2012 Illustrative Examples for SBRM Omnibus Amendment (June 4, 2013 version)

Background

Illustrative examples of the two prioritization approaches proposed by the Standardized Bycatch Reporting Methodology (SBRM) Fishery Management Action Team (FMAT) are presented. The illustrative examples apply the 2012 Northeast Fisheries Science Center's (NEFSC) sea day budget to the proposed SBRM and non-SBRM funding classifications. The sea days within the SBRM funding classification are then assigned to fleets[1] according to two proposed prioritizations approaches: proportional approach and penultimate approach. These illustrative examples were requested by the Councils and it is anticipated that the examples will be included in the SBRM Amendment appendices.

Number of Sea Day Needed

Sample size analyses were conducted to estimate the numbers of sea days needed to monitor 14 federally managed fish and invertebrate species groups and one species of sea turtles (Table 1). For fish/invertebrate species groups, the numbers of sea days needed to achieve a 30% coefficient of variation (CV) of total discards of each species groups were estimated for 55 fleets using data collected during June 2010 through July 2011 utilizing estimation methods described by Wigley et al. (2012). A total of 18,641 sea days are needed for the 14 fish and invertebrate species groups (Table 2).

For loggerhead turtles, the numbers of sea days needed to achieve a 30% CV of turtle discards was estimated by fishery, defined as a managed fish or invertebrate species landed on vessels using bottom otter trawl, sink gillnet, or scallop dredge gear in the Mid-Atlantic region (see Murray 2012). The maximum amount of projected coverage across all the fisheries was considered the desired level of sampling to monitor turtle discards for that gear type. Roughly 4,800 days are needed across bottom trawl fisheries. Roughly 1,400 days are needed across sink gillnet fisheries. Lastly, approximately 1,300 days are needed in the scallop dredge fishery, based on loggerhead bycatch precision levels after chain mats were implemented in the fishery.

[1] "fleet" is synonymous with "fishing mode." See Appendix Table 1 for fleet abbreviations.

The numbers of sea days needed to achieve a 30% CV associated with the Mid-Atlantic[2] turtle gear types and fish/invertebrate fleets are given in Table 3. The numbers of sea days needed for the combined fish/invertebrates and turtle species groups are derived as follows:

- If the sum of the sea days needed for fish/invertebrates species groups of the corresponding fish fleets exceeds the sea days needed for the turtle gear type, then the sea days needed for fish/invertebrate sea day are used.

- If the number of sea days needed for turtles for the gear type exceeds the sum of the sea days needed for fish/invertebrates of the corresponding fish fleets, then the sea days needed for turtles are distributed according to the proportion of sea days needed for fish/invertebrates of the corresponding fish fleets.

A total of 20,590 sea days are needed for fish/invertebrates and loggerhead turtles (COMBINED; Table 4) during the April 2012 through March 2013 period.

Funding available for the April 2012 to March 2013 period

Based upon the March 13, 2012 NEFSC's Northeast Fisheries Observer Program (NEFOP) budget, there was agency funding for 8,786 days. Based upon an initial observer set-aside compensation rate analysis, there was industry funding for 3,606 days. There was a total of 12,392 days available for observer coverage.

Below is a summary of the two funding source categories: agency-funded and industry-funded. Within the agency-funded category, there are six sub-categories.

<u>Agency Funding Source</u>
Based upon the March 13, 2012 budget, the NEFSC has funds for 8,786 sea days. The funding sources for these sea days include: Atlantic Coast Observers (484 days), New England Groundfish (2,448 days), At-Sea Monitoring (ASM, partially funded by National Observer Program [NOP]; 5,255 days), Reducing Bycatch - Observers (49 days), NOP (276 days), and Marine Mammal Protection Act (MMPA; 274 days).
Based upon the proposed SBRM Amendment, four of the six agency-funded sub-categories would be used to fund observer coverage under SBRM and would be used to determine if a shortfall in funds exists. The four sub-categories are: (1) Northeast Groundfish (to be referred to as "NEFOP for SBRM" in the future); (2) Atlantic Coast Observers; (3) National Observer Program; and (4) Reducing Bycatch – Observers. The other two 2012 funding sub-categories (MMPA and ASM) would be allocated to fleets according to other priorities and would not necessarily be allocated according to the SBRM process.

[2] In the sea turtle sample size analysis, Mid-Atlantic refers to areas fished west of 70^{o}W. In the fish/invertebrate sample size analysis, Mid-Atlantic refers to region based on port of departure from Connecticut and southward. Although it is recognized that port of departure may differ from the area fished, an odds ratio analysis conducted to evaluate broad-scale spatial coherence indicated a strong relationship between area fished (statistical area) and port of departure (region). Based upon this analysis, the 'Mid-Atlantic' stratifications used in two analyses were considered similar.

Using the 2012 budget, there would have been 3,257 (484 + 2448 + 49 + 276) days available to the SBRM process; the remaining 5,529 (5,255 + 274) days would not be available to the SBRM process (non-SBRM). In 2012, 37% of the agency-funded sea days would have been applicable to the SBRM process.

While the 5,529 days are not subject to the SBRM allocation process, it is important to note that the 5,255 days associated with ASM would support observed trips that employ a "complete" sampling protocol[3] and hence these sea days would support the monitoring of *all* species, including the 15 SBRM species groups. Observed trips that were funded by the 274 MMPA days would have either "limited" or "complete" sampling protocols. All of the MMPA days would support marine mammal and turtle monitoring; however, any trip employing a "limited" sampling protocol would not support the monitoring of the 14 SBRM fish/invertebrate species groups.

Industry Funding Source

The number of industry-funded sea days available depends upon the total expected budget from the Research Set Aside (RSA) program and the increase in landings allowed for vessels carrying observers (i.e., the compensation rate). Based upon projected landings and expected prices, the RSA program generates funds in support of discard monitoring of the scallop fleets. A compensation rate analysis was undertaken to support observer coverage of the nine industry-funded scallop fleets. The sea days for the nine industry-funded fleets are presented in Rows 9, 10, 12, 30, 31, 32, 33, 36, and 37 (Table 4).

Based upon the initial compensation rate analysis, a total of 3,606 sea days were funded: 1,713 days for Open areas, 240 days for Delmarva Access Area (DMV), 720 days for Hudson Canyon Access Area (HC), 240 days for Closed Area I (CAI), 453 days for Closed Area II (CAII), and 240 days in the Nantucket Lightship Access Area (NLAA).

- The industry-funded schedule runs March 1 through February, a 12-month period that is shifted one month from the NEFOP sea day schedule of April to March.

- A description of the set-aside compensation rate calculations is available on-line at: http://www.nero.noaa.gov/nero/regs/infodocs/FY12ObsCompRateCalculationSum.pdf

Limited Access General Category (LAGC) open area fleets were not industry-funded fleets (Rows 11, 34, and 35; Table 4) in 2012.

[3] For most gear types, observers use a "complete" sampling protocol that includes obtaining species weights for both kept and discarded portions of all species in the catch on every haul. In addition to the "complete" sampling protocol, there is a "limited" sampling protocol that is used on some gillnet trips where specific information for marine mammals is collected. In a "limited" sampling scenario, only kept species weights are obtained (no discard weights) since the observer must watch the gillnet gear during haul-back to observe if marine mammals roll out of the gear before the gear returns to the deck.

While the 3,606 industry-funded days are not subject to the SBRM prioritization process, it is important to note that the observed trips funded by these sea days would employ the "complete" sampling protocol and hence these sea days would support the monitoring of the 15 SBRM species groups.

SBRM Prioritization Trigger

Over all fleets, a funding shortfall of 8,198 days (20,590 – 12,392) would have been expected. Within the agency-funded fleets, a funding shortfall of 9,515 days (18,301 – 8,786) would have been expected. Within the agency-funded fleets and SBRM-applicable funding, a funding shortfall of 15,044 days (18,301 – 3,257; Table 4) would have been expected. This shortfall would have triggered the SBRM prioritization process.

In 2012, SBRM-applicable funding (3,257 days) exceeded the number of sea days needed to obtain the minimum pilot coverage across all agency-funded fleets (1,225 days; Table 4), hence either one of the prioritization alternatives could have been employed.

The following describes the steps taken to determine whether or not the SBRM prioritization trigger would have been met (Table 4). Steps 1 – 10 are independent of the prioritization approach.

Step 1. Derive minimum pilot coverage (MPC) for each fleet. Minimum pilot coverage is the minimum number of sea days needed to monitor the fleet and is calculated as three trips multiplied by the Vessel Trip Report (VTR) mean trip length in a calendar quarter, summed over all quarters with VTR activity. Three trips per quarter is the minimum sample size identified in *Evaluating Bycatch: A National Approach to Standardized Bycatch Monitoring Programs* (NMFS 2004; Table 6, page 77)

A total of 2,008 days is needed of minimum pilot coverage across all fleets (Table 4).

Step 2. Derive the number of sea days needed for the 14 fish species groups (see Wigley et al. 2012).

Step 3. Derive the number of sea days needed for sea turtles (see Murray 2012).

Step 4. To support the proposed prioritization approaches, derive the number of sea days needed for loggerhead turtles for each of the fish fleets associated with the turtle gear type group.

a. Derive the percentage of days for each fish fleet within a turtle gear type group. For each fleet associated with a turtle gear type, divide the sea days needed for fish by the sum of the sea days needed for the gear type group.

b. Derive the number of sea days needed for loggerhead turtles by fish fleet. Multiply the number of turtle sea days needed for the gear type by the percentage of days needed for each fish fleet.

Step 5. Derive the number of sea days needed for fish and turtles COMBINED; select the largest of the two sea days (i.e., sea days needed for the 14 fish species groups and sea days needed for loggerhead turtles) within the fleet.

A total of 20,590 days were needed to achieve a 30% CV on the discards of the 15 species groups in 2012 (Table 4).

Step 6. Partition fleets into funding source categories and sum the number of sea days needed, by funding source for: (a) minimum pilot sea days needed, and (b) COMBINED sea days needed.

In 2012, there were nine industry-funded fleets (see NEFSC and NERO 2012).

There were 1,225 days and 783 days needed for minimum pilot coverage for agency-funded and industry-funded fleets, respectively (Table 4).

There were 18,301 days and 2,289 days needed to achieve a 30% CV for the 15 species groups for agency-funded and industry-funded fleets, respectively (Table 4).

Step 7. Obtain funded sea days, by funding source category. For agency-funded sea days, calculate the number of sea days applicable to the SBRM process (SBRM versus non-SBRM).

There are 3,257 agency-funded days applicable to the SBRM process. There are 5,529 agency-funded days that are not applicable to the SBRM process (non-SBRM) and 3,606 industry-funded days.

Step 8. Evaluate needed sea days versus funded sea days for each funding category and calculate shortfall or surplus sea days associated with the SBRM process.

If the SBRM prioritization trigger was not reached (no shortfall for SBRM) – STOP [4] Assign sea days to fleets according to Step 4.

If SBRM prioritization trigger was reached (shortfall exists), then determine if SBRM-applicable funded sea days exceed the sea days needed for minimum pilot coverage.

If YES, apply the prioritization approach when SBRM-applicable funded sea days are greater than minimum pilot coverage days.

If NO, apply the prioritization approach when SBRM-applicable funded sea days are less than minimum pilot coverage days.

[4] When there are surplus sea days within a funding category, the surplus sea days may be allocated at the discretion of the agency as SBRM sea days are a minimum requirement, not a ceiling.

Note: if the SBRM-applicable funded sea days equal minimum pilot coverage days then assign funded sea days according to the minimum pilot coverage days (Step 1).

For SBRM-applicable funds, there was a shortfall of 15,044 days. There were sufficient agency-funded days to support the use of prioritization approaches since funded sea days exceed the sea days needed for minimum pilot coverage (3,257 > 1,225). The two proposed prioritization approaches are described in the following next two sections.

For complete accounting of all sea days in 2012, the illustrative examples include the sea days that would have been subjected to SBRM prioritizations, as well as the other funded sea days that would not have been subject to the SBRM prioritization but would have supported bycatch monitoring of the 15 SBRM species groups (sea days with "complete" sampling protocols). The allocation of the non-SBRM sea days and the industry-funded sea days are independent of the SBRM prioritization alternative and are tracked separately in the illustrative examples; these are described below.

Step 9. Allocation of agency-funded non-SBRM sea days: ASM and MMPA days.

