

Standardized Bycatch Reporting Methodology: Annual Discard Report and Consultation / Prioritization Process in 2010

Northeast Fisheries Science Center

Presentation To:
New England Fishery Management Council
Portsmouth, NH
January 26-28, 2010

Mid Atlantic Fishery Management Council Cambridge, MD February 9-11, 2010 NOAA FISHERIES SERVICE



Standardized Bycatch Reporting Methodology (SBRM)

- 1) SBRM Annual Discard Report 2010
 Summary of NE Fishery Observer Program data
- 2) SBRM Recommended Sea Days 2010
 Sea days needed for 30% CV
 Update based on July 2008- June 2009 data
- 3) Prioritization 2010
 Comparison of SBRM Recommended days &
 Prioritized sea days



SBRM Annual Discard Report 2010

OUTLINE of Report (same format as 2009)

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

Handout Summary has list of tables
Report is available on-line: www.nefsc.noaa.gov

Search - Site Index - '5' - SBRM

SBRM Annual Discard Report 2010

ANNUAL DISCARD REPORT TABLES

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

Section 1 (pages 1-200) contains:

Tables 1 - 5 where Tables 4a-b and 5a-b summarize data by <u>Species group</u>

Appendix Tables summarizing discard reasons for all species encountered

Section 2 (pages 201 - 1531) 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 <u>pounds</u>;
interactions of incidental take species are reported in <u>numbers</u>;

SBRM Annual Discard Report 2010

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 SALMON
BLUEFISH
FLUKE - SCUP - BLACK SEA BASS
Black Sea Bass
Fluke
Scup
HERRING, ATLANTIC
LARGE MESH GROUNDFISH
American Plaice
Atlantic Cod
Atlantic Halibut
Atlantic Wolffish
Haddock
Ocean Pout
Pollock
Redfish
White Hake
Windowpane Flounder
Winter Flounder
Witch 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 GROUNDFISH
Offshore Hake
Red Hake
Silver Hake
SPINY DOGFISH
SQUID - BUTTERFISH - MACKERE
Atlantic Mackerel
Butterfish
Illex Squid
Loligo Squid
SURFCLAM - OCEAN QUAHOG
Surfclam
Ocean Quahog
TILEFISH
SEA TURTLES
Green Turtle
Hawksbill Turtle
Kemp's Ridley Turtle
Leatherback Turtle
Loggerhead Turtle
Olive Ridley Turtle
Slider (Pond) Turtle
Snapper Turtle
Terrapin Turtle
Turtles, unk.
Turtles, unk hard-shell

Tables in SBRM 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 & 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



SBRM Recommended Sea Days 2010

Sea days needed to attain a 30% CV

Document available on-line: www.nefsc.noaa.gov
Search - Site Index - '5' - SBRM

Printed copies available

SBRM Recommended Sea Days NEW in 2010 Sea Day Analysis

- 7 new fleets (row numbers marked with *) included:
 Beam trawl (rows 47 & 48)
 Floating trap (rows 16 & 17)
 Ruhle trawl (row 13)
 Shrimp pot (row 42)
 Dredge, Other (row 49)
- Revised Turtle Importance Filters
 updated 'unlikely' filter, and
 used total discard filter and
 used total mortality due to discards filter

New Analysis: the expected CV achieved given prioritized sea days.

SBRM Recommended Sea Days NEW in 2010 Prioritization

- Turtle monitoring requirements in Industry-funded scallop fleets are explicitly included in the analysis
- Higher coverage of NE Groundfish fleets to support implementation of A16
- Coverage of US/CAN, B-day and Special Access Programs will be the same coverage rates as Sectors
- Fishing patterns are likely to be different under Sectors, a pre-trip notification system will assign coverage
- Anticipated but unknown changes in fishing patterns, discard rates, etc. reduce the utility of the optimization method for 2010-2011. No formal optimization was applied.

