

APPENDIX

Equations used in discard estimation and sample size analysis

Total discarded pounds for species j is defined as:

$$(1) \quad \hat{D}_j = \sum_{h=1}^Q K_h r_{c,j}$$

where

$$(2) \quad r_{c,j} = \frac{\sum_{h=1}^Q N_h \sum_{i=1}^{n_h} \frac{d_{jih}}{n_h}}{\sum_{h=1}^Q N_h \sum_{i=1}^{n_h} \frac{k_{ih}}{n_h}}$$

Where \hat{D}_j is total discarded pounds for species j ; K_h is VTR total kept pounds in stratum h ; $r_{c,j}$ is the combined ratio of species j ; d_{jih} is discards of species j from trip i in stratum h ; k_{ih} is kept pounds of all species on trip i in stratum h ; N_h is the number of VTR trips in stratum h ; n_h is the number of observed trips in stratum h . In Eq. 2 the summation over strata $h = 1$ to Q is over calendar quarters and the other strata values are held constant. Equation 3 (below) requires a more explicit definition of the stratum designation since the summation over quarter relies on an annual average ratio defined in Eq. 2.

Variance of \hat{D}_j for species j is defined as:

$$(3) \quad V(\hat{D}_j) = \sum_{q=1}^4 K_{qh}^2 \left(\frac{N_{qh} - n_{qh}}{n_{qh} N_{qh}} \right) \frac{1}{\left(\frac{\sum_{i=1}^{n_h} k_{iqh}}{n_{qh}} \right)^2} \left[\frac{\sum_{i=1}^{n_{qh}} \left(d_{jiqh}^2 + (r_{c,j})^2 k_{iqh}^2 - 2r_{c,j} d_{jiqh} k_{iqh} \right)}{n_{qh} - 1} \right]$$

where \hat{D}_j is total discarded pounds for species j ; K_{qh} is VTR total kept pounds in quarter q and stratum h ; $r_{c,j}$ is the combined ratio of species j ; d_{jiqh} is discards of species j from trip i in quarter q and stratum h ; k_{iqh} is kept pounds of all species on trip i in quarter q and stratum h ; N_{qh} is the number of VTR trips in quarter q and stratum h ; n_{qh} is the number of observed trips in quarter q and stratum h .

Coefficient of variation (CV) of \hat{D}_j is defined as:

$$(4) \quad CV(\hat{D}_j) = \frac{\sqrt{V(\hat{D}_j)}}{\hat{D}_j}$$

The number of sea days and trips needed to achieve a 30% CV are derived based on the variance of the total discards using the combined ratio method and the d/k discard ratio (Eq. 3).

From Eq. 3, let

$$(5) \quad \hat{S}_{jqh}^2 = \left[\frac{\sum_{i=1}^{n_{qh}} \left(d_{jiqh}^2 + (r_{c,jh})^2 k_{iqh}^2 - 2r_{c,j} d_{jiqh} k_{iqh} \right)}{n_{qh} - 1} \right] \quad \text{and}$$

$$(6) \quad \delta_{qh} = \frac{n_{qh}}{\sum_{q=1}^4 n_{qh}}$$

where δ_{qh} is the fraction of the trips in quarter q in stratum h ; $r_{c,jh}$ is the combined annual ratio of species j in stratum h ; d_{jiqh} is discards of species j from trip i in stratum h in quarter q ; k_{iqh} is kept pounds of all species on trip i in stratum h in quarter q ; and n_{qh} is the number of observed trips in stratum h in quarter q . The $r_{c,jh}$ in Eq. 5 is defined in Eq. 2 where the summation is over quarters within a given strata defined by gear, region, access area, trip type and so forth.

The number of trips necessary to achieve a 30% CV based on the variance of the composite annual total discards for species group j in stratum h is defined as

$$(7) \quad \hat{T}D_{30jh} = \frac{\sum_{q=1}^4 \left(\frac{K_{qh}^2}{\bar{k}_{qh}^2} \hat{S}_{jqh}^2 \frac{1}{\delta_{qh}} \right)}{(0.09) \hat{D}_{jh}^2 + \frac{\sum_{q=1}^4 \frac{K_{qh}^2}{\bar{k}_{qh}^2} \hat{S}_{jqh}^2}{N_h}}$$

where $0.09 = 0.30^2$, the square of the 30% CV, the given target precision level.

