

Science, Service, Stewardship



Standardized Bycatch Reporting Methodology: Annual Discard Report and Consultation / Prioritization Process in 2009

Northeast Fisheries Science Center

Presentation To:

New England Fishery Management Council

Portsmouth, NH

February 9, 2009

February 12, 2009

Mid Atlantic Fishery Management Council

Galloway, NJ

February 12, 2009

**NOAA
FISHERIES
SERVICE**

Standardized Bycatch Reporting Methodology

- 1) SBRM Annual Discard Report 2009
summary of NE Fishery Observer Program data
- 2) Update of SBRM filtered sea days needed for 30%CV
Omnibus Amendment based on 2004 data
Update based on 2007-2008 data
- 3) 2009 Prioritization
Comparison of sea day schedule and sea days needed for 30% CV
- 4) 2009 NEFSC Sea Day Schedule

Standardized Bycatch Reporting Methodology

- 1) SBRM Annual Discard Report 2009
summary of NE Fishery Observer Program data
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SBRM Annual Discard Report 2009

Available at NEFOP website:

<http://www.nefsc.noaa.gov/femad/fishsamp/fsb/>

Handout has selected pages to illustrate report format

OUTLINE of Report

- BACKGROUND
- DATA USED
- ANNUAL REPORT TABLES
- CAUTIONARY NOTES TO READER
- SUMMARY list of tables
- Tables and Appendix Tables

The Annual Discard Report format was reviewed by the NRCC in October 2008

SBRM Annual Discard Report 2009

BACKGROUND

"Once each year, the Science and Research Director will present to the Councils a report on catch and discards occurring in Northeast Region fisheries, as reported to the NEFOP by at-sea fisheries observers.

This annual discard report will include:

- (1) The number of observer sea days scheduled for each fishery, by area and gear type, in each quarter;*
- (2) the percent of total trips observed, by gear type, in each quarter;*
- (3) the distribution of sea sampling trips by gear type and statistical area in each fishery;*
- (4) the observed catch and discards of each species, by gear type and fishery, in each quarter; and*
- (5) the observed catch and discards of each species, by gear type and fishery, in each statistical area."*^[1]

^[1] Federal Register Vol 73, No. 18, page 4738 January 28, 2008
<http://www.nefmc.org/issues/sbrm/index.html>

SBRM Annual Discard Report 2009

DATA USED

2009 Annual Discard Report is based on
Northeast Fisheries Observer Program (NEFOP) data from
July 2007 - June 2008 (most recent 12 months of available data)
All hauls from observed trips with 'limited' & 'complete' sampling.

Data excluded:

- Data without gear, area, mesh information;

- Data that has not yet been computerized and/or audited;

- All aborted trips and trips that must be aggregated beyond fleets

- All non-living matter (debris) and previously-living matter.

Conversion factors applied to convert dressed weight to live weight.

Same stratification used as the SBRM analysis of precision
(geographic region, gear type, mesh size, access area, trip category).

Area = statistical area.

SBRM Annual Discard Report 2009

ANNUAL DISCARD REPORT TABLES

Table numbers correspond to the report requirements (Federal Register). Divided into two sections.

Section 1 contains:

Tables 1 - 5 where Tables 4a-b and 5a-b summarize data by species group
Appendix Tables summarizing discard reasons for all species encountered

Section 2 contains:

Tables 4c,d - 5c,d which summarize individual species

Tables 4 and 5 are partitioned into two parts:
fish/invertebrates are reported in live pounds;
interactions of incidental take species are reported in numbers;

SBRM Annual Discard Report 2009

CAUTIONARY NOTE TO READERS

- Total Discards are NOT estimated in this report;
- It is improper to calculate discard to kept ratios using this report (contains all data from all hauls, including hauls where discard data has not been collected due to incidental take sampling);
- It is improper to compare discard amounts across fleets without accounting for the number of observed trips by fleet;
- This report is not intended to replace analyses that subset NEFOP data for discard estimation, derive discard rates, and expand discard rates to estimate total discards;
- Subsequent SBRM analyses and/or species-specific stock assessment analyses may differ from this report due to differences in stratification and data used.

SBRM Annual Discard Report 2009

CAUTIONARY NOTE TO READERS (continued)

- The NEFOP is a multi-purpose program that utilizes two sampling protocols and records all species encountered
- This report is a comprehensive summary of species data collected on observed trips by NEFOP trained observers and summarizes the full extent of the data collection program; spatially, temporally, and by species.

Additional note:

Based on the requested summaries, Tables 1, 2, 3 inflate the number of observed sea days and trips because a single trip may use multiple gears and mesh sizes and/or fish in multiple statistical areas. The actual number of observed sea days and trips are given in the table caption.

