Science, Service, Stewardship

Standardized Bycatch Reporting Methodology: Consultation / Prioritization Process in 2008

Northeast Fisheries Science Center

Presentation To:
New England Fishery Management Council
Portland, ME
June 3, 2008

Mid Atlantic Fishery Management Council
Atlantic City, NJ

NOAA FISHERIES SERVICE

Standardized Bycatch Reporting Methodology Consultation/Prioritization Process in 2008

- Overview of the SBRM Omnibus Amendment required review and reporting process
- Background on the sea day allocation/ optimization process
  - Constraints
  - Optimization
- Answer questions on the 2008 Consultation/ Prioritization Table

SBRM: Review and Reporting Process

Annual Report

5 specific report summaries

Evaluation Report - every 3 years

8 specific report summaries/analyses

Consultation/Prioritization Process

A process to provide the Councils and the public with an opportunity to consider, and provide input into, the decisions regarding the prioritization of at-sea observer coverage allocations, if the expected resources necessary may not be available.

4 specific components

Consultation/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.

2008 Consultation/Prioritization Table

Table 1. Standardized Bycatch Reporting Methodology Prioritization Information, Calendar Year 2008

(1)

	Fishing Mode	Omnibus Amendment Preferred Alternative: 95% of Discards & 98% of Mortality	Available Coverage with shortfall applied proportionally	Prioritized	2008 Difference from	2008 Percentage	
1	NE Clam Dredge	50	31				
2	MA Clam Dredge	84	53				
3	NE Crab Pot	101	64				
4	MA Crab Pot	28	18				
5	NE Fish Pot	20	13				
6	MA Fish Pot	40	25				
7	NE Small-mesh Gillnet	12	8				
8	MA Small-mesh Gillnet	1,259	793				
9	NE Large-mesh Gillnet	141	89				includ
10	MA Large-mesh Gillnet	653	411				
11	NE X-Large-mesh Gillnet	214	135				
12	MA X-Large-mesh Gillne	468	295				
13	NE Handline	72	45				
14	MA Handline	133	84				
15	NE Lobster Pot	439	276				
16	MA Lobster Pot	89	56				
17	NE Longline	35	22				
18	MA Longline	76	48				
19	NE Mid-Water Trawl	316	199				
20	MA Mid-Water Trawl	35	22				
21	NE Small-mesh Trawl	2,024	1,274				
22	MA Small-mesh Trawl	1,229	774				), eco
23	NE Large-mesh Trawl	730	460				
24	MA Large-mesh Trawl	481	303				)
25	NE Purse Seine	19	12				
26	MA Purse Seine	9	6	16	1	111%	Protected species
27	NE Scallop Dredge OL	320	201	IF			Industry funded
28	MA Scallop Dredge OL	114	72	IF			Industry funded
29	NE Scallop Dredge CL	145	91	IF			Industry funded
30	MA Scallop Dredge CL	108	68	IF			Industry funded
31	NE Scallop Dredge OG	92	58	9	-83	10%	Fish stock assessment support
32	MA Scallop Dredge OG	17	11	18	1	106%	Fish stock assessment support
33	NE Scallop Dredge CG	24	15	IF			
34	MA Scallop Dredge CG	21	13	IF			
35	MA Scallop Trawl OL	95	60	0	-95	0%	
36	MA Scallop Trawl OG	51	32	131	80	257%	Protected species
37	NE Scottish Seine	12	8	0	-12	0%	
38	NE Shrimp Trawl	42	26	19	-23	45%	Fish stock assessment support
39	MA Shrimp Trawl	76	48	0	-76	0%	
40	SAP/B day/US-CAN			3,000	3,000		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
	Total Number Days	*9,874*	*6,217*	*6,217*	*-3,657*		
	Projected Cost	$11,355,100	$7,149,500	$7,149,500	$4,205,600		