SBRM Recommended Sea Days

	2009 SBRM	2010 SBRM	
Data	2007-2008	2008-2009	
Fleets	44	51	
Dagatina			
Baseline			
Sea Days	54,631	51,252	
Filtered			Recommended
Sea Days	15,125	14,147	Sea Days
Fleets with			
Pilot			
coverage	24	28	

The 7 new fleets contributed 108 (pilot) days of the 14,147 days

Table 4. 2010 SBRM Recommended Sea Days

																						2010 SBRM	
		Access	Trip																		Pilot	Recommended	ı
Row	GearType	Area	Cat.	Region	Mesh	BLUE	HERR	SAL	RCRAB	SCAL	SBM	MONK	GFL	GFS	SKATE	DOG	FSB	SCOQ	TILE	TURS	days	Sea Days	Pilot
1	Longline	OPEN	all	MA	all	0	0	0	0	0	0	109	109	0	109	109	0	0	109	109	109	109	Р
2	Longline	OPEN	all	NE	all	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	25	,
3	Hand Line	OPEN	all	MA	all	0	0	0	0	0	0	0	70	0	0	0	0	0	0	70	70	70) P
4	Hand Line	OPEN	all	NE	all	0	0	0	0	0	0	0	0	0	V	0	0	0	0	U	50	50	,
5	Otter Trawl	OPEN	all	MA	sm	0	0	0	0	0	723	0	0	7.53	692	691	1,359	0	0	1,415	18	1,415	,
6	Otter Trawl	OPEN	all	MA	lg	0	0	0	0	0	0	0	161	2,175	158	237	265	0	0	0	240	2,175	,
7	Otter Trawl	OPEN	all	NE	sm	0	0	0	0	0	0	0	0	1,25/	0	2,038	2,192	0	0	1,683	159	2,192	
8	Otter Trawl	OPEN	all	NE	lg	0	0	0	0	0	0	438	64	668	61	238	370	0	0	0	520	668	,
9	Scallop Trawl	AA	GEN	MA	all	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2 P
10	Scallop Trawl	AA	LIM	MA	all	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	Р
11	Scallop Trawl	OPEN	GEN	MA	all	41	0	0	0	41	41	41	41	41	41	41	41	0	0	41	41	41	Р
12	Scallop Trawl	OPEN	LIM	MA	all	84	0	0	0	84	84	84	84	84	84	84	84	0	0	84	84	84	P
13+	Otter Trawl, Ruhle	OPEN	all	NE	all	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	8 P
14	Shrimp Trawl	OPEN	all	MA	all	0	97	0	0	0	97	97	97	97	97	0	97	0	0	97	97	97	7 P
15	Shrimp Trawl	OPEN	all	NE	all	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36	,
16+	Floating Trap	OPEN	all	MA	all	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	Р
17-	Floating Tran	OPEN	الد	NE	الد	a	a	Q	a	a	a	q	a	a	a	a	a	a	q	a	Q	9) P

Table 4: Number of sea days needed to obtain a 30% CV by species group and fleet <u>and</u> the SBRM recommended sea days for each fleet

Row 6: Small-mesh Groundfish is the 'driving' species group for this fleet.

Row 9: new fleet in 2009, unlikely filter not updated, use 'pilot' to maintain some coverage.

Row 15: all species group are filtered out (0 days), used 'pilot' to maintain some coverage.

SBRM Recommended Sea Days

2010

Total for all fleets

14,147 days

Agency-funded fleets

9,689 days

Industry-funded fleets

4,458 days

- nine scallop fleets
 (rows 2, 4, 15, 18, 25, 26, 27, 28, 41)
- work plan is under development
- not Open area Limited Access Gen. Cat. fleets (rows 11,30,31)



Funding for April 2010 to March 2011

Agency-funded (with constraints)

Industry-funded work plan under development

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. MMPA is not part of SBRM.
New England Groundfish	Permanent 94%	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 6%	Funding source to support observation of fish and sea turtle bycatch in Mid-Atlantic fisheries (coverage split 50/50 between fish and turtles).

Funding* for April 2010 - March 2011

Agency Funding Sources 10,375 days
Atlantic Coast 646 days
NE Groundfish 9,719 days
NEFOP 4,614 days and At-Sea Monitors (ASM) 5,105 days
MMPA (days for SBRM) 10 days

Industry Funding assumed 4,000 days 9 fleets (rows 2, 4, 15, 18, 25, 26, 27, 28, 41) Work plan is under development

14,375 funded days > 14,147 SBRM days shortfall exists in some fleets due to funding constraints

NOAA FISHERIES SERVICE



SBRM Prioritization Process

SBRM Prioritization Process

Summary Table: Table 5*

- 1) 2010 SBRM Recommended Sea Days (days needed to attain 30% CV in each applicable fishery)
- 2) Days allocated proportionally within two funding categories:
 - · Agency-funded without funding constraints
 - · Industry-funded

^{*} handout in 11x17 format is available

SBRM Prioritization Process continued

Summary Table continued

- 3) Days allocated proportionally within two funding categories:
 - Agency-funded with funding constraints
 - Industry-funded
- 4) Prioritized Sea Days
- 5) Rationale for the recommended prioritization