The number of sea days necessary to achieve a 30% CV based on the variance of the composite annual total discards for species group j in stratum h is defined as

$$(8) \quad \hat{S}D_{30jh} = \hat{T}D_{30jh} * \overline{DA}_h$$

where \overline{DA}_h is the weighted average trip length of VTR trips in stratum h (weighted by the number of VTR trips in each quarter) .

When total discards could not be estimated due to little or no observer coverage (no data) or when total discards are zero (no variance), sample size was determined by pilot cover, where 2% of the quarterly VTR trips for a fleet were multiplied by the quarterly mean VTR trip length.

$$(9) \hat{S}_{30,jhq} = \hat{T}_{hq} * \overline{DA}_{hq}$$

where \hat{T}_{hq} is 2% of the VTR trips in stratum h and quarter q , and $3 \leq \hat{T}_{hq} \leq 100$ trips; \overline{DA}_{hq} is the average trip length of VTR trips in stratum h and quarter q . The quarterly trips and sea days were then summed for annual number of trips and sea days.

The achieved precision resulting from the number of funded sea days can be derived by converting funded sea days into funded trips. The number of funded trips, $\hat{T}F_h$ for stratum h is defined as:

$$(10) \hat{T}F_h = \hat{S}F_h / \overline{DA}_h$$

where $\hat{S}F_h$ is the number of funded sea days in stratum h and \overline{DA}_h is the weighted average trip length of VTR trips in stratum h (weighted by the number of VTR trips in each quarter).

The achieved coefficient of variation (CV) of \hat{D}_j is based on the variance of the composite annual total discards for species group j in stratum h and the number of funded trips in stratum h and re-writing Eq. 7.

From Eq. 7, let

$$(11) CV(\hat{D}_{jh}) = \sqrt{\frac{\sum_{q=1}^4 \left(\frac{K_{qh}^2}{\bar{k}_{qh}^2} \hat{S}_{jqh}^2 \frac{1}{\delta_{qh}} \right) - \hat{T}F_h \left[\frac{\sum_{q=1}^4 \left(\frac{K_{qh}^2}{\bar{k}_{qh}^2} \hat{S}_{jqh}^2 \right)}{N_h} \right]}{\hat{T}F_h * \hat{D}_{jh}^2}}$$

Appendix Table 1. The number of fleets used in analyses and reported in the tables of this report.

<p>56 fleets uniquely identified in Tables 2 & 3</p> <p>26 fleets with no NEFOP coverage discard estimation not conducted pilot fleet designation for sample size analysis</p> <p> 3 confidential fleets aggregated into "Confidential fleets" in Tables 4 & 5 23 non-confidential fleets</p> <p>8 fleets with sparse NEFOP coverage discard estimation conducted pilot fleet designation for sample size analysis</p> <p> 1 confidential fleet aggregated into "Confidential fleets" in Tables 4 & 5 7 non-confidential fleets</p> <p>22 fleets with sufficient NEFOP coverage discard estimation conducted variance of discard used for sample size analysis non-pilot fleets</p> <p> 1 confidential fleet aggregated into "Confidential fleets" in Tables 4 & 5 21 non-confidential fleets</p>
<p>Other minor fleets not uniquely identified includes twin trawl fleets aggregated into "Other minor fleets" in Tables 4 & 5</p>

Appendix Table 2. Discard reason categories used in Appendix Tables 3A and 3B.

