Northeast Fisheries Science Center Reference Document 15-03
doi:10.7289/V5BV7DJM

A Brief Description of Greater Atlantic Region Fish and Invertebrate Discard Estimation for the 2015 Update to the National Bycatch Report

by J Blaylock, SE Wigley, PJ Rago, M Mood, and MC Palmer

Northeast Fisheries Science Center Reference Document 15-03

doi:10.7289/V5BV7DJM

A Brief Description of Greater Atlantic Region Fish and Invertebrate Discard Estimation for the 2015 Update to the National Bycatch Report

by J Blaylock[1], SE Wigley[2], PJ Rago[2], M Mood[1], and MC Palmer[2]

[1]Integrated Statistics,16 Sumner Street, Woods Hole, MA 02543

[2]NOAA Fisheries, Northeast Fisheries Science Center, 166 Water Street, Woods Hole, MA 02543

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Science Center
Woods Hole, Massachusetts
January 2015

Northeast Fisheries Science Center Reference Documents

This series is a secondary scientific series designed to assure the long-term documentation and to enable the timely transmission of research results by Center and/or non-Center researchers, where such results bear upon the research mission of the Center (see the outside back cover for the mission statement). These documents receive internal scientific review, and most receive copy editing. The National Marine Fisheries Service does not endorse any proprietary material, process, or product mentioned in these documents.

All documents issued in this series since April 2001, and several documents issued prior to that date, have been copublished in both paper and electronic versions. To access the electronic version of a document in this series, go to *http://www.nefsc.noaa.gov/nefsc/publications/*. The electronic version is available in PDF format to permit printing of a paper copy directly from the Internet. If you do not have Internet access, or if a desired document is one of the pre-April 2001 documents available only in the paper version, you can obtain a paper copy by contacting the senior Center author of the desired document. Refer to the title page of the document for the senior Center author's name and mailing address. If there is no Center author, or if there is corporate (*i.e.*, non-individualized) authorship, then contact the Center's Woods Hole Laboratory Library (166 Water St., Woods Hole, MA 02543-1026).

Information Quality Act Compliance: In accordance with section 515 of Public Law 106-554, the Northeast Fisheries Science Center completed both technical and policy reviews for this report. These predissemination reviews are on file at the NEFSC Editorial Office.

This document may be cited as:

Blaylock J, Wigley SE, Rago PJ, Mood M, Palmer MC. 2015. A brief description of Greater Atlantic Region fish and invertebrate discard estimation for the 2015 update to the National Bycatch Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 15-03; 59 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or online at http://www.nefsc.noaa.gov/publications/
doi:10.7289/V5BV7DJM

TABLE OF CONTENTS

List of Tables ii
List of Acronyms and Abbreviations iii
Executive Summary 1
Introduction 1
Methods 2
Data Sources and Stratification 2
Discard Estimation 4
Results 5
Discard Estimation 6
Discussion 7
Acknowledgements 9
References Cited 10
Appendix 56

LIST OF TABLES

Table 1. List of the 34 fish and invertebrate species, with their scientific name in italics, managed under the 13 federal fishery management plans implemented in the waters off the northeastern United States and examined in the National Bycatch Report First Edition Update 2……..……..…….……12

Table 2A. Number of Northeast Fisheries Observer Program and Vessel Trip Report trips by fleet and calendar quarter for calendar year 2011……..……13

Table 2B. Number of Northeast Fisheries Observer Program and Vessel Trip Report trips by fleet and calendar quarter for calendar year 2012.....16

Table 2C. Number of Northeast Fisheries Observer Program and Vessel Trip Report trips by fleet and calendar quarter for calendar year 2013.....19

Table 3A. Vessel Trip Report landings by fleet and calendar quarter for calendar year 2011.....22

Table 3B. Vessel Trip Report landings by fleet and calendar quarter for calendar year 2012.....24

Table 3C. Vessel Trip Report landings by fleet and calendar quarter for calendar year 2013.....26

Table 4A. Total discards with associated coefficient of variation and combined discard/kept ratio by fleet and species in calendar year 2011.....28

Table 4B. Total discards with associated coefficient of variation and combined discard/kept ratio by fleet and species in calendar year 2012.....37

Table 4C. Total discards with associated coefficient of variation and combined discard/kept ratio by fleet and species in calendar year 2013.....46

Table 5. Total discards with associated coefficient of variation for 34 species in calendar years 2011, 2012, and 2013.....55

LIST OF ACRONYMS AND ABBREVIATIONS

AA = Access area
AMS = Allocation Management System
CV = coefficient of variation
d/k = discard/kept
FMP = Fishery Management Plan
GEN = general
lg = large
LIM = limited
MA = Mid-Atlantic
NBR = National Bycatch Report
NE = New England
NEFOP = Northeast Fisheries Observer Program
NEFSC = Northeast Fisheries Science Center
NMFS = National Marine Fisheries Service
OPEN = non-access area
sm = small
US = United States
VTR = Vessel Trip Report
xlg = extra large

EXECUTIVE SUMMARY

This report describes the discard estimation analysis performed for Greater Atlantic Region (formerly Northeast Region) fish and invertebrates for the National Bycatch Report First Edition Update 2. Estimates of discards that occurred during the 2011, 2012, and 2013 calendar years in all federally managed fisheries in the northeast United States were derived for 34 species of finfish and invertebrates by using a combined discard/kept ratio estimator. Based on this analysis, approximately 63,680 mt (live weight) of discards occurred in 23 fleets in 2011, approximately 61,594 mt (live weight) of discards occurred in 23 fleets in 2012, and approximately 63,603 mt (live weight) of discards occurred in 24 fleets in 2013 across the 34 species considered. In all three years, the predominant species discarded were skates (Rajidae), spiny dogfish (*Squalus acanthias)*, and Atlantic sea scallop (*Placopecten magellanicus*). The discards reported in this document may not necessarily correspond directly with the discard estimates derived for individual stock assessments because of differences in stratification and data. Hence, the discard estimates presented here are not definitive, but indicative of where discarding is occurring among commercial fisheries and for which species.

INTRODUCTION

In 2011, the National Marine Fisheries Service (NMFS) published the first edition of the National Bycatch Report (NBR First Edition; NMFS 2011; Wigley et al. 2008b), which summarizes estimates of discards, by species, that occurred in 2005 in all federally managed fisheries in the United States. New comprehensive editions of the NBR are scheduled to occur every 6 years, with online updates produced on a biennial basis. The NBR First Edition Update 1 was published in 2013 and summarizes estimates of discards that occurred in 2010 (Blaylock et al. 2013; NMFS 2013). The NBR First Edition Update 2, scheduled to be published in 2015, will summarize estimates of discards that occurred in the 2011, 2012, and 2013 calendar years.

This document describes the methods used to derive the 2011, 2012, and 2013 discard estimates of finfish and invertebrate species associated with federal fishery management plans (FMPs) in northeastern US fisheries. This regional analysis involved 34 species (including the species group "skate complex") and 72 fleets[1]. The analysis did not consider stock components and only included fleets with sufficient data to derive discard estimates.

The discard estimation process used a stratification approach broad enough to encompass all species and employed a combined ratio method using a discard/kept weight ratio. The discard estimates reported in this document will not necessarily correspond directly with those contained in individual stock assessments because of differences in stratification and data. However, the various estimates should be of the same order of magnitude.

[1] "Fleet" is synonymous with "fishery" and "fishing mode."

METHODS

Data Sources and Stratification

The data sets include January 2011 through December 2013 data from the Northeast Fisheries Observer Program (NEFOP) database, the Vessel Trip Report (VTR; including logbooks from the surfclam [*Spisula solidissima*] and ocean quahog [*Artica islandica*] fishery) database, the Allocation Management System (AMS) database, and the Northeast Fisheries Science Center (NEFSC) commercial landings (i.e., dealer) database.

Northeast Fisheries Observer Program (NEFOP)

The NEFOP is a comprehensive, multipurpose program that collects a broad range of data including information on all species, by disposition (retained and discarded), that are encountered during a fishing trip, as well as gear characteristics data, economic information, and biological samples (NEFOP 2010, 2013). The NEFOP employs trained sea-going observers and monitors to collect these data[2]. Fish and invertebrate species are recorded in weight. Conversion factors were applied to convert any dressed weight data to live[3] weight equivalents.

For this analysis, only observed hauls from NEFOP trips with a "complete" sampling protocol were used. A "complete" sampling protocol includes obtaining species weights for both kept and discarded portions of all species in the catch. NEFOP training trips have been included in the analysis. Aborted trips, "set only" trips, carrier trips (*fleet_type* = "050"; no fishing effort occurred on these trips), trips associated with a groundfish sentinel fishery (NEFOP program code = 127), trips fishing in a statistical area associated with the Southeast Region (statistical area ≥ 700) or Grand Banks (statistical area ≤ 400), and trips landing outside the Greater Atlantic Region[4] (e.g., trips landing in Canada) were excluded. Trips associated with a 2013 small mesh redfish exempted fishery[5] where 100% observer coverage was required for trips using otter trawl with 4.5 in mesh were also excluded from the analysis because the 13 trips[6] in this exempted fishery were not characteristic of the other trips in the NE small mesh otter trawl fleet. Finally, offwatch hauls, hauls with missing fleet information (e.g., unknown gear/mesh/area), and hauls with missing catch were omitted as well, as were records of species hail weight with discard reason "039" ("previously discarded"), unknown species, or unknown catch disposition, and catch of nonliving items (such as debris, shells, etc.; these items would not be kept and sold).

The same broad stratification scheme used in the analysis for the NBR First Edition Update 1 (Blaylock et al. 2013; NMFS 2013) was applied here, with trips partitioned into nonoverlapping fleets using 6 classification variables: calendar quarter, gear type, access area, trip category, area fished, and mesh size. Calendar quarter was based on landed date and used to

---

[2] Comparisons of discard rates derived from observer and at-sea monitor data revealed there were generally similar discard rates between the 2 data collection programs for the 18 fish species associated with Amendment 16 to the Northeast Multispecies Fishery Management Plan for 4 gear types (longline, large mesh otter trawl, large mesh gillnet, and extra large mesh gillnet) where at-sea monitor data exist (Wigley et al. 2012, 2013, 2014); hence these data were pooled. See Northeast Fisheries Observer Program (2011, 2013) for more information on at-sea monitoring.

[3] In this document, "live" is equivalent to "round" grade (i.e., includes the weight of the shell for shellfish).

[4] Formerly Northeast Region. For more information, see http://www.nero.noaa.gov/stories/2014/07_nero_name_change.html

[5] For more information on the small mesh redfish exemption, see http://www.gpo.gov/fdsys/pkg/FR-2013-03-05/html/2013-05044.htm.

[6] The estimated discards from the 13 exempted trips were 27,918 pounds, representing approximately 0.02% of the total estimated discards from all fleets analyzed in Wigley et al. 2014. This exemption was not granted in 2014.

capture seasonal variations in fishing activity and discard rates. Gear type was based on Northeast fishing gear codes (*negear)*. Some gear codes were combined: troll line and longline; handline and auto jig handline; sink, anchored, and drift gillnets; herring and other purse seines; single and paired mid-water trawls; and clam and quahog dredges. Two access area categories were formed based on gear and program code: access area (AA) and open (OPEN). The sea scallop (*Placopecten magellanicus*) fishery was divided into General (GEN) and Limited (LIM) category trips based on trip length as a surrogate for permit category (single day is general category, multiday is limited access). All other fisheries were combined into a trip category called "all." Two regional areas were defined based on area fished: New England (NE), which includes statistical reporting areas < "600" (encompassing southern New England, Georges Bank, and the Gulf of Maine), and Mid-Atlantic (MA), composed of statistical areas >= "600." This area fished definition applied to all trips except shrimp trawl trips fishing in southern New England (statistical areas 530-539), which were assigned to the MA area to separate shrimp trips by using a Nordmore grate in the northern shrimp fishery from other shrimp trips using turtle excluder devices in the Mid-Atlantic. Mesh size groups were defined for otter trawl and gillnet gear types. For otter trawls, 2 mesh groups were formed: small (sm; mesh less than 5.5 in) and large (lg; 5.5 in mesh and greater). For gillnets, 3 mesh groups were formed: small (sm; mesh less than 5.5 in), large (lg; mesh from 5.5 to 7.99 in), and extra large (xlg; mesh 8 in and greater). All other fisheries were classified into a mesh category called "all."

Vessel Trip Report (VTR)

The VTR data are used as a basis for defining the sampling frame, since all federally permitted vessels are required to file a VTR for each fishing trip (See NMFS-Greater Atlantic Regional Fisheries Office [formerly Northeast Regional Office] http://www.nero.noaa.gov/ro/fso/vtr_inst.pdf). These self-reported data[7] constitute the basis of the fishing activity of the commercial fleets. While dealer data are the preferred data to use because of more accurate weights, VTR data are used as a surrogate because dealer data do not contain mesh size and area fished information. The VTR data were thus used to expand the NEFOP discard ratios to total discards. For this analysis, all commercial federal VTR trips were used. Conversion factors were applied to convert various units of measure to pounds and all weight to live weight. VTR trip data were grouped into fleets as defined above. However, access area determination for VTR trips using scallop gear (*negear* 052 and 132) was based on activity declaration code[8] located in the AMS database. A description of the methods used to assemble NEFOP-VTR-AMS analytical datasets is provided in the Appendix; AMS trip information was linked[9] to VTR trip data based on matching trip identifier (*tripid*). Trips with plan code "SES" (Scallop) and program code "SAA" (Special Access Area), "SCG" (Limited Access General Category), and "RSA" (Research Set Aside) were assigned to access area category, unless the area identifier was "OP" (Open area), in which case the trips were classified as open. Trips without activity declaration code were classified as open. Trips participating in the US/Canada access area and other special access programs could not be identified in the VTR data. These

[7] See Wigley et al. 2007 for more details on self-reported VTR data.
[8] The format of an activity declaration code is: CCC-PPP-AADGTB, where CCC represents the plan code, PPP represents the program code, and AA represents the area identifier. For more details about activity declaration codes, see http://nero.noaa.gov/vms/doc/vms-declaration-code-glossary-march-2014.pdf.
[9] When linking the VTR and AMS databases, a majority of scallop gear trips (*negear* 052 and 132) could successfully be matched to determine activity code and access area classification: 89% for 2011, 86% for 2012, and 85% for 2013.

trips have been grouped by the other stratification variables and have not been partitioned separately.

Other Data Sources

The clam fishery has a separate logbook system from the VTR logbook. The commercial clam logbook data were used to augment the VTR data for the clam dredge fishery.

As mentioned above, the AMS data were used to stratify VTR data into fleets. See the Appendix for further details.

The dealer data (i.e., NEFSC commercial landings) for federally managed species were used only in the validation stage of the analysis.

Discard Estimation

Total annual discards of each of the 34 federally managed species were estimated for the January 2011 to December 2013 time period by using a combined discard/kept (*d/k*) ratio estimator (Cochran 1963), where *d* = discarded pounds of a given species group, and *k* = the kept pounds of all species (i.e., any species retained during the trip). Total annual discards (in weight) were derived by multiplying the estimated discard rate of each fleet by the corresponding fleet landings in the VTR database, and then summing over fleets. In this analysis, no survival ratios were applied to discard estimates.

Simple imputation methods were used to fill quarterly cells for which there were zero or 1 observed trips. Data from adjoining strata were pooled to impute estimates for cells in this case. In this imputation only the temporal stratification (calendar quarter) was relaxed to the annual aggregation even though seasonal variation can occur for some species. This simple imputation could not be applied to fleets where observer coverage was low or missing throughout the year (i.e., too few data to support the simple imputation approach), in which cases discard estimates for the fleets were not derived.

Total annual discarded pounds for species *j* by fleet (i.e., gear type, access area, trip category, area fished, and mesh group stratum combination) is defined as:

$$(1) \qquad \hat{D}_j = \sum_{q=1}^{4} K_q r_{c,j}$$

where

$$(2) \qquad r_{c,j} = \frac{\sum_{q=1}^{4} N_q \sum_{i=1}^{n_q} \frac{d_{jiq}}{n_q}}{\sum_{q=1}^{4} N_q \sum_{i=1}^{n_q} \frac{k_{iq}}{n_q}}$$

where $\hat{D}_j$ is total annual discarded pounds for species *j*; K_q is VTR total annual kept pounds of all species in quarter *q*; $r_{c,j}$ is the combined ratio of species *j*; d_{jiq} is discards of species *j* from trip *i* in quarter *q*; k_{iq} is kept pounds of all species on trip *i* in quarter *q*; N_q is the number of VTR trips in quarter *q*; and n_q is the number of observed trips in quarter *q*.

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

$$(3) \qquad V(\hat{D}_j) = \sum_{q=1}^{4} K_q^2 \left(\frac{N_q - n_q}{n_q N_q} \right) \frac{1}{\left(\frac{\sum_{i=1}^{n_q} k_{iq}}{n_q} \right)^2} \left[\frac{\sum_{i=1}^{n_q} \left(d_{jiq}^2 + \left(r_{c,j} \right)^2 k_{iq}^2 - 2 r_{c,j} \; d_{jiq} k_{iq} \right)}{n_q - 1} \right]$$

Equations (1), (2), and (3) are the same as in Wigley et al. (2008b) and Blaylock et al. (2013); however, the notation has been streamlined to improve clarity.

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

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

For each fleet, the landings from the VTR and clam logbook are presented to provide perspective for the discard estimates.

As in past analyses (Wigley et al. 2008b; Blaylock et al. 2013), validation of the discard estimation method described above was performed by using the same approach to estimate the annual landings of each species in 2011, 2012, and 2013, and by comparing these estimates to the landings included in the VTR and Dealer databases.

RESULTS

The list of the 34 federally managed fish and invertebrate species analyzed for the NBR First Edition Update 2 is given in Table 1. These are the same species that were considered in the NBR First Edition Update 1 (Blaylock et al. 2013; NMFS 2013) and this report.

There were 72 unique fleets identified during the January 2011 to December 2013 time period (Tables 2A-2C). There were 7 new fleets added to the analysis since previous NBR analyses (Blaylock et al. 2013; Wigley et al. 2008b): NE twin trawl (Row 19), MA small mesh Ruhle trawl (Row 20), MA large mesh Ruhle trawl (Row 21), MA small mesh haddock separator trawl (Row 23), MA other bottom trawl (Row 27), NE other bottom trawl (Row 28), and NE stop seine (Row 58). Another 5 fleets that were included in the analysis for the NBR First Edition (NMFS 2011; Wigley et al. 2008b) but not in the NBR First Edition Update 1 (Blaylock et al. 2013) are included here: NE LIM AA scallop trawl (Row 14), NE GEN OPEN scallop trawl (Row 16), NE LIM OPEN scallop trawl (Row 18), MA Danish seine (Row 47), and MA diving gear (Row 63). The 12 fleets listed above are indicated with a "+" in Tables 2A-2C. Three fleets included in the NBR First Edition Update 1 (Blaylock et al. 2013) are not present in 2011, 2012, and 2013: MA hagfish pots and traps, MA mussel dredge, and NE mussel dredge.

The inclusion of a fleet in a given year depends on industry activity for that year. Consequently, fleets may appear in some years but not others, as reflected by the dark shading in

Tables 2A-2C. On an annual basis, there were 65 individual fleets considered in 2011, 68 in 2012, and 66 in 2013.

Discard Estimation

Of the 72 fleets examined, little or no observer data in 2011, 2012, and 2013 precluded the calculation of annual discard estimates for 45 fleets: 7 fleets (Rows 3, 12, 13, 17, 19, 25, and 53) had sparse observer data across some quarters in some years, while 38 fleets (Rows 1, 5-7, 14, 16, 18, 20, 21, 23, 27-30, 34, 37, 47, 50-52, 54-56, and 58-72) either had no fleet activity (i.e., dark shading in Tables 2A-2C) or were missing observer data in all quarterly cells in 2011, 2012, and 2013 (Table 2A-2C). The fleets with no observer coverage were primarily pot and trap fisheries targeting particular species (e.g., American lobster [*Homarus americanus*], red deepsea crab [*Chaceon quinquedens*], conch [e.g., *Busycon carica, Busycotypus canaliculatus*], northern shrimp [*Pandalus borealis*], and Atlantic hagfish [*Myxine glutinosa*]). For the 27 remaining fleets (Rows 2, 4, 8-11, 15, 22, 24, 26, 31-33, 35, 36, 38-46, 48, 49, 57), estimates of discards and their associated CV were derived for 2011, 2012, and 2013 where sufficient NEFOP data existed; these included 23 fleets in 2011 and 2012, and 24 fleets in 2013. Each year included 9 fleets where the simple imputation was applied (Table 2A-2C).

A total of 4,987 NEFOP trips was observed during 2011, 4,594 trips during 2012, and 3,388 trips during 2013. When these trips were stratified, some trips were partitioned between strata resulting in 5,632 trips in 2011, 5,034 trips in 2012, and 3,702 in 2013 (Tables 2A-2C). There appears to be minor misreporting associated with trips in the MA mid-water trawl fleet in 2013 (Row 48; Table 2C). The percentage of observed trips varied by fleet and calendar quarter. On an annual basis, the percentage of observed trips by fleet ranged from <0.1% (NE shrimp trawl, Row 26) to 55.3% (MA mid-water trawl, Row 48) in 2011 (Table 2A), from <0.1% (MA hand line, Row 3) to 43.8% (NE mid-water trawl fleet, Row 49) in 2012 (Table 2B), and from 0.1% (NE conch pots and traps, Row 53) to 25.0% (NE twin trawl, Row 19) in 2013 (Table 2C). Over all fleets, the percentage of observed trips was 5.5%, 5.1%, and 4.3% in 2011, 2012, and 2013, respectively (Tables 2A-2C).

The 2011, 2012, and 2013 VTR landings (all species combined, live weight, by fleet and quarter) used to expand the discard ratios are presented in Tables 3A-3C. Total VTR landings varied by calendar year and fleet. Total VTR landings by fleet ranged from 1.8 mt in the NE urchin dredge fleet (Row 70) to 178,582 mt in the MA ocean quahog/surfclam dredge fleet (Row 71), with total VTR landings over all fleets equal to 672,437 mt for 2011. For 2012, total VTR landings by fleet ranged from 1.1 mt in the NE diving gear fleet (Row 64) to 166,841 mt in the MA ocean quahog/surfclam dredge fleet (Row 71), with total VTR landings over all fleets equal to 682,237 mt (Table 3B). Finally, for 2013, total VTR landings by fleet ranged from 0.6 mt in the NE small mesh gillnet (Row 34) to 131,228 mt in the MA ocean quahog/surfclam dredge (Row 71), with total landings across all fleets equal to 580,429 mt (Table 3C).

Total 2011, 2012, and 2013 estimated annual discards (live weight in metric tons), with associated CVs and combined d/k ratios, by species and fleet, are presented in Tables 4A-4C. Total estimated annual discards and CV by species for 2011, 2012, and 2013 are presented in Table 5. The validation exercise confirmed that the discard estimation method used to derive these values is appropriate. However, because discards were not estimated for all fisheries (because of data limitations), the values in Tables 4A-4C and Table 5 underestimate the actual *total* discards by species in 2011, 2012, and 2013.