The 5,255 ASM sea days would have been assigned to trips via the Pre-Trip Notification System (PTNS). This means that the observer coverage within each of these fleets would depend upon industry activity during the April 2012 through March 2013 period. The 5,255 ASM sea days have been proportionally allocated based on the previous year's industry activity, and thus the allocation would have been considered provisional (Tables 5 and 6).

The 274 MMPA sea days, all assumed to have limited sampling protocols, would have been allocated to a row designated as "MMPA coverage" (Tables 5 and 6).

There would have been a total of 5,529 non-SBRM sea days (5,255 + 274).

Step 10. The sea days for the nine industry-funded fleets would have been assigned via the call-in system. Similar to the non-SBRM sea days, the sea day coverage for industry-funded fleets would depend on industry activity during the April 2012 through March 2013 period and would be capped as described above. These 3,606 industry-funded sea days have not been allocated to individual fish fleets, but rather to groups of fish fleets that correspond to the stratification used in compensation rate analysis: Mid-Atlantic access area fleets (Rows 9, 10, 30, and 32; Tables 5 and 6); Open areas fleets (Rows 12, 36, and 37; Tables 5 and 6); and New England access area fleets (Rows 31 and 33; Tables 5 and 6). The allocated sea days represent the maximum coverage (i.e., caps).

Step 11. The sea days allocated for the April 2012 – March 2013 (TOTAL) is the sum of the SBRM prioritized days, non-SBRM days, and industry-funded days, a total of 12,392 days (3,257 + 5,529 + 3,606).

Prioritization Alternatives when SBRM-applicable funded sea days are greater than MPC days

If SBRM prioritization trigger was reached (shortfall exists) and SBRM-applicable funded sea days are greater than the sea days needed for minimum pilot coverage, then prioritization among fleets are needed.

Proportional Approach

As described in the draft SBRM Amendment, the number of agency-funded sea days applicable to the SBRM prioritization was assigned to each fleet (fishing mode) based on the shortfall ratio (funded days/ needed days) after the number of sea days needed for minimum pilot coverage had been removed.

The following describes the steps taken to assign the agency-funded sea days applicable to the SBRM prioritization process using the proportional approach applied to the 2012 budget (Table 5). Steps P1 to P4 are associated with prioritization approaches and should not be confused with Steps 1 to 11.

Step P1. Derive the "COMBINED MPC Adjusted" days for each agency-funded fleet by subtracting the "Min. Pilot Coverage" days (Step 1) from the "COMBINED" days (Step 5).

Step P2. Derive the "Proportional Shortfall". Over all agency-funded fleets, subtract the sum of the "Min. Pilot Coverage" days (Step 1) from the sum of the SBRM prioritized "COMBINED" days (Step 5) and divide by the sum of the "COMBINED MPC Adjusted" (Step P1).

There were 3,257 agency-funded days available for SBRM prioritization. Of these, 1,225 days would have been assigned to all fleets to meet the minimum pilot days. The remaining 2,032 days (3,257 – 1,225) would have been available to proportionally allocate among the agency-funded fleets (Table 5). The sum of the COMBINED MPC Adjusted sea days would have been 17,076. The proportional shortfall would have been 0.12 (2,032 / 17,076).

Step P3. Derive the "COMBINED MPC Adjusted Rescaled" days for each agency-funded fleet by multiplying the "COMBINED MPC Adjusted" days (Step P1) by the "Proportional Shortfall" (Step P2).

Step P4. Derive the "SBRM PRIORITIZED" days for each agency-funded fleet by adding the "Min Pilot Coverage" days (Step 1) to the "COMBINED MPC Adjusted Rescaled" days (Step P3).

The SBRM prioritized sea days would have then been added to the non-SBRM days (Step 9) and the industry-funded days (Step 10) to obtain the sea days allocated for April 2102 – March 2013 (TOTAL; Step 11).

Using the proportional prioritization approach, the 3,257 SBRM prioritized sea days would have provided observer coverage to all 55 fleets (Table 5). There would have been 22 fleets with no reduction in the number of sea days needed – the fleets that would have needed only minimum

pilot coverage. There would have been 24 fleets with a reduction in the sea days needed. There would have been 28 species groups and fleets combinations for which the expected CV would be greater than 30%. While the decrease in total sea days occurs proportionally across fleets, the resulting increase in CV at the cell (species groups/fleets) level would have varied within and across fleets.

Penultimate Approach

As described in the draft SBRM Amendment, the number of agency-funded sea days applicable to the SBRM prioritization was assigned to each fleet (fishing mode) after sequentially removing the sea days needed for the species group/fleet with the highest sea day difference between adjacent species groups within a fleet until the sea day shortfall is removed.

The following describes the steps taken to assign the agency-funded sea days applicable to the SBRM prioritization process using the penultimate approach applied to the 2012 budget (Table 6). Steps P1 to P4 are associated with prioritization approaches and should not be confused with Steps 1 to 11.

Step P1. For each agency-funded fleet, list the sea days needed for the SBRM species groups (fish/invertebrates Table 2; loggerhead turtle Table 4) in descending order within a fleet. Use the minimum pilot days as the minimum sea days needed for the fleet.

Step P2. Calculate the differences in sea days between adjacent species groups within each agency-funded fleet.

Step P3. Within the resulting matrix of differences (Step P2), identify the largest difference and remove the sea days associated with the species group accounting for this difference.

Repeat this process for the next largest difference, with the constraint that the differences are taken in penultimate order (from left to right in the matrix) within a fleet, until the cumulative reduction of sea days equals the sea day shortfall (Step 8). If the reduction in sea days using the next largest (penultimate) value is greater than the shortfall, reduce the number of sea days only enough to remove the shortfall.

The 2012 sea day shortfall would have been 15,044 days. The 3,879 sea days (RCRAB in Row 8) associated with the largest sea day difference (3,091) between adjacent species groups would have been removed first (Table 6). Given the penultimate fleet constraint (i.e., cannot remove the sea days of a species group unless all species groups with greater numbers of sea days have been removed within the fleet), the 5,551 sea days (RCRAB in Row 6) associated with the next largest sea day difference (2,599) between adjacent species groups would have been removed next. The 2,952 sea days (TURS in Row 6) associated with the next largest sea days difference (2,619), given the penultimate fleet constraint, would have been removed next, etc. In 2012, the 97 sea days associated with the last species group that would have been removed (DOG in Row 26) would have removed more sea days than would have been needed to reach the shortfall amount of 15,044 day (Table 6). Thus, only 23 of the 83 sea day difference between adjacent species groups (or in this case between species group and minimum pilot coverage) would have

been used (Table 6). The prioritized sea days for this fleet (Row 26) would have been 74 (97 - 23).

Step P4. After the removal of sea days within a fleet (Step P3), the remaining highest sea days (i.e., the penultimate or the left-hand-most value in Step P1) would have become the "SBRM PRIORITIZED" sea days required for that fleet.

The SBRM prioritized sea days would have then been added to the non-SBRM days (Step 9) and the industry-funded days (Step 10) to obtain the sea days allocated for April 2102 – March 2013 (TOTAL; Step 11).

Using the penultimate prioritization approach, the 3,257 SBRM prioritized sea days would have provided observer coverage to all 55 fleets. There would have been 44 fleets with no reduction in sea days required. There would have been 17 cells (species group and fleet combinations) where the number of sea days assigned would have been less than the sea days needed to achieve a 30% CV. These 17 cells occurred in 11 fleets (Rows 5, 6, 7, 8, 17, 22, 23, 24, 26, 39, and 48; Table 6).

Changes in Precision Resulting from Prioritization Approaches (when SBRM-applicable funded sea days are greater than MPC days)

The relationships between the coefficient of variation and the sample size are given in Figures 1 and 2 for fish/invertebrates and loggerhead turtles, respectively. The sea days (sample size) corresponding to those prioritized to the fleet via the two prioritization approaches are given and the difference in expected CV can be determined for each species group.

For the penultimate approach, the expected precision of the discard estimates of the 17 cells would be greater than 30% CV and vary by species group and fleet. The penultimate approach adjusts the CV upward on the fewest number of cells (species groups/fleets). The proportional approach adjusts the CV upward for all species groups in the fleet for all agency-funded fleets that require more than minimum pilot coverage. Hence, for all fleets for which prioritized sea days are less than the number of sea days needed, the expected precision for some species group may exceed a 30% CV. However, it does not necessarily mean that the expected precision for *all* species will exceed 30%. For example, in the MA extra large mesh gillnet fleet (Row 24), the prioritized days yield an expected CV that is less than 30% for skates and monkfish (Figure 1) but not for loggerhead turtles (Figure 2). The MA extra large gillnet fleet (Row 24) is associated with the loggerhead turtle MA gillnet gear type and the loggerhead turtle species group is the species group with the largest number of sea days needed. This situation may occur for any of the fish fleets associated with the turtle gear types when the sea days needed for the fish fleets are "driven" by sea turtles.

It is important to note that other funding sources (agency-funded non-SBRM prioritized days such as ASM or MMPA and industry-funded days) support the monitoring of the 15 SBRM species groups. When the days from other funding sources are added to the fleet, the precision will increase (the CV decrease) and more species groups will achieve a 30% CV or less. For example, NE large mesh otter trawl (Row 8) would have either 280 or 489 days allocated via the

penultimate or proportional approaches, respectively; however, with the additional 1,981 ASM days, all fish species groups would be expected to achieve a 30% CV. Another example would occur in the Mid-Atlantic scallop dredge turtle gear group; three of the four fish fleets that comprise the turtle gear group are industry-funded fleets (Figure 2 refers to, but does not include, industry-funded days).

Prioritization Alternatives when SBRM-applicable funded sea days are less than MPC days

If the SBRM prioritization trigger was reached (shortfall exists) and SBRM-applicable funded sea days are less than the sea days needed for minimum pilot coverage, then prioritization among fleets are needed. These alternatives remove sea day coverage completely from some fleets.

While there was a shortfall in SBRM-applicable funded sea days in 2012 budget, there was not a shortfall with regard in minimum pilot coverage day (3,257 > 1,225). Hence, the following two examples have used a hypothetical number of 1,000 agency-funded sea days applicable to the SBRM process.

Option 1: Penultimate MPC Approach

As described in the draft SBRM Amendment, the number of agency-funded sea days applicable to the SBRM prioritization process was assigned to each fleet (fishing mode) by sequentially eliminating coverage in fleets that have the highest minimum pilot coverage days until the shortfall in MPC days is removed.

The following describes the steps taken to assign the agency-funded sea days applicable to the SBRM prioritization process using the penultimate MPC (option 1) approach applied to the 2012 budget (Table 7). Steps P1 to P4 are associated with the prioritization approach and should not be confused with Steps 1 to 11.

Step P1. Derive the minimum pilot coverage shortfall. Subtract the SBRM-applicable funded sea days (Step 6b) from the sum of minimum pilot coverage sea days for agency-funded fleets (Step 6a).

Using the hypothetical example of 1,000 SBRM-applicable days, there would have been a minimum pilot coverage shortfall of 225 days (1,000 - 1,225).

Step P2. Within the agency-funded fleets, rank the minimum pilot days (Step 1) in descending order.

Step P3. Using the ranking in Step P2, identify the fleet and the minimum pilot days with highest number of minimum pilot coverage days (rank = 1). Repeat this process for the next highest number of minimum pilot coverage days until the cumulative reduction in sea days is equal to, or than greater, the MPC shortfall.

Step P4. Derive the "SBRM PRIORITIZED Option 1" by using the MPC days (Step 1) and removing the sea days for the fleets identified in Step P3.

In this example, 294 days were removed from three fleets. The 294 days exceeds the number of days needed to reduce the MPC shortfall by 69 days (294 – 225). The 69 "remaining" days would be proportionally allocated among the fleets that have sea days assigned. In this example, there are 52 fleets with MPC days assigned. Note: the 69 days distributed proportionally among the fleets is not shown in Table 7).

Option 2: Penultimate MPC Ratio Approach

As described in the draft SBRM Amendment, the number of agency-funded sea days applicable to the SBRM prioritization process was assigned to each fleet (fishing mode) by sequentially eliminating coverage in fleets that had the highest ratio of minimum pilot coverage days to actual days absent from port reported in the Vessel Trip Report in the previous year until the shortfall in MPC days is removed.

The following describes the steps taken to assign the agency-funded sea days applicable to the SBRM prioritization process using the penultimate MPC ratio (option 2) approach applied to the 2012 budget (Table 8). Steps P1 to P6 are associated with the prioritization approach and should not be confused with Steps 1 to 11.

Step P1. Derive the minimum pilot coverage shortfall. Subtract the SBRM-applicable days (Step 6b) from the sum of minimum pilot coverage for agency-funded fleets (Step 6a).