SBRM Annual Discard Report 2009

SUMMARY

- List of tables
- List of species groups
- List of individual species
 - reported in pounds
 - reported in numbers
- List of discard reasons and categories

ALL SPECIES
All species except turtles, marine mammals, and birds.
ATLANTIC SALMON¹
BLUEFISH
FLUKE - SCUP - BLACK SEA BASS
Fluke
Scup
Black Sea Bass
HERRING
LARGE MESH GROUND FISH
American Plaice
Atlantic Cod
Atlantic Halibut
Haddock
Ocean Pout
Pollock
Redfish
White Hake
Windowpane Flounder
Witch Flounder
Winter Flounder
Yellowtail Flounder
MONKFISH
RED CRAB
SEA SCALLOP
SKATE COMPLEX
Barndoor Skate
Clearnose Skate
Little Skate
Rosette Skate
Smooth Skate
Thorny Skate
Winter Skate

SMALL MESH GROUND FISH
Offshore Hake
Red Hake
Silver Hake
SPINY DOGFISH
SQUID - BUTTERFISH - MACKEREL
Butterfish
Illex Squid
Loligo Squid
Atlantic Mackerel
SURFLAM - OCEAN QUAHOG
Surflam
Ocean Quahog
TILEFISH
SEA TURTLES
Kemp's Ridley Turtle
Leatherback Turtle
Loggerhead Turtle
Turtles, not specified

Tables in Annual Report

- 1 Observed SEA DAYS by fleet and quarter
- 2. Observed TRIPS by fleet and quarter
- 3. Observed TRIPS by fleet and statistical area
- 4. Kept and discard pounds by fleet and quarter
 - a. by species group (fish)
 - b. by species group (turtles)
 - c. by individual species (fish)
 - d. by individual species (turtles)
- 5. Kept and discard pounds by fleet & stat. area
- Appendix Table 1a. Species groups and Discard Reason Category
- Appendix Table 1b contains all living species reported in pounds: Alewife through Wrymouth
- Appendix 2a Number of sea turtles
- Appendix 2b All Incidental take species

Standardized Bycatch Reporting Methodology

- 1) SBRM Annual Discard Report 2009
summary of NEFOP data
- 2) **Update of SBRM filtered sea days needed for 30%CV**
Omnibus Amendment based on 2004 data
THIS Update is based on 2007-2008 data
- 3) 2009 Prioritization/Consultation
Comparison of sea day schedule and sea days needed for 30% CV
- 4) 2009 NEFSC Sea Day Schedule

SBRM Filtered Sea Days for a 30%CV

SBRM Omnibus Amendment Importance Filter Option B
(Preferred Option)