Based on this analysis, approximately 63,680 mt (live weight; CV=0.030) of discards of the 34 species occurred in the 23 fleets for calendar year 2011, 61,594 mt (CV=0.032) in the 23

fleets for 2012, and 63,603 mt (CV=0.035) in the 24 fleets considered for 2013 (Tables 4A-4C, Table 5). In all 3 years, the majority of the discards were composed of three species groups: skates (Rajidae; 50%, 50%, and 63% of total annual discards for 2011, 2012, and 2013, respectively), spiny dogfish (*Squalus acanthias*; 14%, 13%, and 13%), and Atlantic sea scallops (*Placopecten magellanicus*; 14%, 15%, and 7%). The CVs associated with the total annual discard estimates for these 3 species were low (i.e., less than 13.0%; Tables 4A-4C, Table 5). The remaining species each represented less than 4%, 5%, and 4% of the total annual discards for 2011, 2012, and 2013, respectively (Tables 4A-4C, Table 5). No discards occurred for Atlantic salmon (*Salmo salar*) in 2011 and 2012; however 0.04 mt (CV=0.686) of Atlantic salmon discards were estimated in the NE large mesh gillnet fleet (Row 35) in 2013 (Table 4C). The CVs of the annual discard estimates varied across species and years and the highest CVs were typically associated with species with small annual discard estimates, such as ocean quahog (*Artica islandica*), Atlantic surfclam (*Spisula solidissima*), offshore hake (*Merluccius albidus*), and bluefish (*Pomatomus saltatrix*; Tables 4A-4C, Table 5).

In each year, over half of the discards came from a small number of fleets (Tables 4A-4C, last two columns). In 2011, 3 fleets accounted for 55% of the discards: NE large mesh otter trawl (Row 11, 28%), MA small mesh otter trawl (Row 8, 14%), and MA LIM OPEN scallop dredge (Row 45, 13%). In 2012, 3 fleets accounted for 52% of the discards: NE large mesh otter trawl (Row 11, 31%), NE LIM OPEN scallop dredge (Row 46, 11%), and NE LIM AA scallop dredge (Row 42, 10%). Finally, in 2013, 2 fleets accounted for 55% of the discards: NE large mesh otter trawl (Row 11, 40%) and MA large mesh otter trawl (Row 9, 15%). The CVs associated with the total annual discard estimates for these fleets were equal to or less than 8.3% for 2011, equal to or less than 10.4% for 2012, and equal to or less than 12.2% for 2013 (Tables 4A-4C). The remaining fleets each represented less than 10% of the total annual discards for a given year.

As for species, the CVs of the annual discard estimates varied across fleets and years, with high CVs generally associated with fleets with small annual discard estimates, such as MA small mesh gillnet (Row 31), MA large mesh gillnet (Row 32), NE purse seine (Row 38), and NE lobster pots and traps (Row 57).

The combined d/k ratio[10] varied among the 34 species and fleets for each year (Tables 4A-4C). Among species, skates generally had the highest combined d/k ratios, followed by spiny dogfish and Atlantic sea scallop. Fleets with the highest combined d/k ratios included the MA and NE large mesh otter trawl fleets (Rows 9 and 11), MA GEN OPEN scallop trawl (Row 15; not estimated for 2011), and NE large mesh gillnet (Row 35).

DISCUSSION

The analysis presented in this document used a broad stratification and a combined ratio method to estimate the 2011, 2012, and 2013 annual discards of 34 federally managed finfish and invertebrate species in commercial fisheries of the Greater Atlantic Region of the United States. Species-specific stock assessment discard estimation may differ from this report because of differences in stratification, data used (VTR landings versus dealer landings), and discard mortality assumptions. It is expected, however, that when uncertainty in the estimates is taken

[10] The "combined d/k ratio" used in this analysis to estimate discards should not be confused with the NBR "bycatch ratio", which is defined as the ratio of bycatch to total catch where total catch equals landings plus bycatch (NMFS 2011).

into account, estimates would be in the same order of magnitude for species with high discard mortality rates. The discard estimates presented here are not definitive estimates but are indicative of where discarding occurred among the commercial fleets for the species managed under the 14 FMPs in this region.

This analysis used VTR data to define the sampling frame of commercial fleets and expand the discard ratios to total estimated discards. While it would be ideal to use dealer (*CFDERSyyyy*) data instead, these data do not contain mesh or area fished information until the trip-based allocation is performed (Wigley et al. 2008a). The trip-based allocation of dealer (*CFDETT/SyyyyAA*) data is conducted annually and was not available for all years when this analysis was initiated. The self-reported nature of the VTR data implies that the results of this analysis should be interpreted tentatively.

New fleets were added to reflect VTR activity in the time period examined. The twin trawl (*negear* code 053) was previously combined with the scallop trawl (*negear* code 052; Blaylock et al. 2013) but was kept separate in this analysis to allow for more detailed reporting for these fleets. The new fleets for Ruhle trawl (*negear* code 054) and haddock separator trawl (*negear* code 057) reflect increasing use of these gears, which are required in the US/Canada resource sharing area, in both access and nonaccess areas to reduce discards of New England groundfish under sector management.

During the data preparation for this analysis, some possible misreporting was encountered for MA mid-water trawl (Row 48), where the number of observed trips was greater than VTR trips in the third quarter of 2013. In addition, caution should be used when interpreting results associated with otter trawl (*negear* code 050), scallop trawl (*negear* code 052), and shrimp trawl (*negear* code 058) because of data irregularity issues associated with these fleets from some confusion in the proper use of the VTR gear code "OTS" (shrimp trawl), "OTC" (scallop trawl), and "OTF" (otter trawl)[11]. The implications of changed and/or misreported gear types are variable among fleets, and the true magnitude is unknown. Continued outreach and education to industry members emphasizing proper reporting of gear types is a critical need as well as improved VTR database management.

The NEFOP, VTR, and AMS databases do not contain the requisite information to directly match trips (i.e., one to one match) across databases, and hence ad-hoc methods were developed to accomplish this. Some misclassification of trips to various fleets is therefore inevitable and may also occur because of the limited auditing of the VTR data resulting in overlapping trip dates, incorrect gear codes, and/or incorrect area fished. In addition, misclassification of trips into access area categories is possible for trips using scallop gear (*negear* codes 052 and 132), from limitations associated with the use of the activity declaration code present in the AMS database.

The validation analysis indicated that the discard estimation method is appropriate and that the discard estimates reported in this document are generally expected to represent discarding patterns accurately. However, underestimation is likely is some cases, primarily because VTR landings are usually lower than dealer landings because of the different nature of the data (i.e., VTR data report the good-faith hail weights whereas dealer data provide actual landings weight). Additionally, some VTR trips had incomplete data (e.g., unknown mesh) and had to be excluded from the VTR analytical dataset. Observer coverage also affects the accuracy of the discard estimates. Any discards that occurred in fleets with no or insufficient observer coverage to perform the analysis or in fleets otherwise excluded are not reflected in the discard

[11] See Wigley et al. 2014 for more details concerning this issue.

estimates presented in this report. Several species (Atlantic surfclam, red deepsea crab, ocean quahog, and tilefish [*Lopholatilus chamaeleonticep*s]) have targeted fisheries that were not observed. Finally, possible misreporting of product forms (i.e., monkfish tails vs. whole fish) could also contribute to underestimation. The magnitude of the underestimation will vary by species, fleet, and year.

The annual imputation approach may not be appropriate for all fleets and species and, in some cases, quarterly d/k ratios were based on very small sample sizes. This limitation contributed to the lower precision (higher CVs) associated with several of the discard estimates (Tables 4A-4C).

Discard estimates in Tables 4A-4C do not account for potential survival of organisms returned to the water. When comparing discard estimates from this study with those from stock assessments, it is important to note that survival ratios are applied in stock assessments for Georges Bank and Gulf of Maine stocks of Atlantic cod, Atlantic sea scallop, spiny dogfish, summer flounder (*Paralichthys dentatus*), southern New England and Gulf of Maine stocks of winter flounder (*Pseudopleuronectes americanus*), and southern New England yellowtail flounder (*Limanda ferruginea*). Qualitative comparisons of the 2011, 2012, and 2013 discard estimates contained in this document with other recent discard estimates available for the same species indicated a similarity in order of magnitude. In particular, the 2011, 2012, and 2013 estimates approximate those derived from the 2012, 2013, and 2014 discard estimation where no survival ratios were applied but stratification and analysis timeframe (12-month period) differed (Wigley et al. 2012, 2013, and 2014).

ACKNOWLEDGEMENTS

We thank all the NEFOP observers and at-sea monitors for their diligent efforts to collect the data used in this report. We thank Chris Legault for his helpful comments on this report.

REFERENCES CITED

Blaylock J, Wigley SE, Rago PJ, Mood M, Palmer MC. 2013. A brief description of the Northeast Region fish and invertebrates discard estimation for the 2013 Update to the National Bycatch Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 13-05; 38 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or http://www.nefsc.noaa.gov/nefsc/publications/crd/crd1305/

Cochran, WL. 1963. Sampling techniques. J. Wiley and Sons. New York.

National Marine Fisheries Service (NMFS). 2011. U.S. National Bycatch Report [W. A. Karp, L. L. Defosse, S. G. Brooke, Editors]. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/SPO-117E, 508 p. Available on-line at: http://spo.nmfs.noaa.gov/tm/117E.pdf

National Marine Fisheries Service (NMFS). 2013. U.S. National Bycatch Report First Edition Update 1 [L.R. Benaka, C. Rilling, E.E. Seney, and H. Winarsoo, Editors]. U.S. Dep. Commer., 57 p. Available on-line at: http://www.st.nmfs.noaa.gov/observer-home/first-edition-update-1

Northeast Fisheries Observer Program (NEFOP). 2010. Fisheries Observer Program Manual 2010. Northeast Fisheries Science Center, Woods Hole, MA 02543. 442 p. Available on-line at: http://www.nefsc.noaa.gov/fsb/manuals/2010/NEFOPM_010110_Bookmarks_Compressed.pdf

Northeast Fisheries Observer Program (NEFOP). 2011. At-Sea Monitoring Program Manual. Northeast Fisheries Science Center, Woods Hole, MA 02543. 502 p. Available on-line at: http://www.nefsc.noaa.gov/fsb/manuals/2011/ASM_program_manual_0611.pdf

Northeast Fisheries Observer Program (NEFOP). 2013. Fisheries Observer Program Manual 2013. Northeast Fisheries Science Center, Woods Hole, MA 02543. 426 p. Available on-line at: http://www.nefsc.noaa.gov/fsb/manuals/2013/NEFSC_Observer_Program_Manual.pdf

Wigley SE, Blaylock J, Rago PJ, Shield G. 2012. 2012 Discard estimation, precision, and sample size analyses for 14 federally managed species groups in the northeast region. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 12-17; 146 p. Available on-line at: http://www.nefsc.noaa.gov/publications/crd/crd1217/

Wigley SE, Blaylock J, Rago PJ, Shield G. 2013. 2013 Discard estimation, precision, and sample size analyses for 14 federally managed species groups in the northeast region. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 13-15; 150 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026 or http://www.nefsc.noaa.gov/publications/crd/crd1315/

Wigley SE, Blaylock J, Rago PJ, Shield G. 2014. 2014 Discard estimation, precision, and sample size analyses for 14 federally managed species groups in the waters off the northeastern United States. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 14-05; 157 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or http://www.nefsc.noaa.gov/nefsc/publications/crd/crd1405/

Wigley SE, Hersey P, Palmer JE. 2008a. A description of the allocation procedure applied to the 1994 to 2007 commercial landings data. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 08-18; 61 p. Available from: National Marine Fisheries Service, 166 Water Street, Woods Hole, MA 02543-1026, or http://www.nefsc.noaa.gov/publications/crd/crd0818/crd0818.pdf

Wigley SE, Palmer MC, Blaylock J, and Rago PJ. 2008b. A brief description of the discard estimation for the National Bycatch Report. US Dept Commer, Northeast Fish Sci Cent Ref Doc. 08-02; 35 p. Available on-line at: http://www.nefsc.noaa.gov/publications/crd/crd0802/

Wigley SE, Rago PJ, Sosebee KA, and Palka DL. 2007. The analytic component to the Standardized Bycatch Reporting Methodology Omnibus Amendment: sampling design and estimation of precision and accuracy (2nd edition). US Dept Commer, Northeast Fish Sci Cent Ref Doc. 07-09; 156 p. Available on-line at: http://www.nefsc.noaa.gov/publications/crd/crd0709/index.htm

Table 1. List of the 34 fish and invertebrate species, with their scientific name in italics, managed under the 13 federal fishery management plans implemented in the waters off the northeastern United States and examined in the National Bycatch Report First Edition Update 2.

Acadian redfish	*Sebastes fasciatus*
American plaice	*Hippoglossoides platessoides*
Atlantic cod	*Gadus morhua*
Atlantic halibut	*Hippoglossus hippoglossus*
Atlantic herring	*Clupea harengus*
Atlantic mackerel	*Scomber scombrus*
Atlantic salmon	*Salmo salar*
Atlantic sea scallop	*Placopecten magellanicus*
Atlantic surfclam	*Spisula solidissima*
Atlantic wolffish[12]	*Anarhichas lupus*
Black sea bass	*Centropristis striata*
Bluefish	*Pomatomus saltatrix*
Butterfish	*Peprilus triacanthus*
Haddock	*Melanogrammus aeglefinus*
Longfin inshore squid[13]	*Doryteuthis (Amerigo) pealeii*
Monkfish	*Lophius americanus*
Ocean pout	*Zoarces americanus*
Ocean quahog	*Artica islandica*
Offshore hake	*Merluccius albidus*
Pollock	*Pollachius virens*
Red deepsea crab[14]	*Chaceon quinquedens*
Red hake	*Urophycis chuss*
Scup	*Stenotomus chrysops*
Northern shortfin squid[15]	*Illex illecebrosus*
Silver hake	*Merluccius bilinearis*
Skate complex[16]	Rajidae
Spiny dogfish	*Squalus acanthias*
Summer flounder	*Paralichthys dentatus*
Tilefish	*Lopholatilus chamaeleonticeps*
White hake	*Urophycis tenuis*
Windowpane flounder	*Scophthalmus aquosus*
Winter flounder	*Pseudopleuronectes americanus*
Witch flounder	*Glyptocephalus cynoglossus*
Yellowtail flounder	*Limanda ferruginea*

[12] Atlantic wolffish was added to the Northeast Multispecies fishery management plan when Amendment 16 was implemented on May 1, 2010. Atlantic wolffish was not examined in the first edition of the National of the Bycatch Report (NBR First Edition; NMFS 2011) but was included in the NBR First Edition Update 1 (Blaylock et al. 2013; NMFS 2013).

[13] In previous documents (Wigley et al. 2008b; Blaylock et al. 2013) longfin inshore squid was referred to as longfinned squid (*Loligo pealeii)*.

[14] In previous documents (Wigley et al. 2008b; Blaylock et al. 2013) red deepsea crab was referred to as deep sea red crab (*Chaceon quinquedens)*.

[15] In previous documents (Wigley et al. 2008b; Blaylock et al. 2013) northern shortfin squid was referred to as shortfinned squid (*Illex illecebrosus)*.

[16] The Skate complex is composed of 7 species (barndoor skate [*Dipturus laevis*], clearnose skate [*Raja eglanteria*], little skate [*Leucoraja erinacea*], rosette skate [*Leucoraja garmani*], smooth skate [*Malacoraja senta*], thorny skate [*Amblyraja radiata*], and winter skate [*Leucoraja ocellata*]) as well as "little/winter skates mix" and "unkown skate"; individual species are not summarized separately.

Table 2A. Number of Northeast Fisheries Observer Program (NEFOP) and Vessel Trip Report (VTR) trips by fleet and calendar quarter (Q) for calendar year 2011. Light shading indicates a calendar quarter where the number of VTR trips is less than the number of NEFOP trips. Dark shading indicates fleets with no NEFOP trips and no VTR trips in 2011.

Fleet							NEFOP					VTR					
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Comments Imputation
1	Longline	OPEN	all	MA	all	060, 010						18	23	13	37	**91**	no discard estimation
2	Longline	OPEN	all	NE	all	060, 010	46	31	35	6	**118**	192	233	467	95	**987**	
3	Hand Line	OPEN	all	MA	all	020, 021						117	953	1,645	969	**3,684**	no discard estimation
4	Hand Line	OPEN	all	NE	all	020, 021	24	8	26	8	**66**	64	563	1,531	303	**2,461**	
5	Harpoon	OPEN	all	NE	all	030							21	27		**48**	no discard estimation
6	Longline, Pelagic	OPEN	all	MA	all	040							3	10	8	**21**	no discard estimation
7	Longline, Pelagic	OPEN	all	NE	all	040							2	4		**6**	no discard estimation
8	Otter Trawl	OPEN	all	MA	sm	050	77	95	98	110	**380**	705	1,034	1,210	897	**3,846**	
9	Otter Trawl	OPEN	all	MA	lg	050	49	47	68	73	**237**	1,241	2,073	1,947	1,452	**6,713**	
10	Otter Trawl	OPEN	all	NE	sm	050	25	58	64	43	**190**	297	928	1,008	620	**2,853**	
11	Otter Trawl	OPEN	all	NE	lg	050	401	370	319	473	**1,563**	1,596	1,946	2,528	1,953	**8,023**	
12	Scallop Trawl	AA	GEN	MA	all	052		1	1	2	**4**	2	19	4	31	**56**	no discard estimation
13	Scallop Trawl	AA	LIM	MA	all	052				1	**1**	7	1		1	**9**	no discard estimation
14+	Scallop Trawl	AA	LIM	NE	all												
15	Scallop Trawl	OPEN	GEN	MA	all	052	2		1		**3**	25	200	233	31	**489**	no discard estimation
16+	Scallop Trawl	OPEN	GEN	NE	all	052								1	1	**2**	no discard estimation
17	Scallop Trawl	OPEN	LIM	MA	all	052	1		1		**2**	5	1	7	6	**19**	no discard estimation
18+	Scallop Trawl	OPEN	LIM	NE	all												
19+	Twin Trawl	OPEN	all	NE	all												
20+	Otter Trawl, Ruhle	OPEN	all	MA	sm	054							1	10	3	**14**	no discard estimation
21+	Otter Trawl, Ruhle	OPEN	all	MA	lg	054						1	4	6	3	**14**	no discard estimation
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	054	1	6		1	**8**	1	43	3	4	**51**	impute q1, q3, and q4
23+	Otter Trawl, Haddock Separator	OPEN	all	MA	sm	057						1				**1**	no discard estimation
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	057	17	52	11	10	**90**	36	89	31	34	**190**	
25	Shrimp Trawl	OPEN	all	MA	all	058						1	43	198	6	**248**	no discard estimation
26	Shrimp Trawl	OPEN	all	NE	all	058	1				**1**	2,494	1	107	17	**2,619**	no discard estimation
27+	Otter Trawl, Bottom, Other	OPEN	all	MA	all												

See text for fleet abbreviations; “+” = new fleet since Blaylock et al. 2013.

Table 2A, continued. Number of Northeast Fisheries Observer Program (NEFOP) and Vessel Trip Report (VTR) trips by fleet and calendar quarter (Q) for calendar year 2011. Light shading indicates a calendar quarter where the number of VTR trips is less than the number of NEFOP trips. Dark shading indicates fleets with no NEFOP trips and no VTR trips in 2011.

Fleet							NEFOP					VTR					
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Comments Imputation
28+	Otter Trawl, Bottom, Other	OPEN	all	NE	all												
29	Floating Trap	OPEN	all	MA	all	080							38	22		**60**	no discard estimation
30	Floating Trap	OPEN	all	NE	all	080							35	34	1	**70**	no discard estimation
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	100, 110	7		2	2	**11**	579	283	810	565	**2,237**	impute q2
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	100, 110	14		4	6	**24**	538	437	450	1,089	**2,514**	impute q2
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	100, 110	23	25		14	**62**	547	1,218	181	827	**2,773**	impute q3
34	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	100, 110							1	5	1	**7**	no discard estimation
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	100, 110	250	269	682	388	**1,589**	706	1,236	3,042	1,498	**6,482**	
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	100, 110	57	148	370	140	**715**	322	1,114	1,256	721	**3,413**	
37	Purse Seine	OPEN	all	MA	all	120, 121						1	80	241	34	**356**	no discard estimation
38	Purse Seine	OPEN	all	NE	all	120, 121		5	28	3	**36**		39	196	41	**276**	
39	Scallop Dredge	AA	GEN	MA	all	132			10	18	**28**	38	27	302	217	**584**	impute q1 and q2
40	Scallop Dredge	AA	GEN	NE	all	132	1		1		**2**	75	26	30	51	**182**	no discard estimation
41	Scallop Dredge	AA	LIM	MA	all	132	19	26	6	27	**78**	343	288	191	226	**1,048**	
42	Scallop Dredge	AA	LIM	NE	all	132	1		59	11	**71**	11		581	126	**718**	impute q1
43	Scallop Dredge	OPEN	GEN	MA	all	132	11	16	13	7	**47**	756	1,109	677	465	**3,007**	
44	Scallop Dredge	OPEN	GEN	NE	all	132		18	21	6	**45**	923	936	768	485	**3,112**	impute q1
45	Scallop Dredge	OPEN	LIM	MA	all	132	12	61	9	16	**98**	157	591	123	112	**983**	
46	Scallop Dredge	OPEN	LIM	NE	all	132	2	10	11	1	**24**	42	76	109	23	**250**	impute q4
47+	Danish Seine	OPEN	all	MA	all	160							30	85	6	**121**	no discard estimation
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	170, 370	26				**26**	46			1	**47**	impute q4
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	170, 370	5	26	59	23	**113**	14	59	158	80	**311**	
50	Pots and Traps, Fish	OPEN	all	MA	all	181						27	341	409	304	**1,081**	no discard estimation
51	Pots and Traps, Fish	OPEN	all	NE	all	181						3	135	568	95	**801**	no discard estimation
52	Pots and Traps, Conch	OPEN	all	MA	all	183						15	420	161	564	**1,160**	no discard estimation
53	Pots and Traps, Conch	OPEN	all	NE	all	183						2	318	460	446	**1,226**	no discard estimation
54	Pots and Traps, Hagfish	OPEN	all	NE	all	186						8	18	13	12	**51**	no discard estimation

See text for fleet abbreviations; "+" = new fleet since Blaylock et al. 2013.

Table 2A, continued. Number of Northeast Fisheries Observer Program (NEFOP) and Vessel Trip Report (VTR) trips by fleet and calendar quarter (Q) for calendar year 2011. Light shading indicates a calendar quarter where the number of VTR trips is less than the number of NEFOP trips. Dark shading indicates fleets with no NEFOP trips and no VTR trips in 2011.