Discard Reason Category	FISH DISPOSITION Code ¹³	FISH DISPOSITION Description
No Market	001	NO MARKET, REASON NOT SPECIFIED.
	002	NO MARKET, TOO SMALL
	003	NO MARKET, TOO LARGE
	005	NO MARKET, WON'T KEEP UNTIL TRIP END.
	006	NO MARKET, BUT RETAINED BY VESSEL FOR ALTERNATE PROGRAM.
	007	NO MARKET, BUT RETAINED FOR OBSERVER FOR SCIENTIFIC PURPOSES
	Poor Quality	031
032		POOR QUALITY, SANDFLEA DAMAGE
033		POOR QUALITY, SEAL DAMAGE
034		POOR QUALITY, SHARK DAMAGE
035		POOR QUALITY, CETACEAN DAMAGE
036		POOR QUALITY, HAGFISH DAMAGE
037		POOR QUALITY, SHALL DISEASE
038		POOR QUALITY, GEAR DAMAGE
Regulation (Size)	012	REGULATIONS PROHIBIT RETENTION, TOO SMALL
	013	REGULATIONS PROHIBIT RETENTION, TOO LARGE
Regulation (Quota)	004	NO MARKET, QUOTA FILLED
	014	REGULATIONS PROHIBIT RETENTION, QUOTA FILLED.
	015	REGULATIONS PROHIBIT RETENTION, NO QUOTA IN AREA.
	025	REGULATIONS PROHIBIT ANY RETENTION.
Regulation (Other)	011	REGULATIONS PROHIBIT RETENTION, REASON NOT SPECIFIED.
	022	REGULATIONS PROHIBIT RETENTION, V-NOTCHED
	023	REGULATIONS PROHIBIT RETENTION, SOFT-SHELL
	024	REGULATIONS PROHIBIT RETENTION, WITH EGGS.
Other	000	DISCARDED GENERAL, UNKNOWN DISCARD REASON
	041	NOT BROUGHT ON BOARD, REASON NOT SPECIFIED
	042	NOT BROUGHT ON BOARD, GEAR DAMAGE PREVENTED CAPTURE
	043	NOT BROUGHT ON BOARD, FELL OUT/OFF OF GEAR
	044	NOT BROUGHT ON BOARD, CONSIDERED TO HAVE NO MARKET VALUE.
	048	NOT BROUGHT ON BOARD, VESSEL CAPACITY FILLED
	049	NOT BROUGHT ON BOARD, NOT ENOUGH FISH TO PUMP ABOARD
	052	INCIDENTAL TAKE (MAMMAL, SEA TURTLE, SEA BIRD)
	053	DEBRIS
	054	EMPTY SHELLS
	062	UPGRADED
	063	RETAINING ONLY CERTAIN SIZE BETTER PRICE TRIP QUOTA IN EFFECT.
	099	OTHER, DISCARDED

¹³ Fish disposition code "039" = POOR QUALITY, PREVIOUSLY DISCARDED has been excluded from this report.

Appendix Table 3A. Estimated discards (live pounds) and percentage by discard reason category for 14 species groups for July 2011 through June 2012.

Species Group: ATLANTIC SALMON No discards

Species Group: BLUEFISH

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
30 Other fleets filtered out						226,061	26.3	0.3	59.8	0.0	13.0	0.6	100.0

Species Group: FLUKE - SCUP - BLACK SEA BASS

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	503,012	22.3	50.7	16.2	0.0	1.5	9.3	100.0
6	Otter Trawl	OPEN	all	MA	lg	377,305	4.0	66.1	23.7	0.1	0.5	5.6	100.0
7	Otter Trawl	OPEN	all	NE	sm	760,807	19.7	41.8	33.0	1.8	0.0	3.7	100.0
8	Otter Trawl	OPEN	all	NE	lg	590,656	3.3	13.4	75.4	0.6	2.1	5.3	100.0
33	Scallop Dredge	AA	LIM	NE	all	276,749	58.8	0.0	40.2	1.0	0.0	0.0	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	331,665	83.6	0.0	16.3	0.1	0.0	0.0	100.0
24 Other fleets filtered out						761,346	35.9	10.9	51.3	0.3	1.5	0.0	100.0

Species Group: HERRING, ATLANTIC

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
30 Other fleets filtered out						297,623	45.2	0.0	8.4	0.0	12.0	34.4	100.0

See text for fleet abbreviations.

Appendix Table 3A, continued. Estimated discards (live pounds) and percentage by discard reason category for 14 species groups for July 2011 through June 2012.

Species Group: LARGE MESH GROUND FISH

Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	Discard by Reason Category [%]					Total %	
							No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality		Other
5	Otter Trawl	OPEN	all	MA	sm	688,061	24.5	12.1	63.4	0.1	0.0	0.0	100.0
6	Otter Trawl	OPEN	all	MA	lg	1,193,830	33.4	9.5	56.9	0.2	0.0	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	733,516	2.8	13.2	80.3	0.0	0.0	3.7	100.0
8	Otter Trawl	OPEN	all	NE	lg	3,176,722	4.8	60.1	34.5	0.0	0.4	0.2	100.0
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	357,030	0.7	36.8	4.6	0.0	57.8	0.1	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	630,199	79.3	6.4	14.1	0.0	0.1	0.0	100.0
24 Other fleets filtered out						1,249,496	36.3	19.4	42.0	0.3	1.6	0.4	100.0