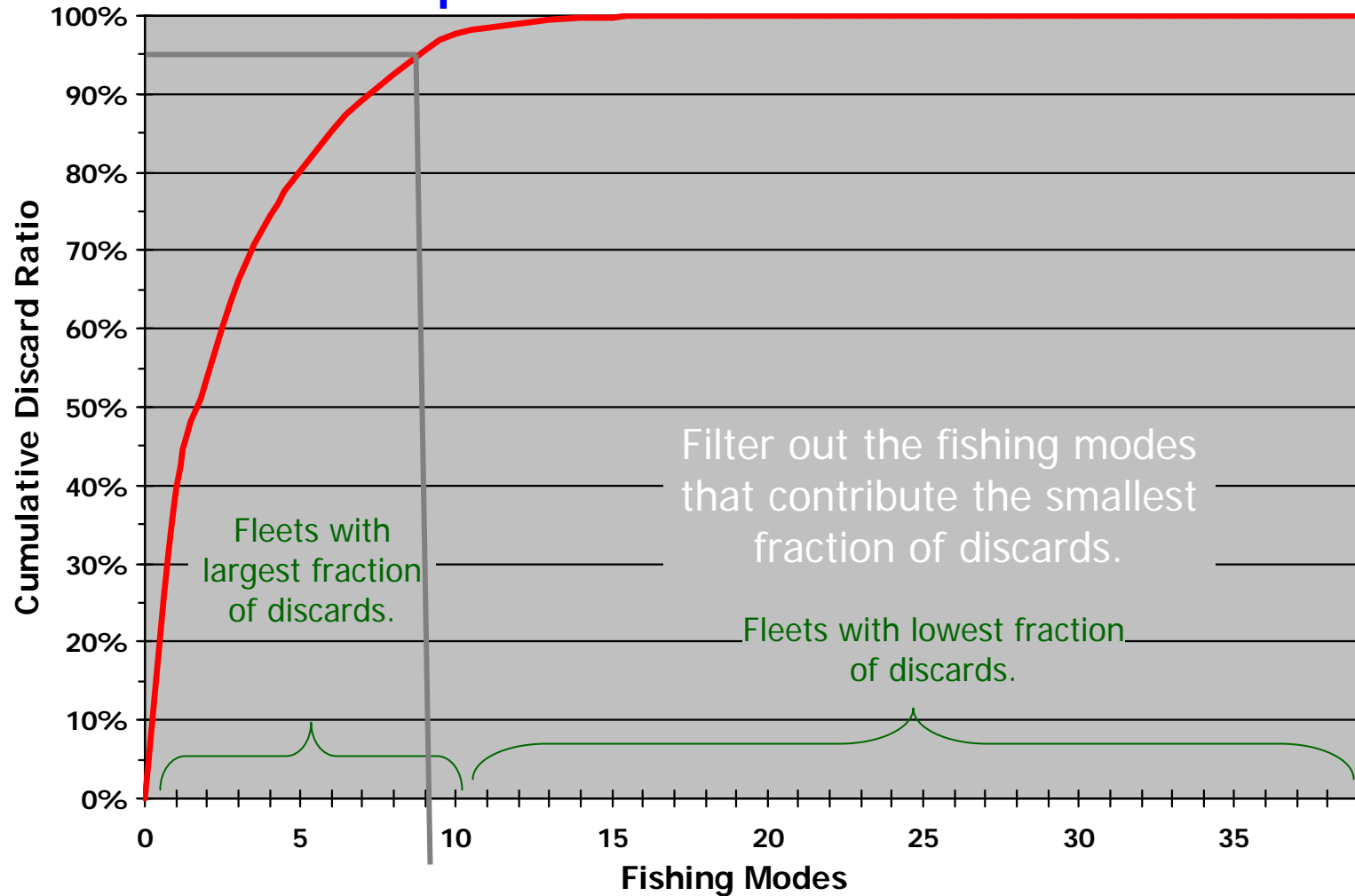
Baseline Sea Days

Filtered Sea Days with Importance Filters applied
(95% of discards and 98% of total mortality)

An Importance Filter is a criteria-based tool applied to sea days needed to achieve the CV-based performance standard.

Purpose: To focus on important combinations of fleets and species and reduce importance of cells with small, imprecise estimates of discards (these cells attract large numbers of sea days!)

Example: Discard Ratio Filter



For this species, the top 95% of the discards occur in 9 fishing modes and the remaining 5% occur in 30 fleets. Applying the discard ratio filter at the 95% threshold, the sea days allocated to this mode would be the highest projected sea days associated with the top 9 modes. The remaining 30 modes would be omitted for this species.

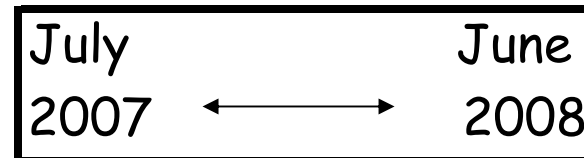
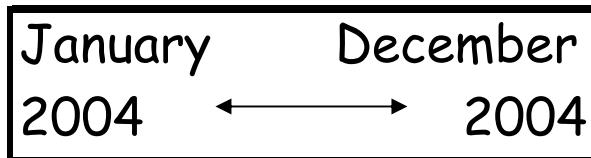
SBRM Filtered Sea Days for 30%CV

Same methods used, more recent data

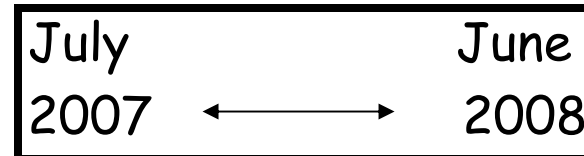
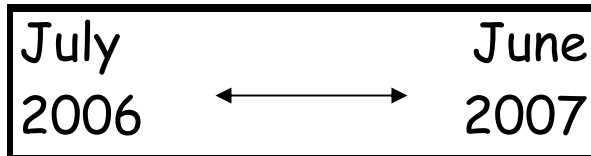
Last time

Now

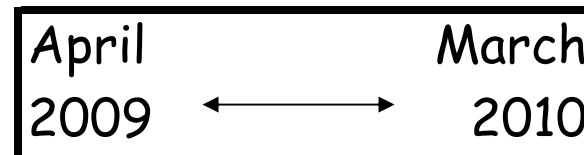
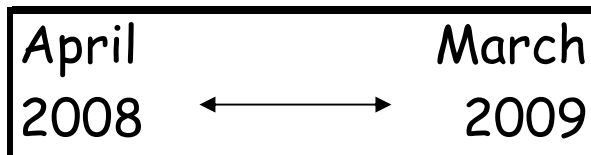
Data used for SBRM filtered sea days



Data used for sea day schedule analysis (optimization)



NEFSC Sea Day Schedule



SBRM Filtered Sea Days for 30%CV

Updated analysis

In the July 2007 to June 2008 data

- two new gear types were observed by the NEFOP
Conch trap and Hagfish pot
- two additional fleets
Mid-Atlantic scallop trawl access area
(General category and Limited category)
- One fleet no longer active
Scottish seine

SBRM Filtered Sea Days for 30%CV

	Last time Omnibus Amendment	Now Updated Analysis
Data	2004	2007-2008
Fleets	39	44
Baseline Sea Days	71,043	54,631
Filtered Sea Days	9,874	15,125
Fleets with Pilot coverage	23	24