Fleet							NEFOP					VTR					
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Comments Imputation
55	Pots and Traps, Shrimp	OPEN	all	NE	all	190						151		5		**156**	no discard estimation
56	Pots and Traps, Lobster	OPEN	all	MA	all	200						210	601	1,030	465	**2,306**	no discard estimation
57	Pots and Traps, Lobster	OPEN	all	NE	all	200						1,996	4,823	12,685	8,961	**28,465**	no discard estimation
58+	Stop Seine	OPEN	all	NE	all												
59	Rakes, Other	OPEN	all	MA	all	250							37	30	22	**89**	no discard estimation
60	Rakes, Other	OPEN	all	NE	all	250						2	23	10	30	**65**	no discard estimation
61	Pots and Traps, Crab	OPEN	all	MA	all	300						19	35	17	31	**102**	no discard estimation
62	Pots and Traps, Crab	OPEN	all	NE	all	300						2	34	33	16	**85**	no discard estimation
63+	Diving Gear	OPEN	all	MA	all	330								1		**1**	no discard estimation
64	Diving Gear	OPEN	all	NE	all	330						5	2	4		**11**	no discard estimation
65	Beam Trawl	OPEN	all	MA	all	350						17	18	19	2	**56**	no discard estimation
66	Beam Trawl	OPEN	all	NE	all	350						3	5	19	3	**30**	no discard estimation
67	Dredge, Other	OPEN	all	MA	all	381						208	8		53	**269**	no discard estimation
68	Dredge, Other	OPEN	all	NE	all												
69	Dredge, Urchin	OPEN	all	MA	all	387						2				**2**	no discard estimation
70	Dredge, Urchin	OPEN	all	NE	all	387						3			5	**8**	no discard estimation
71	Ocean Quahog/Surfclam Dredge	OPEN	all	MA	all	386, 400						759	699	665	571	**2,694**	no discard estimation
72	Ocean Quahog/Surfclam Dredge	OPEN	all	NE	all	386, 400						447	589	607	391	**2,034**	no discard estimation
						Totals	**1,072**	**1,272**	**1,899**	**1,389**	**5,632**	**15,780**	**23,910**	**36,987**	**25,011**	**101,688**	

Totals for estimated fleets	**1,067**	**1,271**	**1,895**	**1,386**	**5,619**	**9,154**	**14,322**	**17,569**	**11,834**	**52,879**	

See text for fleet abbreviations; “+” = new fleet since Blaylock et al. 2013.

Table 2B. Number of Northeast Fisheries Observer Program (NEFOP) and Vessel Trip Report (VTR) trips by fleet and calendar quarter (Q) for calendar year 2012. Light shading indicates a calendar quarter where the number of VTR trips is less than the number of NEFOP trips. Dark shading indicates fleets with no NEFOP trips and no VTR trips in 2012.

Fleet						NEFOP					VTR					
Row Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Comments Imputation
1 Longline	OPEN	all	MA	all	060, 010						13	21	49	16	**99**	no discard estimation
2 Longline	OPEN	all	NE	all	060, 010	68	39	91	21	**219**	329	226	752	192	**1,499**	
3 Hand Line	OPEN	all	MA	all	020, 021		1	1		**2**	244	990	1,690	737	**3,661**	no discard estimation
4 Hand Line	OPEN	all	NE	all	020, 021	17	10	68	6	**101**	128	611	1,403	226	**2,368**	
5 Harpoon	OPEN	all	NE	all	030							24	17		**41**	no discard estimation
6 Longline, Pelagic	OPEN	all	MA	all	040						3	11	14	17	**45**	no discard estimation
7 Longline, Pelagic	OPEN	all	NE	all	040							2	10	6	**18**	no discard estimation
8 Otter Trawl	OPEN	all	MA	sm	050	81	23	56	78	**238**	485	1,200	1,750	908	**4,343**	
9 Otter Trawl	OPEN	all	MA	lg	050	56	24	38	36	**154**	994	1,507	1,677	951	**5,129**	
10 Otter Trawl	OPEN	all	NE	sm	050	45	39	39	37	**160**	401	1,069	1,170	585	**3,225**	
11 Otter Trawl	OPEN	all	NE	lg	050	544	341	255	404	**1,544**	1,960	1,985	2,218	1,955	**8,118**	
12 Scallop Trawl	AA	GEN	MA	all	052	2				**2**	2	8			**10**	no discard estimation
13 Scallop Trawl	AA	LIM	MA	all	052							1	4	2	**7**	no discard estimation
14+ Scallop Trawl	AA	LIM	NE	all	052								3	4	**7**	no discard estimation
15 Scallop Trawl	OPEN	GEN	MA	all	052	7		3	6	**16**	63	149	106	23	**341**	impute q2
16+ Scallop Trawl	OPEN	GEN	NE	all	052							1			**1**	no discard estimation
17 Scallop Trawl	OPEN	LIM	MA	all	052			1		**1**	11	6	5	4	**26**	no discard estimation
18+ Scallop Trawl	OPEN	LIM	NE	all	052						1	1			**2**	no discard estimation
19+ Twin Trawl	OPEN	all	NE	all	053				1	**1**				3	**3**	no discard estimation
20+ Otter Trawl, Ruhle	OPEN	all	MA	sm	054						3		3		**6**	no discard estimation
21+ Otter Trawl, Ruhle	OPEN	all	MA	lg	054						7	5	2	4	**18**	no discard estimation
22 Otter Trawl, Ruhle	OPEN	all	NE	lg	054	2	1			**3**	7	13		2	**22**	no discard estimation
23+ Otter Trawl, Haddock Separator	OPEN	all	MA	sm												
24 Otter Trawl, Haddock Separator	OPEN	all	NE	lg	057	12	2	6	5	**25**	40	30	15	22	**107**	
25 Shrimp Trawl	OPEN	all	MA	all	058							99	256	64	**419**	no discard estimation
26 Shrimp Trawl	OPEN	all	NE	all	058	19				**19**	1,394		87	13	**1,494**	impute q3 and q4
27+ Otter Trawl, Bottom, Other	OPEN	all	MA	all												

See text for fleet abbreviations; "+" = new fleet since Blaylock et al. 2013.

Table 2B, continued. Number of Northeast Fisheries Observer Program (NEFOP) and Vessel Trip Report (VTR) trips by fleet and calendar quarter (Q) for calendar year 2012. Light shading indicates a calendar quarter where the number of VTR trips is less than the number of NEFOP trips. Dark shading indicates fleets with no NEFOP trips and no VTR trips in 2012.

Fleet							NEFOP					VTR					
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Comments Imputation
28+	Otter Trawl, Bottom, Other	OPEN	all	NE	all	059							2	7		**9**	no discard estimation
29	Floating Trap	OPEN	all	MA	all	080						1	42	35	3	**81**	no discard estimation
30	Floating Trap	OPEN	all	NE	all	080							60	13		**73**	no discard estimation
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	100, 110						427	228	676	480	**1,811**	no discard estimation
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	100, 110	3				**3**	381	317	370	1,094	**2,162**	no discard estimation
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	100, 110	7	55	1	5	**68**	527	1,350	76	490	**2,443**	impute q3
34	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	100, 110							3	2	1	**6**	no discard estimation
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	100, 110	287	233	543	316	**1,379**	753	1,017	3,447	1,442	**6,659**	
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	100, 110	39	195	177	43	**454**	428	1,114	960	421	**2,923**	
37	Purse Seine	OPEN	all	MA	all	120, 121							120	299	38	**457**	no discard estimation
38	Purse Seine	OPEN	all	NE	all	120, 121		7	24	4	**35**		32	230	29	**291**	
39	Scallop Dredge	AA	GEN	MA	all	132	7			1	**8**	43	17	6	8	**74**	impute q2, q3, and q4
40	Scallop Dredge	AA	GEN	NE	all	132	1	1	1	2	**5**	47	23	35	25	**130**	no discard estimation
41	Scallop Dredge	AA	LIM	MA	all	132	48	38	6	1	**93**	286	296	78	35	**695**	impute q4
42	Scallop Dredge	AA	LIM	NE	all	132	1	17	61	37	**116**	9	113	482	327	**931**	impute q1
43	Scallop Dredge	OPEN	GEN	MA	all	132	1	2	8	5	**16**	627	825	751	433	**2,636**	impute q1
44	Scallop Dredge	OPEN	GEN	NE	all	132		13	8	11	**32**	768	1,196	949	797	**3,710**	impute q1
45	Scallop Dredge	OPEN	LIM	MA	all	132	14	57	8	5	**84**	110	379	92	67	**648**	
46	Scallop Dredge	OPEN	LIM	NE	all	132	9	28	25	7	**69**	76	222	212	76	**586**	
47+	Danish Seine	OPEN	all	MA	all	160						1	73	93	7	**174**	no discard estimation
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	170, 370	11				**11**	75				**75**	
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	170, 370	22	32	90	17	**161**	146	51	137	34	**368**	
50	Pots and Traps, Fish	OPEN	all	MA	all	181						70	345	298	174	**887**	no discard estimation
51	Pots and Traps, Fish	OPEN	all	NE	all	181						15	281	512	39	**847**	no discard estimation
52	Pots and Traps, Conch	OPEN	all	MA	all	183						204	265	60	527	**1,056**	no discard estimation
53	Pots and Traps, Conch	OPEN	all	NE	all	183						11	400	380	450	**1,241**	no discard estimation
54	Pots and Traps, Hagfish	OPEN	all	NE	all	186						6	24	7	3	**40**	no discard estimation

See text for fleet abbreviations; "+" = new fleet since Blaylock et al. 2013.

Table 2B, continued. Number of Northeast Fisheries Observer Program (NEFOP) and Vessel Trip Report (VTR) trips by fleet and calendar quarter (Q) for calendar year 2012. Light shading indicates a calendar quarter where the number of VTR trips is less than the number of NEFOP trips. Dark shading indicates fleets with no NEFOP trips and no VTR trips in 2012.

Fleet							NEFOP					VTR					
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Comments Imputation
55	Pots and Traps, Shrimp	OPEN	all	NE	all	190						55				**55**	no discard estimation
56	Pots and Traps, Lobster	OPEN	all	MA	all	200						270	720	918	381	**2,289**	no discard estimation
57	Pots and Traps, Lobster	OPEN	all	NE	all	200		2	5	8	**15**	2,313	6,074	11,892	8,230	**28,509**	impute q1
58+	Stop Seine	OPEN	all	NE	all	240						2				**2**	no discard estimation
59	Rakes, Other	OPEN	all	MA	all	250						4	29	30	11	**74**	no discard estimation
60	Rakes, Other	OPEN	all	NE	all	250						15	19	10	24	**68**	no discard estimation
61	Pots and Traps, Crab	OPEN	all	MA	all	300						11	36	45	16	**108**	no discard estimation
62	Pots and Traps, Crab	OPEN	all	NE	all	300						15	7	15	14	**51**	no discard estimation
63+	Diving Gear	OPEN	all	MA	all												
64	Diving Gear	OPEN	all	NE	all	330							1	5	4	**10**	no discard estimation
65	Beam Trawl	OPEN	all	MA	all	350						19	41	37	21	**118**	no discard estimation
66	Beam Trawl	OPEN	all	NE	all	350							13	26	9	**48**	no discard estimation
67	Dredge, Other	OPEN	all	MA	all	381						106	11	5	74	**196**	no discard estimation
68	Dredge, Other	OPEN	all	NE	all	381									4	**4**	no discard estimation
69	Dredge, Urchin	OPEN	all	MA	all												
70	Dredge, Urchin	OPEN	all	NE	all	387						3			13	**16**	no discard estimation
71	Ocean Quahog/Surfclam Dredge	OPEN	all	MA	all	386, 400						739	591	612	480	**2,422**	no discard estimation
72	Ocean Quahog/Surfclam Dredge	OPEN	all	NE	all	386, 400						429	608	737	515	**2,289**	no discard estimation
						Totals	**1,303**	**1,160**	**1,515**	**1,056**	**5,034**	**15,077**	**24,904**	**35,770**	**22,530**	**98,281**	

Totals for estimated fleets	**1,295**	**1,157**	**1,512**	**1,053**	**5,017**	**11,955**	**19,463**	**28,490**	**17,264**	**77,172**	

See text for fleet abbreviations; “+” = new fleet since Blaylock et al. 2013.

Table 2C. Number of Northeast Fisheries Observer Program (NEFOP) and Vessel Trip Report (VTR) trips by fleet and calendar quarter (Q) for calendar year 2013. Light shading indicates a calendar quarter where the number of VTR trips is less than the number of NEFOP trips. Dark shading indicates fleets with no NEFOP trips and no VTR trips in 2013.

Fleet						NEFOP					VTR					
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Comments Imputation
1	Longline	OPEN	all	MA	all	060, 010						7	35	50	18	**110**	no discard estimation
2	Longline	OPEN	all	NE	all	060, 010	27	5		4	**36**	150	81	214	166	**611**	impute q3
3	Hand Line	OPEN	all	MA	all	020, 021						128	792	1,547	689	**3,156**	no discard estimation
4	Hand Line	OPEN	all	NE	all	020, 021		2	8	3	**13**	37	459	1,367	362	**2,225**	impute q1
5	Harpoon	OPEN	all	NE	all	030							14	30		**44**	no discard estimation
6	Longline, Pelagic	OPEN	all	MA	all	040						1	3	9	6	**19**	no discard estimation
7	Longline, Pelagic	OPEN	all	NE	all	040							2	4	1	**7**	no discard estimation
8	Otter Trawl	OPEN	all	MA	sm	050	65	115	123	106	**409**	428	1,022	1,713	1,058	**4,221**	
9	Otter Trawl	OPEN	all	MA	lg	050	48	93	58	35	**234**	761	1,439	1,691	677	**4,568**	
10	Otter Trawl	OPEN	all	NE	sm	050	35	58	85	50	**228**	425	706	1,165	592	**2,888**	
11	Otter Trawl	OPEN	all	NE	lg	050	364	277	197	256	**1,094**	2,033	1,795	2,037	1,550	**7,415**	
12	Scallop Trawl	AA	GEN	MA	all												
13	Scallop Trawl	AA	LIM	MA	all	052							1			**1**	no discard estimation
14+	Scallop Trawl	AA	LIM	NE	all	052							1			**1**	no discard estimation
15	Scallop Trawl	OPEN	GEN	MA	all	052	1	8	8	3	**20**	52	150	119	20	**341**	impute q1
16+	Scallop Trawl	OPEN	GEN	NE	all	052							1			**1**	no discard estimation
17	Scallop Trawl	OPEN	LIM	MA	all	052						7	11	10	5	**33**	no discard estimation
18+	Scallop Trawl	OPEN	LIM	NE	all	052						3				**3**	no discard estimation
19+	Twin Trawl	OPEN	all	NE	all	053				2	**2**	5		1	2	**8**	no discard estimation
20+	Otter Trawl, Ruhle	OPEN	all	MA	sm	054						11	1	1		**13**	no discard estimation
21+	Otter Trawl, Ruhle	OPEN	all	MA	lg	054						1		6		**7**	no discard estimation
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	054						1	4	2		**7**	no discard estimation
23+	Otter Trawl, Haddock Separator	OPEN	all	MA	sm												
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	057	1	4	4	3	**12**	16	18	14	25	**73**	impute q1
25	Shrimp Trawl	OPEN	all	MA	all	058			1		**1**		18	251	152	**421**	no discard estimation
26	Shrimp Trawl	OPEN	all	NE	all	058	24				**24**	445	15	78	4	**542**	impute q2, q3, and q4
27+	Otter Trawl, Bottom, Other	OPEN	all	MA	all	059								3	5	**8**	no discard estimation

See text for fleet abbreviations; “+” = new fleet since Blaylock et al. 2013.

Table 2C, continued. Number of Northeast Fisheries Observer Program (NEFOP) and Vessel Trip Report (VTR) trips by fleet and calendar quarter (Q) for calendar year 2013. Light shading indicates a calendar quarter where the number of VTR trips is less than the number of NEFOP trips. Dark shading indicates fleets with no NEFOP trips and no VTR trips in 2013.

Fleet						NEFOP					VTR					
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Comments Imputation
28+	Otter Trawl, Bottom, Other	OPEN	all	NE	all	059							20	1	3	**24**	no discard estimation
29	Floating Trap	OPEN	all	MA	all	080							33	42	5	**80**	no discard estimation
30	Floating Trap	OPEN	all	NE	all	080							12	9		**21**	no discard estimation
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	100, 110			2	6	**8**	351	309	662	450	**1,772**	impute q1 and q2
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	100, 110	4		2	4	**10**	506	376	495	696	**2,073**	impute q2
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	100, 110	5	16		8	**29**	378	1,072	107	642	**2,199**	impute q3
34	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	100, 110							1	1	1	**3**	no discard estimation
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	100, 110	28	139	279	174	**620**	320	823	1,545	990	**3,678**	
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	100, 110	15	50	210	48	**323**	304	833	1,172	512	**2,821**	
37	Purse Seine	OPEN	all	MA	all	120, 121							104	105		**209**	no discard estimation
38	Purse Seine	OPEN	all	NE	all	120, 121		3	24	4	**31**		61	221	39	**321**	
39	Scallop Dredge	AA	GEN	MA	all	132	1	1	2		**4**	6	6	6	4	**22**	no discard estimation
40	Scallop Dredge	AA	GEN	NE	all	132		2	6		**8**	111	117	147	97	**472**	impute q1 and q4
41	Scallop Dredge	AA	LIM	MA	all	132	12	19	5	5	**41**	95	181	59	32	**367**	
42	Scallop Dredge	AA	LIM	NE	all	132	6	23	25	5	**59**	62	180	216	81	**539**	
43	Scallop Dredge	OPEN	GEN	MA	all	132	14	15	28	25	**82**	530	704	641	402	**2,277**	
44	Scallop Dredge	OPEN	GEN	NE	all	132	10	31	50	16	**107**	897	1,178	829	534	**3,438**	
45	Scallop Dredge	OPEN	LIM	MA	all	132	4	15	24	12	**55**	62	144	197	95	**498**	
46	Scallop Dredge	OPEN	LIM	NE	all	132	20	72	26	5	**123**	162	463	249	37	**911**	
47+	Danish Seine	OPEN	all	MA	all	160							55	24		**79**	no discard estimation
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	170, 370	2		1		**3**	51	10		18	**79**	no discard estimation
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	170, 370	17	21	37	21	**96**	131	50	128	106	**415**	
50	Pots and Traps, Fish	OPEN	all	MA	all	181						63	287	384	246	**980**	no discard estimation
51	Pots and Traps, Fish	OPEN	all	NE	all	181						13	158	668	92	**931**	no discard estimation
52	Pots and Traps, Conch	OPEN	all	MA	all	183						206	383	225	528	**1,342**	no discard estimation
53	Pots and Traps, Conch	OPEN	all	NE	all	183				1	**1**	1	369	400	362	**1,132**	no discard estimation
54	Pots and Traps, Hagfish	OPEN	all	NE	all	186						6	11	17	14	**48**	no discard estimation

See text for fleet abbreviations; "+" = new fleet since Blaylock et al. 2013.

Table 2C, continued. Number of Northeast Fisheries Observer Program (NEFOP) and Vessel Trip Report (VTR) trips by fleet and calendar quarter (Q) for calendar year 2013. Light shading indicates a calendar quarter where the number of VTR trips is less than the number of NEFOP trips. Dark shading indicates fleets with no NEFOP trips and no VTR trips in 2013.

Fleet							NEFOP					VTR					
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	Comments Imputation
55	Pots and Traps, Shrimp	OPEN	all	NE	all	190						21				**21**	no discard estimation
56	Pots and Traps, Lobster	OPEN	all	MA	all	200						128	478	812	389	**1,807**	no discard estimation
57	Pots and Traps, Lobster	OPEN	all	NE	all	200	6	5	9	9	**29**	1,888	4,864	11,887	7,682	**26,321**	
58+	Stop Seine	OPEN	all	NE	all												
59	Rakes, Other	OPEN	all	MA	all	250							28	21	19	**68**	no discard estimation
60	Rakes, Other	OPEN	all	NE	all	250						7	31	32	78	**148**	no discard estimation
61	Pots and Traps, Crab	OPEN	all	MA	all	300						4	28	18	11	**61**	no discard estimation
62	Pots and Traps, Crab	OPEN	all	NE	all	300						21	5	6	11	**43**	no discard estimation
63+	Diving Gear	OPEN	all	MA	all												
64	Diving Gear	OPEN	all	NE	all	330						13	35	16	1	**65**	no discard estimation
65	Beam Trawl	OPEN	all	MA	all	350						8	3	36	28	**75**	no discard estimation
66	Beam Trawl	OPEN	all	NE	all	350						1	18	30	5	**54**	no discard estimation
67	Dredge, Other	OPEN	all	MA	all	381						83	50		41	**174**	no discard estimation
68	Dredge, Other	OPEN	all	NE	all												
69	Dredge, Urchin	OPEN	all	MA	all												
70	Dredge, Urchin	OPEN	all	NE	all	387						1			16	**17**	no discard estimation
71	Ocean Quahog/Surfclam Dredge	OPEN	all	MA	all	386, 400						518	464	530	412	**1,924**	no discard estimation
72	Ocean Quahog/Surfclam Dredge	OPEN	all	NE	all	386, 400						527	681	803	526	**2,537**	no discard estimation
						Totals	**709**	**974**	**1,214**	**805**	**3,702**	**11,986**	**21,193**	**33,053**	**20,537**	**86,769**	

Totals for estimated fleets	**706**	**973**	**1,210**	**802**	**3,691**	**10,144**	**17,040**	**26,953**	**16,849**	**70,986**	

See text for fleet abbreviations; "+" = new fleet since Blaylock et al. 2013.

Table 3A. Vessel Trip Report (VTR) landings (live, mt) by fleet and calendar quarter (Q) for calendar year 2011. Dark shading indicates fleets with no reported VTR landings in 2011.