Species Group: MONKFISH

Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	Discard by Reason Category [%]					Total %	
							No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality		Other
5	Otter Trawl	OPEN	all	MA	sm	252,078	18.1	57.2	10.7	0.0	0.0	14.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	646,514	1.5	83.1	9.9	0.0	0.1	5.4	100.0
24	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	264,425	0.0	7.6	0.0	0.0	92.4	0.0	100.0
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	250,255	0.4	2.8	1.0	0.0	95.7	0.0	100.0
32	Scallop Dredge	AA	LIM	MA	all	607,241	65.4	19.7	14.6	0.0	0.2	0.0	100.0
33	Scallop Dredge	AA	LIM	NE	all	883,724	72.6	22.2	2.9	0.0	0.1	2.2	100.0
36	Scallop Dredge	OPEN	LIM	MA	all	1,465,851	74.4	17.4	8.0	0.0	0.2	0.0	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	2,218,045	82.5	14.7	1.3	0.0	0.0	1.4	100.0
22 Other fleets filtered out						517,808	35.0	55.4	8.0	0.0	0.9	0.8	100.0

See text for fleet abbreviations.

Appendix Table 3A, continued. Estimated discards (live pounds) and percentage by discard reason category for 14 species groups for July 2011 through June 2012.

Species Group: RED CRAB

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	103,058	100.0	0.0	0.0	0.0	0.0	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	207,585	99.8	0.0	0.2	0.0	0.0	0.0	100.0
28 Other fleets filtered out						751	99.5	0.0	0.0	0.0	0.5	0.0	100.0

Species Group: SEA SCALLOP

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
33	Scallop Dredge	AA	LIM	NE	all	5,809,263	55.2	0.1	3.8	0.0	31.7	9.3	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	6,971,186	81.1	0.0	0.0	0.0	18.9	0.0	100.0
28 Other fleets filtered out						5,575,546	65.8	1.1	10.2	1.0	17.2	4.7	100.0

Species Group: SKATE COMPLEX

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	5,862,541	94.3	0.0	5.3	0.0	0.0	0.3	100.0
6	Otter Trawl	OPEN	all	MA	lg	14,188,085	91.3	0.1	7.6	0.1	0.0	0.9	100.0
7	Otter Trawl	OPEN	all	NE	sm	1,371,774	76.7	0.0	20.6	0.0	0.0	2.7	100.0
8	Otter Trawl	OPEN	all	NE	lg	28,754,373	76.4	0.5	21.3	0.0	0.0	1.7	100.0
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	2,672,313	29.5	0.0	52.7	0.2	14.5	3.0	100.0
32	Scallop Dredge	AA	LIM	MA	all	1,468,650	98.0	0.0	1.9	0.1	0.0	0.0	100.0
33	Scallop Dredge	AA	LIM	NE	all	2,999,548	97.1	0.0	2.9	0.0	0.0	0.0	100.0
36	Scallop Dredge	OPEN	LIM	MA	all	4,566,899	99.6	0.0	0.4	0.0	0.1	0.0	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	8,098,321	99.1	0.0	0.9	0.0	0.0	0.0	100.0
21 Other fleets filtered out						9,644,786	84.7	0.0	14.6	0.0	0.6	0.1	100.0

Appendix Table 3A, continued. Estimated discards (live pounds) and percentage by discard reason category for 14 species groups for July 2011 through June 2012.

Species Group: SMALL MESH GROUND FISH

Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	Discard by Reason Category [%]					Total %	
							No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality		Other
5	Otter Trawl	OPEN	all	MA	sm	2,139,297	93.3	3.0	0.0	0.0	3.6	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	3,254,000	82.7	0.0	3.3	0.7	7.1	6.1	100.0
8	Otter Trawl	OPEN	all	NE	lg	323,018	92.8	0.5	5.9	0.0	0.8	0.0	100.0
19	Shrimp Trawl	OPEN	all	NE	all	269,098	86.0	0.0	14.0	0.0	0.0	0.0	100.0
26 Other fleets filtered out						380,703	97.6	0.1	1.5	0.0	0.8	0.0	100.0

Species Group: SPINY DOGFISH

Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	Discard by Reason Category [%]					Total %	
							No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality		Other
2	Longline	OPEN	all	NE	all	257,715	33.8	0.0	59.0	3.0	0.2	4.1	100.0
5	Otter Trawl	OPEN	all	MA	sm	4,791,054	46.1	1.1	52.2	0.0	0.3	0.3	100.0
6	Otter Trawl	OPEN	all	MA	lg	2,369,785	47.4	0.0	52.6	0.0	0.0	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	1,699,123	86.7	0.0	13.3	0.0	0.0	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	7,095,547	61.2	0.0	38.7	0.1	0.0	0.0	100.0
23	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	514,414	0.9	0.0	40.1	0.0	58.9	0.0	100.0
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	4,083,981	44.2	0.3	53.1	0.0	1.2	1.3	100.0
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	265,053	36.6	0.2	53.5	0.1	8.6	1.1	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	239,804	99.7	0.0	0.2	0.0	0.1	0.0	100.0
21 Other fleets filtered out						1,515,896	79.4	0.0	13.7	0.0	1.4	5.5	100.0

Appendix Table 3A, continued. Estimated discards (live pounds) and percentage by discard reason category for 14 species groups for July 2011 through June 2012.