OL= Open Area, Limited Access

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

Based on 2004 data

2008 Consultation/Prioritization Table

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2	MA Clam Dredge	84	53	0	-84	0%	
3	NE Crab Pot	101	64	0	-101	0%	
4	MA Crab Pot	28	18	16	-12	57%	Economics data collection program
5	NE Fish Pot	20	13	3	-17	15%	Economics data collection program
6	MA Fish Pot	40	25	3	-37	8%	Economics data collection program
7	NE Small mesh Gillnet	12	8	8	-4	67%	Fish stock assessment optimization
8	MA Sm						
9	NE Larg						Includ
10	MA Larg						
11	NE X-La						
12	MA X-La						
13	NE Han						
14	MA Han						
15	NE Lobs						
16	MA Lob						
17	NE Long						
18	MA Lon						
19	NE Mid-						
20	MA Mid						
21	NE Sma						
22	MA Sm						), eco
23	NE Larg						
24	MA Larg						)
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26	MA Pur						
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SBRM requires 9,874 sea days ($11.4 million)

NMFS has funding for 6,217 sea days ($7.1 million)

Shortfall of 3,657 sea days ($4.2 million)

2008 Consultation/Prioritization

(2) (3)

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4	MA Crab Pot	28	18	16	-12	
5	NE Fish Pot	20	13	3	-17	
6	MA Fish Pot	40	25	3	-37	
7	NE Small-mesh Gillnet	12	8	3	-9	
8	MA Small-mesh Gillnet	1,259	793	0	-1,259	
9	NE Large-mesh Gillnet	141	89	159	18	
10	MA Large-mesh Gillnet	653	411	4	-649	
11	NE X-Large-mesh Gillnet	214	135	81	-133	
12	MA X-Large-mesh Gillnet	468	295	52	-416	
13	NE Handline	72	45	0		
14	MA Handline	133	84	0	-133	
15	NE Lobster Pot	439	276	0	-439	
16	MA Lobster Pot	89	56	0	-89	
17	NE Longline	35	22	25	-10	
18	MA Longline	76	48	8	-68	
19	NE Mid-Water Trawl	316	199	111	-205	
20	MA Mid-Water Trawl	35	22	103	68	
21	NE Small-mesh Trawl	2,024	1,274	175	-1,849	
22	MA Small-mesh Trawl	1,229	774	377	-852	
23	NE Large-mesh Trawl	730	460	1,494	764	
24	MA Large-mesh Trawl	481	303	254	-227	
25	NE Purse Seine	19	12	94	75	
26	MA Purse Seine	9	6	10	1	
27	NE Scallop Dredge OL	320	201	IF		
28	MA Scallop Dredge OL	114	72	IF		
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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;

Based on 2006/2007 data

2008 Consultation/Prioritization Table Summary

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

-Optimization

-Industry funded

-Call-In program

(4)

						2008 Percentage of Preferred Alternative	Justification
						16%	Economics data collection program
						0%	
						0%	
						57%	Economics data collection program
						15%	Economics data collection program
						8%	Economics data collection program
						25%	Fish stock assessment optimization
						0%	(420 days marine mammal bycatch not included in this SBRM summary)
						113%	Fish stock assessment optimization (276 days marine mammal bycatch not includ
						1%	Fish stock assessment optimization
						38%	Fish stock assessment optimization
						11%	Fish stock assessment optimization
						0%	
						0%	
						0%	
						0%	
						71%	Fish stock assessment optimization
						11%	Economics data collection earmark
						35%	Atlantic herring bycatch monitoring (95), economics data (16)
						294%	Atlantic herring bycatch monitoring (95), ecomonics data(8)
						9%	Fish stock assessment optimization (171), economics data (4)
22	MA Small-mesh Trawl	1,229	774	377	-852	31%	Fish stock assessment optimization (275), protected species mixed trawl (98), eco
23	NE Large-mesh Trawl	730	460	1,494	764	205%	Fish stock assessment optimization
24	MA Large-mesh Trawl	481	303	254	-227	53%	Fish stock assessment optimization (156), protected species mixed trawl (98)
25	NE Purse Seine	19	12	94	75	495%	Atlantic herring bycatch monitoring
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Sea Day Funding Source Constraints

Reducing Bycatch	Temporary 1%	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. *MMPA is not part of SBRM.*
New England Groundfish	Permanent 91%	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).