Fleet							Q1	Q2	Q3	Q4	TOTAL
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes					
1	Longline	OPEN	all	MA	all	060, 010	76.98	136.59	38.28	130.33	**382.18**
2	Longline	OPEN	all	NE	all	060, 010	229.58	342.87	639.11	150.38	**1,361.95**
3	Hand Line	OPEN	all	MA	all	020, 021	14.87	56.04	146.16	85.38	**302.44**
4	Hand Line	OPEN	all	NE	all	020, 021	19.27	59.92	315.56	51.30	**446.05**
5	Harpoon	OPEN	all	NE	all	030		3.99	4.44		**8.43**
6	Longline, Pelagic	OPEN	all	MA	all	040		0.09	15.72	33.39	**49.20**
7	Longline, Pelagic	OPEN	all	NE	all	040		3.30	13.79		**17.09**
8	Otter Trawl	OPEN	all	MA	sm	050	7,837.47	9,383.66	12,789.71	3,253.78	**33,264.62**
9	Otter Trawl	OPEN	all	MA	lg	050	4,295.77	2,576.29	1,976.08	2,765.06	**11,613.20**
10	Otter Trawl	OPEN	all	NE	sm	050	3,677.17	3,046.61	4,568.43	2,481.66	**13,773.87**
11	Otter Trawl	OPEN	all	NE	lg	050	6,978.00	8,346.24	6,380.32	7,717.60	**29,422.16**
12	Scallop Trawl	AA	GEN	MA	all	052	3.48	24.89	8.95	67.23	**104.55**
13	Scallop Trawl	AA	LIM	MA	all	052	109.20	67.26		2.05	**178.51**
14	Scallop Trawl	AA	LIM	NE	all						
15	Scallop Trawl	OPEN	GEN	MA	all	052	35.54	274.76	327.60	30.03	**667.92**
17	Scallop Trawl	OPEN	LIM	MA	all	052	8.13	1.51	13.05	15.66	**38.35**
18	Scallop Trawl	OPEN	LIM	NE	all						
19	Twin Trawl	OPEN	all	NE	all						
21	Otter Trawl, Ruhle	OPEN	all	MA	lg	054	1.70	1.41	3.37	6.20	**12.68**
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	054	0.54	414.00	5.35	26.41	**446.30**
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	057	361.61	1,115.66	237.40	328.29	**2,042.96**
25	Shrimp Trawl	OPEN	all	MA	all	058	1.22	38.52	510.91	12.39	**563.05**
26	Shrimp Trawl	OPEN	all	NE	all	058	3,088.95	0.67	157.46	26.20	**3,273.28**
27	Otter Trawl, Bottom, Other	OPEN	all	MA	all						
28	Otter Trawl, Bottom, Other	OPEN	all	NE	all						
30	Floating Trap	OPEN	all	NE	all	080		80.21	10.69	0.91	**91.80**
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	100, 110	1,260.53	132.33	510.62	498.90	**2,402.37**
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	100, 110	722.35	397.79	242.97	1,198.69	**2,561.80**
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	100, 110	468.56	1,773.08	169.82	1,056.69	**3,468.14**
34	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	100, 110		2.99	5.96	1.14	**10.09**
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	100, 110	594.92	1,307.46	3,599.95	1,624.59	**7,126.93**
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	100, 110	437.68	2,391.16	2,712.70	1,714.13	**7,255.66**
37	Purse Seine	OPEN	all	MA	all	120, 121	1.36	4,295.83	15,841.73	2,707.67	**22,846.59**
38	Purse Seine	OPEN	all	NE	all	120, 121		1,921.63	12,629.11	2,790.54	**17,341.28**
39	Scallop Dredge	AA	GEN	MA	all	132	149.76	158.43	800.67	660.72	**1,769.58**
40	Scallop Dredge	AA	GEN	NE	all	132	78.58	8.91	110.45	97.95	**295.89**
41	Scallop Dredge	AA	LIM	MA	all	132	13,929.34	11,774.23	10,611.11	12,840.21	**49,154.89**
42	Scallop Dredge	AA	LIM	NE	all	132	570.92		35,418.68	7,035.76	**43,025.35**
43	Scallop Dredge	OPEN	GEN	MA	all	132	1,291.81	1,940.98	1,148.54	868.86	**5,250.19**
44	Scallop Dredge	OPEN	GEN	NE	all	132	966.07	1,332.86	1,326.83	664.32	**4,290.07**
45	Scallop Dredge	OPEN	LIM	MA	all	132	12,795.74	59,479.36	8,279.61	5,985.74	**86,540.45**

See text for fleet abbreviations.

Table 3A, continued. Vessel Trip Report (VTR) landings (live, mt) by fleet and calendar quarter (Q) for calendar year 2011. Dark shading indicates fleets with no reported VTR landings in 2011.

Fleet											
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL
46	Scallop Dredge	OPEN	LIM	NE	all	132	3,158.60	7,361.44	11,191.83	1,260.70	**22,972.57**
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	170, 370	6,837.33			108.86	**6,946.20**
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	170, 370	1,680.90	9,477.08	29,153.36	13,209.07	**53,520.41**
50	Pots and Traps, Fish	OPEN	all	MA	all	181	4.21	74.35	94.71	112.43	**285.71**
51	Pots and Traps, Fish	OPEN	all	NE	all	181	0.46	97.98	67.55	8.36	**174.35**
52	Pots and Traps, Conch	OPEN	all	MA	all	183	3.42	252.75	53.73	291.50	**601.39**
53	Pots and Traps, Conch	OPEN	all	NE	all	183	0.17	131.07	146.62	193.32	**471.19**
54	Pots and Traps, Hagfish	OPEN	all	NE	all	186	59.64	100.43	121.98	87.77	**369.82**
55	Pots and Traps, Shrimp	OPEN	all	NE	all	190	83.05		0.81		**83.86**
56	Pots and Traps, Lobster	OPEN	all	MA	all	200	250.51	263.30	329.17	228.98	**1,071.97**
57	Pots and Traps, Lobster	OPEN	all	NE	all	200	2,098.39	1,456.96	3,692.99	3,426.13	**10,674.46**
58	Stop Seine	OPEN	all	NE	all						
61	Pots and Traps, Crab	OPEN	all	MA	all	300	81.00	240.84	411.33	357.46	**1,090.63**
62	Pots and Traps, Crab	OPEN	all	NE	all	300	56.28	95.92	270.41	214.56	**637.17**
65	Beam Trawl	OPEN	all	MA	all	350	12.41	16.17	14.16	2.43	**45.18**
67	Dredge, Other	OPEN	all	MA	all	381	67.52	12.47		22.59	**102.59**
68	Dredge, Other	OPEN	all	NE	all						
70	Dredge, Urchin	OPEN	all	NE	all	387	0.71			1.06	**1.76**
71	Ocean Quahog/Surfclam Dredge	OPEN	all	MA	all	386, 400	51,695.70	48,295.23	40,258.30	38,332.90	**178,582.13**
72	Ocean Quahog/Surfclam Dredge	OPEN	all	NE	all	386, 400	7,588.80	12,019.70	10,884.15	10,203.98	**40,696.62**
	11 Confidential fleets						2.47	660.37	1,851.97	194.40	**2,709.21**
						TOTAL	**133,688.66**	**193,447.55**	**220,114.19**	**125,186.68**	**672,437.08**

See text for fleet abbreviations.

Table 3B. Vessel Trip Report (VTR) landings (live, mt) by fleet and calendar quarter (Q) for calendar year 2012. Dark shading indicates fleets with no reported VTR landings in 2012.

Fleet							Q1	Q2	Q3	Q4	TOTAL
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes					
1	Longline	OPEN	all	MA	all	060, 010	45.84	92.91	137.46	102.03	**378.24**
2	Longline	OPEN	all	NE	all	060, 010	293.42	223.83	996.70	248.99	**1,762.94**
3	Hand Line	OPEN	all	MA	all	020, 021	34.12	69.32	159.88	59.58	**322.91**
4	Hand Line	OPEN	all	NE	all	020, 021	21.77	35.58	357.88	55.62	**470.85**
5	Harpoon	OPEN	all	NE	all	030		7.17	5.00		**12.16**
6	Longline, Pelagic	OPEN	all	MA	all	040	11.15	23.06	30.70	35.27	**100.18**
7	Longline, Pelagic	OPEN	all	NE	all	040		3.16	37.09	16.49	**56.74**
8	Otter Trawl	OPEN	all	MA	sm	050	5,879.17	5,264.05	12,466.33	4,288.01	**27,897.57**
9	Otter Trawl	OPEN	all	MA	lg	050	2,891.69	1,617.92	1,546.85	1,948.71	**8,005.17**
10	Otter Trawl	OPEN	all	NE	sm	050	5,648.78	4,595.88	3,450.85	1,866.67	**15,562.19**
11	Otter Trawl	OPEN	all	NE	lg	050	9,140.89	8,886.97	6,278.70	6,912.10	**31,218.65**
15	Scallop Trawl	OPEN	GEN	MA	all	052	130.46	276.50	198.58	33.58	**639.12**
17	Scallop Trawl	OPEN	LIM	MA	all	052	78.39	70.19	9.28	63.14	**221.00**
21	Otter Trawl, Ruhle	OPEN	all	MA	lg	054	8.89	5.00	2.50	7.55	**23.95**
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	054	34.76	85.34		1.09	**121.19**
23	Otter Trawl, Haddock Separator	OPEN	all	MA	sm						
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	057	129.50	214.38	33.95	54.85	**432.67**
25	Shrimp Trawl	OPEN	all	MA	all	058		160.23	505.86	84.26	**750.34**
26	Shrimp Trawl	OPEN	all	NE	all	058	1,350.94		203.86	9.73	**1,564.53**
27	Otter Trawl, Bottom, Other	OPEN	all	MA	all						
30	Floating Trap	OPEN	all	NE	all	080		31.06	2.60		**33.66**
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	100, 110	715.05	114.90	374.06	356.97	**1,560.98**
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	100, 110	437.37	266.85	216.33	1,213.24	**2,133.80**
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	100, 110	561.05	2,260.19	96.55	500.62	**3,418.42**
34	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	100, 110		3.60	2.04	1.00	**6.64**
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	100, 110	450.29	1,107.38	3,875.08	1,605.18	**7,037.93**
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	100, 110	1,174.14	2,705.96	2,331.92	1,075.04	**7,287.07**
37	Purse Seine	OPEN	all	MA	all	120, 121		6,962.03	20,190.67	2,269.25	**29,421.94**
38	Purse Seine	OPEN	all	NE	all	120, 121		3,551.34	14,317.85	1,624.60	**19,493.79**
39	Scallop Dredge	AA	GEN	MA	all	132	129.15	57.73	12.86	21.41	**221.16**
40	Scallop Dredge	AA	GEN	NE	all	132	54.30	45.12	136.97	54.06	**290.45**
41	Scallop Dredge	AA	LIM	MA	all	132	16,189.48	15,562.35	2,766.43	850.16	**35,368.42**
42	Scallop Dredge	AA	LIM	NE	all	132	527.01	7,409.21	29,727.29	14,358.32	**52,021.83**
43	Scallop Dredge	OPEN	GEN	MA	all	132	1,262.87	1,760.75	1,523.49	887.67	**5,434.79**
44	Scallop Dredge	OPEN	GEN	NE	all	132	950.17	2,241.10	1,752.15	1,108.21	**6,051.63**
45	Scallop Dredge	OPEN	LIM	MA	all	132	7,244.87	34,429.80	6,195.71	3,671.78	**51,542.16**
46	Scallop Dredge	OPEN	LIM	NE	all	132	6,810.22	25,614.51	21,252.39	4,625.46	**58,302.57**
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	170, 370	8,608.92				**8,608.92**
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	170, 370	15,209.67	7,766.28	27,293.39	7,075.80	**57,345.14**
50	Pots and Traps, Fish	OPEN	all	MA	all	181	26.18	93.93	61.81	43.92	**225.84**
51	Pots and Traps, Fish	OPEN	all	NE	all	181	2.28	28.50	72.22	1.97	**104.97**

See text for fleet abbreviations.

Table 3B, continued. Vessel Trip Report (VTR) landings (live, mt) by fleet and calendar quarter (Q) for calendar year 2012. Dark shading indicates fleets with no reported VTR landings in 2012.

Fleet											
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL
52	Pots and Traps, Conch	OPEN	all	MA	all	183	110.06	97.00	10.28	310.51	**527.86**
53	Pots and Traps, Conch	OPEN	all	NE	all	183	1.02	146.17	112.01	175.90	**435.10**
54	Pots and Traps, Hagfish	OPEN	all	NE	all	186	81.65	137.46	107.28	16.59	**342.98**
55	Pots and Traps, Shrimp	OPEN	all	NE	all	190	11.84				**11.84**
56	Pots and Traps, Lobster	OPEN	all	MA	all	200	199.86	363.97	413.74	249.28	**1,226.85**
57	Pots and Traps, Lobster	OPEN	all	NE	all	200	1,992.51	1,844.36	4,023.36	3,767.78	**11,628.02**
61	Pots and Traps, Crab	OPEN	all	MA	all	300	8.21	52.86	374.79	194.27	**630.13**
62	Pots and Traps, Crab	OPEN	all	NE	all	300	73.94	38.40	288.26	304.35	**704.96**
63	Diving Gear	OPEN	all	MA	all						
64	Diving Gear	OPEN	all	NE	all	330		<0.01	0.28	0.86	**1.14**
65	Beam Trawl	OPEN	all	MA	all	350	24.36	29.96	20.65	23.33	**98.31**
67	Dredge, Other	OPEN	all	MA	all	381	28.07	6.73	2.01	29.19	**66.01**
69	Dredge, Urchin	OPEN	all	MA	all						
70	Dredge, Urchin	OPEN	all	NE	all	387	0.38			4.26	**4.64**
71	Ocean Quahog/Surfclam Dredge	OPEN	all	MA	all	386, 400	51,426.13	40,897.93	39,390.59	35,126.79	**166,841.44**
72	Ocean Quahog/Surfclam Dredge	OPEN	all	NE	all	386, 400	9,681.90	13,643.53	19,644.64	17,673.23	**60,643.30**
	15 Confidential fleets						48.38	1,713.63	1,553.40	306.77	**3,622.19**
						TOTAL	**149,741.13**	**192,616.06**	**224,564.61**	**115,315.48**	**682,237.28**

See text for fleet abbreviations.

Table 3C. Vessel Trip Report (VTR) landings (live, mt) by fleet and calendar quarter (Q) for calendar year 2013. Dark shading indicates fleets with no reported VTR landings in 2013.

Fleet							Q1	Q2	Q3	Q4	TOTAL
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes					
1	Longline	OPEN	all	MA	all	060, 010	54.61	132.27	96.34	72.63	**355.84**
2	Longline	OPEN	all	NE	all	060, 010	138.31	183.48	432.84	289.12	**1,043.75**
3	Hand Line	OPEN	all	MA	all	020, 021	11.06	50.97	116.38	55.69	**234.10**
4	Hand Line	OPEN	all	NE	all	020, 021	5.57	27.29	299.98	159.62	**492.47**
5	Harpoon	OPEN	all	NE	all	030		2.91	7.40		**10.32**
6	Longline, Pelagic	OPEN	all	MA	all	040	0.45	7.08	23.17	12.39	**43.09**
7	Longline, Pelagic	OPEN	all	NE	all	040		3.67	15.35	6.60	**25.63**
8	Otter Trawl	OPEN	all	MA	sm	050	6,114.19	1,954.46	9,759.15	6,522.30	**24,350.11**
9	Otter Trawl	OPEN	all	MA	lg	050	2,013.90	1,560.38	1,455.69	1,214.90	**6,244.88**
10	Otter Trawl	OPEN	all	NE	sm	050	4,277.28	2,459.38	3,465.29	4,358.94	**14,560.90**
11	Otter Trawl	OPEN	all	NE	lg	050	7,925.38	7,063.49	5,641.71	6,576.34	**27,206.91**
12	Scallop Trawl	AA	GEN	MA	all						
15	Scallop Trawl	OPEN	GEN	MA	all	052	92.99	281.95	165.25	18.63	**558.83**
17	Scallop Trawl	OPEN	LIM	MA	all	052	17.35	134.71	29.65	129.89	**311.61**
23	Otter Trawl, Haddock Separator	OPEN	all	MA	sm						
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	057	41.96	71.63	82.50	178.20	**374.28**
25	Shrimp Trawl	OPEN	all	MA	all	058		6.76	378.71	217.30	**602.77**
26	Shrimp Trawl	OPEN	all	NE	all	058	132.91	3.95	91.20	4.53	**232.59**
30	Floating Trap	OPEN	all	NE	all	080		3.92	0.89		**4.81**
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	100, 110	424.58	244.77	321.14	274.57	**1,265.05**
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	100, 110	665.18	366.06	283.92	819.37	**2,134.54**
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	100, 110	276.65	1,626.73	125.61	927.38	**2,956.37**
34	Sink, Anchor, Drift Gillnet	OPEN	all	NE	sm	100, 110		0.45	0.13	0.01	**0.60**
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	100, 110	317.08	800.18	1,531.33	1,123.89	**3,772.48**
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	100, 110	697.76	1,887.14	2,563.47	1,132.38	**6,280.76**
37	Purse Seine	OPEN	all	MA	all	120, 121		3,971.73	7,699.56		**11,671.29**
38	Purse Seine	OPEN	all	NE	all	120, 121		3,117.52	16,650.06	3,446.60	**23,214.19**
39	Scallop Dredge	AA	GEN	MA	all	132	17.81	20.90	16.70	8.01	**63.42**
40	Scallop Dredge	AA	GEN	NE	all	132	80.27	105.05	211.80	54.02	**451.15**
41	Scallop Dredge	AA	LIM	MA	all	132	2,788.88	6,134.68	1,564.70	636.11	**11,124.37**
42	Scallop Dredge	AA	LIM	NE	all	132	2,509.97	6,906.59	10,065.48	3,156.06	**22,638.11**
43	Scallop Dredge	OPEN	GEN	MA	all	132	1,132.87	1,573.39	1,405.89	774.07	**4,886.22**
44	Scallop Dredge	OPEN	GEN	NE	all	132	1,114.25	2,044.70	1,398.85	519.33	**5,077.13**
45	Scallop Dredge	OPEN	LIM	MA	all	132	2,806.98	10,557.77	12,832.39	3,992.24	**30,189.39**
46	Scallop Dredge	OPEN	LIM	NE	all	132	11,901.29	42,326.42	19,126.87	1,682.72	**75,037.30**
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	170, 370	5,172.89	1,198.33		831.84	**7,203.06**
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	170, 370	14,075.36	7,832.02	23,934.94	12,963.13	**58,805.44**
50	Pots and Traps, Fish	OPEN	all	MA	all	181	21.83	74.65	75.40	80.39	**252.28**
51	Pots and Traps, Fish	OPEN	all	NE	all	181	3.09	11.51	97.44	13.72	**125.76**
52	Pots and Traps, Conch	OPEN	all	MA	all	183	266.13	697.41	823.25	404.44	**2,191.23**
53	Pots and Traps, Conch	OPEN	all	NE	all	183	0.10	111.18	100.77	122.94	**335.00**

See text for fleet abbreviations.

Table 3C, continued. Vessel Trip Report (VTR) landings (live, mt) by fleet and calendar quarter (Q) for calendar year 2013. Dark shading indicates fleets with no reported VTR landings in 2013.

Fleet											
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	Gear Codes	Q1	Q2	Q3	Q4	TOTAL
54	Pots and Traps, Hagfish	OPEN	all	NE	all	186	17.09	171.67	279.21	260.18	**728.15**
55	Pots and Traps, Shrimp	OPEN	all	NE	all	190	0.66				**0.66**
56	Pots and Traps, Lobster	OPEN	all	MA	all	200	121.11	197.61	352.26	290.74	**961.72**
57	Pots and Traps, Lobster	OPEN	all	NE	all	200	2,059.38	1,680.13	4,505.96	4,041.06	**12,286.53**
58	Stop Seine	OPEN	all	NE	all						
60	Rakes, Other	OPEN	all	NE	all	250	3.75	19.21	3.15	101.72	**127.83**
61	Pots and Traps, Crab	OPEN	all	MA	all	300	106.43	50.05	315.05	165.73	**637.27**
62	Pots and Traps, Crab	OPEN	all	NE	all	300	141.19	25.86	112.44	188.32	**467.81**
63	Diving Gear	OPEN	all	MA	all						
64	Diving Gear	OPEN	all	NE	all	330	9.78	12.32	5.43	0.02	**27.55**
65	Beam Trawl	OPEN	all	MA	all	350	8.09	0.59	113.73	137.67	**260.07**
66	Beam Trawl	OPEN	all	NE	all	350	0.74	3.13	8.29	0.94	**13.10**
67	Dredge, Other	OPEN	all	MA	all	381	22.50	41.83		14.55	**78.88**
68	Dredge, Other	OPEN	all	NE	all						
69	Dredge, Urchin	OPEN	all	MA	all						
70	Dredge, Urchin	OPEN	all	NE	all	387	0.55			4.15	**4.71**
71	Ocean Quahog/Surfclam Dredge	OPEN	all	MA	all	386, 400	35,693.19	31,569.60	33,528.44	30,436.98	**131,228.21**
72	Ocean Quahog/Surfclam Dredge	OPEN	all	NE	all	386, 400	18,035.89	24,934.03	25,291.20	16,779.50	**85,040.63**
13 Confidential fleets							346.98	1,076.90	654.01	160.50	**2,238.38**
						TOTAL	**121,666.26**	**165,340.43**	**188,060.39**	**105,362.40**	**580,429.48**

See text for fleet abbreviations.

Table 4A. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2011.

Fleet						Acadian redfish *Sebastes fasciatus*			American plaice *Hippoglossoides platessoides*			Atlantic cod *Gadus morhua*			Atlantic halibut *Hippoglossus hippoglossus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.07	0.538	0.000055	0.02	0.843	0.000016	57.32	0.168	0.042086	0.13	0.751	0.000097
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	6.01	0.503	0.013469	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	1.90	0.384	0.000057	0.25	0.396	0.000008	0.42	0.406	0.000013	0.06	1.243	0.000002
9	Otter Trawl	OPEN	all	MA	lg	0.04	0.519	0.000003	0.00		0.000000	0.25	0.724	0.000021	0.00		0.000000
10	Otter Trawl	OPEN	all	NE	sm	36.53	0.924	0.002652	8.29	0.598	0.000602	7.92	0.361	0.000575	0.03	0.725	0.000002
11	Otter Trawl	OPEN	all	NE	lg	130.37	0.105	0.004431	179.81	0.049	0.006111	207.85	0.072	0.007064	21.23	0.062	0.000721
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	0.00		0.000000	0.12	1.108	0.000262	0.37	1.025	0.000838	0.04	0.835	0.000086
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	18.72	0.361	0.009165	2.25	0.170	0.001101	5.09	0.147	0.002494	0.65	0.263	0.000316
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	1.06	1.860	0.000440	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.17	0.408	0.000048	0.00		0.000000
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	2.79	0.199	0.000391	2.67	0.070	0.000375	36.31	0.055	0.005095	2.95	0.117	0.000414
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.02	0.410	0.000003	0.08	0.287	0.000011	6.45	0.131	0.000889	7.20	0.498	0.000992
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.02	0.996	<0.000001
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	1.66	0.406	0.000039	1.96	0.255	0.000046	0.48	0.693	0.000011
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.25	0.749	0.000048	0.00		0.000000
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	<0.01	0.958	<0.000001	0.05	0.942	0.000001	0.93	0.284	0.000011	0.31	0.761	0.000004
46	Scallop Dredge	OPEN	LIM	NE	all	0.00		0.000000	1.61	0.709	0.000070	1.48	0.421	0.000065	0.00		0.000000
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	<0.01	0.676	<0.000001	0.03	0.298	0.000005	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.01	0.785	<0.000001	0.01	0.415	<0.000001	0.25	0.412	0.000005	0.00		0.000000
					TOTAL	190.46	0.195		196.81	0.051		334.14	0.055		33.08	0.117	

See text for fleet abbreviations.

Table 4A, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2011.