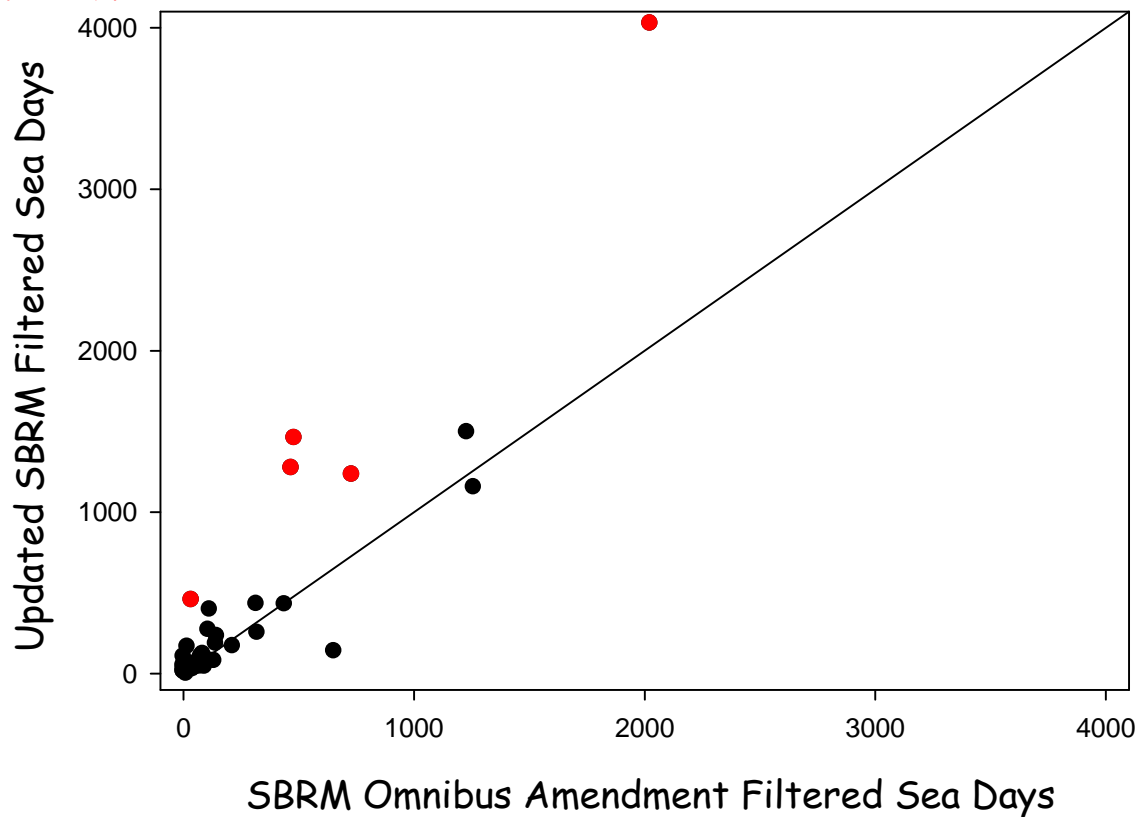
Differences in sea days are due to several factors...
6 new fleets adds 263 sea days (pilot coverage level)
1 fleet removed

SBRM Filtered Sea Days for 30%CV

Comparison of Sea Days

Red dots represent 5 fleets that account for 90% of the sea day differences (9,874 days vs 15,125 days)

Now



Last time

Last time Now

NE sm OT:	2,024 (Skate)	4,027 (FSB)
NE lg OT:	730 (Turs)	1,233 (GFS)
MA lg OT:	481 (Dog)	1,459 (Turs)
MA xlg GN:	468 (Turs)	1,273 (Turs)
NE LL:	35 (Turs)	456 (Dog)

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- 3) **2009 Prioritization**
**Comparison of sea day schedule and sea days
needed for 30% CV**
- 4) 2009 NEFSC Sea Day Schedule

Prioritization Process

Summary Table

- 1) At-sea observer coverage levels required to attain the SBRM performance standards in each applicable fishery;
- 2) The coverage levels that would be available if the resource shortfall were allocated proportionately across all applicable fisheries;
- 3) The coverage levels that incorporate the recommended prioritization;
- 4) The rationale for the recommended prioritization.

(1)

2009 Prioritization Table

Table 1. Standardized Bycatch Reporting Methodology Prioritization Information, April 2009 to March 2010