(1) 2010 Prioritization Table

									2010 111011112411011 14510													
Bow		Access					snortfall applied	th with sed prope	Available Coverage with shortfall applied difference from March 2011 Difference from March 2011 March 2011 March 2011 March 2011 Percentage of Preferred Sequence of Preferred March 2011 Percentage of Preferred Sequence o													
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			all	NE	all	50	54	+	1) 2010 SBRM													
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6	Otter Trawl (OPEN	all	MA	lg	2175	2329		<u></u>													
7	Otter Trawl	OPEN	all	NE	sm	2192	2347															
8			all	NE	lg	668	715	エ	Recommended Sea Days:													
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		OPEN	all	NE	sm	12	13		•													
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		OPEN OPEN	all all	NE MA	xlg all	140 10	150 11	+'														
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26			GEN	_	all	43	39	+	applicable fishery													
27	Scallop Dredge	AA	GEN	NE	all	12	11		- approance ,													
28	Scallop Dredge	AA	LIM	MA	all	93	83		<u> </u>													
29	Scallop Dredge	AA	LIM	NE	all	255	229	上	□													
30			GEN		all	49	52	上,	□ - · · •													
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٠.			all	MA	all	16	17	+														
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41	Pots and Traps, Hagfish (all	NE	all	56	60	上	□													
		0	all	NE	all	9	10	上,	□													
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			all	MA NE	all all	37 51	40 55	+	5 0 -37 0% 114 0 -51 0%													
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48+			all	NE	all	18	19	+	40 0 -18 0%													
49+	- Dredge, Other	OPEN	all	MA	all	23	25	1_	3 0 -23 0%													
50	Ocean Quahog/Surf Clam Dredge	OPEN	all	MA	all	67	72		8 0 -67 0%													
_51	Ocean Quahog/Surf Clam Dredge	OPEN	all	NE	all	29	31		65 0 -29 0%													
	SAP/B day/US-CAN (covered as part			1)		<u> </u>		二														
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<u> </u>	Total Days					14,147	14,375	-	14,375 14,375 1: Sector monitoring coverage is dependent on industry activity													
Ш	Projected Costs				—	\$15,082,110	15,550,000	>	\$15,550,000 11,539,038 26													
							-															

2010 Prioritization Table April 2010 -Available Available Coverage Prioritized March 2011 April 2010 - March Coverage with with shortfall applied April 2010 -Difference from 2011 Percentage Basis for Recommended shortfall applied proportionally within March 2011 Preferred of Preferred SBRM Coverage SBRM requires 14,147 sea days (\$15.1 million) Agency funding for 10,375 days (\$7.4 million) Industry funding for ~4,000 days (\$3.1 million) Total 14,375 days Total: No Shortfall By fleet: Shortfall due to funding constraints **OPEN** 25 23 100% Scallop Dredge **OPEN** MA 3443 3089 3089 1356 -2087 39% LIM Industry funded, coverage is dependent on industry activity 475 426 426 1628 1153 343% OPEN NE Industry funded, coverage is dependent on industry activity OPEN MA 36 66 32 194% **OPEN** 379 406 848 379 100% Mid-water Paired & Single Trawl Pots and Traps, Fish OPEN MA 26 28 0 -26 0% 29 **OPEN** NE 13 14 0 -13 0% Pots and Traps. Fish **OPEN** MA 16 17 0 -16 0% Pots and Traps, Conch 14 -13 0% **OPEN** ΝE 13 29 0 Pots and Traps, Conch 137 -128 **OPEN** MA 128 16 0 0% Pots and Traps, Hagfish **OPEN** ΝE 56 60 125 0 -56 0% Pots and Traps, Hagfish Pots and Traps, Shrimp **OPEN** 10 20 0 -9 0% **OPEN** 68 73 0 -68 0% Pots and Traps, Lobster 8 427 457 956 -427 Pots and Traps, Lobster OPEN NE 0 0% OPEN MA 37 40 5 0 -37 0% **OPEN** NE 51 55 114 0 -51 0% MA 31 33 4 0 -31 0% Beam Trawl OPEN OPEN ΝE 18 19 40 0 -18 0% Beam Trawl 25 OPEN MA 23 3 0 -23 0% Dredge, Other 72 -67 0% Ocean Quahog/Surf Clam Dredge Ocean Quahog/Surf Clam Dredge OPEN 29 65 0 SAP/B day/US-CAN (covered as part of NE groundfish Discovery Days 14,375 14,375 1: Sector monitoring coverage is dependent on industry activity Projected Costs \$15,550,000 \$15,550,000 11,539,038