Species Group: SQUID - BUTTERFISH – MACKEREL

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	2,996,308	58.2	0.7	36.3	2.3	0.2	2.3	100.0
7	Otter Trawl	OPEN	all	NE	sm	2,130,847	78.6	0.1	15.4	0.0	3.7	2.3	100.0
28 Other fleets filtered out						211,064	93.3	0.1	5.9	0.0	0.4	0.2	100.0

Species Group: SURFCLAM - OCEAN QUAHOG

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
30 Other fleets filtered out						93,624	99.7	0.0	0.3	0.0	0.0	0.0	100.0

Species Group: TILEFISH

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
30 Other fleets filtered out						18,966	54.5	0.8	35.6	0.0	9.1	0.0	100.0

Appendix Table 3B. Estimated discards (live pounds) and percentage by discard reason category for the 23 individual species that comprise the 14 species groups for July 2011 through June 2012.

Species Group: BLACK SEA BASS

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	84,225	36.6	33.2	30.1	0.0	0.0	0.0	100.0
6	Otter Trawl	OPEN	all	MA	lg	51,526	0.6	18.1	80.8	0.5	0.0	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	77,471	1.0	13.2	73.7	0.0	0.0	12.1	100.0
27 Other fleets filtered out						37,019	26.9	14.6	55.9	2.4	0.2	0.0	100.0

Species Group: FLUKE

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	212,198	17.1	45.8	32.4	0.0	1.0	3.7	100.0
6	Otter Trawl	OPEN	all	MA	lg	178,743	6.4	58.3	28.0	0.2	1.2	5.9	100.0
8	Otter Trawl	OPEN	all	NE	lg	515,693	0.8	5.1	85.0	0.5	2.4	6.2	100.0
32	Scallop Dredge	AA	LIM	MA	all	157,360	56.5	15.0	26.9	1.5	0.1	0.1	100.0
33	Scallop Dredge	AA	LIM	NE	all	271,666	58.4	0.0	40.6	1.0	0.0	0.0	100.0
36	Scallop Dredge	OPEN	LIM	MA	all	199,945	71.1	15.6	13.1	0.0	0.1	0.0	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	328,246	83.8	0.0	16.1	0.1	0.0	0.0	100.0
23 Other fleets filtered out						544,467	9.1	8.6	75.8	2.6	2.0	2.0	100.0

Species Group: SCUP

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	206,588	21.3	59.9	0.0	0.0	2.4	16.4	100.0
7	Otter Trawl	OPEN	all	NE	sm	535,772	25.3	53.0	19.9	0.0	0.0	1.7	100.0
28 Other fleets filtered out						200,620	8.4	85.6	0.8	0.0	0.1	5.2	100.0

See text for fleet abbreviations.

Appendix Table 3B, continued. Estimated discards (live pounds) and percentage by discard reason category for the 23 individual species that comprise the 14 species groups for July 2011 through June 2012.

Species Group: AMERICAN PLAICE

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
8	Otter Trawl	OPEN	all	NE	lg	493,245	0.2	99.3	0.0	0.0	0.5	0.0	100.0
19	Shrimp Trawl	OPEN	all	NE	all	59,095	43.1	0.0	56.9	0.0	0.0	0.0	100.0
28 Other fleets filtered out						37,184	46.8	27.4	25.1	0.1	0.6	0.0	100.0

Species Group: ATLANTIC COD

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
8	Otter Trawl	OPEN	all	NE	lg	439,920	0.0	97.7	2.0	0.0	0.3	0.0	100.0
29 Other fleets filtered out						205,620	4.6	61.8	7.1	0.2	25.6	0.7	100.0

Species Group: ATLANTIC HALIBUT

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
7	Otter Trawl	OPEN	all	NE	sm	1,405	96.1	3.5	0.3	0.0	0.0	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	50,728	0.4	85.5	12.5	0.0	0.0	1.6	100.0
24	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	2,981	0.0	79.8	20.2	0.0	0.0	0.0	100.0
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	6,250	1.0	95.2	0.6	0.0	3.2	0.0	100.0
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	6,575	0.0	63.9	15.8	0.0	17.4	2.9	100.0
36	Scallop Dredge	OPEN	LIM	MA	all	1,299	100.0	0.0	0.0	0.0	0.0	0.0	100.0
24 Other fleets filtered out						2,592	36.5	61.8	1.7	0.0	0.0	0.0	100.0

See text for fleet abbreviations.