Management Constraints

- Monitoring of Total Allowable Catch (3,000 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

Background on Sea Day Allocation/Optimization

NEFSC has been using statistical algorithms to allocate a portion of the total sea days since 2003

These approaches are described in

NEFSC Bycatch Estimation Methodology: Allocation, Precision, and Accuracy

by P.J. Rago, S.E. Wigley and M.J. Fogarty

Northeast Fisheries Science Center Reference Document 05-09

Allocating observer Sea Days to Bottom Trawl and Gillnet Fisheries in the Northeast and Mid-Atlantic Regions to Monitor and Estimate Incidental Bycatch of Marine Mammals

by M. Rossman

Northeast Fisheries Science Center Reference Document 07-19

Background on Sea Day Allocation/Optimization

- Covers 3 FMPs
  Groundfish, Monkfish, Fluke-Scup-Black Sea Bass
- Considers overlapping coverage of trips
- Total available sea days are those days remaining after management constraints are met
- Minimizes the variance of the discard estimates subject to a given number of sea days
- Sea days for the Mid-Atlantic (M-A) and New England (NE) regions are optimized separately and the resulting allocated sea days combined.

Background on Sea Day Allocation/Optimization

- For fisheries which do not enter the optimization process (e.g. scallop dredge fishery; herring fishery, etc), sea days are allocated proportional to fishing effort (number of trips or number of days fished).

Background on Sea Day Allocation/Optimization

The optimization algorithm current handles 3 species groups, 3 gear types, 6 regions, and 2 trip length groups

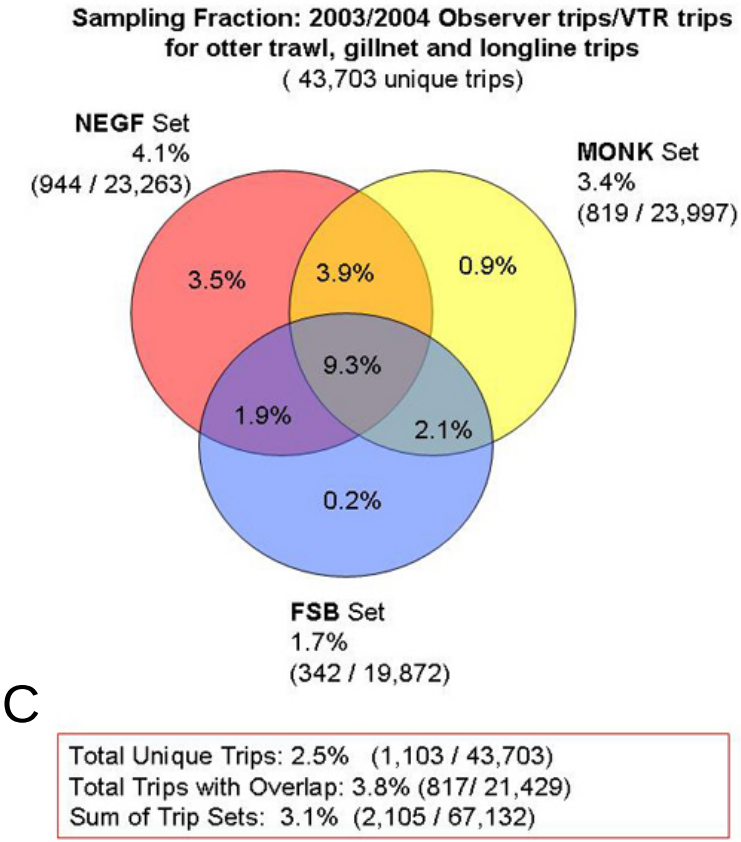
3 Species groups:
- New England Groundfish
  - (12 multi-species groundfish)
- Fluke, Scup and Black Sea Bass
- Monkfish