Fishing Mode	Updated Omnibus Amendment Preferred Alternative: 95% of Discards & 98% of Mortality	Available Coverage with shortfalls applied proportionally	Prioritized April 2009 - March 2010 Coverage	April 2009 - March 2010 Difference from Preferred Alternative	April 2009 - March 2010 Percentage of Preferred Alternative	Justification	Basis for SBRM Recommended Coverage
1 NE Clam Dredge	46	19	0	-46	0%		Pilot
2 MA Clam Dredge	122	50	0	-122	0%		Pilot
3 NE Crab Pot	70	29	0	-70	0%		Pilot
4 MA Crab Pot	28	12	0	-28	0%		Pilot
5 NE Fish Pot	17	7	0	-17	0%		Pilot
6 MA Fish Pot	28	11	0	-28	0%		Pilot
7 NE Small-mesh Gillnet	12	5	0	-12	0%		Pilot
8 MA Small-mesh Gillnet	1,155	470	0	-1,155	0%		Pilot
9 NE Large-mesh Gillnet	187	76	680	-187	0%		Pilot
10 MA Large-mesh Gillnet	139	57	0	-139	0%		Pilot
11 NE X-Large-mesh Gillnet	171	69	34	-171	0%		Pilot
12 MA X-Large-mesh Gillnet	1,273	519	55	-1,273	0%		Pilot
13 NE Handline	44	18	0	-44	0%		Pilot
14 MA Handline	80	32	0	-80	0%		Pilot
15 NE Lobster Pot	430	175	0	-430	0%		Pilot
16 MA Lobster Pot	69	28	0	-69	0%		Pilot
17 NE Longline	456	186	104	-456	0%		Pilot
18 MA Longline	108	44	0	-108	0%		Pilot
19 NE Mid-Water Trawl	433	176	123	-433	0%		Pilot
20 MA Mid-Water Trawl	41	17	12	-41	0%		Pilot
21 NE Small-mesh Trawl	4,027	1,640	129	-4,027	0%		Pilot
22 MA Small-mesh Trawl	1,495	609	225	-1,495	0%		Pilot
23 NE Large-mesh Trawl	1,233	502	1,978	-1,233	0%		Pilot
24 MA Large-mesh Trawl	1,459	594	655	-1,459	0%		Pilot
25 NE Purse Seine	24	10	71	-24	0%		Pilot
26 MA Purse Seine	10	4	1	-10	0%		Pilot
27 NE Scallop Dredge CG	254	103	IF	-254	0%		Pilot
28 MA Scallop Dredge CG	398	162	IF	-398	0%		Pilot
29 NE Scallop Dredge CG	233	95	IF	-233	0%		Pilot
30 MA Scallop Dredge CG	271	110	IF	-271	0%		Pilot
31 NE Scallop Dredge CG	43	18	6	-43	0%		Pilot
32 MA Scallop Dredge CG	167	68	29	-167	0%		Pilot
33 NE Scallop Dredge CG	26	11	IF	-26	0%		Pilot
34 MA Scallop Dredge CG	36	15	IF	-36	0%		Pilot
35 MA Scallop Trawl OL	97	39	0	-97	0%		Pilot
36 MA Scallop Trawl OG	39	16	0	-39	0%		Pilot
37 NE Scottish Seine						No vessels fishing with this gear	
38 NE Shrimp Trawl	61	25	16	-45	26	Fish stock assessment support	
39 MA Shrimp Trawl	80	33	0	-80	0		Pilot
40 SAP/B day/US-CAN			1,940	1,940		Days will be allocated according to call-in DAS procedures	
41 Discovery			60	60		Days are not allocated above but will be conducted under NEFOP schedule	
42 NE Conch Pot & Trap	14	6	0	-14	0		Pilot
43 MA Conch Pot & Trap	15	6	0	-15	0		Pilot
44 NE Hagfish Pot & Trap	55	22	0	-55	0		Pilot
45 MA Hagfish Pot & Trap	106	43	0	-106	0		Pilot
46 MA Scallop Trawl CG	27	11	0	-27	0		Pilot
47 MA Scallop Trawl CL	46	19	0	-46	0		Pilot
Total Number Days	15,125	6,161	6,161	-7,746			
Projected Cost	\$18,149,520	\$7,893,200	\$7,393,200	-\$9,295,080			

1) at-sea observer coverage levels required to attain the SBRM performance standards in each applicable fishery

Based on data from July 2007 to June 2008

OL= Open Area, Limited Access ; CL= Closed Area, Limited Access; OG= Open Area, General Category; CG=Closed Area, General Category

2009 Prioritization Table

Table 1. Standardized Bycatch Reporting Methodology Prioritization Information, April 2009 to March 2010