Using the hypothetical example of 1,000 SBRM-applicable days, there would have been a minimum pilot coverage shortfall of 225 days (1,000 - 1,225).

Step P2. For each fleet, derived the number of days absent from port in the VTR using the previous year's data (see Wigley et al. 2012, Table 3).

Step P3. Derive the ratio of MPC days to VTR days. For each agency-funded fleet, divide the minimum pilot coverage days (Step 1) by the VTR days absent (Step P2).

Step P4. Rank the ratio (MPC/VTR) derived in Step P3 in descending order.

Step P5. Using the ranking in Step P4, identify the fleet and the minimum pilot days with highest ratio (rank = 1). Repeat this process for the next highest ratio until the cumulative reduction in sea days is equal to, or than greater, the MPC shortfall.

Fleets with low ratios indicate fleets with high numbers of days absent from port. Note: the MPC/VTR ratio can be greater than 1 for fleets with very low numbers of trips. Because the sea day allocations are for coverage in the upcoming year, it is assumed that a minimum of three trips would occur in each quarter of the year for which there was industry activity in the previous year. Table 2 in Wigley et al. 2012 reveals that there are some fleet and quarter combinations where industry activity occurred but less than three trips.

Step P6. Derive the "SBRM PRIORITIZED Option 2" by using the MPC days (Step 1) and removing the sea days for the fleets identified in Step P5.

In this example, 238 days were removed from eight fleets. The 238 days exceeds the number of days needed to reduce the MPC shortfall by 13 days (238 – 225). The 13 "remaining" days would be proportionally allocated among the fleets that have sea days assigned. In this example, there are 47 fleets with MPC days assigned. Note: the 13 days distributed proportionally among the fleets is not shown in Table 8).

Changes in Coverage and Precision Resulting from Prioritization Approaches (when SBRM-applicable funded sea days are less than MPC days)

Both of these Options remove coverage from fleets. Option 1 would eliminate coverage in fleets with longest average trip length. For example a fleet that required 60 days for minimum pilot coverage would be eliminated before a fleet requiring 15 days of coverage. Option 1 would impact the fewest fleets. Option 2 would eliminate coverage from fleets with low numbers of days absent. The expected precision for species groups in fleets with the minimum pilot days would vary among fleets and species groups and would be exceed a 30% CV for all fleets that require more sea days than minimum pilot coverage days. Figures 1 and 2 may be used to determine the expected precision of species groups in fleets with prioritized sea days derived from these two prioritization approaches.

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Table 1. List of the 14 fish and invertebrate species groups and one species of sea turtles (in bold), with species group abbreviations in parentheses, and the species comprising these groups, corresponding to the 13 federal fishery management plans in the Northeast region.

ATLANTIC SALMON (SAL)
BLUEFISH (BLUE)
FLUKE - SCUP - BLACK SEA BASS (FSB)
Black Sea Bass
Fluke
Scup
HERRING, ATLANTIC (HERR)
LARGE MESH GROUNDFISH (GFL)
American Plaice
Atlantic Cod
Atlantic Halibut
Atlantic Wolffish
Haddock
Ocean Pout
Pollock
Redfish
White Hake
Windowpane Flounder
Winter Flounder
Witch Flounder
Yellowtail Flounder
MONKFISH (MONK)
RED CRAB (RCRAB)
SEA SCALLOP (SCAL)
SKATE COMPLEX (SKATE)
Barndoor Skate
Clearnose Skate
Little Skate
Rosette Skate
Smooth Skate
Thorny Skate
Winter Skate
SMALL MESH GROUNDFISH (GFS)
Offshore Hake
Red Hake
Silver Hake
SPINY DOGFISH (DOG)
SQUID - BUTTERFISH - MACKEREL (SBM)
Atlantic Mackerel
Butterfish
Illex Squid
Loligo Squid
SURFCLAM - OCEAN QUAHOG (SCOQ)
Surfclam
Ocean Quahog
TILEFISH (TILE)
LOGGERHEAD TURTLE (TURS)

Table 2. The number of sea days needed to achieve a 30% CV based on the variance of the discard estimate for each the fish/invertebrate species groups, the number of pilot sea days, minimum pilot sea days, and 2012 sea days (the maximum number of sea days needed for each fleet) based on July 2010 through June 2011 data. Red font indicates basis for fleet sea days; species group and fleet abbreviations are given in Table 1 and Appendix Table 1 respectively. *[This is modified version of Wigley et al 2012 Table 5 – this version includes minimum pilot sea days]*

Row	Gear Type	Access Area	Trip Category	Region	Mesh	BLUE	HERR	SAL	RCRAB	SCAL	SBM	MONK	GFL	GFS	SKATE	DOG	FSB	SCOQ	TILE	Pilot days	Min Pilot days	2012 Sea Days Needed for FISH
1	Longline	OPEN	all	MA	all	67	67	67	67	67	67	67	67	67	67	67	67	67	67	**67**	67	67
2	Longline	OPEN	all	NE	all	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24	**16**	16
3	Hand Line	OPEN	all	MA	all	81	81	81	81	81	81	81	81	81	81	81	81	81	81	**81**	13	81
4	Hand Line	OPEN	all	NE	all	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	**16**	16
5	Otter Trawl	OPEN	all	MA	sm	0	0	0	**3,231**	0	364	0	497	545	397	325	513	0	0	160	30	3,231
6	Otter Trawl	OPEN	all	MA	lg	0	0	0	**5,551**	0	0	164	141	0	107	333	173	0	0	266	27	5,551
7	Otter Trawl	OPEN	all	NE	sm	0	0	0	0	0	411	0	461	451	531	**1,151**	489	0	0	168	29	1,151
8	Otter Trawl	OPEN	all	NE	lg	0	0	0	**3,879**	0	0	568	76	280	261	229	788	0	0	415	35	3,879
9	Scallop Trawl	AA	GEN	MA	all	21	21	21	21	21	21	21	21	21	21	21	21	21	21	**21**	21	21
10	Scallop Trawl	AA	LIM	MA	all	98	98	98	98	98	98	98	98	98	98	98	98	98	98	**98**	98	98
11	Scallop Trawl	OPEN	GEN	MA	all	0	0	0	0	0	0	0	0	0	**32**	0	0	0	0	25	22	32
12	Scallop Trawl	OPEN	LIM	MA	all	163	163	163	163	163	163	163	163	163	163	163	163	163	163	**163**	163	163
13 +	Otter Trawl, Ruhle	OPEN	all	MA	lg	9	9	9	9	9	9	9	9	9	9	9	9	9	9	**9**	9	9
14 +	Otter Trawl, Ruhle	OPEN	all	NE	sm	27	27	27	27	27	27	27	27	27	27	27	27	27	27	**27**	27	27
15	Otter Trawl, Ruhle	OPEN	all	NE	lg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	**59**	59
16 +	Otter Trawl, Haddock Separator	OPEN	all	MA	lg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	**8**	8
17	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0	0	0	0	0	0	0	0	0	257	**567**	0	0	0	100	100	567
18	Shrimp Trawl	OPEN	all	MA	all	131	131	131	131	131	131	131	131	131	131	131	131	131	131	**131**	120	131
19	Shrimp Trawl	OPEN	all	NE	all	0	0	0	0	0	0	0	0	**34**	0	0	0	0	0	65	13	34
20	Floating Trap	OPEN	all	MA	all	6	6	6	6	6	6	6	6	6	6	6	6	6	6	**6**	6	6
21	Floating Trap	OPEN	all	NE	all	6	6	6	6	6	6	6	6	6	6	6	6	6	6	**6**	6	6
22	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	**13**	13
23	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	**13**	13
24	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0	0	0	0	0	0	70	0	0	**83**	0	0	0	0	61	15	83
25	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	41	41	41	41	41	41	41	41	41	41	41	41	41	41	**41**	41	41
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0	0	0	0	0	0	0	0	0	0	**97**	0	0	0	134	14	97
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0	0	0	0	0	0	132	0	0	118	**171**	0	0	0	94	19	171
28	Purse Seine	OPEN	all	MA	all	15	15	15	15	15	15	15	15	15	15	15	15	15	15	**15**	15	15
29	Purse Seine	OPEN	all	NE	all	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	**23**	23
30	Scallop Dredge	AA	GEN	MA	all	31	31	31	31	31	31	31	31	31	31	31	31	31	31	**31**	31	31
31	Scallop Dredge	AA	GEN	NE	all	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	**14**	14
32	Scallop Dredge	AA	LIM	MA	all	0	0	0	0	0	0	**282**	0	0	0	0	0	0	0	102	102	282
33	Scallop Dredge	AA	LIM	NE	all	0	0	0	0	0	0	**189**	0	0	0	0	0	0	0	121	121	189
34	Scallop Dredge	OPEN	GEN	MA	all	0	0	0	0	0	0	0	0	0	**50**	0	0	0	0	95	17	50
35	Scallop Dredge	OPEN	GEN	NE	all	0	0	0	0	0	0	0	0	0	0	0	0	0	0	87	**17**	17
36	Scallop Dredge	OPEN	LIM	MA	all	0	0	0	0	0	0	**312**	0	0	164	0	0	0	0	238	109	312
37	Scallop Dredge	OPEN	LIM	NE	all	0	0	0	0	500	0	234	107	0	163	505	**607**	0	0	277	124	607
38	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	**17**	17
39	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0	0	0	0	0	0	0	0	0	0	**571**	0	0	0	43	43	571
40	Pots and Traps, Fish	OPEN	all	MA	all	25	25	25	25	25	25	25	25	25	25	25	25	25	25	**25**	13	25
41	Pots and Traps, Fish	OPEN	all	NE	all	15	15	15	15	15	15	15	15	15	15	15	15	15	15	**15**	9	15
42	Pots and Traps, Conch	OPEN	all	MA	all	27	27	27	27	27	27	27	27	27	27	27	27	27	27	**27**	12	27
43	Pots and Traps, Conch	OPEN	all	NE	all	26	26	26	26	26	26	26	26	26	26	26	26	26	26	**26**	18	26
44	Pots and Traps, Hagfish	OPEN	all	MA	all	3	3	3	3	3	3	3	3	3	3	3	3	3	3	**3**	3	3
45	Pots and Traps, Hagfish	OPEN	all	NE	all	74	74	74	74	74	74	74	74	74	74	74	74	74	74	**74**	74	74
46	Pots and Traps, Shrimp	OPEN	all	NE	all	6	6	6	6	6	6	6	6	6	6	6	6	6	6	**6**	6	6
47	Pots and Traps, Lobster	OPEN	all	MA	all	65	65	65	65	65	65	65	65	65	65	65	65	65	65	**65**	16	65
48	Pots and Traps, Lobster	OPEN	all	NE	all	429	429	429	429	429	429	429	429	429	429	429	429	429	429	**429**	17	429
49	Pots and Traps, Crab	OPEN	all	MA	all	12	12	12	12	12	12	12	12	12	12	12	12	12	12	**12**	12	12
50	Pots and Traps, Crab	OPEN	all	NE	all	67	67	67	67	67	67	67	67	67	67	67	67	67	67	**67**	67	67
51	Beam Trawl	OPEN	all	MA	all	31	31	31	31	31	31	31	31	31	31	31	31	31	31	**31**	31	31
52	Beam Trawl	OPEN	all	NE	all	16	16	16	16	16	16	16	16	16	16	16	16	16	16	**16**	16	16
53	Dredge, Other	OPEN	all	MA	all	41	41	41	41	41	41	41	41	41	41	41	41	41	41	**41**	41	41
54	Ocean Quahog/Surf Clam Dredge	OPEN	all	MA	all	67	67	67	67	67	67	67	67	67	67	67	67	67	67	**67**	24	67
55	Ocean Quahog/Surf Clam Dredge	OPEN	all	NE	all	38	38	38	38	38	38	38	38	38	38	38	38	38	38	**38**	16	38
					Total	1,638	1,638	1,638	14,299	2,138	2,413	3,589	2,920	2,948	3,801	5,587	4,208	1,638	1,638	4,379	2,008	18,641

Table 3. The numbers of sea days needed to achieve a 30% CV associated with the Mid-Atlantic turtle gear types and fish/invertebrate fleets. *[Loggerhead turtle days taken from Murray 2012]*

Turtle Gear Types and Fish Fleets	**Sea Days Needed**	
	Loggerhead Turtles	**Fish/Invertebrates Species Groups**
MA Otter Trawl and Scallop Trawl Rows 5, 6, 9, 10, 11, and 12	4,838	9,096
MA Gillnet Rows 22, 23, and 24	1,440	109
MA Scallop Dredge Rows 30, 32, 34, and 36	1,293	675

Table 4. The number of sea days used in the determination of the SBRM trigger (Steps 1 through 8) using the 2012 budget.