4 Gear types:
- Otter trawl (with four mesh groups)
- Gillnet (with four mesh groups)
- Longline

6 Regions:
ME-NH, N_MA, SNE, NY-NJ, DE-MD, VA-NC

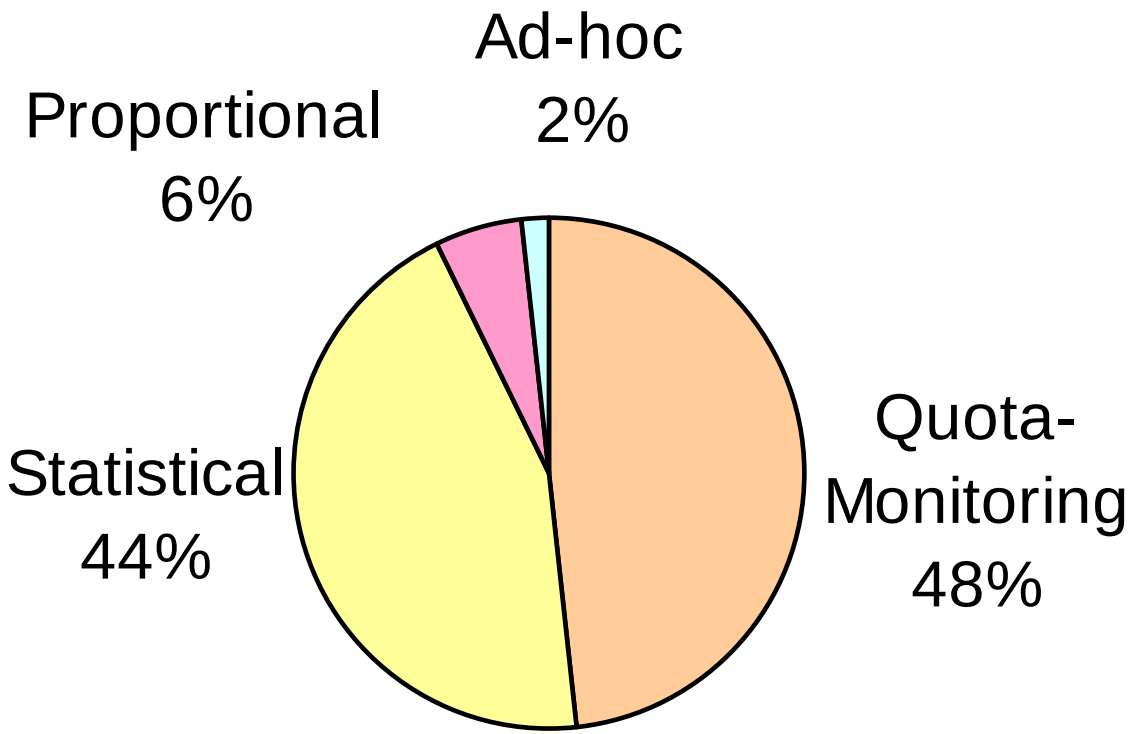
2 Trip Length groups: 1-day, 2+days

Taken from Rago et al. 2005
SBRM Omnibus Amendment Appendix A



Background on Sea Day Allocation/Optimization

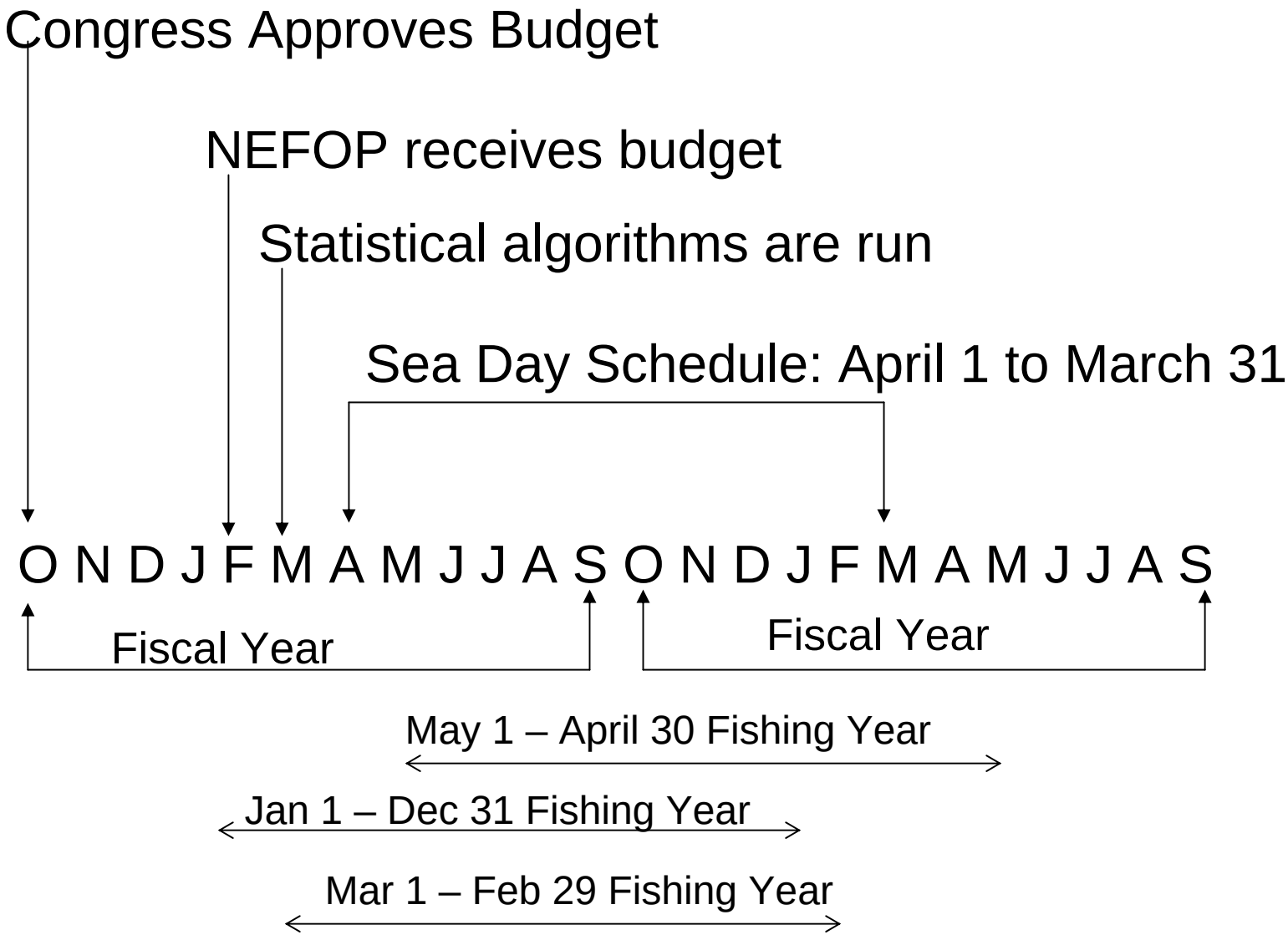
6,217 sea days assigned



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

Background on Sea Day Allocation/Optimization

Funding Availability and Timing



Background on Sea Day Allocation/Optimization

2008 is a Transition Year

Two statistical algorithms:

Rago et al. 2005

Rossman 2007

Percent coverage

2008 NEFOP Sea Day Schedule

Optimized days
- FISH
  - otter trawl
  - gillnet
  - longline
- PROTECTED SPECIES
  - mixed trawl
  - gillnet
  - scallop trawl

Non-optimized days
- herring
- scallop
- quota monitoring

SBRM

39 fleets

45 Species Groups

% CV target

Filtering

Summary

- *2008 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

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Possible Questions

Why are there differences between SBRM sea days and 2008 sea days ?