(2) (3) 2010 Prioritization Table

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De	2) Coverage	Recommended Sea Days	shortfall applied proportionally	proportionally within funding contraints	March 2011 Coverage	
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8		668 12	715 11	1495 11	4190 24	
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1/	funds were	35	37	4	0	funds were
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2	anocarea	423	453	52	302	
2		12	13	27	12	P
2	nnonontional	159	170	356	1667	proportionally species species
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3	applicable	255 49	229 52	229 6	257 49	applicable
3	applicable	23	25	51	23	
3	1 1	3443 475	3089 426	3089 426	1356 1628	
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3	1131161163	379 26	406 28	848 3	379 0	+
3		13 16	14 17	29 2	0	P
3	without	13	14	29	0	funding ====
4	WIIIIOUI	128 56	137 60	16 125	0	
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4	Junuing	37	40	5	0	
4	.	51 31	55 33	114 4	0	P
48	proportionall y across all applicable fisheries without funding constraints	18	19	40	0	-31 0% P
49 5	CONSTITUTION	23 67	25 72	3 8	0	-23 0% P
5		29	31	65	0	-29 0% P
	SAP/B day/US-CAN (covered as part of NE groundfish) Discovery Days					Notes:
	Total Days	14,147	14,375	14,375	14,375	1: Sector monitoring coverage is dependent on industry activity
	Projected Costs	\$15,082,110	\$15,550,000	\$15,550,000	11,539,038	8 28

2010 Prioritization Table (4)

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2010 Prioritization Table April 2010 -Available Available Coverage Prioritized March 2011 April 2010 - March Coverage with with shortfall applied April 2010 -Difference from 2011 Percentage Access Trip Recommended shortfall applied proportionally within March 2011 Preferred of Preferred SBRM proportionally funding contraints Region Mesh Sea Days Coverage Alternative Alternative Coverage 95% Fish stock assessment support 806% Fish stock assessment support 5) The rationale for the 0% 99% Fish stock assessment support 8% Fish stock assessment and turtle bycatch support 71% ish stock assessment and turtle bycatch support 33% ish stock assessment support recommended prioritization 627% ish stock assessment support 204% Industry funded, coverage is dependent on industry activity ndustry funded, coverage is dependent on industry activity 100% ish stock assessment support 40% ndustry funded, coverage is dependent on industry activity ·Statistical & Ad-hoc Coverage is expected for fish stock assessment support and 13+ (14 § 15 § 15% JS/CAN monitoring 0% Р 44% Fish stock assessment support 0% ·Industry funded 0% 0% 355 days for protected species bycatch not included in SBRM) Fish stock assessment support 1 (56 days for protected species 21% bycatch not included in SBRM) ·Pre-Trip Notification program Fish stock assessment support 1 (62 days for protected species 71% bycatch not included in SBRM) Fish stock assessment support (2 days for protected species 102% bycatch not included in SBRM) Fish stock assessment support 1 (69 days for protected species Sink, Anchor, Drift Gillnet 1049% bycatch not included in SBRM) Fish stock assessment support 146 days for protected species Sink, Anchor, Drift Gillnet OPEN 140 150 313 739 599 528% bycatch not included in SBRM) **OPEN** MA 10 11 20 10 200% 24 Purse Seine all all Fish stock assessment and turtle bycatch support 30 67 **OPEN** all ΝE 32 30 0 100% Purse Seine all Fish stock assessment support Scallop Dredge GEN MA 43 39 39 224 181 521% Industry funded, coverage is dependent on industry activity GEN ΝE 12 11 11 30 18 252% Industry funded, coverage is dependent on industry activity Scallop Dredge Scallop Dredge AA LIM MA 93 83 83 442 349 ndustry funded, coverage is dependent on industry activity 257 Scallop Dredge AA NE 255 229 229 101% ndustry funded, coverage is dependent on industry activity **OPEN** GEN MA 52 6 49 0 100% Scallop Dredge ish stock assessment support **OPEN** ΝE 23 25 51 23 0 Scallop Dredge GEN MA 3443 3089 3089 1356 -2087 Scallop Dredge **OPEN** LIM 39% Industry funded, coverage is dependent on industry activity LIM 475 426 426 1628 1153 343% OPEN NE Industry funded, coverage is dependent on industry activity Mid-water Paired & Single Trawl OPEN MA 34 36 4 66 32 194% Mid-water Paired & Single Trawl **OPEN** 379 406 848 379 100% ish stock assessment support Pots and Traps, Fish OPEN MΑ 26 28 0 -26 0% 29 **OPEN** all ΝE 13 14 0 -13 0% Pots and Traps, Fish Pots and Traps, Conch **OPEN** all MA 16 17 0 -16 0% 39 Pots and Traps, Conch 29 -13 **OPEN** ΝE 13 14 0 0% 128 137 -128 **OPEN** MA 16 0 0% 40 Pots and Traps, Hagfish all 41 Pots and Traps, Hagfish **OPEN** ΝE 56 60 125 0 -56 0% 42+ Pots and Traps, Shrimp **OPEN** 10 20 0 -9 0% **OPEN** MA 68 73 0 -68 0% Pots and Traps, Lobster 8 427 457 956 0 -427 0% Pots and Traps, Lobster OPEN NE OPEN MA 37 40 5 0 -37 0% Pots and Traps, Crab **OPEN** ΝE 51 55 114 0 -51 0% Pots and Traps, Crab MA 31 33 4 0 -31 0% Beam Trawl **OPEN** OPEN ΝE 18 19 40 0 -18 0% 48+ Beam Trawl all OPEN MA 23 25 3 0 -23 0% Dredge, Other Ocean Quahog/Surf Clam Dredge OPEN 67 72 0 -67 0% Ocean Quahog/Surf Clam Dredge OPEN 65 0% SAP/B day/US-CAN (covered as part of NE groundfish Discovery Days 14,375 14,375 14,375 1: Sector monitoring coverage is dependent on industry activity Total Days **Projected Costs** \$15.082.110 \$15,550,000 \$15,550,000 11,539,038