						Step 1	Step 2	Step 3	Step 4a	Step 4b	Step 5
Row	Gear Type	Access Area	Trip Category	Region	Mesh	2012 Sea Days for Min Pilot Coverage (MPC)	2012 Sea Days Needed for FISH	2012 Sea Days Needed for TURS	% by FISH fleet	TURS Sea Days by fish fleet	2012 Sea Days Needed COMBINED
1	Longline	OPEN	all	MA	all	67	67				67
2	Longline	OPEN	all	NE	all	16	16				16
3	Hand Line	OPEN	all	MA	all	13	81				81
4	Hand Line	OPEN	all	NE	all	16	16				16
5	Otter Trawl	OPEN	all	MA	sm	30	3,231	4,838	0.355	1,719	3,231
6	Otter Trawl	OPEN	all	MA	lg	27	5,551		0.610	2,952	5,551
7	Otter Trawl	OPEN	all	NE	sm	29	1,151				1,151
8	Otter Trawl	OPEN	all	NE	lg	35	3,879				3,879
9	Scallop Trawl	AA	GEN	MA	all	21	21		0.002	11	21
10	Scallop Trawl	AA	LIM	MA	all	98	98		0.011	52	98
11	Scallop Trawl	OPEN	GEN	MA	all	22	32		0.004	17	32
12	Scallop Trawl	OPEN	LIM	MA	all	163	163		0.018	87	163
13 +	Otter Trawl, Ruhle	OPEN	all	MA	lg	9	9				9
14 +	Otter Trawl, Ruhle	OPEN	all	NE	sm	27	27				27
15	Otter Trawl, Ruhle	OPEN	all	NE	lg	59	59				59
16 +	Otter Trawl, Haddock Separator	OPEN	all	MA	lg	8	8				8
17	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	100	567				567
18	Shrimp Trawl	OPEN	all	MA	all	120	131				131
19	Shrimp Trawl	OPEN	all	NE	all	13	34				34
20	Floating Trap	OPEN	all	MA	all	6	6				6
21	Floating Trap	OPEN	all	NE	all	6	6				6
22	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	13	13		0.119	172	172
23	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	13	13	1,440	0.119	172	172
24	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	15	83		0.761	1,096	1,096
25	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	41	41				41
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	14	97				97
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	19	171				171
28	Purse Seine	OPEN	all	MA	all	15	15				15
29	Purse Seine	OPEN	all	NE	all	23	23				23
30	Scallop Dredge	AA	GEN	MA	all	31	31		0.046	59	59
31	Scallop Dredge	AA	GEN	NE	all	14	14				14
32	Scallop Dredge	AA	LIM	MA	all	102	282	1,293	0.418	540	540
33	Scallop Dredge	AA	LIM	NE	all	121	189				189
34	Scallop Dredge	OPEN	GEN	MA	all	17	50		0.074	96	96
35	Scallop Dredge	OPEN	GEN	NE	all	17	17				17
36	Scallop Dredge	OPEN	LIM	MA	all	109	312		0.462	598	598
37	Scallop Dredge	OPEN	LIM	NE	all	124	607				607
38	Mid-water Paired & Single Trawl	OPEN	all	MA	all	17	17				17
39	Mid-water Paired & Single Trawl	OPEN	all	NE	all	43	571				571
40	Pots and Traps, Fish	OPEN	all	MA	all	13	25				25
41	Pots and Traps, Fish	OPEN	all	NE	all	9	15				15
42	Pots and Traps, Conch	OPEN	all	MA	all	12	27				27
43	Pots and Traps, Conch	OPEN	all	NE	all	18	26				26
44	Pots and Traps, Hagfish	OPEN	all	MA	all	3	3				3
45	Pots and Traps, Hagfish	OPEN	all	NE	all	74	74				74
46	Pots and Traps, Shrimp	OPEN	all	NE	all	6	6				6
47	Pots and Traps, Lobster	OPEN	all	MA	all	16	65				65
48	Pots and Traps, Lobster	OPEN	all	NE	all	17	429				429
49	Pots and Traps, Crab	OPEN	all	MA	all	12	12				12
50	Pots and Traps, Crab	OPEN	all	NE	all	67	67				67
51	Beam Trawl	OPEN	all	MA	all	31	31				31
52	Beam Trawl	OPEN	all	NE	all	16	16				16
53	Dredge, Other	OPEN	all	MA	all	41	41				41
54	Ocean Quahog/Surf Clam Dredge	OPEN	all	MA	all	24	67				67
55	Ocean Quahog/Surf Clam Dredge	OPEN	all	NE	all	16	38				38
					Total	2,008	**18,641**				**20,590**

Step 6a	Agency Fleets (Min Pilot Sea Days Needed)	**1,225**	
	Industry Fleets (Min Pilot Sea Days Needed)	**783**	
Step 6b	Agency Fleets (Sea Days Needed)		**18,301**
	Industry Fleets (Sea Days Needed)		**2,289**
Step 7	Agency Fleets (Sea Days Funded)	SBRM prioritized	**3,257**
	Agency Fleets (Sea Days Funded)	non-SBRM prioritized	**5,529**
	Industry Fleets (Sea Days Funded)		**3,606**
Step 8	Agency Fleet Difference	SHORTFALL	**-15,044**
	Industry Fleet Difference	SURPLUS	**1,317**
	Is SBRM prioritization needed? Are there sufficient funds to apply the priori	YES	YES

Turtle Gear Types				
	MA OT	**9,096**	4,838	9,096
	MA GN	109	**1,440**	1,440
	MA SD	675	**1,293**	1,293

KEY: AF = Agency funded fleets	IF = Industry funded fleets
Steps independent of SBRM prioritization approach	
Prioritization Steps	Fleets with reduction in sea days

Table 5. Sea day allocation using the proportional prioritization approach for the SBRM-applicable sea days in the 2012 budget.

						Step 1	Step 5	PROPORTIONAL APPROACH					
Row	Gear Type	Access Area	Trip Category	Region	Mesh	2012 Sea Days for Min Pilot Coverage (MPC)	2012 Sea Days Needed COMBINED	Step P1 2012 Sea Days Needed COMBINED MPC Adjusted	Step P3 2012 Sea Days Needed COMBINED MPC Adjusted Rescaled	Step P4 2012 Sea Days SBRM PRIORITIZED (Proportional)	Step 9 2012 Sea Days non-SBRM (Catch share, MMPA, Discovery)	Step 10 2012 Industry-funded Sea Days	Step 11 Sea Days Allocated for April 2012 - March 2013 (TOTAL)
1	Longline	OPEN	all	MA	all	67	67	0	0	67			67
2	Longline	OPEN	all	NE	all	16	16	0	0	16	*106*		122
3	Hand Line	OPEN	all	MA	all	13	81	68	8	21			21
4	Hand Line	OPEN	all	NE	all	16	16	0	0	16	*280*		296
5	Otter Trawl	OPEN	all	MA	sm	30	3,231	3,201	381	411			411
6	Otter Trawl	OPEN	all	MA	lg	27	5,551	5,524	657	684	*1,271*		1,955
7	Otter Trawl	OPEN	all	NE	sm	29	1,151	1,122	134	163			163
8	Otter Trawl	OPEN	all	NE	lg	35	3,879	3,844	457	492	*1,981*		2,473
9	Scallop Trawl	AA	GEN	MA	all	21	21						
10	Scallop Trawl	AA	LIM	MA	all	98	98						
11	Scallop Trawl	OPEN	GEN	MA	all	22	32	10	1	23			23
12	Scallop Trawl	OPEN	LIM	MA	all	163	163						
13 +	Otter Trawl, Ruhle	OPEN	all	MA	lg	9	9	0	0	9			9
14 +	Otter Trawl, Ruhle	OPEN	all	NE	sm	27	27	0	0	27			27
15	Otter Trawl, Ruhle	OPEN	all	NE	lg	59	59	0	0	59	*37*		96
16 +	Otter Trawl, Haddock Separator	OPEN	all	MA	lg	8	8	0	0	8	*0*		8
17	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	100	567	467	56	156	*203*		359
18	Shrimp Trawl	OPEN	all	MA	all	120	131	11	1	121			121
19	Shrimp Trawl	OPEN	all	NE	all	13	34	21	2	15			15
20	Floating Trap	OPEN	all	MA	all	6	6	0	0	6			6
21	Floating Trap	OPEN	all	NE	all	6	6	0	0	6			6
22	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	13	172	159	19	32			32
23	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	13	172	159	19	32			32
24	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	15	1,096	1,081	129	144	*287*		431
25	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	41	41	0	0	41			41
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	14	97	83	10	24	*640*		664
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	19	171	152	18	37	*450*		487
28	Purse Seine	OPEN	all	MA	all	15	15	0	0	15			15
29	Purse Seine	OPEN	all	NE	all	23	23	0	0	23			23
30	Scallop Dredge	AA	GEN	MA	all	31	59						
31	Scallop Dredge	AA	GEN	NE	all	14	14						
32	Scallop Dredge	AA	LIM	MA	all	102	540					1,200	1,200
33	Scallop Dredge	AA	LIM	NE	all	121	189					693	693
34	Scallop Dredge	OPEN	GEN	MA	all	17	96	79	9	26			26
35	Scallop Dredge	OPEN	GEN	NE	all	17	17	0	0	17			17
36	Scallop Dredge	OPEN	LIM	MA	all	109	598					1,713	1,713
37	Scallop Dredge	OPEN	LIM	NE	all	124	607						0
38	Mid-water Paired & Single Trawl	OPEN	all	MA	all	17	17	0	0	17			17
39	Mid-water Paired & Single Trawl	OPEN	all	NE	all	43	571	528	63	106			106
40	Pots and Traps, Fish	OPEN	all	MA	all	13	25	12	1	14			14
41	Pots and Traps, Fish	OPEN	all	NE	all	9	15	6	1	10			10
42	Pots and Traps, Conch	OPEN	all	MA	all	12	27	15	2	14			14
43	Pots and Traps, Conch	OPEN	all	NE	all	18	26	8	1	19			19
44	Pots and Traps, Hagfish	OPEN	all	MA	all	3	3	0	0	3			3
45	Pots and Traps, Hagfish	OPEN	all	NE	all	74	74	0	0	74			74
46	Pots and Traps, Shrimp	OPEN	all	NE	all	6	6	0	0	6			6
47	Pots and Traps, Lobster	OPEN	all	MA	all	16	65	49	6	22			22
48	Pots and Traps, Lobster	OPEN	all	NE	all	17	429	412	49	66			66
49	Pots and Traps, Crab	OPEN	all	MA	all	12	12	0	0	12			12
50	Pots and Traps, Crab	OPEN	all	NE	all	67	67	0	0	67			67
51	Beam Trawl	OPEN	all	MA	all	31	31	0	0	31			31
52	Beam Trawl	OPEN	all	NE	all	16	16	0	0	16			16
53	Dredge, Other	OPEN	all	MA	all	41	41	0	0	41			41
54	Ocean Quahog/Surf Clam Dredge	OPEN	all	MA	all	24	67	43	5	29			29
55	Ocean Quahog/Surf Clam Dredge	OPEN	all	NE	all	16	38	22	3	19			19
	MMPA coverage										*274*		274
					Total	2,008	**20,590**	**17,076**	**2,032**	**3,257**	**5,529**	**3,606**	**12,392**

Step 6a	Agency Fleets (Min Pilot Sea Days Needed)	**1,225**	
	Industry Fleets (Min Pilot Sea Days Needed)	**783**	
Step 6b	Agency Fleets (Sea Days Needed)		**18,301**
	Industry Fleets (Sea Days Needed)		**2,289**
Step 7	Agency Fleets (Sea Days Funded)		**3,257**
	Agency Fleets (Sea Days Funded)		**5,529**
	Industry Fleets (Sea Days Funded)		**3,606**
Step 8	Agency Fleet Difference		**-15,044**
	Industry Fleet Difference		**1,317**
	Is SBRM prioritization needed? Are there sufficient funds to apply t		**YES**
	Turtle Gear Types MA OT		9,096
	MA GN		1,440
	MA SD		1,293

2,032

Step P2	
Agency proportion shortfall	**0.12**

1,118	
208	
26	

KEY: AF = Agency funded fleets	IF = Industry funded fleets
Steps independent of SBRM prioritization approach	
Prioritization Steps	Fleets with reduction in sea days

Table 6. Sea day allocation using the penultimate prioritization approach for the SBRM-applicable sea days in the 2012 budget.