Fleet						Atlantic herring *Clupea harengus*			Atlantic mackerel *Scomber scombrus*			Atlantic salmon *Salmo salar*			Atlantic sea scallop *Placopecten magellanicus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.06	0.682	0.000044
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.02	1.678	0.000038	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	38.84	0.325	0.001168	18.20	0.224	0.000547	0.00		0.000000	47.47	0.332	0.001427
9	Otter Trawl	OPEN	all	MA	lg	2.25	1.685	0.000194	1.05	1.644	0.000090	0.00		0.000000	84.19	0.926	0.007249
10	Otter Trawl	OPEN	all	NE	sm	34.83	0.383	0.002529	10.12	1.041	0.000735	0.00		0.000000	0.19	0.467	0.000013
11	Otter Trawl	OPEN	all	NE	lg	8.31	0.170	0.000282	0.43	0.230	0.000015	0.00		0.000000	41.25	0.171	0.001402
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	0.24	0.800	0.000547	0.14	0.700	0.000322	0.00		0.000000	0.01	0.999	0.000019
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.32	0.291	0.000155	0.01	0.647	0.000005	0.00		0.000000	2.49	0.677	0.001218
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.14	0.490	0.000041	0.00		0.000000	0.30	0.563	0.000087
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	2.31	0.261	0.000323	1.03	0.152	0.000145	0.00		0.000000	0.22	0.513	0.000032
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.08	0.359	0.000011	0.06	0.365	0.000008	0.00		0.000000	0.12	0.281	0.000016
38	Purse Seine	OPEN	all	NE	all	2.55	0.896	0.000147	<0.01	1.264	<0.000001	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	65.18	0.247	0.036831
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.02	0.573	<0.000001	0.00		0.000000	1,149.15	0.203	0.023378
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	<0.01	0.120	<0.000001	0.00		0.000000	2,857.60	0.255	0.066417
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	194.43	0.442	0.037033
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	189.75	0.224	0.044229
45	Scallop Dredge	OPEN	LIM	MA	all	0.03	0.621	<0.000001	0.01	0.736	<0.000001	0.00		0.000000	2,511.45	0.179	0.029021
46	Scallop Dredge	OPEN	LIM	NE	all	0.00		0.000000	<0.01	1.043	<0.000001	0.00		0.000000	1,473.76	0.444	0.064153
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.29	0.448	0.000041	<0.01	0.280	<0.000001	0.00		0.000000	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	54.62	1.177	0.001020	6.97	1.434	0.000130	0.00		0.000000	0.00		0.000000
					TOTAL	144.65	0.463		38.22	0.397		0.00			8,617.61	0.129	

See text for fleet abbreviations.

Table 4A, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2011.

Fleet						Atlantic surfclam *Spisula solidissima*			Atlantic wolffish *Anarhichas lupus*			Black sea bass *Centropristis striata*			Bluefish *Pomatomus saltatrix*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	2.39	0.283	0.001757	0.00		0.000000	0.02	0.753	0.000017
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.05	2.383	0.000105
8	Otter Trawl	OPEN	all	MA	sm	1.94	0.777	0.000058	0.00		0.000000	106.46	0.233	0.003200	65.76	0.656	0.001977
9	Otter Trawl	OPEN	all	MA	lg	6.18	0.702	0.000533	0.00		0.000000	58.41	0.405	0.005029	1.92	0.662	0.000165
10	Otter Trawl	OPEN	all	NE	sm	0.00		0.000000	0.13	1.028	0.000010	14.16	0.365	0.001028	3.51	0.431	0.000255
11	Otter Trawl	OPEN	all	NE	lg	0.09	1.007	0.000003	29.37	0.081	0.000998	6.26	0.196	0.000213	4.96	0.220	0.000168
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.00		0.000000	0.63	0.385	0.000306	0.01	0.711	0.000006	0.10	0.560	0.000049
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.33	10.375	0.000136
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	57.33	1.004	0.022380
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	9.05	0.290	0.002609
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.00		0.000000	3.38	0.092	0.000474	0.00		0.000000	0.37	0.300	0.000051
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.00		0.000000	0.76	0.238	0.000104	0.04	0.540	0.000006	12.99	0.238	0.001790
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.13	1.226	0.000008
39	Scallop Dredge	AA	GEN	MA	all	0.01	0.930	0.000007	0.00		0.000000	<0.01	0.966	0.000001	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.00		0.000000	4.38	0.249	0.000089	0.01	1.095	<0.000001
42	Scallop Dredge	AA	LIM	NE	all	0.02	0.949	<0.000001	0.00		0.000000	0.00		0.000000	0.00		0.000000
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.29	0.724	0.000054	0.00		0.000000
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.00		0.000000	0.01	1.298	0.000002	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	0.10	0.705	0.000001	0.00		0.000000	8.71	0.243	0.000101	0.13	0.724	0.000002
46	Scallop Dredge	OPEN	LIM	NE	all	0.00		0.000000	0.00		0.000000	0.01	1.061	<0.000001	0.00		0.000000
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	0.27	0.690	0.000038	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	1.76	0.468	0.000033
					TOTAL	8.34	0.551		36.65	0.068		199.01	0.175		158.40	0.456	

See text for fleet abbreviations.

Table 4A, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2011.

Fleet						Butterfish *Peprilus triacanthus*			Haddock *Melanogrammus aeglefinus*			Longfin inshore squid *Doryteuthis (Amerigo) pealeii*			Monkfish *Lophius americanus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	11.27	0.564	0.008275	0.00		0.000000	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	1,319.28	0.169	0.039660	10.60	0.558	0.000319	226.74	0.271	0.006816	66.41	0.207	0.001996
9	Otter Trawl	OPEN	all	MA	lg	9.31	0.612	0.000801	<0.01	1.522	<0.000001	3.89	0.376	0.000335	102.76	0.324	0.008849
10	Otter Trawl	OPEN	all	NE	sm	228.00	0.321	0.016553	187.19	0.391	0.013590	40.28	0.266	0.002925	22.14	0.307	0.001608
11	Otter Trawl	OPEN	all	NE	lg	2.45	0.336	0.000083	44.52	0.120	0.001513	5.50	0.580	0.000187	278.55	0.067	0.009467
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	<0.01	0.694	0.000004	0.89	0.430	0.001992	0.01	0.523	0.000023	0.08	0.294	0.000168
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.01	0.287	0.000006	13.91	0.212	0.006809	0.12	0.254	0.000060	1.28	0.210	0.000626
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	189.90	0.208	0.054756
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.04	0.150	0.000005	2.08	0.083	0.000292	0.00		0.000000	4.60	0.069	0.000645
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.04	0.793	0.000005	0.23	0.253	0.000031	0.00		0.000000	139.80	0.098	0.019268
38	Purse Seine	OPEN	all	NE	all	<0.01	1.245	<0.000001	0.00		0.000000	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.01	1.025	0.000003	0.00		0.000000	0.08	0.607	0.000045	12.58	0.194	0.007109
41	Scallop Dredge	AA	LIM	MA	all	0.09	0.621	0.000002	0.00		0.000000	2.04	0.327	0.000041	424.05	0.121	0.008627
42	Scallop Dredge	AA	LIM	NE	all	0.02	0.661	<0.000001	1.88	0.276	0.000044	0.04	0.715	0.000001	253.55	0.153	0.005893
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.02	0.697	0.000004	29.75	0.271	0.005667
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.00		0.000000	0.08	0.623	0.000019	37.66	0.307	0.008778
45	Scallop Dredge	OPEN	LIM	MA	all	0.26	0.507	0.000003	0.04	0.963	<0.000001	0.72	0.261	0.000008	911.69	0.137	0.010535
46	Scallop Dredge	OPEN	LIM	NE	all	<0.01	1.039	<0.000001	0.80	0.508	0.000035	0.00		0.000000	211.25	0.327	0.009196
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.01	0.690	0.000001	0.00		0.000000	0.00		0.000000	0.03	0.642	0.000005
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	<0.01	0.378	<0.000001	0.17	0.704	0.000003	0.00		0.000000	0.05	0.385	0.000001
					TOTAL	1,559.51	0.150		273.58	0.270		279.52	0.223		2,686.14	0.062	

See text for fleet abbreviations.

Table 4A, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2011.

Fleet						Ocean pout *Zoarces americanus*			Ocean quahog *Artica islandica*			Offshore hake *Merluccius albidus*			Pollock *Pollachius virens*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	8.41	0.413	0.006174	0.01	0.746	0.000006	0.00		0.000000	0.96	1.342	0.000707
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	<0.01	2.372	0.000006
8	Otter Trawl	OPEN	all	MA	sm	2.46	0.695	0.000074	0.26	0.494	0.000008	1.26	0.622	0.000038	<0.01	1.018	<0.000001
9	Otter Trawl	OPEN	all	MA	lg	22.34	0.445	0.001924	0.02	1.542	0.000001	0.76	0.702	0.000066	0.00		0.000000
10	Otter Trawl	OPEN	all	NE	sm	14.44	1.429	0.001048	0.04	1.037	0.000003	0.08	0.728	0.000006	2.70	0.544	0.000196
11	Otter Trawl	OPEN	all	NE	lg	36.79	0.087	0.001250	0.33	0.818	0.000011	0.77	0.479	0.000026	26.39	0.154	0.000897
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	0.04	1.047	0.000092	0.00		0.000000	0.00		0.000000	0.02	0.835	0.000046
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	1.11	0.199	0.000544	<0.01	0.654	0.000002	0.01	0.660	0.000003	3.64	0.345	0.001783
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.19	0.237	0.000027	0.00		0.000000	0.04	0.575	0.000006	85.03	0.104	0.011931
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.09	0.530	0.000013	<0.01	0.820	<0.000001	0.00		0.000000	4.15	0.205	0.000572
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.06	0.583	0.000032	0.00		0.000000	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.03	0.701	0.000001	1.27	0.640	0.000026	<0.01	0.996	<0.000001	0.00		0.000000
42	Scallop Dredge	AA	LIM	NE	all	0.59	0.191	0.000014	0.87	0.985	0.000020	0.00		0.000000	0.00		0.000000
43	Scallop Dredge	OPEN	GEN	MA	all	0.15	0.730	0.000028	0.11	0.822	0.000020	0.02	1.079	0.000004	0.00		0.000000
44	Scallop Dredge	OPEN	GEN	NE	all	0.08	0.638	0.000019	0.00		0.000000	0.00		0.000000	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	2.55	0.282	0.000029	3.78	0.595	0.000044	1.20	0.963	0.000014	0.00		0.000000
46	Scallop Dredge	OPEN	LIM	NE	all	0.39	0.354	0.000017	0.00		0.000000	0.00		0.000000	0.00		0.000000
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.01	0.650	0.000001
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.01	0.738	<0.000001	0.00		0.000000	0.00		0.000000	0.37	0.459	0.000007
					TOTAL	89.66	0.262		6.74	0.380		4.15	0.371		123.28	0.081	

See text for fleet abbreviations.

Table 4A, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2011.

Fleet						Red deepsea crab *Chaceon quinquedens*			Red hake *Urophycis chuss*			Scup *Stenotomus chrysops*			Northern shortfin squid *Illex illecebrosus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	1.00	0.363	0.000733	0.00		0.000000	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	87.41	1.012	0.002628	164.11	0.267	0.004934	446.22	0.228	0.013414	776.12	0.223	0.023332
9	Otter Trawl	OPEN	all	MA	lg	70.91	0.627	0.006106	7.21	0.349	0.000621	48.73	0.508	0.004196	0.90	0.547	0.000077
10	Otter Trawl	OPEN	all	NE	sm	60.73	1.918	0.004409	865.91	0.234	0.062866	116.30	0.510	0.008444	72.12	0.414	0.005236
11	Otter Trawl	OPEN	all	NE	lg	83.16	0.318	0.002826	42.67	0.071	0.001450	17.58	0.249	0.000597	41.26	0.104	0.001402
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	0.00		0.000000	0.05	0.322	0.000114	0.00		0.000000	0.16	0.820	0.000366
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.01	0.393	0.000005	1.38	0.245	0.000674	0.00		0.000000	0.70	0.386	0.000344
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.07	0.836	0.000021	0.00		0.000000	0.00		0.000000
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.20	0.187	0.000029	1.47	0.084	0.000207	<0.01	0.954	<0.000001	0.01	0.457	0.000001
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.03	0.280	0.000004	0.06	0.250	0.000009	0.01	1.056	0.000001	0.00		0.000000
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.08	0.989	0.000004
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.24	0.528	0.000136	0.00		0.000000	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	3.19	0.313	0.000065	0.14	0.613	0.000003	0.09	0.740	0.000002
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	55.62	0.223	0.001293	0.00		0.000000	0.20	0.454	0.000005
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	1.08	0.806	0.000206	0.02	0.772	0.000004	0.01	0.725	0.000003
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	1.59	0.850	0.000371	0.00		0.000000	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	0.00		0.000000	18.25	0.195	0.000211	0.66	0.399	0.000008	0.44	0.415	0.000005
46	Scallop Dredge	OPEN	LIM	NE	all	0.00		0.000000	13.01	0.456	0.000566	0.00		0.000000	0.03	1.036	0.000001
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	3.21	0.690	0.000463	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.11	0.499	0.000002
					TOTAL	302.46	0.513		1,176.93	0.176		632.86	0.190		892.24	0.197	

See text for fleet abbreviations.

Table 4A, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2011.

Fleet						Silver hake *Merluccius bilinearis*			Skate complex Rajidae			Spiny dogfish *Squalus acanthias*			Summer flounder *Paralichthys dentatus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.01	0.565	0.000010	143.41	0.221	0.105301	177.58	0.240	0.130385	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.18	0.798	0.000414	2.54	0.443	0.005684	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	416.66	0.182	0.012526	2,111.74	0.216	0.063483	2,495.52	0.186	0.075020	192.46	0.175	0.005786
9	Otter Trawl	OPEN	all	MA	lg	44.56	0.463	0.003837	4,209.28	0.133	0.362457	940.67	0.378	0.081000	170.88	0.343	0.014715
10	Otter Trawl	OPEN	all	NE	sm	1,354.59	0.246	0.098345	594.28	0.213	0.043145	503.49	0.216	0.036554	49.44	0.696	0.003589
11	Otter Trawl	OPEN	all	NE	lg	73.85	0.073	0.002510	13,836.43	0.058	0.470273	2,362.57	0.051	0.080299	236.72	0.107	0.008046
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	0.27	0.619	0.000600	62.61	1.025	0.140283	14.38	0.798	0.032226	0.15	0.509	0.000339
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	4.91	0.254	0.002401	424.40	0.131	0.207736	60.97	0.207	0.029842	2.39	0.236	0.001171
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	30.42	1.884	0.012663	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	12.22	0.464	0.004772	160.68	0.660	0.062721	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.02	0.829	0.000007	483.51	0.296	0.139415	79.03	0.187	0.022788	11.88	0.373	0.003425
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	4.29	0.088	0.000602	127.17	0.075	0.017843	1,676.74	0.049	0.235268	0.13	0.585	0.000019
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.37	0.203	0.000051	1,293.56	0.085	0.178283	122.64	0.077	0.016902	51.03	0.128	0.007033
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.12	1.226	0.000007	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.08	0.670	0.000047	29.57	0.103	0.016711	0.44	0.704	0.000250	1.75	0.428	0.000987
41	Scallop Dredge	AA	LIM	MA	all	2.29	0.251	0.000047	1,487.14	0.141	0.030254	82.30	0.255	0.001674	301.76	0.165	0.006139
42	Scallop Dredge	AA	LIM	NE	all	9.79	0.330	0.000228	1,489.05	0.125	0.034609	76.53	0.408	0.001779	52.00	0.171	0.001209
43	Scallop Dredge	OPEN	GEN	MA	all	2.61	0.940	0.000497	505.14	0.197	0.096214	1.93	0.568	0.000367	13.48	0.400	0.002567
44	Scallop Dredge	OPEN	GEN	NE	all	0.86	0.281	0.000200	125.61	0.207	0.029280	0.24	0.694	0.000057	0.20	1.323	0.000048
45	Scallop Dredge	OPEN	LIM	MA	all	21.62	0.187	0.000250	4,163.62	0.102	0.048112	59.61	0.180	0.000689	247.96	0.187	0.002865
46	Scallop Dredge	OPEN	LIM	NE	all	0.57	0.444	0.000025	755.39	0.222	0.032882	10.70	0.460	0.000466	15.92	0.431	0.000693
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	<0.01	0.676	<0.000001	0.02	0.676	0.000003	4.77	0.186	0.000687	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.33	0.778	0.000006	0.19	0.414	0.000004	10.57	0.441	0.000197	<0.01	0.737	<0.000001
					TOTAL	1,937.69	0.177		31,854.53	0.039		8,874.43	0.071		1,348.16	0.079	

See text for fleet abbreviations.

Table 4A, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2011.

Fleet						Tilefish *Lopholatilus chamaeleonticeps*			White hake *Urophycis tenuis*			Windowpane flounder *Scophthalmus aquosus*			Winter flounder *Pseudopleuronectes americanus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.23	0.507	0.000171	0.01	1.023	0.000005	1.19	0.473	0.000876
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	2.36	0.341	0.000071	0.64	0.626	0.000019	76.85	0.207	0.002310	82.47	0.299	0.002479
9	Otter Trawl	OPEN	all	MA	lg	2.01	1.363	0.000173	0.16	1.028	0.000014	145.44	0.176	0.012524	90.51	0.183	0.007794
10	Otter Trawl	OPEN	all	NE	sm	0.12	1.575	0.000009	4.33	1.682	0.000314	11.89	0.239	0.000863	39.81	0.252	0.002890
11	Otter Trawl	OPEN	all	NE	lg	0.35	0.474	0.000012	11.38	0.141	0.000387	175.90	0.103	0.005978	170.33	0.152	0.005789
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	0.00		0.000000	0.00		0.000000	0.93	1.033	0.002076	0.00		0.000000
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.00		0.000000	0.36	0.364	0.000176	8.32	0.196	0.004071	0.82	0.296	0.000402
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.27	0.542	0.000106	0.30	1.075	0.000116
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.03	0.816	0.000008	0.00		0.000000
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.00		0.000000	17.09	0.109	0.002398	0.82	0.121	0.000115	2.81	0.131	0.000394
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	1.89	0.233	0.000261	1.17	0.219	0.000161	0.09	0.426	0.000012	0.14	0.366	0.000019
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.04	0.607	0.000023	0.04	0.797	0.000025
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.02	0.810	<0.000001	11.01	0.493	0.000224	0.19	0.521	0.000004
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	1.37	0.397	0.000032	27.85	0.329	0.000647	134.06	0.183	0.003116
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	12.88	0.228	0.002454	1.67	0.495	0.000317
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.12	0.655	0.000027	1.25	0.385	0.000292	2.31	0.186	0.000539
45	Scallop Dredge	OPEN	LIM	MA	all	0.00		0.000000	0.25	0.551	0.000003	68.30	0.208	0.000789	14.98	0.186	0.000173
46	Scallop Dredge	OPEN	LIM	NE	all	0.00		0.000000	0.11	1.063	0.000005	10.49	0.436	0.000457	30.93	0.198	0.001346
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	<0.01	0.667	<0.000001	<0.01	0.519	0.000001
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	0.01	0.789	<0.000001	<0.01	0.528	<0.000001	0.00		0.000000
					TOTAL	6.73	0.431		37.25	0.207		552.36	0.072		572.57	0.084	

See text for fleet abbreviations.

Table 4A, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2011.

Fleet						Witch flounder *Glyptocephalus cynoglossus*			Yellowtail flounder *Limanda ferruginea*			Total 34 species	
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.03	0.671	0.000019	**404.12**	**0.135**
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	**8.80**	**0.367**
8	Otter Trawl	OPEN	all	MA	sm	60.82	0.421	0.001828	0.93	0.263	0.000028	**8,822.62**	**0.083**
9	Otter Trawl	OPEN	all	MA	lg	5.75	0.363	0.000495	9.79	0.998	0.000843	**6,040.17**	**0.112**
10	Otter Trawl	OPEN	all	NE	sm	47.34	0.489	0.003437	33.91	0.430	0.002462	**4,364.84**	**0.106**
11	Otter Trawl	OPEN	all	NE	lg	54.72	0.062	0.001860	102.13	0.084	0.003471	**18,234.28**	**0.045**
22	Otter Trawl, Ruhle	OPEN	all	NE	lg	0.01	0.732	0.000018	0.25	0.984	0.000550	**80.77**	**0.807**
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	1.17	0.330	0.000571	4.79	0.159	0.002343	**560.57**	**0.103**
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	**31.81**	**1.806**
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	**230.8**	**0.523**
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.06	1.355	0.000018	0.00		0.000000	**774.16**	**0.193**
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.33	0.080	0.000046	9.18	0.095	0.001288	**1,984.25**	**0.042**
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.02	0.588	0.000003	0.48	0.329	0.000066	**1,643.6**	**0.068**
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	**2.88**	**0.797**
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.03	0.496	0.000017	**110.11**	**0.151**
41	Scallop Dredge	AA	LIM	MA	all	3.48	0.417	0.000071	0.82	0.377	0.000017	**3,473.49**	**0.093**
42	Scallop Dredge	AA	LIM	NE	all	2.73	0.361	0.000063	37.18	0.265	0.000864	**5,005.05**	**0.151**
43	Scallop Dredge	OPEN	GEN	MA	all	0.19	0.644	0.000037	2.11	0.373	0.000401	**766.14**	**0.172**
44	Scallop Dredge	OPEN	GEN	NE	all	0.29	0.551	0.000067	1.77	0.240	0.000413	**361.82**	**0.141**
45	Scallop Dredge	OPEN	LIM	MA	all	8.04	0.222	0.000093	79.82	0.250	0.000922	**8,125.51**	**0.078**
46	Scallop Dredge	OPEN	LIM	NE	all	2.75	0.562	0.000120	40.96	0.371	0.001783	**2,570.16**	**0.264**
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	**8.64**	**0.277**
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	<0.01	0.523	<0.000001	**75.43**	**0.865**
					TOTAL	187.69	0.186		324.16	0.103		**63,680.01**	**0.030**

See text for fleet abbreviations.

Table 4B. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2012.

Fleet						Acadian redfish *Sebastes fasciatus*			American plaice *Hippoglossoides platessoides*			Atlantic cod *Gadus morhua*			Atlantic halibut *Hippoglossus hippoglossus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.04	0.507	0.000021	0.00		0.000000	19.73	0.174	0.011190	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	24.85	0.225	0.052769	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	0.17	1.527	0.000006	0.01	1.827	0.000001	0.79	0.717	0.000028	0.00		0.000000
9	Otter Trawl	OPEN	all	MA	lg	0.00		0.000000	4.45	1.307	0.000556	0.38	1.323	0.000047	0.00		0.000000
10	Otter Trawl	OPEN	all	NE	sm	3.72	0.442	0.000239	12.12	0.343	0.000779	8.72	0.610	0.000560	0.53	0.943	0.000034
11	Otter Trawl	OPEN	all	NE	lg	291.15	0.150	0.009326	269.64	0.049	0.008637	177.45	0.094	0.005684	37.03	0.077	0.001186
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	7.03	0.259	0.016242	0.57	0.484	0.001307	4.39	0.463	0.010140	0.19	0.626	0.000442
26	Shrimp Trawl	OPEN	all	NE	all	2.12	0.294	0.001353	26.55	0.305	0.016973	0.01	1.014	0.000009	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.12	0.770	0.000035	0.26	0.726	0.000075
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	1.58	0.122	0.000224	2.88	0.073	0.000409	38.06	0.043	0.005408	2.79	0.100	0.000396
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.00		0.000000	0.03	0.737	0.000004	2.51	0.249	0.000344	4.62	0.291	0.000635
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.09	0.544	0.000003	<0.01	0.838	<0.000001	0.00		0.000000
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	2.86	0.344	0.000055	1.14	0.187	0.000022	0.07	0.730	0.000001
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.00		0.000000	0.15	1.240	0.000025	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	<0.01	0.931	<0.000001	0.21	0.586	0.000004	0.20	0.623	0.000004	0.00		0.000000
46	Scallop Dredge	OPEN	LIM	NE	all	0.01	1.025	<0.000001	1.72	0.525	0.000029	2.98	0.237	0.000051	0.02	0.466	<0.000001
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.39	0.306	0.000007	<0.01	0.672	<0.000001	0.10	0.472	0.000002	0.00		0.000000
57	Pots and Traps, Lobster	OPEN	all	NE	all	1.16	0.591	0.000100	0.00		0.000000	16.51	0.882	0.001420	0.00		0.000000
					TOTAL	307.36	0.142		321.14	0.054		298.09	0.080		45.52	0.071	

See text for fleet abbreviations.

