS

This alternative would implement a gear restricted area for a specified period of time with higher bycatch rates of SNE/MA windowpane flounder. The specific gear modification has two elements: 1) shorter apron in the dredge bag; and 2) reduced twine top hanging ratio. See Figure 7 in FW25 document.

What would the area and seasons be?

1. Same areas as Alternative 2 based on the same overage schedule?

    a. Same season as Alternative 2?
    b. Months with highest WP reduction % first? (Staff will provide estimates at the meeting)

2. West of TDD line 71W (NOT including access areas)
    a. Same season as TDD (May-October) – most consistent with existing regulations but not ideal time period for WP
    b. Months with the highest WP reduction % first (Feb, March, April, September, etc)

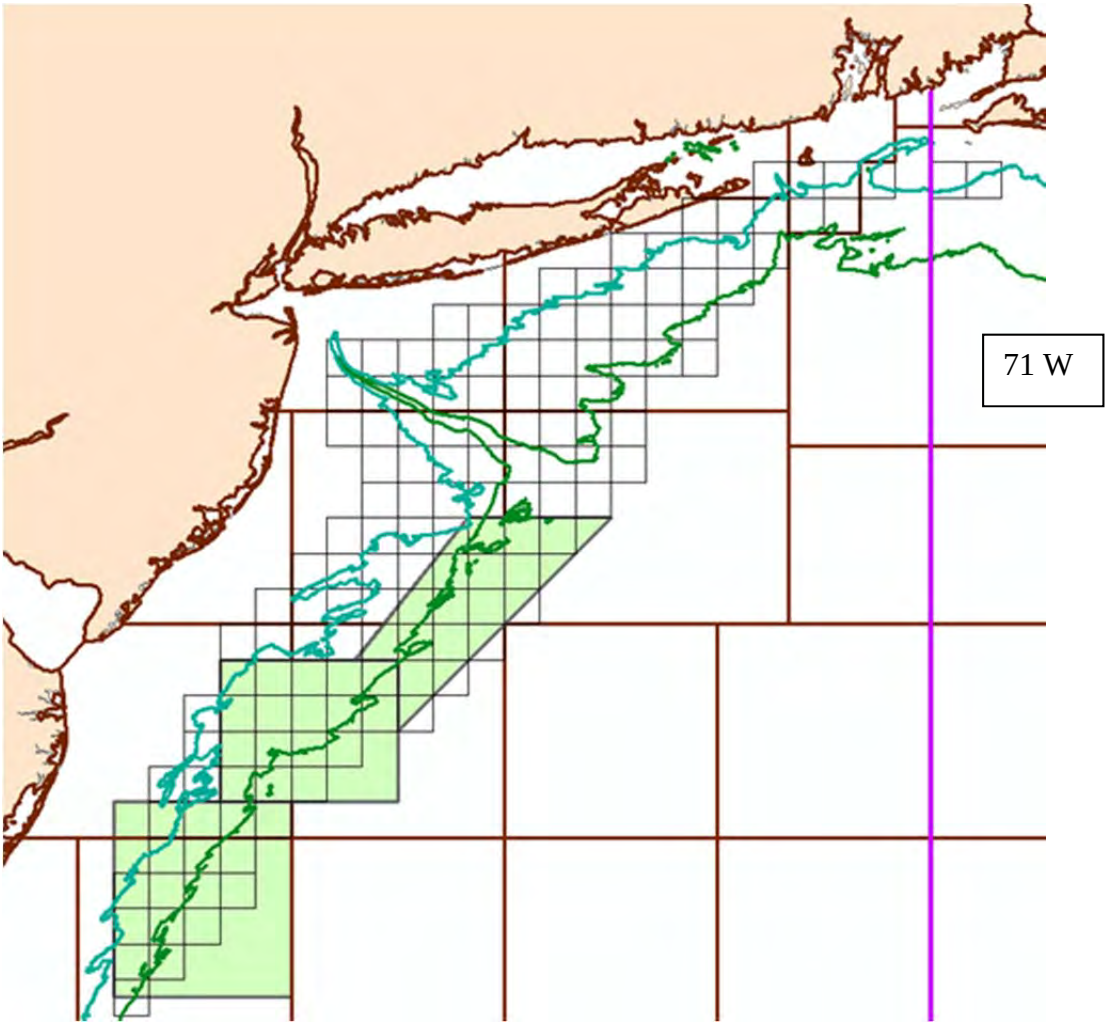


Table 2 - Estimate of WP reduction from Gear Modification AM by month for open areas west of 71 W (% reduction compared to projected WP catch with no AM and applying 45% reduction from the gear modification in the area west of TDD line (71 W))

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2007	1.62%	3.98%	4.40%	4.53%	1.03%	2.05%	2.87%	6.20%	8.19%	3.53%	1.19%	0.83%
2008												
2009	1.81%	6.04%	6.95%	4.91%	0.53%	3.01%	3.32%	2.28%	7.00%	1.17%	0.21%	0.68%
2010	1.93%	6.99%	4.40%	4.34%	0.93%	1.90%	1.40%	4.98%	7.67%	2.52%	0.73%	1.22%
2011	2.33%	6.66%	11.43%	10.61%	1.38%	0.98%	1.11%	1.47%	2.55%	2.02%	1.07%	1.05%
2012	2.07%	9.70%	10.93%	6.60%	1.46%	1.37%	1.34%	3.51%	3.58%	1.36%	0.48%	0.52%
mean	2.0%	6.7%	7.6%	6.2%	1.1%	1.9%	2.0%	3.7%	5.8%	2.1%	0.7%	0.9%

Notes

TDD season	Yellow	May - October
Month with over 5%	Green	Feb, Mar, April, Sept
Both		

SNE/MA YT AM season

LA (537,539,613)	based on overage% - starts in Mar-April, then add on Feb, May, Jan, Dec, June, Nov, Oct
LAGC Dredge (537,539,613)	based on % overage - varies per area, but some area open July - Oct
LAGC trawl (612, 613)	Based on % overage - always open July - November

Strawman

Feb - Mar (>10% overage)	14.3%	2 mon
Feb-April (10-20% overage)	20.5%	3 mon
Feb-April and Aug-Sept (over20%)	30.0%	5 mon

Questions for AP

Do we need to consider restriction for the number of rings in the side piece to prevent vessels from reducing the size of the twine top overall?

Would it matter if this season does not line up with TDD season? Are you using TDD all year for the most part in the MA?

Does the AP have a recommendation for a preferred alternative for WP AM?