PENULTIMATE APPROACH

Row	Gear Type	Access Area	Trip Category	Region	Mesh	Step 1: 2012 Sea Days for Min Pilot Coverage (MPC)	Step 5: 2012 Sea Days Needed COMBINED
1	Longline	OPEN	all	MA	all	67	67
2	Longline	OPEN	all	NE	all	16	16
3	Hand Line	OPEN	all	MA	all	13	81
4	Hand Line	OPEN	all	NE	all	16	16
5	Otter Trawl	OPEN	all	MA	sm	30	3,231
6	Otter Trawl	OPEN	all	MA	lg	27	5,551
7	Otter Trawl	OPEN	all	NE	sm	29	1,151
8	Otter Trawl	OPEN	all	NE	lg	35	3,879
9	Scallop Trawl	AA	GEN	MA	all	21	21
10	Scallop Trawl	AA	LIM	MA	all	98	98
11	Scallop Trawl	OPEN	GEN	MA	all	22	32
12	Scallop Trawl	OPEN	LIM	MA	all	163	163
13 +	Otter Trawl, Ruhle	OPEN	all	MA	lg	9	9
14 +	Otter Trawl, Ruhle	OPEN	all	NE	sm	27	27
15	Otter Trawl, Ruhle	OPEN	all	NE	lg	59	59
16 +	Otter Trawl, Haddock Separator	OPEN	all	MA	lg	8	8
17	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	100	567
18	Shrimp Trawl	OPEN	all	MA	all	120	131
19	Shrimp Trawl	OPEN	all	NE	all	13	34
20	Floating Trap	OPEN	all	MA	all	6	6
21	Floating Trap	OPEN	all	NE	all	6	6
22	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	13	172
23	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	13	172
24	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	15	1,096
25	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	41	41
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	14	97
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	19	171
28	Purse Seine	OPEN	all	MA	all	15	15
29	Purse Seine	OPEN	all	NE	all	23	23
30	Scallop Dredge	AA	GEN	MA	all	31	59
31	Scallop Dredge	AA	GEN	NE	all	14	14
32	Scallop Dredge	AA	LIM	MA	all	102	540
33	Scallop Dredge	AA	LIM	NE	all	121	189
34	Scallop Dredge	OPEN	GEN	MA	all	17	96
35	Scallop Dredge	OPEN	GEN	NE	all	17	17
36	Scallop Dredge	OPEN	LIM	MA	all	109	598
37	Scallop Dredge	OPEN	LIM	NE	all	124	607
38	Mid-water Paired & Single Trawl	OPEN	all	MA	all	17	17
39	Mid-water Paired & Single Trawl	OPEN	all	NE	all	43	571
40	Pots and Traps, Fish	OPEN	all	MA	all	13	25
41	Pots and Traps, Fish	OPEN	all	NE	all	9	15
42	Pots and Traps, Conch	OPEN	all	MA	all	12	27
43	Pots and Traps, Conch	OPEN	all	NE	all	18	26
44	Pots and Traps, Hagfish	OPEN	all	MA	all	3	3
45	Pots and Traps, Hagfish	OPEN	all	NE	all	74	74
46	Pots and Traps, Shrimp	OPEN	all	NE	all	6	6
47	Pots and Traps, Lobster	OPEN	all	MA	all	16	65
48	Pots and Traps, Lobster	OPEN	all	NE	all	17	429
49	Pots and Traps, Crab	OPEN	all	MA	all	12	12
50	Pots and Traps, Crab	OPEN	all	NE	all	67	67
51	Beam Trawl	OPEN	all	MA	all	31	31
52	Beam Trawl	OPEN	all	NE	all	16	16
53	Dredge, Other	OPEN	all	MA	all	41	41
54	Ocean Quahog/Surf Clam Dredge	OPEN	all	MA	all	24	67
55	Ocean Quahog/Surf Clam Dredge	OPEN	all	NE	all	16	38
	MMPA coverage						
					Total	2,008	**20,590**

Step P1 — Penultimate sea days needed for the 15 species groups, in descending order with MPC as minimum for fleet

67								
16								
13								
16								
1,719	545	513	497	397	364	325	30	
2,952	333	173	164	141	107	27		
531	489	461	451	411	29			
788	568	280	261	229	76	35		
22								
9								
27								
59								
8								
257	100							
120								
13								
6								
6								
13								
13								
83	70	15						
41								
14								
132	118	19						
15								
23								
50	17							
17								
17								
43								
13								
9								
13								
18								
3								
74								
6								
16								
17								
12								
67								
31								
16								
41								
24								
16								

Step P2 — Sea day differences between adjacent species groups within a row (red font indicated values used in Step P3)

0							
0							
68							
0							
1,512	1,174	32	16	100	33	39	295
2,599	2,619	160	9	23	34	27	
620	42	28	10	40	382		
3,091	220	288	19	32	153	41	
10							
0							
0							
0							
0							
310	157						
11							
21							
0							
0							
159							
159							
1,013	13	55					
0							
83							
39	14	99					
0							
0							
46	33						
0							
0							
528							
12							
6							
14							
8							
0							
0							
49							
412							
0							
0							
0							
0							
0							
43							
22							

Step P3

Sea day differences, in descending order with fleet constraint	Cumulative reduction of sea days
3,091	3,091
2,599	5,690
2,619	8,309
1,512	9,821
1,174	10,834
1,013	12,008
620	12,628
528	13,156
412	13,568
310	13,878
220	14,098
288	14,386
160	14,545
159	14,704
159	14,864
157	15,021
23	15,044

Step P4: 2012 Sea Days SBRM PRIORITIZED (Penultimate)	Step 9: 2012 Sea Days non-SBRM (Catch share, MMPA, Discovery)	Step 10: 2012 Industry-funded Sea Days	Step 11: Sea Days Allocated for April 2012 - March 2013 (TOTAL)
67			67
16	*106*		122
81			81
16	*280*		296
545			545
173	*1,271*		1,444
531			531
280	*1,981*		2,261
32			32
9			9
27			27
59	*37*		96
8	*0*		8
100	*203*		303
131			131
34			34
6			6
6			6
13			13
13			13
83	*287*		370
41			41
74	*640*		714
171	*450*		621
15			15
23			23
		1,200	1,200
		693	693
96			96
17			17
		1,713	1,713
17			17
43			43
25			25
15			15
27			27
26			26
3			3
74			74
6			6
65			65
17			17
12			12
67			67
31			31
16			16
41			41
67			67
38			38
	274		274
3,257	**5,529**	**3,606**	**12,392**

Step 6a	Agency Fleets (Min Pilot Sea Days Needed)		**1,225**
	Industry Fleets (Min Pilot Sea Days Needed)		**783**
Step 6b	Agency Fleets (Sea Days Needed)		**18,301**
	Industry Fleets (Sea Days Needed)		**2,289**
Step 7	Agency Fleets (Sea Days Funded)		**3,257**
	Agency Fleets (Sea Days Funded)		**5,529**
	Industry Fleets (Sea Days Funded)		**3,606**
Step 8	Agency Fleet Difference		**-15,044**
	Industry Fleet Difference		**1,317**
	Is SBRM prioritization needed? Are there sufficient funds to apply t		**YES**
	Turtle Gear Types	MA OT	9,096
		MA GN	1,440
		MA SD	1,293

SBRM prioritized
non-SBRM prioritized

	750
	109
	96

KEY: AF = Agency funded fleets | IF = Industry funded fleets
Steps independent of SBRM prioritization approach
Prioritization Steps | Fleets with reduction in sea days

Table 7. Sea day allocation using the penultimate MPC prioritization (Option 1) approach for 1,000 SBRM-applicable sea days in the 2012 budget.

SBRM-applicable days < MPC Days OPTION 1

Row	Gear Type	Access Area	Trip Category	Region	Mesh	Step 1: 2012 Sea Days for Min Pilot Coverage (MPC)	Step 2: 2012 Sea Days Needed for FISH	Step 3: 2012 Sea Days Needed for TURS	Step 5: 2012 Sea Days Needed COMBINED	Step P2: MPC Rank (Desc)	Step P3: MPC Rank	Step P3: Fleet (Row)	Step P3: MPC days	Step P3: Cumulative reduction of sea days	Step P4: 2012 Sea Days SBRM PRIORITIZED (SBRM < MPC **Option 1**)	Step 9: 2012 Sea Days non-SBRM (Catch share, MMPA, Discovery)	Step 10: 2012 Industry-funded Sea Days	Step 11: Sea Days Allocated for April 2012 - March 2013 (TOTAL)
1	Longline	OPEN	all	MA	all	67	67		67	4	1	18	120	120	67			67
2	Longline	OPEN	all	NE	all	16	16		16	25	2	17	100	220	16	*106*		122
3	Hand Line	OPEN	all	MA	all	13	81		81	33	3	45	74	294	13			13
4	Hand Line	OPEN	all	NE	all	16	16		16	25					16	*280*		296
5	Otter Trawl	OPEN	all	MA	sm	30	3,231	4,838	3,231	12					30			30
6	Otter Trawl	OPEN	all	MA	lg	27	5,551		5,551	14					27	*1,271*		1,298
7	Otter Trawl	OPEN	all	NE	sm	29	1,151		1,151	13					29			29
8	Otter Trawl	OPEN	all	NE	lg	35	3,879		3,879	10					35	*1,981*		2,016
9	Scallop Trawl	AA	GEN	MA	all	21	21		21									
10	Scallop Trawl	AA	LIM	MA	all	98	98		98									
11	Scallop Trawl	OPEN	GEN	MA	all	22	32		32	18					22			22
12	Scallop Trawl	OPEN	LIM	MA	all	163	163		163									
13 +	Otter Trawl, Ruhle	OPEN	all	MA	lg	9	9		9	40					9			9
14 +	Otter Trawl, Ruhle	OPEN	all	NE	sm	27	27		27	14					27			27
15	Otter Trawl, Ruhle	OPEN	all	NE	lg	59	59		59	6					59	*37*		96
16 +	Otter Trawl, Haddock Separator	OPEN	all	MA	lg	8	8		8	42					8			8
17	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	100	567		567	2					0	*203*		203
18	Shrimp Trawl	OPEN	all	MA	all	120	131		131	1					0			0
19	Shrimp Trawl	OPEN	all	NE	all	13	34		34	33					13			13
20	Floating Trap	OPEN	all	MA	all	6	6		6	43					6			6
21	Floating Trap	OPEN	all	NE	all	6	6		6	43					6			6
22	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	13	13		172	33					13			13
23	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	13	13	1,440	172	33					13			13
24	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	15	83		1,096	30					15	*287*		302
25	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	41	41		41	8					41			41
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	14	97		97	32					14	*640*		654
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	19	171		171	19					19	*450*		469
28	Purse Seine	OPEN	all	MA	all	15	15		15	30					15			15
29	Purse Seine	OPEN	all	NE	all	23	23		23	17					23			23
30	Scallop Dredge	AA	GEN	MA	all	31	31		59									
31	Scallop Dredge	AA	GEN	NE	all	14	14		14									
32	Scallop Dredge	AA	LIM	MA	all	102	282	1,293	540								1,200	1,200
33	Scallop Dredge	AA	LIM	NE	all	121	189		189								693	693
34	Scallop Dredge	OPEN	GEN	MA	all	17	50		96	21					17			17
35	Scallop Dredge	OPEN	GEN	NE	all	17	17		17	21					17			17
36	Scallop Dredge	OPEN	LIM	MA	all	109	312		598								1,713	1,713
37	Scallop Dredge	OPEN	LIM	NE	all	124	607		607									
38	Mid-water Paired & Single Trawl	OPEN	all	MA	all	17	17		17	21					17			17
39	Mid-water Paired & Single Trawl	OPEN	all	NE	all	43	571		571	7					43			43
40	Pots and Traps, Fish	OPEN	all	MA	all	13	25		25	33					13			13
41	Pots and Traps, Fish	OPEN	all	NE	all	9	15		15	40					9			9
42	Pots and Traps, Conch	OPEN	all	MA	all	12	27		27	38					12			12
43	Pots and Traps, Conch	OPEN	all	NE	all	18	26		26	20					18			18
44	Pots and Traps, Hagfish	OPEN	all	MA	all	3	3		3	46					3			3
45	Pots and Traps, Hagfish	OPEN	all	NE	all	74	74		74	3					0			0
46	Pots and Traps, Shrimp	OPEN	all	NE	all	6	6		6	43					6			6
47	Pots and Traps, Lobster	OPEN	all	MA	all	16	65		65	25					16			16
48	Pots and Traps, Lobster	OPEN	all	NE	all	17	429		429	21					17			17
49	Pots and Traps, Crab	OPEN	all	MA	all	12	12		12	38					12			12
50	Pots and Traps, Crab	OPEN	all	NE	all	67	67		67	4					67			67
51	Beam Trawl	OPEN	all	MA	all	31	31		31	11					31			31
52	Beam Trawl	OPEN	all	NE	all	16	16		16	25					16			16
53	Dredge, Other	OPEN	all	MA	all	41	41		41	8					41			41
54	Ocean Quahog/Surf Clam Dredge	OPEN	all	MA	all	24	67		67	16					24			24
55	Ocean Quahog/Surf Clam Dredge	OPEN	all	NE	all	16	38		38	25					16			16
	MMPA coverage															*274*		274
														Remaining Days	69			69
					Total	2,008	**18,641**		**20,590**						**1,000**	**5,529**	**3,606**	**10,135**