Table 4B, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2012.

Fleet						Atlantic herring *Clupea harengus*			Atlantic mackerel *Scomber scombrus*			Atlantic salmon *Salmo salar*			Atlantic sea scallop *Placopecten magellanicus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.01	0.590	0.000004
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	7.05	1.347	0.000253	0.93	0.943	0.000033	0.00		0.000000	34.57	0.614	0.001239
9	Otter Trawl	OPEN	all	MA	lg	0.11	1.240	0.000014	<0.01	1.427	<0.000001	0.00		0.000000	37.22	0.726	0.004649
10	Otter Trawl	OPEN	all	NE	sm	97.33	0.711	0.006255	21.43	0.771	0.001377	0.00		0.000000	4.26	0.923	0.000273
11	Otter Trawl	OPEN	all	NE	lg	12.69	0.229	0.000407	0.94	0.388	0.000030	0.00		0.000000	59.76	0.264	0.001914
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	0.07	0.643	0.000108	0.00		0.000000	21.03	0.452	0.032904
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.02	0.895	0.000054	0.01	1.070	0.000025	0.00		0.000000	0.16	1.251	0.000364
26	Shrimp Trawl	OPEN	all	NE	all	35.25	0.420	0.022534	4.75	0.266	0.003033	0.00		0.000000	0.11	0.505	0.000069
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	<0.01	1.001	0.000001	0.00		0.000000	0.26	0.654	0.000076
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	4.32	0.287	0.000614	1.22	0.158	0.000173	0.00		0.000000	0.75	0.564	0.000107
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.00		0.000000	0.03	0.403	0.000005	0.00		0.000000	0.25	0.290	0.000035
38	Purse Seine	OPEN	all	NE	all	0.36	0.862	0.000018	0.01	0.393	<0.000001	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.76	0.656	0.003434
41	Scallop Dredge	AA	LIM	MA	all	0.01	0.520	<0.000001	0.00		0.000000	0.00		0.000000	1,589.26	0.129	0.044934
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	2,147.89	0.169	0.041288
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.11	1.139	0.000020	0.00		0.000000	19.82	1.026	0.003647
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	379.97	0.201	0.062788
45	Scallop Dredge	OPEN	LIM	MA	all	0.04	0.626	0.000001	0.06	0.541	0.000001	0.00		0.000000	617.44	0.169	0.011979
46	Scallop Dredge	OPEN	LIM	NE	all	<0.01	0.825	<0.000001	<0.01	0.653	<0.000001	0.00		0.000000	4,356.83	0.141	0.074728
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.03	0.888	0.000004	<0.01	0.400	<0.000001	0.00		0.000000	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	27.11	0.572	0.000473	0.01	0.155	<0.000001	0.00		0.000000	0.00		0.000000
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.21	0.591	0.000018	0.00		0.000000	0.00		0.000000	0.00		0.000000
					TOTAL	184.54	0.396		29.58	0.561		0.00			9,270.35	0.081	

See text for fleet abbreviations.

Table 4B, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2012.

Fleet						Atlantic surfclam *Spisula solidissima*			Atlantic wolffish *Anarhichas lupus*			Black sea bass *Centropristis striata*			Bluefish *Pomatomus saltatrix*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	1.12	0.233	0.000633	0.02	0.853	0.000013	0.05	0.539	0.000026
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.05	1.813	0.000111	0.31	1.813	0.000666
8	Otter Trawl	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	33.69	0.591	0.001208	13.42	0.530	0.000481
9	Otter Trawl	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	14.63	0.689	0.001828	0.71	0.753	0.000089
10	Otter Trawl	OPEN	all	NE	sm	0.00		0.000000	0.00		0.000000	42.77	0.625	0.002748	1.13	0.685	0.000073
11	Otter Trawl	OPEN	all	NE	lg	0.07	0.912	0.000002	29.96	0.095	0.000960	4.88	0.206	0.000156	3.65	0.241	0.000117
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.06	0.513	0.000088	0.00		0.000000
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.00		0.000000	0.03	0.805	0.000080	0.00		0.000000	0.00		0.000000
26	Shrimp Trawl	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	8.43	0.358	0.002467
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.00		0.000000	4.30	0.102	0.000612	0.01	0.556	0.000002	3.23	0.260	0.000458
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.00		0.000000	0.37	0.399	0.000050	0.05	0.600	0.000007	5.26	0.174	0.000722
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.01	0.524	0.000053	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.08	0.840	0.000002	0.00		0.000000	3.18	0.187	0.000090	0.00		0.000000
42	Scallop Dredge	AA	LIM	NE	all	0.04	0.718	0.000001	0.21	0.784	0.000004	0.06	0.444	0.000001	0.00		0.000000
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.64	1.139	0.000118	0.00		0.000000
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.21	1.248	0.000035	0.00		0.000000	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	0.19	0.869	0.000004	0.00		0.000000	1.66	0.278	0.000032	0.00		0.000000
46	Scallop Dredge	OPEN	LIM	NE	all	0.01	1.019	<0.000001	0.70	0.792	0.000012	0.02	0.700	<0.000001	0.00		0.000000
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	0.01	0.664	<0.000001	<0.01	0.706	<0.000001	1.26	0.670	0.000022
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.68	2.183	0.000058	0.00		0.000000
					TOTAL	0.39	0.497		36.91	0.080		102.42	0.341		37.45	0.214	

See text for fleet abbreviations.

Table 4B, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2012.

Fleet						Butterfish *Peprilus triacanthus*			Haddock *Melanogrammus aeglefinus*			Longfin inshore squid *Doryteuthis (Amerigo) pealeii*			Monkfish *Lophius americanus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	2.34	0.306	0.001325	0.00		0.000000	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	1.53	0.252	0.003257	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	760.82	0.446	0.027272	0.14	0.639	0.000005	169.25	0.355	0.006067	48.23	0.487	0.001729
9	Otter Trawl	OPEN	all	MA	lg	0.93	0.455	0.000116	<0.01	1.427	<0.000001	1.49	0.428	0.000187	130.22	0.437	0.016267
10	Otter Trawl	OPEN	all	NE	sm	321.88	0.257	0.020683	71.05	0.289	0.004565	186.72	0.691	0.011998	57.12	0.277	0.003670
11	Otter Trawl	OPEN	all	NE	lg	2.07	0.330	0.000066	154.68	0.154	0.004955	11.56	0.360	0.000370	373.34	0.061	0.011959
15	Scallop Trawl	OPEN	GEN	MA	all	0.01	0.710	0.000021	0.00		0.000000	0.34	0.590	0.000530	3.37	0.469	0.005273
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.01	1.099	0.000017	6.21	0.411	0.014346	0.05	1.128	0.000110	0.94	0.671	0.002182
26	Shrimp Trawl	OPEN	all	NE	all	16.34	0.361	0.010445	5.22	0.714	0.003335	0.92	0.391	0.000591	0.16	0.489	0.000102
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	79.76	0.182	0.023331
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.05	0.215	0.000008	8.38	0.080	0.001190	0.00		0.000000	4.53	0.065	0.000644
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.02	0.871	0.000003	0.15	0.337	0.000021	0.00		0.000000	94.07	0.115	0.012909
38	Purse Seine	OPEN	all	NE	all	0.00	1.517	<0.000001	0.00		0.000000	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.00		0.000000	<0.01	0.636	0.000014	1.35	0.330	0.006111
41	Scallop Dredge	AA	LIM	MA	all	0.02	0.580	0.000001	0.00		0.000000	1.74	0.330	0.000049	392.66	0.091	0.011102
42	Scallop Dredge	AA	LIM	NE	all	0.02	0.303	<0.000001	1.82	0.304	0.000035	0.66	0.366	0.000013	955.48	0.124	0.018367
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.66	0.482	0.000121	49.58	0.268	0.009124
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.05	1.244	0.000008	0.00		0.000000	5.02	0.398	0.000830
45	Scallop Dredge	OPEN	LIM	MA	all	0.08	0.775	0.000001	0.00		0.000000	2.58	0.282	0.000050	919.37	0.089	0.017837
46	Scallop Dredge	OPEN	LIM	NE	all	0.01	0.505	<0.000001	1.70	0.327	0.000029	0.07	0.546	0.000001	375.27	0.301	0.006437
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	14.87	0.563	0.000259	0.06	0.534	0.000001	0.10	0.496	0.000002
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.06	1.930	0.000005	0.00		0.000000	0.00		<0.000001	0.70	1.264	0.000060
					TOTAL	1,102.32	0.317		268.13	0.123		376.09	0.379		3,491.28	0.057	

See text for fleet abbreviations.

Table 4B, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2012.

Fleet						Ocean pout *Zoarces americanus*			Ocean quahog *Artica islandica*			Offshore hake *Merluccius albidus*			Pollock *Pollachius virens*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.42	0.377	0.000239	0.00		0.000000	0.00		0.000000	0.21	0.405	0.000118
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	3.08	1.240	0.006552
8	Otter Trawl	OPEN	all	MA	sm	8.15	0.524	0.000292	0.00		0.000000	0.35	0.642	0.000012	0.01	2.290	<0.000001
9	Otter Trawl	OPEN	all	MA	lg	20.73	0.373	0.002589	0.00		0.000000	0.10	1.094	0.000012	0.00		0.000000
10	Otter Trawl	OPEN	all	NE	sm	3.38	1.053	0.000217	0.00		0.000000	4.76	0.604	0.000306	1.64	0.473	0.000105
11	Otter Trawl	OPEN	all	NE	lg	61.24	0.191	0.001962	0.06	0.602	0.000002	0.15	0.527	0.000005	42.11	0.160	0.001349
15	Scallop Trawl	OPEN	GEN	MA	all	0.88	0.779	0.001374	0.00		0.000000	0.00		0.000000	0.00		0.000000
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.12	0.426	0.000273	0.00		0.000000	0.00		0.000000	1.83	0.539	0.004231
26	Shrimp Trawl	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	1.11	0.861	0.000706
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.05	1.014	0.000015
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.16	0.264	0.000023	0.00		0.000000	0.00		0.000000	50.34	0.088	0.007152
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	<0.01	0.871	<0.000001	0.00		0.000000	0.00		0.000000	2.39	0.432	0.000328
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.02	0.391	0.000001	1.95	0.544	0.000055	0.00		0.000000	0.00		0.000000
42	Scallop Dredge	AA	LIM	NE	all	1.21	0.186	0.000023	64.67	0.874	0.001243	0.00		0.000000	0.01	0.972	<0.000001
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	2.32	1.019	0.000427	0.00		0.000000	0.00		0.000000
44	Scallop Dredge	OPEN	GEN	NE	all	0.01	0.903	0.000001	1.25	0.496	0.000207	0.00		0.000000	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	0.71	0.357	0.000014	1.54	0.536	0.000030	0.13	0.743	0.000003	0.01	0.929	<0.000001
46	Scallop Dredge	OPEN	LIM	NE	all	2.19	0.163	0.000038	28.95	0.873	0.000497	0.02	0.645	<0.000001	0.01	0.866	<0.000001
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.08	0.390	0.000001
57	Pots and Traps, Lobster	OPEN	all	NE	all	1.23	2.015	0.000106	0.00		0.000000	0.00		0.000000	0.00		0.000000
					TOTAL	100.45	0.153		100.74	0.615		5.50	0.525		102.87	0.089	

See text for fleet abbreviations.

Table 4B, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2012.

Fleet						Red deepsea crab *Chaceon quinquedens*			Red hake *Urophycis chuss*			Scup *Stenotomus chrysops*			Northern shortfin squid *Illex illecebrosus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.87	0.321	0.000493	0.00		0.000000	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	0.15	1.914	0.000005	261.27	0.436	0.009365	177.80	0.692	0.006373	358.87	0.650	0.012864
9	Otter Trawl	OPEN	all	MA	lg	1.99	0.412	0.000248	9.55	0.235	0.001193	35.28	0.386	0.004408	1.09	0.545	0.000136
10	Otter Trawl	OPEN	all	NE	sm	53.81	0.451	0.003458	512.44	0.291	0.032928	260.28	0.387	0.016725	53.76	1.011	0.003454
11	Otter Trawl	OPEN	all	NE	lg	64.73	0.458	0.002073	77.48	0.113	0.002482	18.82	0.190	0.000603	13.37	0.087	0.000428
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	0.35	0.471	0.000552	0.02	0.473	0.000038	0.00		0.000000
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.01	0.811	0.000034	0.44	0.472	0.001012	0.00		0.000000	0.06	0.854	0.000127
26	Shrimp Trawl	OPEN	all	NE	all	0.00		0.000000	5.47	0.274	0.003497	0.07	0.442	0.000044	0.12	0.602	0.000074
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.09	0.421	0.000013	1.98	0.098	0.000281	0.01	0.908	0.000001	0.00		0.000000
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.00		0.000000	0.02	0.544	0.000003	0.03	0.482	0.000004	0.00		0.000000
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	<0.01	0.899	<0.000001
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.20	1.047	0.000891	0.00		0.000000	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	2.17	0.338	0.000061	0.55	0.267	0.000016	0.03	0.491	0.000001
42	Scallop Dredge	AA	LIM	NE	all	0.03	0.845	0.000001	58.15	0.170	0.001118	0.00		0.000000	0.12	0.259	0.000002
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.53	1.139	0.000098	0.00		0.000000	0.00		0.000000
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.08	1.056	0.000014	0.00		0.000000	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	0.00		0.000000	15.77	0.192	0.000306	0.36	0.552	0.000007	0.09	0.414	0.000002
46	Scallop Dredge	OPEN	LIM	NE	all	0.50	0.915	0.000009	17.79	0.336	0.000305	<0.01	1.024	<0.000001	0.02	0.810	<0.000001
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	<0.01	0.336	<0.000001	0.00		0.000000	0.02	0.484	<0.000001
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.32	1.930	0.000027	11.93	1.360	0.001026	0.00		0.000000	0.00		0.000000
					TOTAL	121.63	0.315		976.48	0.193		493.22	0.324		427.53	0.560	

See text for fleet abbreviations.

Table 4B, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2012.

Fleet						Silver hake *Merluccius bilinearis*			Skate complex Rajidae			Spiny dogfish *Squalus acanthias*			Summer flounder *Paralichthys dentatus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.05	0.544	0.000028	35.87	0.175	0.020347	77.37	0.120	0.043886	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	5.84	0.363	0.012405	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	198.00	0.442	0.007097	1,677.59	0.402	0.060134	1,252.23	0.396	0.044887	55.98	0.503	0.002007
9	Otter Trawl	OPEN	all	MA	lg	8.34	0.263	0.001042	4,023.23	0.142	0.502578	403.46	0.398	0.050400	57.28	0.242	0.007155
10	Otter Trawl	OPEN	all	NE	sm	602.19	0.307	0.038696	723.48	0.387	0.046489	625.49	0.260	0.040193	73.24	0.568	0.004706
11	Otter Trawl	OPEN	all	NE	lg	136.94	0.137	0.004387	13,334.64	0.078	0.427137	3,056.61	0.077	0.097910	170.07	0.204	0.005448
15	Scallop Trawl	OPEN	GEN	MA	all	0.31	1.916	0.000488	476.02	1.106	0.744804	101.74	0.470	0.159190	6.26	0.507	0.009793
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	1.17	0.442	0.002702	23.32	0.329	0.053908	7.26	0.628	0.016782	0.19	1.001	0.000449
26	Shrimp Trawl	OPEN	all	NE	all	115.45	0.272	0.073792	2.53	0.501	0.001618	1.34	0.822	0.000854	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.01	0.704	0.000002	328.82	0.196	0.096192	45.20	0.146	0.013223	12.40	0.326	0.003627
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	12.48	0.089	0.001774	122.66	0.063	0.017429	1,929.88	0.063	0.274211	0.41	0.201	0.000059
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.19	0.344	0.000026	1,236.04	0.102	0.169620	65.64	0.141	0.009007	35.26	0.124	0.004838
38	Purse Seine	OPEN	all	NE	all	<0.01	0.706	<0.000001	0.00		0.000000	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.01	0.646	0.000039	4.60	0.347	0.020791	0.39	0.791	0.001767	0.48	0.361	0.002151
41	Scallop Dredge	AA	LIM	MA	all	1.79	0.202	0.000051	714.96	0.082	0.020215	156.85	0.157	0.004435	137.04	0.085	0.003875
42	Scallop Dredge	AA	LIM	NE	all	9.66	0.211	0.000186	2,575.39	0.093	0.049506	43.71	0.221	0.000840	75.86	0.168	0.001458
43	Scallop Dredge	OPEN	GEN	MA	all	0.23	0.467	0.000042	849.38	0.532	0.156286	15.77	0.838	0.002902	57.45	0.961	0.010570
44	Scallop Dredge	OPEN	GEN	NE	all	0.16	0.751	0.000027	59.26	0.210	0.009792	4.42	1.097	0.000731	0.51	0.843	0.000083
45	Scallop Dredge	OPEN	LIM	MA	all	7.83	0.191	0.000152	3,331.91	0.092	0.064644	188.74	0.164	0.003662	168.27	0.132	0.003265
46	Scallop Dredge	OPEN	LIM	NE	all	9.43	0.334	0.000162	1,390.10	0.167	0.023843	35.06	0.384	0.000601	44.64	0.341	0.000766
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	5.90	0.446	0.000686	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.21	0.651	0.000004	0.05	0.448	0.000001	95.87	0.275	0.001672	0.00		0.000000
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.00		0.000000	0.23	0.662	0.000020	11.19	1.363	0.000962	0.00		0.000000
					TOTAL	1,104.46	0.188		30,910.08	0.053		8,130.00	0.075		895.33	0.100	

See text for fleet abbreviations.

Table 4B, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2012.

Fleet						Tilefish *Lopholatilus chamaeleonticeps*			White hake *Urophycis tenuis*			Windowpane flounder *Scophthalmus aquosus*			Winter flounder *Pseudopleuronectes americanus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.01	0.634	0.000005	<0.01	1.167	<0.000001	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	0.62	1.269	0.000022	0.06	1.075	0.000002	61.49	0.523	0.002204	81.34	0.391	0.002916
9	Otter Trawl	OPEN	all	MA	lg	0.00		0.000000	0.01	1.422	0.000001	328.85	0.171	0.041080	145.35	0.229	0.018157
10	Otter Trawl	OPEN	all	NE	sm	0.75	0.488	0.000048	0.84	0.628	0.000054	24.75	0.553	0.001590	69.49	0.411	0.004465
11	Otter Trawl	OPEN	all	NE	lg	0.04	0.694	0.000001	16.11	0.165	0.000516	250.29	0.082	0.008017	214.91	0.147	0.006884
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	12.76	0.362	0.019969	1.21	0.519	0.001898
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.00		0.000000	<0.01	1.287	0.000010	1.01	0.758	0.002335	0.47	0.436	0.001080
26	Shrimp Trawl	OPEN	all	NE	all	0.00		0.000000	0.31	0.929	0.000199	0.98	0.347	0.000628	1.26	0.286	0.000803
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	<0.01	1.010	0.000001	0.02	1.004	0.000005
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.00		0.000000	16.84	0.116	0.002393	1.41	0.089	0.000200	3.41	0.123	0.000485
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.90	0.316	0.000124	0.84	0.327	0.000115	0.03	0.323	0.000004	0.07	0.542	0.000009
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
39	Scallop Dredge	AA	GEN	MA	all	0.00		0.000000	0.01	0.972	0.000023	0.01	0.949	0.000023	0.01	0.949	0.000046
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.01	1.022	<0.000001	3.32	0.593	0.000094	0.28	0.610	0.000008
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	2.31	0.303	0.000044	54.04	0.168	0.001039	128.72	0.186	0.002474
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	14.98	0.597	0.002757	4.32	0.472	0.000795
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.00		0.000000	1.52	0.291	0.000250	6.63	0.528	0.001095
45	Scallop Dredge	OPEN	LIM	MA	all	0.00		0.000000	0.39	0.893	0.000008	81.61	0.154	0.001583	9.19	0.193	0.000178
46	Scallop Dredge	OPEN	LIM	NE	all	0.00		0.000000	1.87	0.877	0.000032	18.01	0.209	0.000309	115.05	0.116	0.001973
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	<0.01	0.665	<0.000001
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.00		0.000000	27.95	0.717	0.002404	5.47	1.930	0.000470	1.74	1.930	0.000149
					TOTAL	2.32	0.396		67.56	0.302		860.53	0.084		783.46	0.088	

See text for fleet abbreviations.

Table 4B, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2012.

Fleet						Witch flounder *Glyptocephalus cynoglossus*			Yellowtail flounder *Limanda ferruginea*			Total 34 species	
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	**138.11**	**0.085**
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	**35.66**	**0.200**
8	Otter Trawl	OPEN	all	MA	sm	38.75	0.418	0.001389	15.86	0.853	0.000569	**5,257.59**	**0.182**
9	Otter Trawl	OPEN	all	MA	lg	7.29	0.533	0.000911	5.39	0.438	0.000673	**5,238.08**	**0.115**
10	Otter Trawl	OPEN	all	NE	sm	57.50	0.406	0.003695	32.89	0.303	0.002113	**3,929.47**	**0.116**
11	Otter Trawl	OPEN	all	NE	lg	73.33	0.062	0.002349	151.17	0.073	0.004842	**19,110.94**	**0.056**
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	5.29	0.607	0.008275	**629.72**	**0.840**
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.42	0.391	0.000971	0.53	0.454	0.001233	**56.44**	**0.174**
26	Shrimp Trawl	OPEN	all	NE	all	0.82	0.488	0.000526	2.69	0.439	0.001720	**223.58**	**0.163**
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.01	1.005	0.000003	**475.34**	**0.140**
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.26	0.103	0.000037	17.16	0.080	0.002439	**2,229.19**	**0.055**
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.01	0.648	0.000001	0.32	0.243	0.000043	**1,449.10**	**0.088**
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	**0.37**	**0.839**
39	Scallop Dredge	AA	GEN	MA	all	0.01	0.402	0.000064	0.03	0.576	0.000139	**7.87**	**0.226**
41	Scallop Dredge	AA	LIM	MA	all	3.49	0.185	0.000099	0.76	0.194	0.000021	**3,010.26**	**0.072**
42	Scallop Dredge	AA	LIM	NE	all	11.22	0.308	0.000216	129.58	0.235	0.002491	**6,264.93**	**0.073**
43	Scallop Dredge	OPEN	GEN	MA	all	0.58	1.139	0.000107	4.92	0.615	0.000905	**1,021.29**	**0.447**
44	Scallop Dredge	OPEN	GEN	NE	all	0.01	1.627	0.000002	1.26	0.359	0.000208	**460.51**	**0.169**
45	Scallop Dredge	OPEN	LIM	MA	all	1.65	0.214	0.000032	35.18	0.124	0.000683	**5,385.21**	**0.062**
46	Scallop Dredge	OPEN	LIM	NE	all	14.18	0.573	0.000243	28.05	0.266	0.000481	**6,445.21**	**0.104**
48	Mid-water Paired & Single Trawl	OPEN	all	MA	all	0.00		0.000000	0.00		0.000000	**5.93**	**0.444**
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	<0.01	0.653	<0.000001	**140.14**	**0.226**
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	**79.38**	**0.444**
					TOTAL	209.52	0.145		431.08	0.088		**61,594.33**	**0.032**

See text for fleet abbreviations.