Table 6: Expected achieved CV for prioritized days

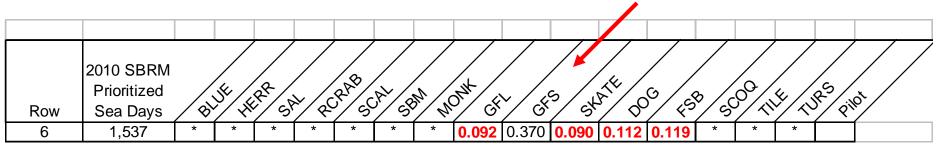
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Table 6. Expected achieved CV for prioritized days

Example: MA Otter trawl large-mesh (row 6)

SBRM recommended days = 2,175 (Table 5)
Prioritized sea days = 1,537 (638 day difference)
The expected CV achieved for the important species
groups shows that 4 of the 5 species groups have a CV less
than 30%. An additional 638 days would be needed to lower
the small-mesh groundfish (GFS) CV by 7% for all species
group to have a 30% or less CV.

Table 6 row 6



^{*} indicate species groups filtered out through the importance filter process

Important Caveats for 2010 Prioritization

- Funding constraints remain an issue and shortfall by fleet results; Mid-Atlantic fleets and small-mesh fleets remain under funded.
- Change in management regulations will result in different fishing practices such that previous year's data can not be used to inform the prioritization, thus provisional.
- High level of NE Groundfish coverage, fleet coverage rates will rely more on proportional allocation and systematic sampling governed by actual fishing activity.

Important Caveats for 2010 Prioritization continued.

- The pre-trip notification system will dynamically assign sea day coverage to industry activity for common pool and sector fleets by gear type and access area.
- Industry-funded coverage in the scallop fleets is the subject of ongoing discussions between industry and government. These analysis have assumed coverage, however actual coverage will be based on outcome of discussions.

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Comments on prioritization are requested by February 26, 2010

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Back pocket slides

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.

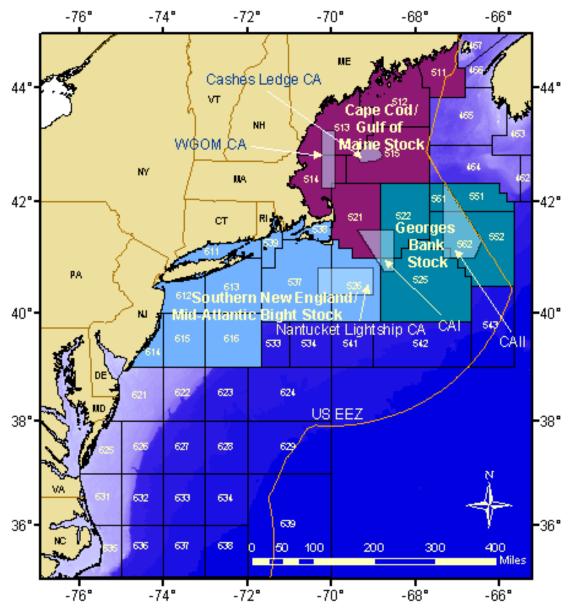


Figure 7.1. Statistical areas used to define the Cape Cod/Gulf of Maine, Georges Bank, and Southern New England/Mid-Atlantic Bight vellowtail stocks.