	Fishing Mode	Updated Omnibus Amendment Preferred Alternative: 95% of Discards & 98% of Mortality	Available Coverage with shortfall applied proportionally	Prioritized April 2009 - March 2010 Coverage	April 2009 - March 2010 Difference from Preferred Alternative	April 2009 - March 2010 Percentage of Preferred Alternative	Justification	Basis for SBRM Recommended Coverage
1	NE Clam Dredge	46	19	0	-46	0%		Pilot
2	MA Clam Dredge	122	50	0	-122	0%		Pilot
3	NE Crab Pot	70	29	0	-70	0%		Pilot
4	MA Crab Pot	28	12	0	-28	0		Pilot
5	NE Fish Pot	17	7	0	-17	0		Pilot
6	MA Fish Pot	28	11	0	-28	0		Pilot
7	NE Small-mesh Gillnet	12	5	0	-12	0	(4 days for marine mammal bycatch not included in this SBRM summary)	Pilot
8	MA Small-mesh Gillnet	1,155	470	0	-1,155	0	(192 days for marine mammal bycatch not included in this SBRM summary)	Pilot
9	NE Large-mesh Gillnet	187	76	680	494	365	Fish stock assessment optimization (134 days for marine mammal bycatch not included in this SBRM summary)	
10	MA Large-mesh Gillnet	139	57	0	-139	0	(32 days for marine mammal bycatch not included in this SBRM summary)	
11	NE X-Large-mesh Gillnet	171	69	34	-137	20	Fish stock assessment optimization (90 days for marine mammal bycatch not included in this SBRM summary)	
12								
13								
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21								
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26								
27								
28								
29								
30	MA Scallop Dredge CL	271	110	IF			Industry funded	
31	NE Scallop Dredge OG	43	18	6	-37	14	Fish stock assessment support	
32	MA Scallop Dredge OG	167	68	29	-138		Fish stock assessment support	
33	NE Scallop Dredge CG	26	11	IF			Industry funded	Pilot
34	MA Scallop Dredge CG	36	15	IF			Industry funded	Pilot
35	MA Scallop Trawl OL	97	39	0	-97	0		Pilot
36	MA Scallop Trawl OG	39	16	0	-39	0		Pilot
37	NE Scottish Seine						No vessels fishing with this gear	
38	NE Shrimp Trawl	61	25	16	-45	26	Fish stock assessment support	
39	MA Shrimp Trawl	80	33	0	-80	0		Pilot
40	SAP/B day/US-CAN			1,940	1,940		Days will be allocated according to call-in DAS procedures	
41	Discovery			60	60		Days are not allocated above but will be conducted under NEFOP schedule	
42	NE Conch Pot & Trap	14	6	0	-14	0		Pilot
43	MA Conch Pot & Trap	15	6	0	-15	0		Pilot
44	NE Hagfish Pot & Trap	55	22	0	-55	0		
45	MA Hagfish Pot & Trap	106	43	0	-106	0		Pilot
46	MA Scallop Trawl CG	27	11	0	-27	0		Pilot
47	MA Scallop Trawl CL	46	19	0	-46	0		Pilot
Total Number Days		15,125	6,161	6,161	-7,746			
Projected Cost		\$18,149,520	\$7,393,200	\$7,393,200	-\$9,295,080			

SBRM requires 15,125 sea days (\$18.1 million)
 NMFS has funding for 6,161 sea days (\$7.4million)
 Shortfall of 7,746 sea days (\$9.3 million)

OL= Open Area, Limited Access ; CL= Closed Area, Limited Access; OG= Open Area, General Category; CG=Closed Area, General Category

2009 Prioritization Table

(4)

Table 1. Standardized Bycatch Reporting Methodology Prioritization Information, April 2009 to March 2010

Fishery	April 2009 - March 2010 Percentage of Preferred Alternative	Justification				Basis for SBRM Recommended Coverage
1 NE	0%					Pilot
2 M	0%					Pilot
3 NE	0%					Pilot
4 M	0					Pilot
5 NE	0					Pilot
6 M	0					Pilot
7 NE	0				(4 days for marine mammal bycatch not included in this SBRM summary)	Pilot
8 M	0				(192 days for marine mammal bycatch not included in this SBRM summary)	
9 NE	365				Fish stock assessment optimization (134 days for marine mammal bycatch not included in this SBRM summary)	
10 M	0				(32 days for marine mammal bycatch not included in this SBRM summary)	
11 NE	20				Fish stock assessment optimization (90 days for marine mammal bycatch not included in this SBRM summary)	
12 M	4				Fish stock assessment optimization (33 days for marine mammal bycatch not included in this SBRM summary)	
13 NE	0					Pilot
14 M	0					Pilot
15 NE	0					Pilot
16 M	0					Pilot
17 NE	23				Fish stock assessment optimization	
18 M	0					Pilot
19 NE	28				Atlantic herring bycatch monitoring	
20 M	30				Atlantic herring bycatch monitoring	Pilot
21 NE	3				Fish stock assessment optimization	
22 M	15				Fish stock assessment optimization (213), protected species mixed trawl (12)	
23 NE	160				Fish stock assessment optimization	
24 M	45				Fish stock assessment optimization (192), protected species mixed trawl (463)	
25 NE	297				Atlantic herring bycatch monitoring	
26 M	440				Fish stock assessment optimization (34), protected species (10)	Pilot
27 NE					Industry funded	
28 M					Industry funded	
29 NE					Industry funded	
30 M					Industry funded	
31 NE	14				Fish stock assessment support	
32 M	17				Fish stock assessment support	
33 NE					Industry funded	Pilot
34 M					Industry funded	Pilot
35 M	0					Pilot
36 M	0					Pilot
37 NE					No vessels fishing with this gear	
38 NE	26				Fish stock assessment support	
39 M	0					Pilot
40 SA					Days will be allocated according to call-in DAS procedures	
41 DI					Days are not allocated above but will be conducted under NEFOP schedule	
42 NE	0					Pilot
43 M	0					Pilot
44 NE Hagfish Pot & Trap	55	22	0	-55	0	
45 MA Hagfish Pot & Trap	106	43	0	-106	0	Pilot
46 MA Scallop Trawl CG	27	11	0	-27	0	Pilot
47 MA Scallop Trawl CL	46	19	0	-46	0	Pilot
Total Number Days	15,125	6,161	6,161	-7,746		
Projected Cost	\$18,149,520	\$7,393,200	\$7,393,200	-\$9,295,080		