Table 4C. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2013.

Fleet						Acadian redfish *Sebastes fasciatus*			American plaice *Hippoglossoides platessoides*			Atlantic cod *Gadus morhua*			Atlantic halibut *Hippoglossus hippoglossus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.01	0.855	0.000012	0.00		0.000000	115.02	0.366	0.110200	0.44	0.854	0.000418
4	Hand Line	OPEN	all	NE	all	1.16	0.533	0.002347	0.00		0.000000	21.41	0.451	0.043474	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	0.15	0.902	0.000006	0.33	1.112	0.000013	0.15	0.659	0.000006	0.00		0.000000
9	Otter Trawl	OPEN	all	MA	lg	0.05	0.656	0.000009	2.07	0.827	0.000331	0.15	0.849	0.000024	0.00		0.000000
10	Otter Trawl	OPEN	all	NE	sm	1.07	0.635	0.000074	21.19	0.418	0.001455	4.59	0.359	0.000315	0.83	0.506	0.000057
11	Otter Trawl	OPEN	all	NE	lg	320.85	0.158	0.011793	134.19	0.061	0.004932	124.62	0.130	0.004581	38.52	0.082	0.001416
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	10.44	0.719	0.027895	0.70	0.289	0.001876	2.19	0.613	0.005847	0.26	0.588	0.000702
26	Shrimp Trawl	OPEN	all	NE	all	0.31	0.779	0.001315	1.49	0.367	0.006392	0.03	0.942	0.000129	0.01	1.006	0.000029
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.03	1.039	0.000015	0.53	1.039	0.000248	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	2.60	0.314	0.000690	2.19	0.134	0.000580	13.60	0.073	0.003604	3.29	0.153	0.000873
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	<0.01	0.813	<0.000001	0.01	0.726	0.000002	2.40	0.260	0.000382	8.94	0.305	0.001424
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
40	Scallop Dredge	AA	GEN	NE	all	0.00		0.000000	0.00		0.000000	<0.01	1.067	0.000006	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	<0.01	0.804	<0.000001	0.00		0.000000	0.00		0.000000
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	4.08	0.494	0.000180	1.42	0.223	0.000063	0.00		0.000000
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.02	0.772	0.000005	0.01	0.772	0.000002	0.00		0.000000
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.44	0.379	0.000086	0.25	0.488	0.000049	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	0.00		0.000000	0.04	0.793	0.000001	0.05	1.005	0.000002	0.00		0.000000
46	Scallop Dredge	OPEN	LIM	NE	all	0.04	0.866	<0.000001	7.46	0.303	0.000099	3.51	0.157	0.000047	0.16	0.631	0.000002
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.27	0.693	0.000005	0.00		0.000000	0.02	0.764	<0.000001	0.00		0.000000
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.88	1.527	0.000072	0.02	1.183	0.000001	128.49	0.851	0.010457	0.00		0.000000
					TOTAL	337.83	0.152		174.26	0.072		418.43	0.284		52.45	0.081	

See text for fleet abbreviations.

Table 4C, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2013.

Fleet						Atlantic herring *Clupea harengus*			Atlantic mackerel *Scomber scombrus*			Atlantic salmon *Salmo salar*			Atlantic sea scallop *Placopecten magellanicus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.20	2.175	0.000402	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	6.20	0.490	0.000255	6.32	0.524	0.000260	0.00		0.000000	49.01	0.364	0.002013
9	Otter Trawl	OPEN	all	MA	lg	0.34	1.310	0.000055	0.11	1.713	0.000017	0.00		0.000000	53.98	0.552	0.008644
10	Otter Trawl	OPEN	all	NE	sm	63.45	0.519	0.004357	1.06	0.633	0.000072	0.00		0.000000	3.62	0.393	0.000249
11	Otter Trawl	OPEN	all	NE	lg	9.88	0.156	0.000363	2.51	0.332	0.000092	0.00		0.000000	46.67	0.202	0.001716
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	54.59	0.374	0.097695
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.04	0.584	0.000102	0.14	0.543	0.000365	0.00		0.000000	0.01	0.544	0.000027
26	Shrimp Trawl	OPEN	all	NE	all	9.69	0.367	0.041681	6.35	1.005	0.027297	0.00		0.000000	0.50	0.341	0.002144
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.12	1.019	0.000041
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.47	0.281	0.000124	0.96	0.274	0.000254	0.04	0.686	0.000010	0.42	0.656	0.000111
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.00		0.000000	0.02	0.719	0.000003	0.00		0.000000	0.23	0.277	0.000036
38	Purse Seine	OPEN	all	NE	all	0.05	0.243	0.000002	0.02	0.559	0.000001	0.00		0.000000	0.00		0.000000
40	Scallop Dredge	AA	GEN	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	3.84	0.634	0.008511
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	855.45	0.351	0.076898
42	Scallop Dredge	AA	LIM	NE	all	<0.01	1.010	<0.000001	<0.01	1.003	<0.000001	0.00		0.000000	529.67	0.242	0.023397
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	56.51	0.262	0.011566
44	Scallop Dredge	OPEN	GEN	NE	all	<0.01	0.900	0.000001	0.00		0.000000	0.00		0.000000	109.76	0.231	0.021618
45	Scallop Dredge	OPEN	LIM	MA	all	0.06	0.643	0.000002	0.01	0.666	<0.000001	0.00		0.000000	230.37	0.260	0.007631
46	Scallop Dredge	OPEN	LIM	NE	all	0.01	0.450	<0.000001	0.02	0.476	<0.000001	0.00		0.000000	2,326.12	0.170	0.030999
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	1.16	0.672	0.000020	0.02	0.183	<0.000001	0.00		0.000000	0.00		0.000000
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.04	2.280	0.000004
					TOTAL	91.35	0.365		17.73	0.411		0.04	0.686		4,320.90	0.120	

See text for fleet abbreviations.

Table 4C, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2013.

Fleet						Atlantic surfclam *Spisula solidissima*			Atlantic wolffish *Anarhichas lupus*			Black sea bass *Centropristis striata*			Bluefish *Pomatomus saltatrix*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	1.49	0.674	0.001430	0.00		0.000000	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	0.86	0.502	0.000036	0.00		0.000000	75.40	0.384	0.003097	20.61	0.844	0.000846
9	Otter Trawl	OPEN	all	MA	lg	3.38	0.392	0.000541	0.16	0.762	0.000026	26.75	0.338	0.004284	0.14	0.997	0.000023
10	Otter Trawl	OPEN	all	NE	sm	0.00		0.000000	0.02	1.063	0.000001	43.39	0.289	0.002980	2.93	0.364	0.000201
11	Otter Trawl	OPEN	all	NE	lg	0.10	0.913	0.000004	18.40	0.096	0.000676	13.92	0.192	0.000512	0.50	0.294	0.000019
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.00		0.000000	1.02	0.580	0.002736	<0.01	1.067	0.000006	0.00		0.000000
26	Shrimp Trawl	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.10	0.950	0.000077
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	4.10	0.460	0.001388
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.00		0.000000	2.11	0.143	0.000561	0.01	0.943	0.000002	0.13	0.495	0.000035
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.00		0.000000	0.13	0.605	0.000021	0.08	0.568	0.000013	5.45	0.155	0.000867
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
40	Scallop Dredge	AA	GEN	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.00		0.000000	1.59	0.290	0.000143	0.00		0.000000
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	0.00		0.000000	0.11	0.538	0.000005	0.00		0.000000
43	Scallop Dredge	OPEN	GEN	MA	all	0.39	1.098	0.000080	0.00		0.000000	0.09	0.466	0.000018	0.00		0.000000
44	Scallop Dredge	OPEN	GEN	NE	all	0.03	1.028	0.000005	0.00		0.000000	0.14	0.514	0.000027	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	0.00		0.000000	0.00		0.000000	2.73	0.360	0.000091	0.05	1.130	0.000002
46	Scallop Dredge	OPEN	LIM	NE	all	1.20	0.770	0.000016	0.53	0.348	0.000007	0.07	0.344	0.000001	0.00		0.000000
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.05	0.868	0.000001
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.13	1.073	0.000011	0.00		0.000000
					TOTAL	5.96	0.290		23.87	0.090		164.43	0.201		34.07	0.515	

See text for fleet abbreviations.

Table 4C, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2013.

Fleet						Butterfish *Peprilus triacanthus*			Haddock *Melanogrammus aeglefinus*			Longfin inshore squid *Doryteuthis (Amerigo) pealeii*			Monkfish *Lophius americanus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	4.49	0.788	0.004300	0.00		0.000000	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	7.49	1.377	0.015207	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	204.38	0.252	0.008393	15.08	0.812	0.000619	208.88	0.406	0.008578	18.49	0.329	0.000759
9	Otter Trawl	OPEN	all	MA	lg	2.06	0.666	0.000330	0.02	2.167	0.000004	4.66	0.651	0.000746	16.05	0.535	0.002571
10	Otter Trawl	OPEN	all	NE	sm	226.05	0.286	0.015525	36.79	0.304	0.002527	37.18	0.327	0.002553	63.04	0.441	0.004329
11	Otter Trawl	OPEN	all	NE	lg	1.39	0.370	0.000051	371.93	0.201	0.013671	9.19	0.251	0.000338	357.06	0.072	0.013124
15	Scallop Trawl	OPEN	GEN	MA	all	0.06	0.697	0.000100	0.01	1.027	0.000022	0.11	0.369	0.000188	6.14	0.232	0.010981
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	<0.01	0.720	0.000003	22.87	0.509	0.061097	0.07	1.319	0.000189	0.11	0.613	0.000301
26	Shrimp Trawl	OPEN	all	NE	all	0.44	0.791	0.001905	0.76	0.890	0.003260	<0.01	0.895	0.000006	0.13	0.780	0.000573
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.10	0.996	0.000077	0.00		0.000000	0.00		0.000000	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	103.61	0.469	0.035048
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.04	0.310	0.000010	4.49	0.114	0.001189	0.00		0.000000	4.34	0.112	0.001149
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.00		0.000000	0.17	0.593	0.000027	0.00		0.000000	129.84	0.149	0.020673
38	Purse Seine	OPEN	all	NE	all	<0.01	0.956	<0.000001	0.00		0.000000	0.00		0.000000	0.00		0.000000
40	Scallop Dredge	AA	GEN	NE	all	0.00		0.000000	<0.01	1.104	0.000008	0.00		0.000000	2.18	0.573	0.004829
41	Scallop Dredge	AA	LIM	MA	all	0.01	0.585	0.000001	0.00		0.000000	0.27	0.311	0.000024	225.84	0.117	0.020301
42	Scallop Dredge	AA	LIM	NE	all	0.01	0.849	0.000001	0.49	0.359	0.000021	0.37	0.588	0.000016	312.00	0.115	0.013782
43	Scallop Dredge	OPEN	GEN	MA	all	0.02	0.666	0.000004	0.00		0.000000	0.39	0.317	0.000080	29.15	0.170	0.005967
44	Scallop Dredge	OPEN	GEN	NE	all	<0.01	0.901	0.000001	0.13	0.643	0.000026	0.05	0.662	0.000009	19.34	0.222	0.003809
45	Scallop Dredge	OPEN	LIM	MA	all	0.18	0.476	0.000006	<0.01	1.135	<0.000001	1.33	0.251	0.000044	416.81	0.126	0.013807
46	Scallop Dredge	OPEN	LIM	NE	all	0.01	0.654	<0.000001	1.95	0.251	0.000026	0.61	0.842	0.000008	760.04	0.218	0.010129
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.38	0.974	0.000006	16.73	0.735	0.000284	0.33	0.969	0.000006	0.02	0.970	<0.000001
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.00		0.000000	0.68	0.606	0.000055	0.00		0.000000	0.00		0.000000
					TOTAL	435.14	0.190		484.07	0.163		263.42	0.326		2,464.20	0.078	

See text for fleet abbreviations.

Table 4C, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2013.

Fleet						Ocean pout *Zoarces americanus*			Ocean quahog *Artica islandica*			Offshore hake *Merluccius albidus*			Pollock *Pollachius virens*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	1.39	0.410	0.001329	0.00		0.000000	0.00		0.000000	0.56	0.724	0.000540
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	41.82	1.121	0.084925
8	Otter Trawl	OPEN	all	MA	sm	1.23	0.535	0.000051	0.02	0.626	0.000001	3.66	0.714	0.000150	0.08	0.794	0.000003
9	Otter Trawl	OPEN	all	MA	lg	14.36	0.472	0.002300	0.08	0.544	0.000012	0.00		0.000000	0.00		0.000000
10	Otter Trawl	OPEN	all	NE	sm	6.72	0.477	0.000461	0.45	0.589	0.000031	0.72	1.154	0.000049	1.72	0.397	0.000118
11	Otter Trawl	OPEN	all	NE	lg	43.28	0.117	0.001591	0.28	0.368	0.000010	0.33	0.581	0.000012	60.43	0.122	0.002221
15	Scallop Trawl	OPEN	GEN	MA	all	0.26	0.792	0.000469	0.00		0.000000	0.00		0.000000	0.00		0.000000
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.03	0.747	0.000082	0.00		0.000000	0.00		0.000000	3.64	2.156	0.009735
26	Shrimp Trawl	OPEN	all	NE	all	<0.01	0.996	0.000012	0.00		0.000000	0.00		0.000000	0.38	0.931	0.001613
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.07	1.039	0.000031
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.12	1.059	0.000039
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.01	0.973	0.000002	0.00		0.000000	0.00		0.000000	54.56	0.084	0.014461
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.00		0.000000	<0.01	0.811	<0.000001	0.00		0.000000	5.09	0.304	0.000811
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
40	Scallop Dredge	AA	GEN	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.08	0.669	0.000007	0.00		0.000000	0.00		0.000000
42	Scallop Dredge	AA	LIM	NE	all	0.41	0.269	0.000018	3.07	0.656	0.000136	0.00		0.000000	0.00		0.000000
43	Scallop Dredge	OPEN	GEN	MA	all	<0.01	1.097	0.000001	0.00		0.000000	0.00		0.000000	0.00		0.000000
44	Scallop Dredge	OPEN	GEN	NE	all	0.04	0.431	0.000008	0.44	1.168	0.000086	0.00		0.000000	0.00		0.000000
45	Scallop Dredge	OPEN	LIM	MA	all	0.21	0.438	0.000007	0.00		0.000000	0.00		0.000000	0.00		0.000000
46	Scallop Dredge	OPEN	LIM	NE	all	1.71	0.156	0.000023	0.08	0.673	0.000001	0.00		0.000000	0.03	0.646	<0.000001
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	<0.01	1.138	<0.000001	0.00		0.000000	0.00		0.000000	0.19	0.635	0.000003
57	Pots and Traps, Lobster	OPEN	all	NE	all	1.34	0.590	0.000109	0.00		0.000000	0.00		0.000000	0.08	1.630	0.000006
					TOTAL	71.01	0.129		4.50	0.466		4.71	0.585		168.76	0.286	

See text for fleet abbreviations.

Table 4C, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2013.

Fleet						Red deepsea crab *Chaceon quinquedens*			Red hake *Urophycis chuss*			Scup *Stenotomus chrysops*			Northern shortfin squid *Illex illecebrosus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.47	0.533	0.000452	0.00		0.000000	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	51.07	0.960	0.002097	111.08	0.389	0.004562	284.90	0.346	0.011700	193.30	0.270	0.007938
9	Otter Trawl	OPEN	all	MA	lg	0.00		0.000000	2.08	0.430	0.000332	73.11	0.248	0.011706	0.14	1.999	0.000023
10	Otter Trawl	OPEN	all	NE	sm	8.80	0.861	0.000604	725.54	0.279	0.049828	147.09	0.457	0.010102	66.86	0.622	0.004592
11	Otter Trawl	OPEN	all	NE	lg	134.47	0.425	0.004943	72.25	0.072	0.002655	32.73	0.339	0.001203	9.69	0.095	0.000356
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	0.18	0.537	0.000329	0.00		0.000000	<0.01	0.843	0.000005
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	<0.01	0.776	0.000009	1.47	0.528	0.003932	0.00		0.000000	0.14	2.560	0.000363
26	Shrimp Trawl	OPEN	all	NE	all	0.00		0.000000	0.34	0.353	0.001466	<0.01	0.983	0.000006	0.24	1.026	0.001011
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.07	0.348	0.000020	1.05	0.122	0.000279	<0.01	0.684	0.000001	<0.01	0.885	<0.000001
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.01	1.210	0.000002	0.03	0.571	0.000005	0.03	0.787	0.000005	0.00		0.000000
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
40	Scallop Dredge	AA	GEN	NE	all	0.00		0.000000	0.12	0.477	0.000273	0.00		0.000000	0.01	1.104	0.000020
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.92	0.192	0.000083	0.86	0.302	0.000077	0.16	0.999	0.000014
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	18.71	0.144	0.000826	0.03	0.870	0.000001	0.08	0.662	0.000003
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.61	0.303	0.000126	0.05	0.485	0.000010	0.01	1.021	0.000002
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	1.25	0.414	0.000246	0.03	0.798	0.000005	0.01	0.748	0.000001
45	Scallop Dredge	OPEN	LIM	MA	all	0.00		0.000000	4.75	0.263	0.000157	1.18	0.529	0.000039	0.02	0.631	0.000001
46	Scallop Dredge	OPEN	LIM	NE	all	0.01	0.906	<0.000001	29.99	0.278	0.000400	0.01	0.945	<0.000001	0.27	0.549	0.000004
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	<0.01	0.981	<0.000001	0.00		0.000000	0.02	0.913	<0.000001
57	Pots and Traps, Lobster	OPEN	all	NE	all	3.78	1.393	0.000307	0.95	1.834	0.000077	0.00		0.000000	0.00		0.000000
					TOTAL	198.22	0.383		971.80	0.213		540.01	0.224		270.94	0.246	

See text for fleet abbreviations.

Table 4C, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2013.

Fleet						Silver hake *Merluccius bilinearis*			Skate complex Rajidae			Spiny dogfish *Squalus acanthias*			Summer flounder *Paralichthys dentatus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	277.73	0.455	0.266090	36.73	0.631	0.035191	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	3.56	2.911	0.007237	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	90.79	0.374	0.003728	2,162.09	0.223	0.088792	808.95	0.279	0.033222	53.28	0.251	0.002188
9	Otter Trawl	OPEN	all	MA	lg	9.55	0.285	0.001530	8,093.04	0.140	1.295948	977.65	0.348	0.156553	157.38	0.263	0.025202
10	Otter Trawl	OPEN	all	NE	sm	649.34	0.453	0.044595	843.37	0.273	0.057920	386.36	0.301	0.026534	43.93	0.270	0.003017
11	Otter Trawl	OPEN	all	NE	lg	187.84	0.101	0.006904	18,399.29	0.081	0.676273	3,888.85	0.063	0.142936	505.77	0.131	0.018590
15	Scallop Trawl	OPEN	GEN	MA	all	0.70	0.686	0.001245	358.05	0.227	0.640720	16.52	0.369	0.029560	6.17	0.429	0.011049
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	1.96	0.566	0.005240	23.71	0.462	0.063336	60.55	0.589	0.161788	0.00		0.000000
26	Shrimp Trawl	OPEN	all	NE	all	39.46	0.291	0.169670	0.40	0.610	0.001712	0.00		0.000000	0.00		0.000000
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	7.21	0.803	0.005697	0.15	0.753	0.000119
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	13.35	0.972	0.006253	56.91	0.787	0.026662	0.64	0.699	0.000302
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	210.53	0.273	0.071212	116.18	0.352	0.039300	14.88	0.572	0.005032
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	6.60	0.241	0.001748	49.28	0.087	0.013062	1,573.48	0.088	0.417094	0.09	0.490	0.000023
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.32	0.223	0.000051	950.50	0.155	0.151335	171.23	0.174	0.027263	45.23	0.287	0.007201
38	Purse Seine	OPEN	all	NE	all	<0.01	0.838	<0.000001	0.00		0.000000	3.96	0.817	0.000171	0.00		0.000000
40	Scallop Dredge	AA	GEN	NE	all	0.02	0.490	0.000039	9.16	0.760	0.020303	0.06	1.090	0.000137	0.24	0.600	0.000523
41	Scallop Dredge	AA	LIM	MA	all	3.02	0.289	0.000272	720.19	0.115	0.064740	35.54	0.184	0.003195	84.73	0.166	0.007617
42	Scallop Dredge	AA	LIM	NE	all	9.45	0.208	0.000417	1,394.90	0.103	0.061617	19.34	0.227	0.000854	46.24	0.209	0.002043
43	Scallop Dredge	OPEN	GEN	MA	all	0.68	0.239	0.000140	632.50	0.128	0.129446	2.32	0.257	0.000474	14.56	0.198	0.002981
44	Scallop Dredge	OPEN	GEN	NE	all	1.12	0.277	0.000221	220.14	0.173	0.043359	2.82	0.709	0.000556	5.49	0.330	0.001081
45	Scallop Dredge	OPEN	LIM	MA	all	5.14	0.320	0.000170	2,861.63	0.092	0.094789	44.85	0.228	0.001486	154.77	0.180	0.005127
46	Scallop Dredge	OPEN	LIM	NE	all	14.80	0.272	0.000197	2,532.12	0.170	0.033745	23.66	0.222	0.000315	43.17	0.253	0.000575
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	1.71	0.965	0.000029	0.04	0.410	0.000001	21.60	0.496	0.000367	0.00		0.000000
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	1.36	1.630	0.000111	0.00		0.000000
					TOTAL	1,022.50	0.290		39,752.01	0.051		8,259.72	0.063		1,176.74	0.075	

See text for fleet abbreviations.

Table 4C, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2013.