Differences are due to methods and data used

Methods

SBRM used filter method

2008 used statistical algorithms and proportional coverage along with funding and management constraints

Data

SBRM used 2004 data

2008 used 2006/2007 data

What is Pilot Coverage?

Pilot coverage is defined as the minimum level of coverage to acquire bycatch data with which to calculate variance estimates that in turn can be used to further define the level of sampling needed.

Based on *Evaluating Bycatch: A National Approach to Standardized Bycatch Monitoring Programs* (NMFS 2004), pilot coverage can range between 0.5% and 2%.

In the SBRM analysis, 2% of annual trips was used, with a minimum of 12 trips and maximum of 400 trips.

The SBRM used 2% of trips * average trip length to determine the number of sea days for fleets that did not have observer coverage in 2004.

How much Industry Funded coverage has there been?

Industry funded observer coverage of 1,890 sea days (300 trips) occurred for the following permit categories and areas during Fishing Year 2007.

Open Area
Limited Access
Nantucket Lightship Area
Limited Access
General Category
Closed Area I
Limited Access
General Category
Hudson Canyon
Limited Access
Elephant Trunk
Limited Access
General Category

Can the 3,000 SAP sea days be optimized?

Yes; however, if substantial changes in the sea day schedule occur, then a transition period will be needed to re-align observer staff.

Clarification on the spatial or gear-related constraints associated with this funding would be needed (i.e. funding just for NE coverage or can days be allocated to both MA and NE? And used for coverage on any gears?)

Which fleets used statistical algorithms?

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4	MA Crab Pot	28	16	ad-hoc
5	NE Fish Pot	20	3	ad-hoc
6	MA Fish Pot	40	3	ad-hoc
7	NE Small-mesh Gillnet	12	3	statistical method
8	MA Small-mesh Gillnet	1,259	0	
9	NE Large-mesh Gillnet	141	159	statistical method
10	MA Large-mesh Gillnet	653	4	statistical method
11	NE X-Large-mesh Gillnet	214	81	statistical method
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16	MA Lobster Pot	89	0	
17	NE Longline	35	25	statistical method
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19	NE Mid-Water Trawl	316	111	proportional coverage & ad-hoc
20	MA Mid-Water Trawl	35	103	proportional coverage & ad-hoc
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22	MA Small-mesh Trawl	1,229	377	statistical method
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35	MA Scallop Trawl OL	95	0	
36	MA Scallop Trawl OG	51	131	statistical method
37	NE Scottish Seine	12	0	
38	NE Shrimp Trawl	42	19	proportional coverage & ad-hoc
39	MA Shrimp Trawl	76	0	
40	SAP/B day/US-CAN		3,000	
41	Discovery		60	ad-hoc

SBRM Evaluation Report
and
Annual Report Slides

SBRM Evaluation Report (every 3 years)

A report assessing the effectiveness of the SBRMs**.**

1) A review of the recent levels of observer coverage in each applicable fishery;
2) A review of recent observed encounters with each species in each fishery, and a summary of observed discards by weight;
3) A review of the coefficient of variation (CV) of the discard information collected for each fishery;
4) An estimate of the total discards associated with each fishery;
5) An evaluation of the effectiveness of the SBRM at meeting the performance standard for each fishery;
6) A description of the methods used to calculate the reported CVs and to determine observer coverage levels, if those methods are different from those described and evaluated in the SBRM amendments;
7) An updated assessment of potential sources of bias in the sampling program, and analyses of accuracy; and
8) An evaluation of the implications for management of the discard information collected under the SBRM, for any cases in which the evaluation performed for item 5 indicates that the performance standard is not met.

SBRM Annual Discard Report based on NEFOP

1. Number of observer sea days schedules for each fishery, by area and gear type, in each quarter

2. The percent 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;

5. The observed catch and discards of each species, by gear type and fishery, in each statistical area.

Note: gear type is included in the fishery/fleet definition

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