Appendix Table 3B, continued. Estimated discards (live pounds) and percentage by discard reason category for the 23 individual species that comprise the 14 species groups for July 2011 through June 2012.

Species Group: ATLANTIC WOLFFISH

Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	Discard by Reason Category [%]						
							No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
2	Longline	OPEN	all	NE	all	3,903	14.6	0.0	82.1	0.0	0.3	2.9	100.0
8	Otter Trawl	OPEN	all	NE	lg	65,076	0.4	0.0	99.6	0.0	0.0	0.0	100.0
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	10,023	0.5	0.0	99.5	0.0	0.0	0.0	100.0
27 Other fleets filtered out						3,550	11.6	0.0	88.4	0.0	0.0	0.0	100.0

Species Group: HADDOCK

Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	Discard by Reason Category [%]						
							No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
7	Otter Trawl	OPEN	all	NE	sm	394,690	0.1	4.6	95.3	0.0	0.0	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	144,054	1.2	98.2	0.0	0.0	0.6	0.0	100.0
28 Other fleets filtered out						128,330	5.2	80.5	9.3	0.0	3.6	1.4	100.0

Species Group: OCEAN POUT

Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	Discard by Reason Category [%]						
							No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
2	Longline	OPEN	all	NE	all	11,042	59.3	0.0	40.7	0.0	0.0	0.0	100.0
5	Otter Trawl	OPEN	all	MA	sm	21,918	62.0	0.0	38.0	0.0	0.0	0.0	100.0
6	Otter Trawl	OPEN	all	MA	lg	125,638	71.0	0.0	29.0	0.0	0.0	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	6,440	69.6	0.0	30.4	0.0	0.0	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	124,078	17.8	0.0	82.2	0.0	0.0	0.0	100.0
25 Other fleets filtered out						13,678	76.1	0.0	23.9	0.0	0.0	0.0	100.0

Appendix Table 3B, continued. Estimated discards (live pounds) and percentage by discard reason category for the 23 individual species that comprise the 14 species groups for July 2011 through June 2012.

Species Group: POLLOCK

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
						223,081	0.1	38.7	1.3	0.0	59.9	0.1	100.0
30 Other fleets filtered out													

Species Group: REDFISH

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
8	Otter Trawl	OPEN	all	NE	1g	330,212	5.4	93.4	0.0	0.0	0.1	1.1	100.0
29 Other fleets filtered out						105,015	13.8	65.1	2.4	0.0	0.7	18.0	100.0

Species Group: WHITE HAKE

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
30 Other fleets filtered out						124,034	60.7	2.1	1.8	0.1	34.2	1.1	100.0

Species Group: WINDOWPANE FLOUNDER

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	140,143	53.7	0.3	46.0	0.0	0.0	0.0	100.0
6	Otter Trawl	OPEN	all	MA	lg	749,766	28.7	14.0	57.3	0.0	0.0	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	42,559	17.1	0.0	82.9	0.0	0.0	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	510,280	14.3	0.3	85.3	0.0	0.0	0.0	100.0
33	Scallop Dredge	AA	LIM	NE	all	41,651	55.3	0.0	44.7	0.0	0.0	0.0	100.0
36	Scallop Dredge	OPEN	LIM	MA	all	106,782	70.9	0.0	29.1	0.0	0.0	0.0	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	121,539	83.0	0.0	17.0	0.0	0.0	0.0	100.0
23 Other fleets filtered out						160,469	17.8	0.0	82.2	0.0	0.0	0.0	100.0

Appendix Table 3B, continued. Estimated discards (live pounds) and percentage by discard reason category for the 23 individual species that comprise the 14 species groups for July 2011 through June 2012.