4) The rationale for the recommended prioritization. e.g.,

- Optimization
- Industry funded
- Call-In program

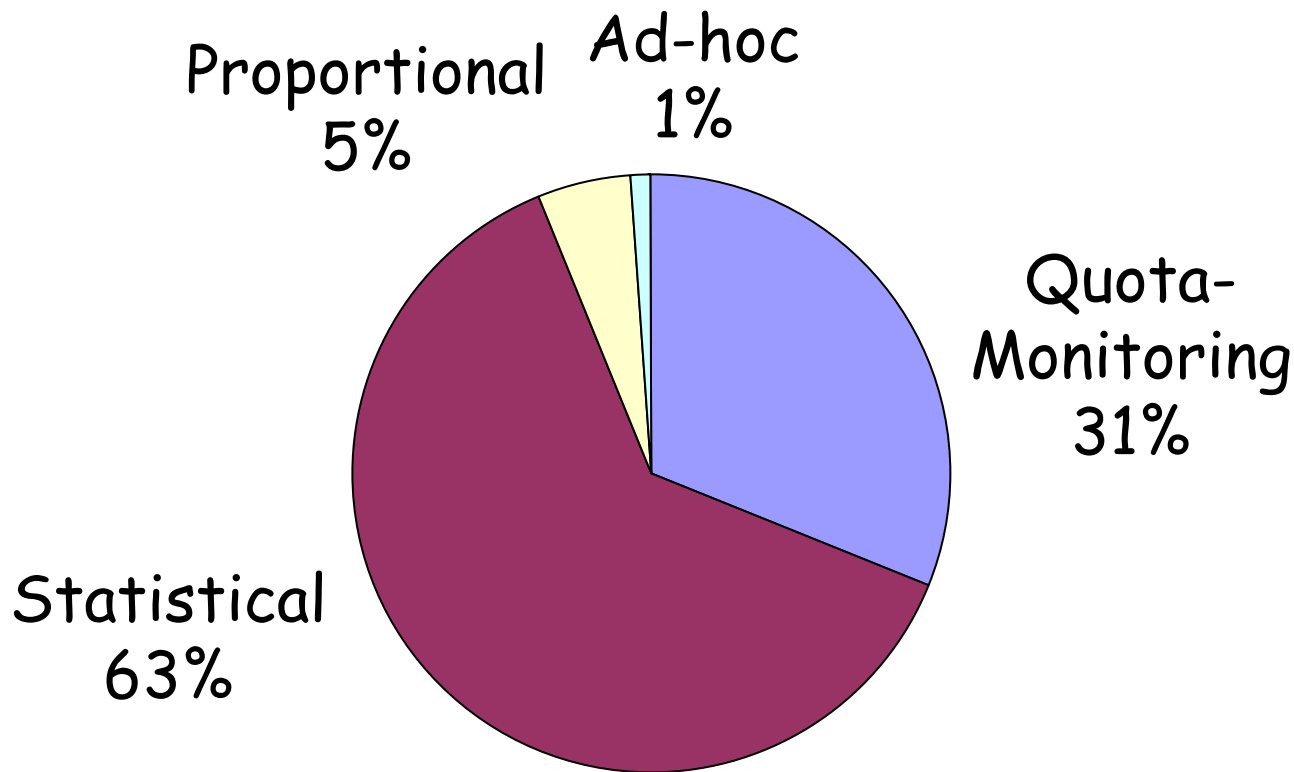
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Sea Day Funding Source Constraints

Reducing Bycatch	Temporary	Funding dedicated nationally to generating bycatch reporting, rather than sea day support.
MMPA Observers	Permanent	Funding source is to implement MMPA and must be applied to estimate marine mammal by-catch. <i>MMPA is not part of SBRM.</i>
New England Groundfish	Permanent 92%	Funding sources can only be applied New England groundfish fisheries, or fisheries that take NE Groundfish as bycatch
National Observer Program	Temporary	Funding sources obtained in response to national RFP and must address the objectives of the funded proposal. Proposal was to provide infrastructure (data entry, editing, quality control, etc)
Atlantic Coast Observers	Permanent 8%	Funding source to support observation of fish and sea-turtle by-catch in Mid-Atlantic fisheries (coverage split 50/50 between fish and turtles).