Yellowtail Flounder

3 Stocks:

Gulf of Maine

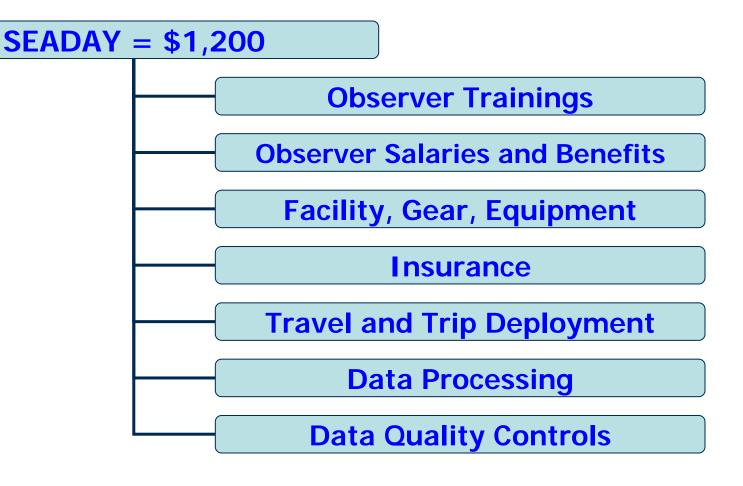
Georges Bank

Southern New England – Mid-Atlantic

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Program Costs



SBRM POLICY ISSUES (2)

Mid-Atlantic Coverage

- · Currently 94% of funding is mandated for NE groundfish coverage
 - · SBRM operationally defines fisheries/fleet by physical attributes
 - · Physical attributes: gear type, mesh size, space, time
 - No 'species' defined fisheries to avoid double count when dealing with multiple FMPs
 - •For example, there is no "Loligo" fleet. The sampling frame does not exist in advance and therefore one cannot improve the estimates of discards of butterfish in the Loligo fleet per se. Instead, one can improve the estimates of discards in the small mesh trawl fleet in the mid Atlantic, with the expectation but no guarantee that precision of butterfish discards will improve.
 - ·HOW FLEXIBLE IS FUNDING MANDATE?
 - ·SPECIES-SPECIFIC FISHERIES REQUIRE A CALL-IN PROGRAM. IS THIS DESIRED?

SBRM POLICY ISSUES (3)

- · Finite funds for a given sea day schedule
 - · 'Zero-sum game', 'rob Peter to pay Paul'
 - Suggest X% of funds taken off the top to use as discretionary coverage to support priorities

CAN NRCC AGREE ON A SPECIFIED FRACTION OF DISCRETIONARY DAYS?

IS THIS LEGAL UNDER SBRM?

- Protected resource species (marine mammals, birds)
 - · some coverage is non-overlapping with fish due to:
 - spatio-temporal patterns of interactions
 - sampling protocols used (gillnet trips)

SBRM POLICY ISSUES (4)

- Evaluate Management Regulations
 - Need gear modification data in VTR (gear type and mesh size are no longer sufficient to evaluate management measures)

New gear codes are helpful

- Need SAP identification (need linkages between databases)
 - ·Expected to have with A16 implementation

Importance Filter: Total Fishing Mortality Ratio

Fishing Mortality Ratio = $D_{jh} / (\Sigma L_j + \Sigma D_j)$,

Where D = discards, L = commercial landings plus recreational landings (A+B1), j = species, and h = fishing mode

Filter cells where magnitude of discards is minor component of total fishing-related mortality of a species using a standardized approach

Derive cumulative fishing mortality percentages for each species/species group

Baseline sea days15 species groups and15 fleets

- Simultaneously apply the Unlikely cells filter, the 95% Discard filter and the 98% Total Mortality filter
- For each fleet, select the maximum sea days needed among the 15 species groups then sum over all fleets

15 species groups

15 Baseline
Sea days

51,252 days

SBRM Importance Filter