Step 6a	Agency Fleets (Min Pilot Sea Days Needed)	**1,225**	
	Industry Fleets (Min Pilot Sea Days Needed)	**783**	
Step 6b	Agency Fleets (Sea Days Needed)		**18,301**
	Industry Fleets (Sea Days Needed)		**2,289**
Step 7	Agency Fleets (Sea Days Funded)	SBRM prioritized	**1,000**
	Agency Fleets (Sea Days Funded)	non-SBRM prioritized	**5,529**
	Industry Fleets (Sea Days Funded)		**3,606**
Step 8	Agency Fleet Difference	SHORTFALL	**-17,301**
	Industry Fleet Difference	SURPLUS	**1,317**
	Is SBRM prioritization needed? Are there sufficient funds to apply the priori	YES	NO

Turtle Gear Types				
	MA OT	**9,096**	4,838	9,096
	MA GN	109	**1,440**	1,440
	MA SD	675	**1,293**	1,293

Step P1	
225	MPC Shortfall

KEY: AF = Agency funded fleets	IF = Industry funded fleets
Steps independent of SBRM prioritization approach	
Prioritization Steps	Fleets with reduction in sea days

Table 8. Sea day allocation using the penultimate MPC Ratio prioritization (Option 2) approach for 1,000 SBRM-applicable sea days in the 2012 budget.

SBRM-applicable days < MPC Days OPTION 2

						Step 1	Step 2	Step 3	Step 5	Step P2	Step P3	Step P4	Step P5				Step P6	Step 9	Step 10	Step 11
Row	Gear Type	Access Area	Trip Category	Region	Mesh	2012 Sea Days for Min Pilot Coverage (MPC)	2012 Sea Days Needed for FISH	2012 Sea Days Needed for TURS	2012 Sea Days Needed COMBINED	TOTAL VTR DAYS	Ratio (MPC/VTR)	Ratio Rank (Desc)	Ratio Rank	Fleet (Row)	MPC days	Cumulative reduction of sea days	2012 Sea Days SBRM PRIORITIZED (SBRM < MPC **Option 2**)	2012 Sea Days non-SBRM (Catch share, MMPA, Discovery)	2012 Industry-funded Sea Days	Sea Days Allocated for April 2012 - March 2013 (TOTAL)
1	Longline	OPEN	all	MA	all	67	67		67	885	0.07571	16	1	25	41	41	67			67
2	Longline	OPEN	all	NE	all	16	16		16	1,113	0.01438	26	2	13	9	50	16	*106*		122
3	Hand Line	OPEN	all	MA	all	13	81		81	3,997	0.00325	42	3	14	27	77	13			13
4	Hand Line	OPEN	all	NE	all	16	16		16	2,932	0.00546	33	4	44	3	80	16	*280*		296
5	Otter Trawl	OPEN	all	MA	sm	30	3,231	4,838	3,231	7,994	0.00375	39	5	16	8	88	30			30
6	Otter Trawl	OPEN	all	MA	lg	27	5,551		5,551	13,321	0.00203	44	6	38	17	105	27	*1,271*		1,298
7	Otter Trawl	OPEN	all	NE	sm	29	1,151		1,151	8,421	0.00344	41	7	45	74	179	29			29
8	Otter Trawl	OPEN	all	NE	lg	35	3,879		3,879	20,759	0.00169	45	8	15	59	238	35	*1,981*		2,016
9	Scallop Trawl	AA	GEN	MA	all	21	21		21	133										
10	Scallop Trawl	AA	LIM	MA	all	98	98		98	68										
11	Scallop Trawl	OPEN	GEN	MA	all	22	32		32	680	0.03235	23					22			22
12	Scallop Trawl	OPEN	LIM	MA	all	163	163		163	268										
13 +	Otter Trawl, Ruhle	OPEN	all	MA	lg	9	9		9	7	1.28571	2					0			0
14 +	Otter Trawl, Ruhle	OPEN	all	NE	sm	27	27		27	25	1.08000	3					0			0
15	Otter Trawl, Ruhle	OPEN	all	NE	lg	59	59		59	389	0.15167	8					0	*37*		37
16 +	Otter Trawl, Haddock Separator	OPEN	all	MA	lg	8	8		8	12	0.66667	5					0			0
17	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	100	567		567	2,125	0.04706	19					100	*203*		303
18	Shrimp Trawl	OPEN	all	MA	all	120	131		131	2,361	0.05083	18					120			120
19	Shrimp Trawl	OPEN	all	NE	all	13	34		34	3,118	0.00417	36					13			13
20	Floating Trap	OPEN	all	MA	all	6	6		6	63	0.09524	13					6			6
21	Floating Trap	OPEN	all	NE	all	6	6		6	75	0.08000	14					6			6
22	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	13	13		172	1,980	0.00657	31					13			13
23	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	13	13	1,440	172	2,166	0.00600	32					13			13
24	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	15	83		1,096	3,004	0.00499	34					15	*287*		302
25	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	41	41		41	28	1.46429	1					0			0
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	14	97		97	6,705	0.00209	43					14	*640*		654
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	19	171		171	4,715	0.00403	37					19	*450*		469
28	Purse Seine	OPEN	all	MA	all	15	15		15	253	0.05929	17					15			15
29	Purse Seine	OPEN	all	NE	all	23	23		23	581	0.03959	20					23			23
30	Scallop Dredge	AA	GEN	MA	all	31	31		59	110										
31	Scallop Dredge	AA	GEN	NE	all	14	14		14	115										
32	Scallop Dredge	AA	LIM	MA	all	102	282	1,293	540	2,296									1,200	1,200
33	Scallop Dredge	AA	LIM	NE	all	121	189		189	1,530									693	693
34	Scallop Dredge	OPEN	GEN	MA	all	17	50		96	4,727	0.00360	40					17			17
35	Scallop Dredge	OPEN	GEN	NE	all	17	17		17	4,337	0.00392	38					17			17
36	Scallop Dredge	OPEN	LIM	MA	all	109	312		598	11,906									1,713	1,713
37	Scallop Dredge	OPEN	LIM	NE	all	124	607		607	13,858										
38	Mid-water Paired & Single Trawl	OPEN	all	MA	all	17	17		17	40	0.42500	6					0			0
39	Mid-water Paired & Single Trawl	OPEN	all	NE	all	43	571		571	1,170	0.03675	22					43			43
40	Pots and Traps, Fish	OPEN	all	MA	all	13	25		25	1,120	0.01161	27					13			13
41	Pots and Traps, Fish	OPEN	all	NE	all	9	15		15	619	0.01454	25					9			9
42	Pots and Traps, Conch	OPEN	all	MA	all	12	27		27	1,200	0.01000	28					12			12
43	Pots and Traps, Conch	OPEN	all	NE	all	18	26		26	854	0.02108	24					18			18
44	Pots and Traps, Hagfish	OPEN	all	MA	all	3	3		3	3	1.00000	4					0			0
45	Pots and Traps, Hagfish	OPEN	all	NE	all	74	74		74	369	0.20054	7					0			0
46	Pots and Traps, Shrimp	OPEN	all	NE	all	6	6		6	154	0.03896	21					6			6
47	Pots and Traps, Lobster	OPEN	all	MA	all	16	65		65	3,242	0.00494	35					16			16
48	Pots and Traps, Lobster	OPEN	all	NE	all	17	429		429	37,456	0.00045	46					17			17
49	Pots and Traps, Crab	OPEN	all	MA	all	12	12		12	83	0.14458	9					12			12
50	Pots and Traps, Crab	OPEN	all	NE	all	67	67		67	630	0.10635	12					67			67
51	Beam Trawl	OPEN	all	MA	all	31	31		31	391	0.07928	15					31			31
52	Beam Trawl	OPEN	all	NE	all	16	16		16	145	0.11034	11					16			16
53	Dredge, Other	OPEN	all	MA	all	41	41		41	347	0.11816	10					41			41
54	Ocean Quahog/Surf Clam Dredge	OPEN	all	MA	all	24	67		67	3,371	0.00712	30					24			24
55	Ocean Quahog/Surf Clam Dredge	OPEN	all	NE	all	16	38		38	1,717	0.00932	29					16			16
	MMPA coverage																	*274*		274
					Total	2,008	**18,641**		**20,590**	**179,968**						Remaining Days	13			13
																	1,000	**5,529**	**3,606**	**10,135**

Step 6a	Agency Fleets (Min Pilot Sea Days Needed)	**1,225**	
	Industry Fleets (Min Pilot Sea Days Needed)	**783**	
Step 6b	Agency Fleets (Sea Days Needed)		**18,301**
	Industry Fleets (Sea Days Needed)		**2,289**
Step 7	Agency Fleets (Sea Days Funded)	SBRM prioritized	**1,000**
	Agency Fleets (Sea Days Funded)	non-SBRM prioritized	**5,529**
	Industry Fleets (Sea Days Funded)		**3,606**
Step 8	Agency Fleet Difference	SHORTFALL	**-17,301**
	Industry Fleet Difference	SURPLUS	**1,317**
	Is SBRM prioritization needed? Are there sufficient funds to apply the priori	**YES**	**NO**

Turtle Gear Types				
	MA OT	**9,096**	4,838	9,096
	MA GN	109	**1,440**	1,440
	MA SD	675	**1,293**	1,293

Step P1	
225	MPC Shortfall

KEY: AF = Agency funded fleets	IF = Industry funded fleets
Steps independent of SBRM prioritization approach	
Prioritization Steps	Fleets with reduction in sea days