Background on Sea Day Allocation/Optimization

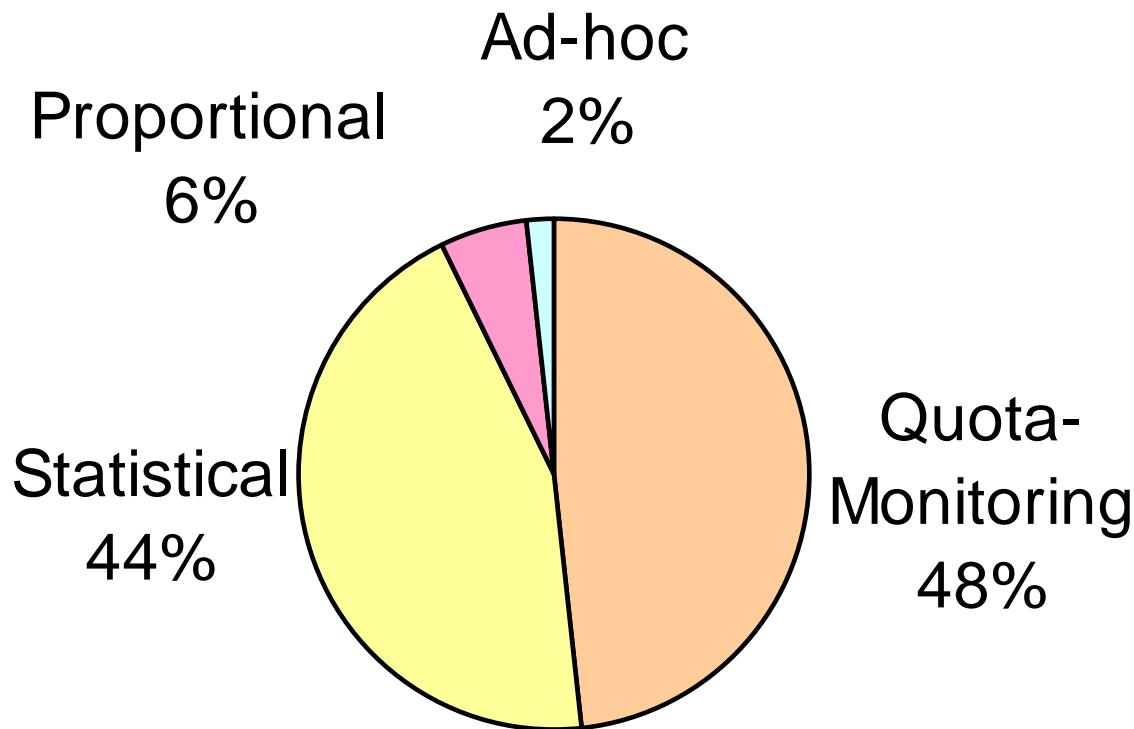
6,161 sea days assigned in 2009



485 days for gillnet coverage for marine mammals only
(not included in 6,161 day total)

Background on Sea Day Allocation/Optimization

6,217 sea days assigned in 2008



Quota monitoring allocation was greater in 2008 than 2009

696 days for gillnet coverage for marine mammals only (not included in 6,217 day total)

Management Constraints

- Monitoring of Total Allowable Catch (1,940 days)
 - US-Canada
 - Special Access Programs
 - B-Day coverage compliance
 - Not based on statistical precision targets. Instead uses seeks sufficient coverage rate to reduce risk of TAC overages.
 - TAC monitoring has taken precedence.
 - Remaining sea days used for other programs
- ## Total Discards Estimation
- Optimization model for NE groundfish, Monkfish, Fluke-Scup-Black Sea Bass
 - Herring (200-300 days)
 - Open Area General Category Scallop Coverage

Summary

- 2009 is a transition year
- Expand optimization tool described in Rago et al. 2005
 - to account for all objectives: fish, protected species, quota monitoring and non-quota monitoring;
 - to account for more fleets and species groups;
- Funding constraints limit use of funds for other species and areas
- Fund availability, Timing and Logistics of observer staffing requires a sea day observer year from April 1 to March 31
- Elimination of Call-In infrastructure for quota monitoring did not seem prudent, given pending considerations for sectors and ACLs

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Omnibus Amendment based on 2004 data
Update based on 2007-2008 data
- 3) 2009 Prioritization
Comparison of sea day schedule and sea days needed
for 30% CV. This uses the SBRM filter process.
- 4) **2009 NEFSC Sea Day Schedule**

2009 NEFSC Sea Day Schedule

April 1, 2009 to March 31, 2010

12 month schedule used to deploy observers;
constrained by funding,
consideration of priorities and
includes optimization to the extent possible.

available on the NEFOP website

<http://www.nefsc.noaa.gov/femad/fishsamp/fsb/>

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Omnibus Amendment based on 2004 data
Update based on 2007-2008 data
- 3) 2009 Prioritization
Comparison of sea day schedule and sea days needed for 30% CV
- 4) 2009 NEFSC Sea Day Schedule

SBRM Summary Points (1)

- Yearly Discard Report—raw data summary, mandated by law.
- Annual review of strengths and weaknesses of overall performance and a guidepost for improving allocation of sea days
- Orientation:
 - Precision—not compliance
 - Species groups—not individual species, stocks or species managed states or ASMFC, eg river herring

SBRM Summary Points (2)

- Improvements possible but funding constraints reduce allocation of sea days to Mid Atlantic fisheries.
- SBRM is based on general premise that samples are representative. If the "observer effect" is significant, sample size requirements will increase to maintain sufficient precision.
- 2009 continues transition:
 - Reduction in number of days for compliance
 - Increased use of optimization tool
 - Need to understand consequences of sectors
 - Serves as a basis for ACLs

end