Species Group: WINTER FLOUNDER

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	236,244	12.4	0.4	87.2	0.0	0.0	0.0	100.0
6	Otter Trawl	OPEN	all	MA	lg	290,502	36.0	0.0	64.0	0.0	0.0	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	138,147	0.7	1.4	97.9	0.0	0.0	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	530,958	0.5	7.6	91.6	0.0	0.3	0.0	100.0
33	Scallop Dredge	AA	LIM	NE	all	186,935	55.7	0.2	43.8	0.3	0.0	0.0	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	203,993	85.0	0.2	14.7	0.0	0.0	0.0	100.0
24 Other fleets filtered out						195,011	16.4	1.4	81.7	0.1	0.3	0.0	100.0

Species Group: WITCH FLOUNDER

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	198,319	17.0	0.0	82.9	0.1	0.0	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	131,619	0.3	98.4	0.9	0.0	0.3	0.0	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	40,811	98.9	0.8	0.3	0.0	0.0	0.0	100.0
27 Other fleets filtered out						45,924	63.7	10.1	25.6	0.4	0.2	0.1	100.0

Species Group: YELLOWTAIL FLOUNDER

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	32,494	2.4	0.6	96.9	0.0	0.0	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	55,157	0.3	0.0	99.7	0.0	0.0	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	282,961	0.1	99.1	0.3	0.0	0.3	0.2	100.0
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	34,565	0.0	97.9	0.0	0.0	2.0	0.0	100.0
33	Scallop Dredge	AA	LIM	NE	all	57,384	45.6	50.5	3.2	0.0	0.3	0.3	100.0
36	Scallop Dredge	OPEN	LIM	MA	all	44,278	53.3	29.3	12.2	5.2	0.0	0.0	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	231,445	62.9	22.2	14.7	0.0	0.2	0.0	100.0
23 Other fleets filtered out						77,264	13.5	24.9	58.5	2.5	0.4	0.2	100.0

Appendix Table 3B, continued. Estimated discards (live pounds) and percentage by discard reason category for the 23 individual species that comprise the 14 species groups for July 2011 through June 2012.

Species Group: OFFSHORE HAKE

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	14,840	92.3	0.0	0.0	0.0	7.7	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	649	73.3	0.0	21.6	0.0	5.0	0.0	100.0
28 Other fleets filtered out						554	96.2	0.0	3.8	0.0	0.0	0.0	100.0

Species Group: RED HAKE

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	1,203,283	100.0	0.0	0.0	0.0	0.0	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	983,550	99.8	0.0	0.1	0.0	0.1	0.0	100.0
8	Otter Trawl	OPEN	all	NE	lg	120,070	94.5	0.7	4.3	0.0	0.4	0.0	100.0
33	Scallop Dredge	AA	LIM	NE	all	85,800	100.0	0.0	0.0	0.0	0.0	0.0	100.0
37	Scallop Dredge	OPEN	LIM	NE	all	95,988	99.8	0.0	0.2	0.0	0.0	0.0	100.0
25 Other fleets filtered out						108,107	96.9	0.1	2.7	0.0	0.2	0.0	100.0

Species Group: SILVER HAKE

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	921,174	88.1	5.5	0.0	0.0	6.4	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	2,270,446	75.3	0.0	4.7	1.0	10.1	8.8	100.0
19	Shrimp Trawl	OPEN	all	NE	all	256,922	85.8	0.0	14.2	0.0	0.0	0.0	100.0
27 Other fleets filtered out						304,732	92.4	0.3	5.7	0.0	1.6	0.0	100.0

Species Group: ATLANTIC MACKEREL

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
30 Other fleets filtered out						63,326	87.8	0.0	4.9	0.0	7.2	0.1	100.0

Appendix Table 3B, continued. Estimated discards (live pounds) and percentage by discard reason category for the 23 individual species that comprise the 14 species groups for July 2011 through June 2012.

Species Group: BUTTERFISH

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	2,248,786	52.9	0.8	43.5	2.8	0.0	0.0	100.0
7	Otter Trawl	OPEN	all	NE	sm	1,560,218	78.8	0.1	20.6	0.0	0.0	0.5	100.0
28 Other fleets filtered out						47,462	94.0	0.4	5.4	0.1	0.1	0.0	100.0

Species Group: ILLEX SQUID

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
30 Other fleets filtered out						451,692	79.0	0.0	5.2	0.0	5.7	10.2	100.0

Species Group: LOLIGO SQUID

						Discard by Reason Category [%]							
Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Discarded	No Market	Regulation (Size)	Regulation (Quota)	Regulation (Other)	Poor Quality	Other	Total %
5	Otter Trawl	OPEN	all	MA	sm	642,047	84.4	0.5	0.2	0.0	1.3	13.6	100.0
29 Other fleets filtered out						299,320	86.0	0.3	2.0	0.0	11.6	0.1	100.0

Appendix Table 4. Fleet abbreviations used in Table 7 and Figures 1A, 1B, and 3. Fleets that were filtered out through the importance filter and fleets designated as in need of pilot coverage have been aggregated into “Other fleets.”