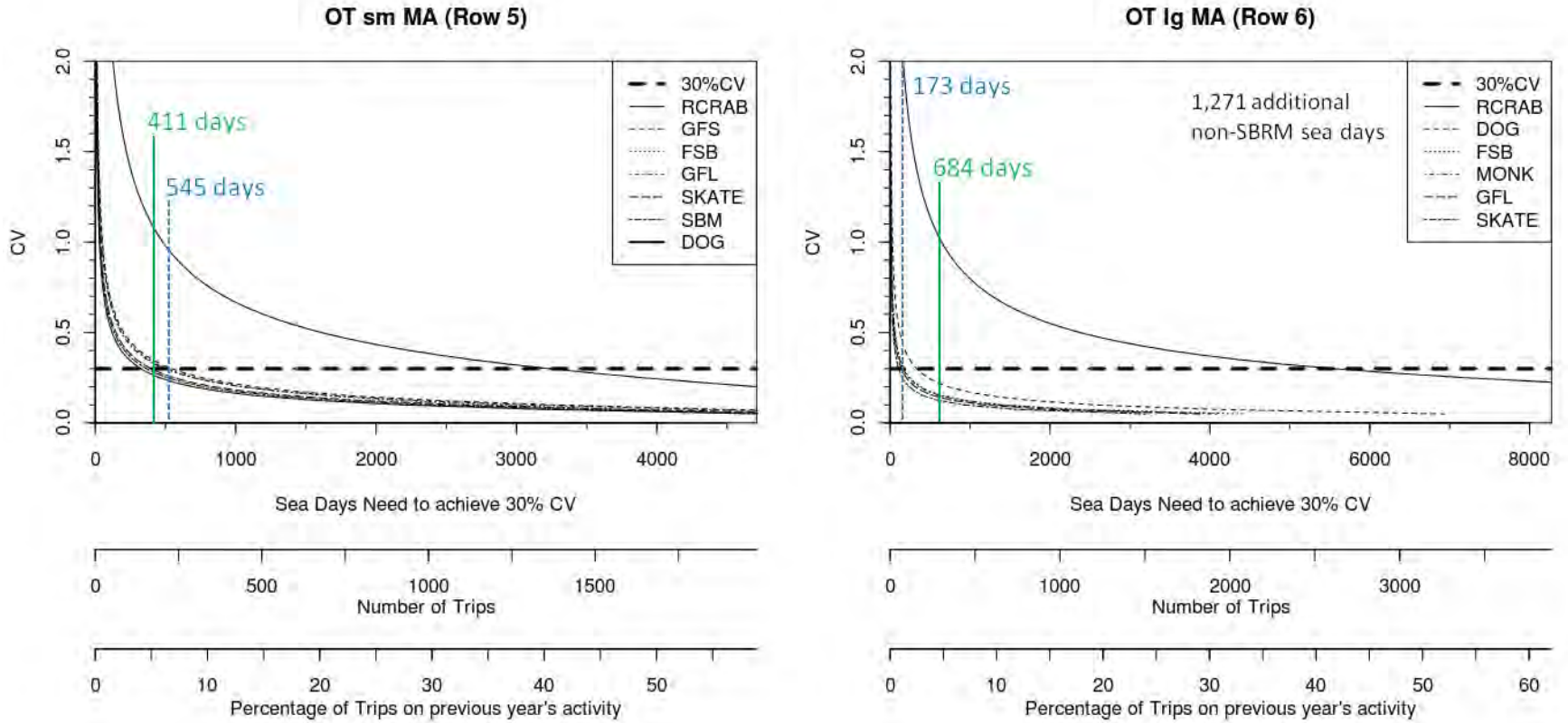
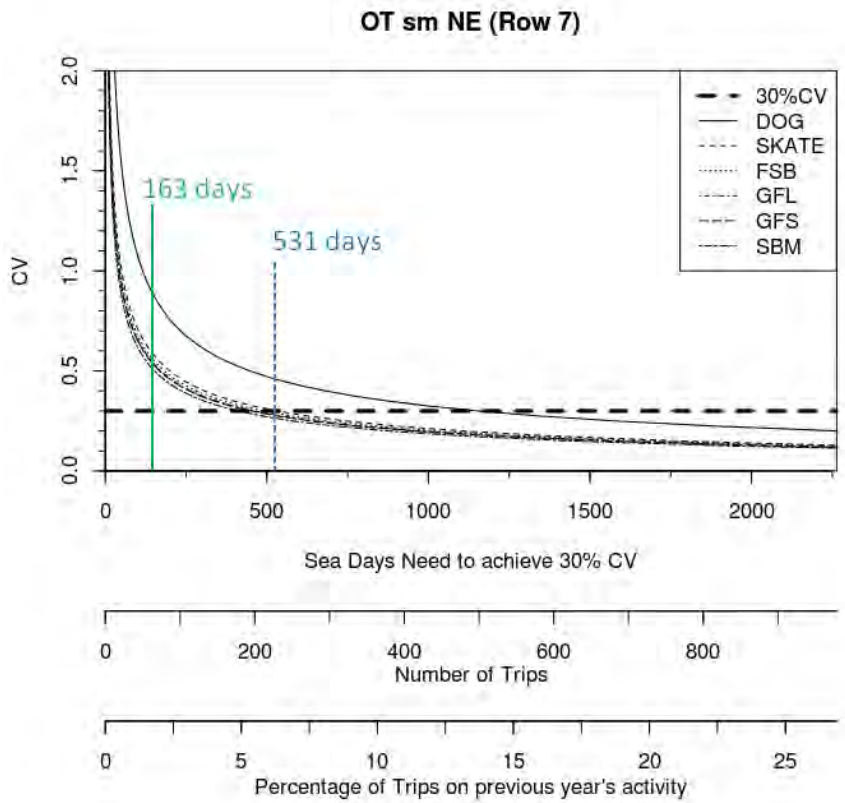


Figure 1. Results from the 2012 sample size analysis conducted by Wigley et al. (2012). The curves represent the relationship between the coefficient of variation (CV) and the sample size (in terms of sea days, trips, and percentage of trips) for each of the fish/invertebrate species groups that were not filtered out by the importance filter, for agency-funded fleets where discards could be estimated. To illustrate the difference in expected CV, two sample sizes are indicated by the colored lines: the green solid line indicates the number of sea days allocated via the proportional approach, and the blue dashed line indicates the number of sea days allocated via the penultimate approach. See Figure 2 for loggerhead turtle graphs. *[This figure is a modified version of Figure 3 in Wigley et al. 2012.]*



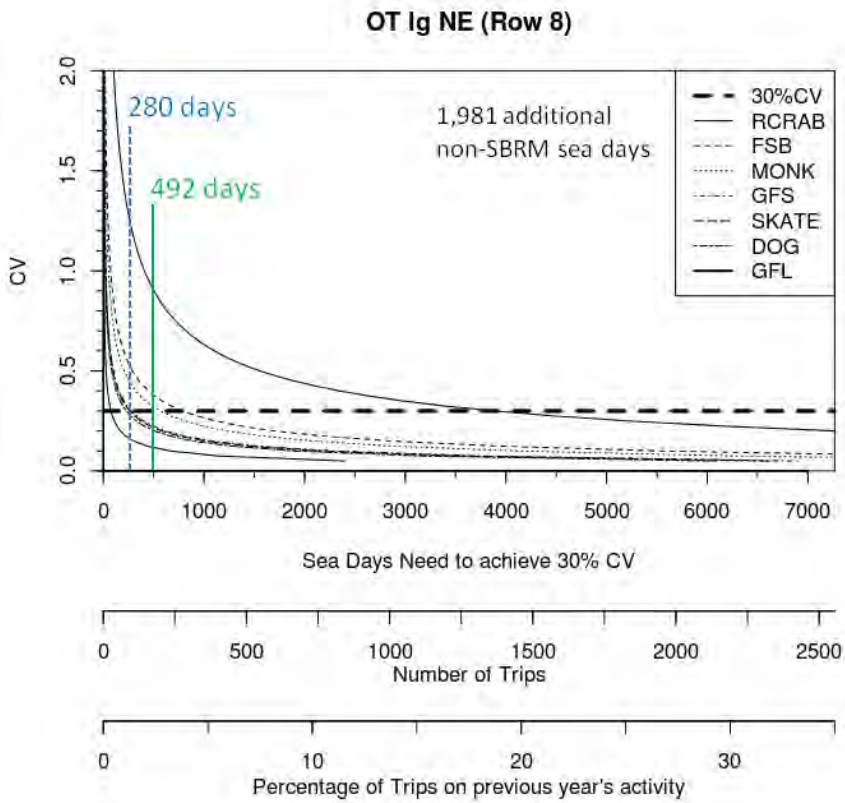


Figure 1, continued. Results from the 2012 sample size analysis conducted by Wigley et al. (2012). The curves represent the relationship between the coefficient of variation (CV) and the sample size (in terms of sea days, trips, and percentage of trips) for each of the fish/invertebrate species groups that were not filtered out by the importance filter, for agency-funded fleets where discards could be estimated. To illustrate the difference in expected CV, two sample sizes are indicated by the colored lines: the green solid line indicates the number of sea days allocated via the proportional approach, and the blue dashed line indicates the number of sea days allocated via the penultimate approach. See Figure 2 for loggerhead turtle graphs. *[This figure is a modified version of Figure 3 in Wigley et al. 2012.]*

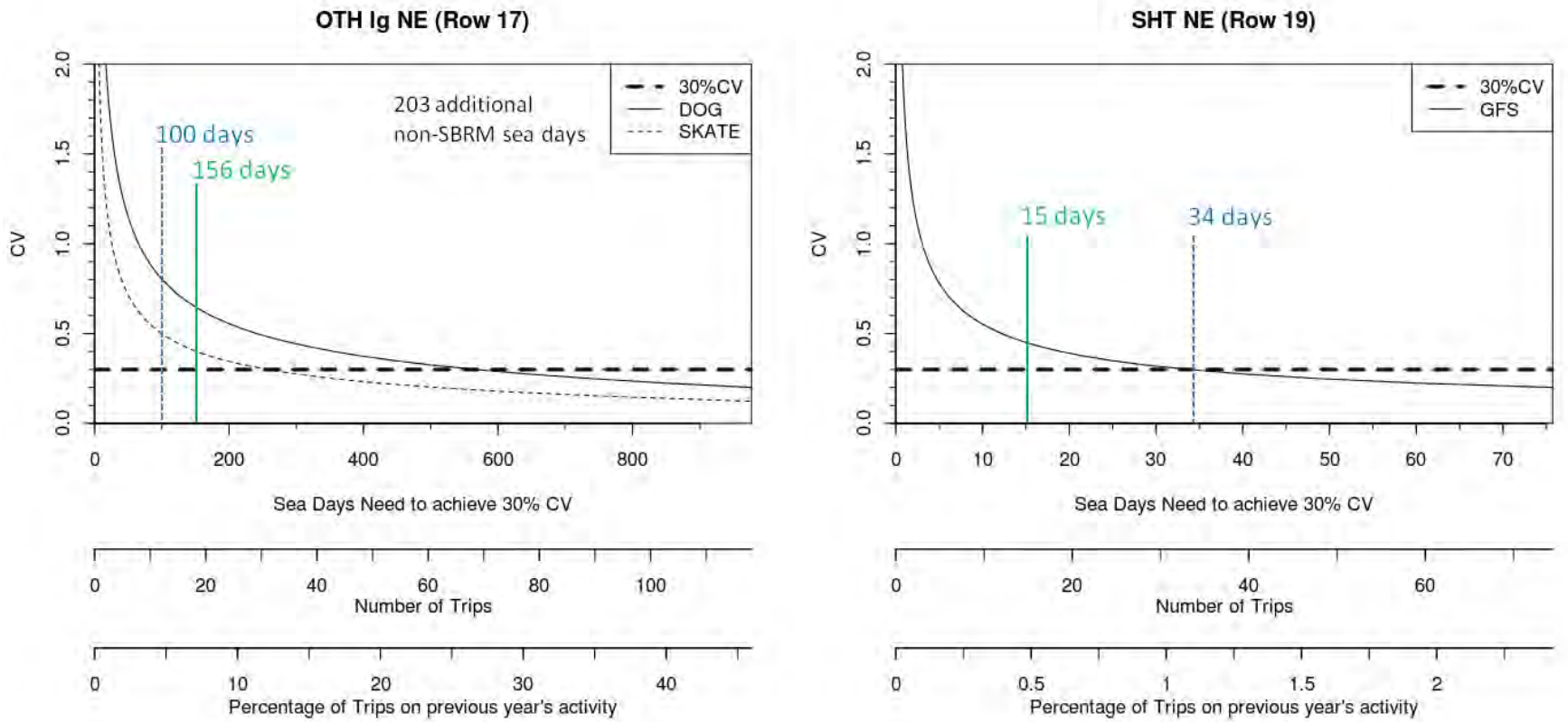


Figure 1, continued. Results from the 2012 sample size analysis conducted by Wigley et al. (2012). The curves represent the relationship between the coefficient of variation (CV) and the sample size (in terms of sea days, trips, and percentage of trips) for each of the fish/invertebrate species groups that were not filtered out by the importance filter, for agency-funded fleets where discards could be estimated. To illustrate the difference in expected CV, two sample sizes are indicated by the colored lines: the green solid line indicates the number of sea days allocated via the proportional approach, and the blue dashed line indicates the number of sea days allocated via the penultimate approach. See Figure 2 for loggerhead turtle graphs. *[This figure is a modified version of Figure 3 in Wigley et al. 2012.]*