Row	Gear Type	Access Area	Trip Category	Region	Mesh Group	Fleet Abbreviation
1	Longline	OPEN	all	MA	all	LL MA
2	Longline	OPEN	all	NE	all	LL NE
3	Hand Line	OPEN	all	MA	all	HND MA
4	Hand Line	OPEN	all	NE	all	HND NE
5	Otter Trawl	OPEN	all	MA	sm	OT sm MA
6	Otter Trawl	OPEN	all	MA	lg	OT lg MA
7	Otter Trawl	OPEN	all	NE	sm	OT sm NE
8	Otter Trawl	OPEN	all	NE	lg	OT lg NE
9	Scallop Trawl	AA	GEN	MA	all	SCT AA GEN MA
10	Scallop Trawl	AA	LIM	MA	all	SCT AA LIM MA
11	Scallop Trawl	OPEN	GEN	MA	all	SCT OPEN GEN MA
12	Scallop Trawl	OPEN	LIM	MA	all	SCT OPEN LIM MA
13	Otter Trawl, Ruhle	OPEN	all	MA	lg	OTR lg MA
14	Otter Trawl, Ruhle	OPEN	all	NE	sm	OTR sm NE
15	Otter Trawl, Ruhle	OPEN	all	NE	lg	OTR lg NE
16	Otter Trawl, Haddock Separator	OPEN	all	MA	lg	OTH lg MA
17	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	OTH lg NE
18	Shrimp Trawl	OPEN	all	MA	all	SHT MA
19	Shrimp Trawl	OPEN	all	NE	all	SHT NE
20	Floating Trap	OPEN	all	MA	all	FT MA
21	Floating Trap	OPEN	all	NE	all	FT NE
22	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	GN sm MA
23	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	GN lg MA
24	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	GN xlg MA
25	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	GN sm NE
26	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	GN lg NE
27	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	GN xlg NE
28	Purse Seine	OPEN	all	MA	all	PS MA
29	Purse Seine	OPEN	all	NE	all	PS NE
30	Scallop Dredge	AA	GEN	MA	all	SCD AA GEN MA
31	Scallop Dredge	AA	GEN	NE	all	SCD AA GEN NE
32	Scallop Dredge	AA	LIM	MA	all	SCD AA LIM MA
33	Scallop Dredge	AA	LIM	NE	all	SCD AA LIM NE
34	Scallop Dredge	OPEN	GEN	MA	all	SCD OPEN GEN MA
35	Scallop Dredge	OPEN	GEN	NE	all	SCD OPEN GEN NE
36	Scallop Dredge	OPEN	LIM	MA	all	SCD OPEN LIM MA
37	Scallop Dredge	OPEN	LIM	NE	all	SCD OPEN LIM NE
38+	Danish Seine	OPEN	all	NE	all	DS OPEN NE
39	Mid-water Paired & Single Trawl	OPEN	all	MA	all	MWT MA
40	Mid-water Paired & Single Trawl	OPEN	all	NE	all	MWT NE
41	Pots and Traps, Fish	OPEN	all	MA	all	FPT MA
42	Pots and Traps, Fish	OPEN	all	NE	all	FPT NE
43	Pots and Traps, Conch	OPEN	all	MA	all	CPT MA
44	Pots and Traps, Conch	OPEN	all	NE	all	CPT NE
45	Pots and Traps, Hagfish	OPEN	all	MA	all	HPT MA
46	Pots and Traps, Hagfish	OPEN	all	NE	all	HPT NE
47	Pots and Traps, Shrimp	OPEN	all	NE	all	SPT NE
48	Pots and Traps, Lobster	OPEN	all	MA	all	LPT MA
49	Pots and Traps, Lobster	OPEN	all	NE	all	LPT NE
50	Pots and Traps, Crab	OPEN	all	MA	all	CRPT MA
51	Pots and Traps, Crab	OPEN	all	NE	all	CRPT NE
52	Beam Trawl	OPEN	all	MA	all	BT MA
53	Beam Trawl	OPEN	all	NE	all	BT NE
54	Dredge, Other	OPEN	all	MA	all	DRO MA
55	Ocean Quahog/Surfclam Dredge	OPEN	all	MA	all	CD MA
56	Ocean Quahog/Surfclam Dredge	OPEN	all	NE	all	CD NE
	Other fleets filtered out					Other Fleets