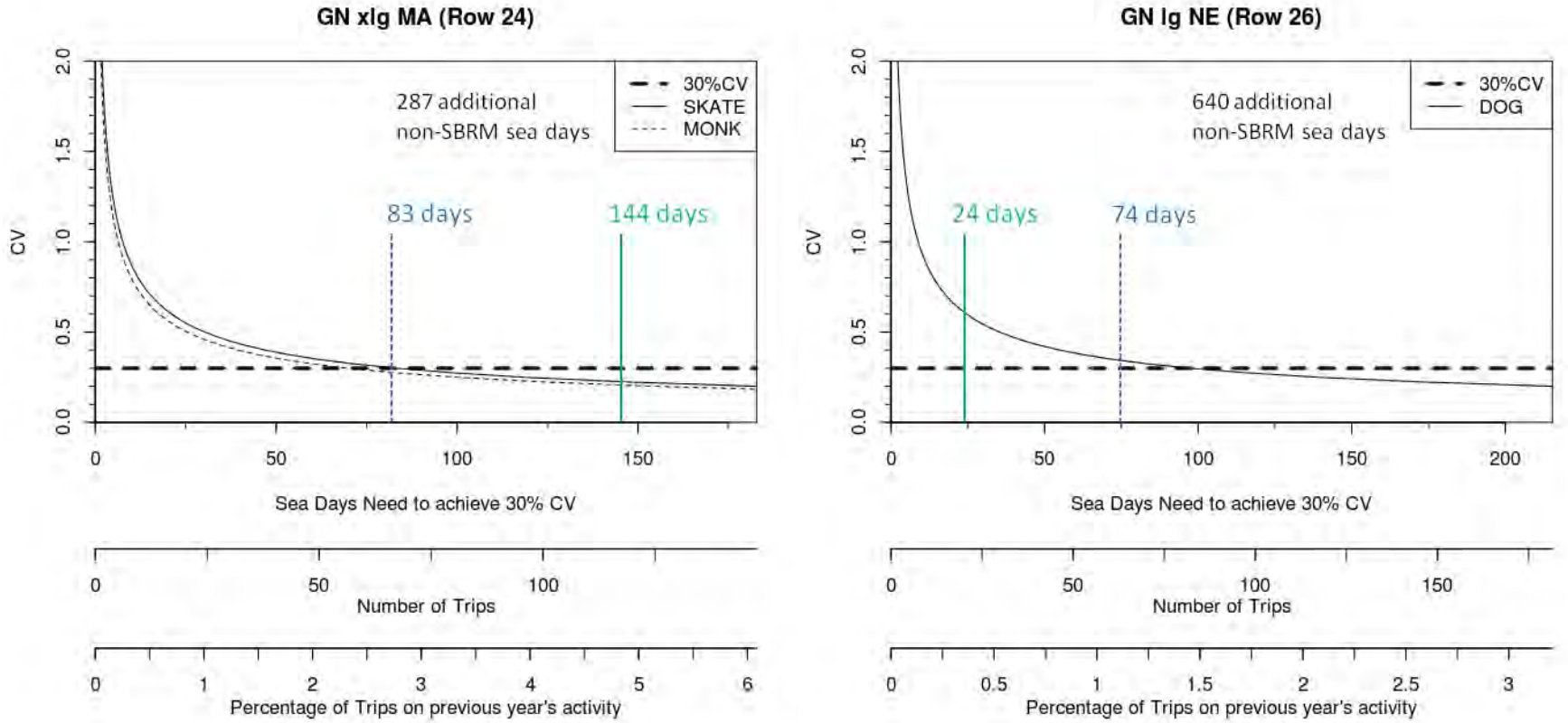


Figure 1, continued. Results from the 2012 sample size analysis conducted by Wigley et al. (2012). The curves represent the relationship between the coefficient of variation (CV) and the sample size (in terms of sea days, trips, and percentage of trips) for each of the fish/invertebrate species groups that were not filtered out by the importance filter, for agency-funded fleets where discards could be estimated. To illustrate the difference in expected CV, two sample sizes are indicated by the colored lines: the green solid line indicates the number of sea days allocated via the proportional approach, and the blue dashed line indicates the number of sea days allocated via the penultimate approach. See Figure 2 for loggerhead turtle graphs. *[This figure is a modified version of Figure 3 in Wigley et al. 2012.]*

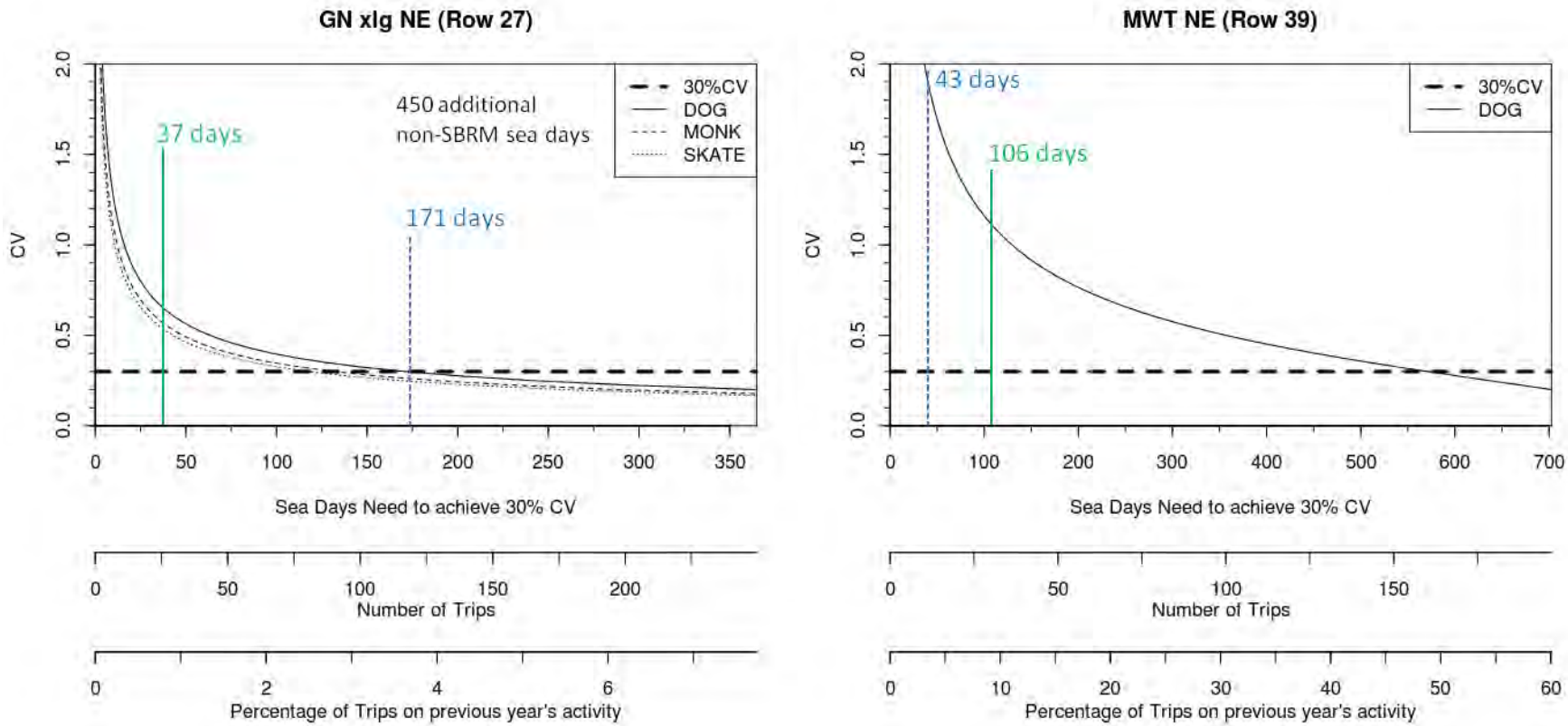


Figure 1, continued. Results from the 2012 sample size analysis conducted by Wigley et al. (2012). The curves represent the relationship between the coefficient of variation (CV) and the sample size (in terms of sea days, trips, and percentage of trips) for each of the fish/invertebrate species groups that were not filtered out by the importance filter, for agency-funded fleets where discards could be estimated. To illustrate the difference in expected CV, two sample sizes are indicated by the colored lines: the green solid line indicates the number of sea days allocated via the proportional approach, and the blue dashed line indicates the number of sea days allocated via the penultimate approach. See Figure 2 for loggerhead turtle graphs. *[This figure is a modified version of Figure 3 in Wigley et al. 2012.]*

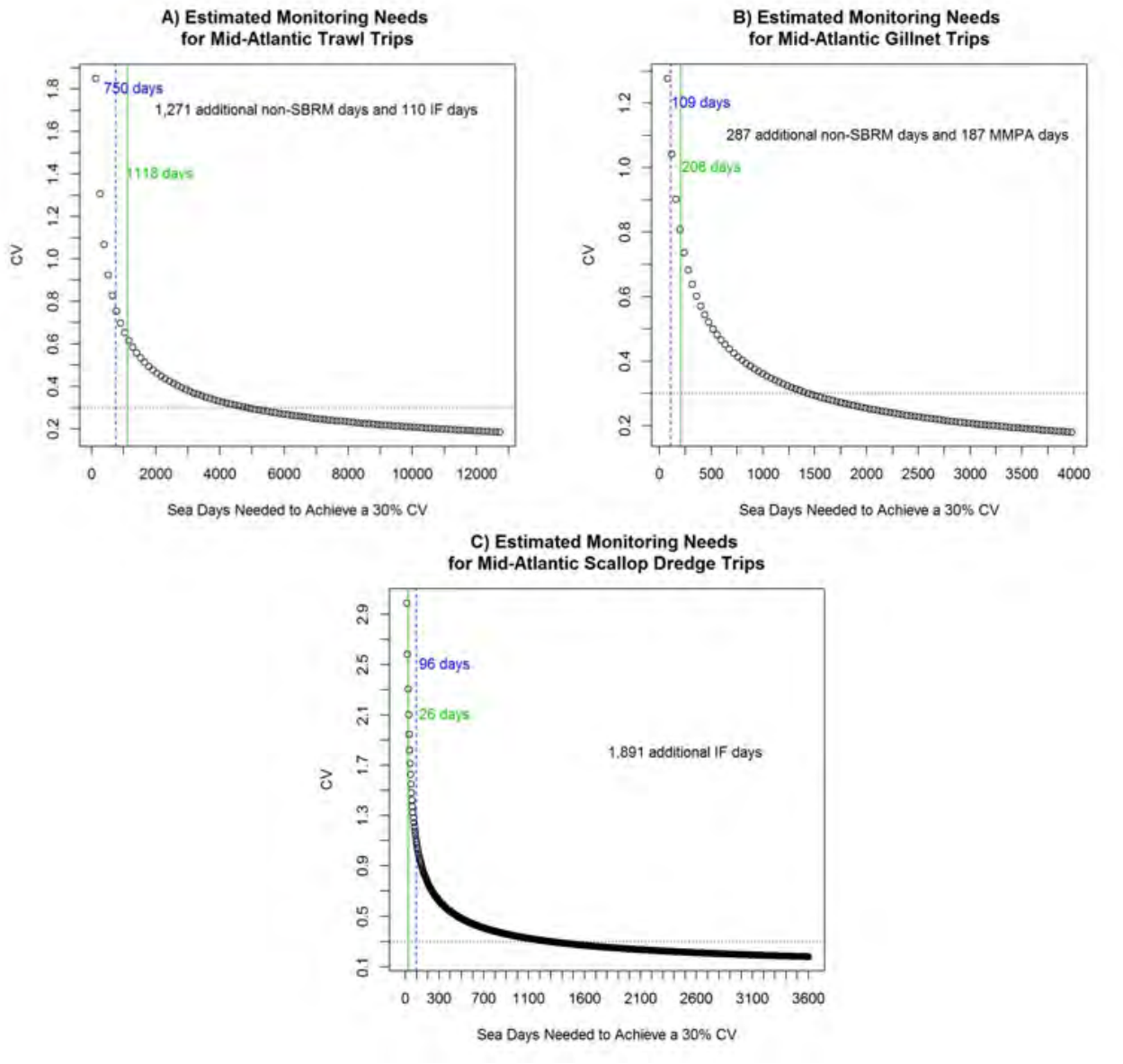


Figure 2. Estimated sea days needed to monitor loggerhead turtle interactions in the Mid-Atlantic in a) otter trawl gear catching NE multispecies; b) sink gillnet gear catching spot; and c) dredge gear catching scallops. These fisheries are the "drivers" for all monitoring in each respective gear type. Reference lines are indicated at the 30% precision goal. To illustrate the difference in expected CV, two sample sizes are indicated by the colored lines: the green solid line indicates the number of sea days allocated via the proportional approach, and the blue dashed line indicates the number of sea days allocated via the penultimate approach. *[This figure is a modified version of Figure 1 in Murray. 2012.]*

Appendix Table 1. Fleet abbreviations used in the tables of this report.

Abbreviation	Definition
MA	Mid-Atlantic ports (CT and southward)
NE	New England ports (RI and northward)
sm	Small mesh (less than 5.5 inches)
lg	Large mesh (5.5 to 7.99 inches)
xlg	Extra large mesh (8 inches and greater)
LIM	Limited access category
GEN	General category
OPEN	Non-access area
AA	Access area