Fleet						Tilefish *Lopholatilus chamaeleonticeps*			White hake *Urophycis tenuis*			Windowpane flounder *Scophthalmus aquosus*			Winter flounder *Pseudopleuronectes americanus*		
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV	d/k ratio
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.02	0.857	0.000023	0.00		0.000000	0.00		0.000000
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
8	Otter Trawl	OPEN	all	MA	sm	0.29	0.495	0.000012	0.07	1.063	0.000003	63.26	0.229	0.002598	32.19	0.340	0.001322
9	Otter Trawl	OPEN	all	MA	lg	0.01	2.155	0.000001	0.02	0.760	0.000004	240.76	0.106	0.038553	41.87	0.192	0.006704
10	Otter Trawl	OPEN	all	NE	sm	0.35	0.510	0.000024	0.95	0.361	0.000065	13.65	0.288	0.000938	81.44	0.263	0.005593
11	Otter Trawl	OPEN	all	NE	lg	0.32	0.473	0.000012	8.73	0.262	0.000321	421.80	0.131	0.015503	85.10	0.102	0.003128
15	Scallop Trawl	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	1.86	0.405	0.003334	1.42	0.544	0.002533
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.00		0.000000	0.03	0.770	0.000090	0.03	0.871	0.000088	0.01	0.980	0.000014
26	Shrimp Trawl	OPEN	all	NE	all	0.00		0.000000	<0.01	1.026	0.000006	0.42	0.330	0.001811	1.62	0.319	0.006976
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	0.03	1.703	0.000025	0.00		0.000000
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.00		0.000000	0.00		0.000000	0.38	1.403	0.000180	0.00		0.000000
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	0.05	0.732	0.000017	0.14	1.059	0.000046
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.00		0.000000	13.44	0.136	0.003563	0.30	0.329	0.000080	0.57	0.163	0.000152
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	1.41	0.379	0.000224	1.86	0.314	0.000296	0.06	0.503	0.000010	0.03	0.986	0.000005
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	0.00		0.000000	0.00		0.000000
40	Scallop Dredge	AA	GEN	NE	all	0.00		0.000000	0.02	1.117	0.000041	0.13	0.686	0.000286	0.62	1.026	0.001376
41	Scallop Dredge	AA	LIM	MA	all	0.00		0.000000	0.11	0.658	0.000010	1.23	0.488	0.000111	0.03	0.972	0.000003
42	Scallop Dredge	AA	LIM	NE	all	0.00		0.000000	0.51	0.501	0.000022	71.45	0.350	0.003156	20.59	0.198	0.000910
43	Scallop Dredge	OPEN	GEN	MA	all	0.00		0.000000	0.00		0.000000	21.29	0.128	0.004356	1.62	0.306	0.000331
44	Scallop Dredge	OPEN	GEN	NE	all	0.00		0.000000	0.02	0.944	0.000004	5.32	0.380	0.001048	5.67	0.189	0.001116
45	Scallop Dredge	OPEN	LIM	MA	all	0.00		0.000000	0.01	1.133	<0.000001	46.31	0.174	0.001534	5.74	0.295	0.000190
46	Scallop Dredge	OPEN	LIM	NE	all	0.01	0.881	<0.000001	0.51	0.356	0.000007	45.29	0.142	0.000604	142.51	0.113	0.001899
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	0.01	0.970	<0.000001	0.05	0.961	0.000001	0.01	0.723	<0.000001
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.00		0.000000	110.77	1.096	0.009016	0.00		0.000000	0.00		0.000000
					TOTAL	2.37	0.253		137.09	0.886		933.70	0.073		421.16	0.075	

See text for fleet abbreviations.

Table 4C, continued. Total discards (live, mt) with associated coefficient of variation (CV) and combined discard/kept (d/k) ratio by fleet and species in calendar year 2013.

Fleet						Witch flounder *Glyptocephalus cynoglossus*			Yellowtail flounder *Limanda ferruginea*			Total 34 species	
Row	Gear Type	Access Area	Trip Category	Area Fished	Mesh Group	discards	CV	d/k ratio	discards	CV	d/k ratio	discards	CV
2	Longline	OPEN	all	NE	all	0.00		0.000000	0.04	0.808	0.000035	**438.39**	**0.309**
4	Hand Line	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	**75.64**	**0.662**
8	Otter Trawl	OPEN	all	MA	sm	22.22	0.713	0.000912	7.62	0.437	0.000313	**4,491.96**	**0.125**
9	Otter Trawl	OPEN	all	MA	lg	4.41	0.519	0.000706	19.54	0.529	0.003129	**9,743.92**	**0.122**
10	Otter Trawl	OPEN	all	NE	sm	24.46	0.499	0.001680	14.59	0.219	0.001002	**3,521.55**	**0.129**
11	Otter Trawl	OPEN	all	NE	lg	43.20	0.085	0.001588	96.21	0.099	0.003536	**25,440.30**	**0.060**
15	Scallop Trawl	OPEN	GEN	MA	all	0.04	0.856	0.000066	2.10	0.227	0.003759	**448.21**	**0.188**
24	Otter Trawl, Haddock Separator	OPEN	all	NE	lg	0.20	0.324	0.000543	0.02	0.745	0.000047	**129.64**	**0.313**
26	Shrimp Trawl	OPEN	all	NE	all	0.11	0.459	0.000491	0.58	0.406	0.002495	**63.26**	**0.216**
31	Sink, Anchor, Drift Gillnet	OPEN	all	MA	sm	0.00		0.000000	0.00		0.000000	**7.59**	**0.763**
32	Sink, Anchor, Drift Gillnet	OPEN	all	MA	lg	0.03	1.039	0.000015	0.00		0.000000	**71.94**	**0.648**
33	Sink, Anchor, Drift Gillnet	OPEN	all	MA	xlg	0.00		0.000000	0.00		0.000000	**449.73**	**0.191**
35	Sink, Anchor, Drift Gillnet	OPEN	all	NE	lg	0.17	0.146	0.000046	2.08	0.204	0.000552	**1,736.39**	**0.080**
36	Sink, Anchor, Drift Gillnet	OPEN	all	NE	xlg	0.00		0.000000	0.02	0.794	0.000003	**1,323.09**	**0.115**
38	Purse Seine	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	**4.03**	**0.803**
40	Scallop Dredge	AA	GEN	NE	all	0.00		0.000000	0.33	0.900	0.000737	**16.73**	**0.449**
41	Scallop Dredge	AA	LIM	MA	all	2.50	0.188	0.000224	0.62	0.426	0.000055	**1,933.15**	**0.162**
42	Scallop Dredge	AA	LIM	NE	all	4.42	0.262	0.000195	33.06	0.178	0.001460	**2,470.41**	**0.080**
43	Scallop Dredge	OPEN	GEN	MA	all	0.12	0.606	0.000024	3.55	0.216	0.000726	**763.89**	**0.108**
44	Scallop Dredge	OPEN	GEN	NE	all	0.39	0.398	0.000077	6.26	0.202	0.001233	**379.14**	**0.122**
45	Scallop Dredge	OPEN	LIM	MA	all	1.12	0.230	0.000037	21.25	0.179	0.000704	**3,798.61**	**0.073**
46	Scallop Dredge	OPEN	LIM	NE	all	16.34	0.301	0.000218	51.53	0.232	0.000687	**6,003.77**	**0.101**
49	Mid-water Paired & Single Trawl	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	**42.61**	**0.385**
57	Pots and Traps, Lobster	OPEN	all	NE	all	0.00		0.000000	0.00		0.000000	**248.52**	**0.658**
					TOTAL	119.73	0.176		259.40	0.078		**63,602.52**	**0.035**

See text for fleet abbreviations.

Table 5. Total discards (live, mt) with associated coefficient of variation (CV) for 34 species (including the species group "skate complex") in calendar years 2011 (23 fleets), 2012 (23 fleets), and 2013 (24 fleets). See Tables 4A-4C for the list of fleets that comprise the totals for each year.

Individual species		2011		2012		2013	
		discards	CV	discards	CV	discards	CV
Acadian redfish	*Sebastes fasciatus*	190.46	0.195	307.36	0.142	337.83	0.152
American plaice	*Hippoglossoides platessoides*	196.81	0.051	321.14	0.054	174.26	0.072
Atlantic cod	*Gadus morhua*	334.14	0.055	298.09	0.080	418.43	0.284
Atlantic halibut	*Hippoglossus hippoglossus*	33.08	0.117	45.52	0.071	52.45	0.081
Atlantic herring	*Clupea harengus*	144.65	0.463	184.54	0.396	91.35	0.365
Atlantic mackerel	*Scomber scombrus*	38.22	0.397	29.58	0.561	17.73	0.411
Atlantic salmon	*Salmo salar*	0.00		0.00		0.04	0.686
Atlantic sea scallop	*Placopecten magellanicus*	8,617.61	0.129	9,270.35	0.081	4,320.90	0.120
Atlantic surfclam	*Spisula solidissima*	8.34	0.551	0.39	0.497	5.96	0.290
Atlantic wolffish	*Anarhichas lupus*	36.65	0.068	36.91	0.080	23.87	0.090
Black sea bass	*Centropristis striata*	199.01	0.175	102.42	0.341	164.43	0.201
Bluefish	*Pomatomus saltatrix*	158.40	0.456	37.45	0.214	34.07	0.515
Butterfish	*Peprilus triacanthus*	1,559.51	0.150	1,102.32	0.317	435.14	0.190
Haddock	*Melanogrammus aeglefinus*	273.58	0.270	268.13	0.123	484.07	0.163
Longfin inshore squid	*Doryteuthis (Amerigo) pealeii*	279.52	0.223	376.09	0.379	263.42	0.326
Monkfish	*Lophius americanus*	2,686.14	0.062	3,491.28	0.057	2,464.20	0.078
Ocean pout	*Zoarces americanus*	89.66	0.262	100.45	0.153	71.01	0.129
Ocean quahog	*Artica islandica*	6.74	0.380	100.74	0.615	4.50	0.466
Offshore hake	*Merluccius albidus*	4.15	0.371	5.50	0.525	4.71	0.585
Pollock	*Pollachius virens*	123.28	0.081	102.87	0.089	168.76	0.286
Red deepsea crab	*Chaceon quinquedens*	302.46	0.513	121.63	0.315	198.22	0.383
Red hake	*Urophycis chuss*	1,176.93	0.176	976.48	0.193	971.80	0.213
Scup	*Stenotomus chrysops*	632.86	0.190	493.22	0.324	540.01	0.224
Northern shortfin squid	*Illex illecebrosus*	892.24	0.197	427.53	0.560	270.94	0.246
Silver hake	*Merluccius bilinearis*	1,937.69	0.177	1,104.46	0.188	1,022.50	0.290
Skate complex	Rajidae	31,854.53	0.039	30,910.08	0.053	39,752.01	0.051
Spiny dogfish	*Squalus acanthias*	8,874.43	0.071	8,130.00	0.075	8,259.72	0.063
Summer flounder	*Paralichthys dentatus*	1,348.16	0.079	895.33	0.100	1,176.74	0.075
Tilefish	*Lopholatilus chamaeleonticeps*	6.73	0.431	2.32	0.396	2.37	0.253
White hake	*Urophycis tenuis*	37.25	0.207	67.56	0.302	137.09	0.886
Windowpane flounder	*Scophthalmus aquosus*	552.36	0.072	860.53	0.084	933.70	0.073
Winter flounder	*Pseudopleuronectes americanus*	572.57	0.084	783.46	0.088	421.16	0.075
Witch flounder	*Glyptocephalus cynoglossus*	187.69	0.186	209.52	0.145	119.73	0.176
Yellowtail flounder	*Limanda ferruginea*	324.16	0.103	431.08	0.088	259.40	0.078
	TOTAL	63,680.01	0.030	61,594.33	0.032	63,602.52	0.035

APPENDIX: OVERVIEW OF THE 2011, 2012, AND 2013 VTR-AMS-OBS ANALYTICAL DATASETS

Murali Mood and Michael Palmer, NEFSC Population Dynamics

Rationale and Process

Access to data in the Vessel Monitoring System (VMS), which includes a vessel's activity declaration code, is restricted. However, the VMS declaration code is also recorded in the Allocation Management System (AMS), which is more readily available to staff at the Northeast Fisheries Science Center (NEFSC). This initiative reflects an attempt to construct limited (i.e., not including VMS data) analytical data sets for 2011, 2012, and 2013 that contain as accurate information as is available in the following core data sources: AMS, Vessel Trip Report (VTR) and Northeast Fisheries Observer Program database (OBDBS).

The matching process is done by the stored Oracle[16] package TRIP_OBS_VTR_NOVMS with one procedure obs_vtr_trip (p_year). This procedure is called by a stand-alone procedure RUN_LOAD_YEARLY_TRIP_AMS_VTR (P_YEAR), which in turn is called by the shell script load_trp_vtr_obs_single_year.tcsh; this shell script is scheduled to run on a weekly basis.

The process stored in the procedure is a series of *select* and *insert* statements. Data are selected based on the given parameter and inserted into temporary tables. The final data are selected from these temporary tables and inserted into a subsequent table, which in turn serves as a base table on top of which some views are built for the given year. This approach is efficient when dealing with large amounts of data, as exist in the VTR/AMS data tables. Once the final data insert has been done, the temporary tables are truncated.

Table/view summary

T_TRIP_OBS_VTR_yyyy (table): Base table that contains the full matched set of AMS activity declarations, VTR trips and observer trips.

Matching procedures (see Appendix Figure 1):

1. VTR data (from VESLOG series) matched using outer join on permit number or hull identifier and trip midpoint. The VESLOG trip midpoint is matched between the OBDBS sail and landing dates. **note VESLOG.TRIPID has been re-coded as DOCID.*
    - Outer join condition: ((obtrp.hullnum1 = veslog.hullnum) OR (obtrp.permit1 = veslog.permit)) AND (veslog.datesail + (veslog.datelnd1 - veslog.datesail) / 2) BETWEEN obtrp.datesail AND obtrp.dateland

2. The VTR/Observer data product was matched to AMS (TRP) data using an outer join on permit number **or** hull identifier and the trip midpoint. The VESLOG trip midpoint is matched between AMS sail and landing dates.

[16] Oracle Corporation, Redwood City, CA

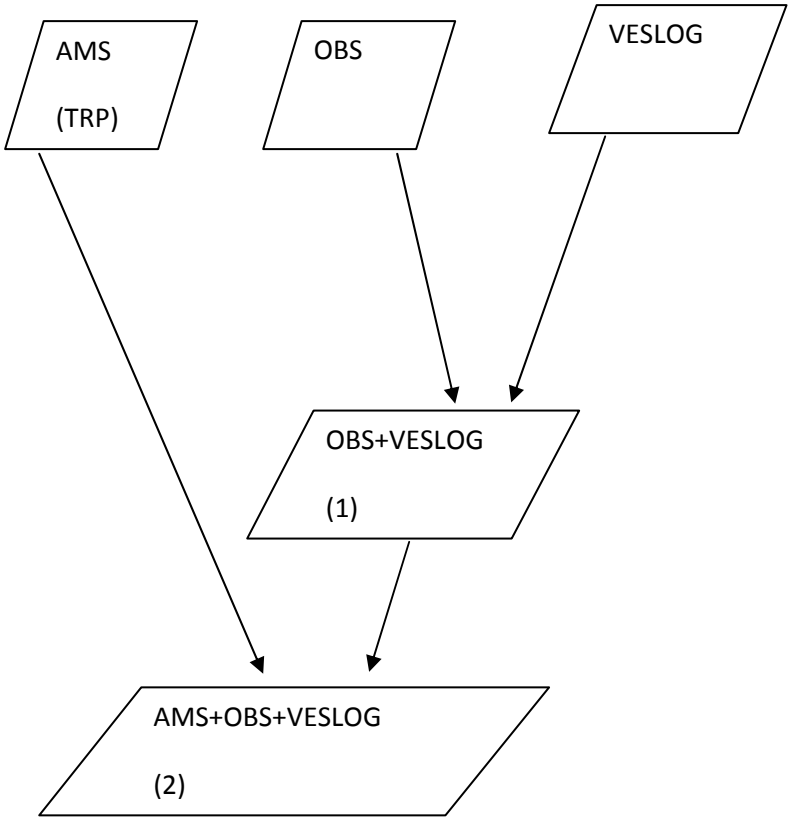
- Outer join condition: trp.permit_nbr = veslog.permit AND (veslog.date_sail + (veslog.date_land - veslog.date_sail) / 2) BETWEEN trp. date_sail AND trp.date_land
- Join to the observer data uses the permit number preferentially, if available, then hull identifier.

Duplicate matches

Data quality reviews on the 2011, 2012, and 2013 data revealed the presence of 0, 47, and 55 trips, respectively, where multiple matches existed across databases. For example, single AMS trips would match to multiple VTR trips if an AMS trip had prolonged sail dates as they would match to many DOCID/LINK1 values. The duplicate/multiple matched trips have been excluded from the analytical data set.

Appendix Table 1. Description of the fields contained in the base analytical tables, T_TRIP_OBS_VTR_yyyy.

Field	Data Type	Description	Source
DAS_ID	Number	This is the unique identifier of the SOLE.AMS.TRIP table.	SOLE.AMS.TRIP.DAS_ID
TRIP_ID	Number	eVTR Trip ID or paper VTR serial number	SOLE.AMS.TRIP.TRIP_ID
ACTIVITY_CODE	Varchar2 (20)	The activity declaration code declared by the vessel.	SOLE.AMS.TRIP.ACTIVITY_CODE
PERMIT	Number	Vessel's federal permit number.	SOLE.AMS.TRIP.PERMIT_NBR or SOLE.VESLOGyyyyT.PERMIT
DATE_SAIL	Date	The date (and time) the trip sailed by AMS definition (typically the date the vessel crosses the VMS demarcation line).	SOLE.AMS.TRIP.DATE_SAIL
DATE_LAND	Date	The date (and time) the trip ended by AMS definition (typically the date the vessel crosses the VMS demarcation line).	SOLE.AMS.TRIP.DATE_LAND
DOCID	Number	The primary key in the VTR.VESLOGyyyyT tables.	SOLE.VESLOGyyyyT.TRIPID
HULLNUM	Varchar2 (10)	Hull identifier from matched VTR or observed trips. When the trip can be matched to both VTR and observer data, the hull identifier is taken preferentially from the VTR data.	SOLE.VTR.VESLOGyyyyT.HULLNUM or NOVA.OBDBS.OBTRP.HULLNUM1
VESSEL_HULL_ID	Varchar2 (4000)	Official vessel registration number painted on the hull. US Coast Guard, state or tribal registration number. Unknown = blank/null.	Derived from the SOLE.PERMIT database based on the permit, date_sail and activity code from the trip table.
OB_HULLNUM	Varchar2 (10)	Hull identifier from observed trips.	NOVA.OBDBS.OBTRP.HULLNUM1
LINK1	Varchar2 (15)	The primary key in the OBTRP table.	NOVA.OBDBS.OBTRP.LINK1



Appendix Figure 1. Schematic diagram of the dataset joins used to generate the final T_TRIP_OBS_VTR_yyyy product.

Procedures for Issuing Manuscripts in the *Northeast Fisheries Science Center Reference Document* (CRD) Series

Clearance

All manuscripts submitted for issuance as CRDs must have cleared the NEFSC's manuscript/abstract/webpage review process. If any author is not a federal employee, he/she will be required to sign an "NEFSC Release-of-Copyright Form." If your manuscript includes material from another work which has been copyrighted, then you will need to work with the NEFSC's Editorial Office to arrange for permission to use that material by securing release signatures on the "NEFSC Use-of-Copyrighted-Work Permission Form."

For more information, NEFSC authors should see the NEFSC's online publication policy manual, "Manuscript/abstract/webpage preparation, review, and dissemination: NEFSC author's guide to policy, process, and procedure," located in the Publications/Manuscript Review section of the NEFSC intranet page.

Organization

Manuscripts must have an abstract and table of contents, and (if applicable) lists of figures and tables. As much as possible, use traditional scientific manuscript organization for sections: "Introduction," "Study Area" and/or "Experimental Apparatus," "Methods," "Results," "Discussion," "Conclusions," "Acknowledgments," and "Literature/References Cited."

Style

The CRD series is obligated to conform with the style contained in the current edition of the United States Government Printing Office Style Manual. That style manual is silent on many aspects of scientific manuscripts. The CRD series relies more on the CSE Style Manual. Manuscripts should be prepared to conform with these style manuals.

The CRD series uses the American Fisheries Society's guides to names of fishes, mollusks, and decapod crustaceans, the Society for Marine Mammalogy's guide to names of marine mammals, the Biosciences Information Service's guide to serial title abbreviations, and the ISO's (International Standardization Organization) guide to statistical terms.

For in-text citation, use the name-date system. A special effort should be made to ensure that all necessary bibliographic information is included in the list of cited works. Personal communications must include date, full name, and full mailing address of the contact.

Preparation

Once your document has cleared the review process, the Editorial Office will contact you with publication needs – for example, revised text (if necessary) and separate digital figures and tables if they are embedded in the document. Materials may be submitted to the Editorial Office as files on zip disks or CDs, email attachments, or intranet downloads. Text files should be in Microsoft Word, tables may be in Word or Excel, and graphics files may be in a variety of formats (JPG, GIF, Excel, PowerPoint, etc.).

Production and Distribution

The Editorial Office will perform a copy-edit of the document and may request further revisions. The Editorial Office will develop the inside and outside front covers, the inside and outside back covers, and the title and bibliographic control pages of the document.

Once both the PDF (print) and Web versions of the CRD are ready, the Editorial Office will contact you to review both versions and submit corrections or changes before the document is posted online.

A number of organizations and individuals in the Northeast Region will be notified by e-mail of the availability of the document online.

Research Communications Branch
Northeast Fisheries Science Center
National Marine Fisheries Service, NOAA
166 Water St.
Woods Hole, MA 02543-1026

MEDIA MAIL

Publications and Reports of the Northeast Fisheries Science Center

The mission of NOAA's National Marine Fisheries Service (NMFS) is "stewardship of living marine resources for the benefit of the nation through their science-based conservation and management and promotion of the health of their environment." As the research arm of the NMFS's Northeast Region, the Northeast Fisheries Science Center (NEFSC) supports the NMFS mission by "conducting ecosystem-based research and assessments of living marine resources, with a focus on the Northeast Shelf, to promote the recovery and long-term sustainability of these resources and to generate social and economic opportunities and benefits from their use." Results of NEFSC research are largely reported in primary scientific media (*e.g.*, anonymously-peer-reviewed scientific journals). However, to assist itself in providing data, information, and advice to its constituents, the NEFSC occasionally releases its results in its own media. Currently, there are three such media:

NOAA Technical Memorandum NMFS-NE -- This series is issued irregularly. The series typically includes: data reports of long-term field or lab studies of important species or habitats; synthesis reports for important species or habitats; annual reports of overall assessment or monitoring programs; manuals describing program-wide surveying or experimental techniques; literature surveys of important species or habitat topics; proceedings and collected papers of scientific meetings; and indexed and/or annotated bibliographies. All issues receive internal scientific review and most issues receive technical and copy editing.

Northeast Fisheries Science Center Reference Document -- This series is issued irregularly. The series typically includes: data reports on field and lab studies; progress reports on experiments, monitoring, and assessments; background papers for, collected abstracts of, and/or summary reports of scientific meetings; and simple bibliographies. Issues receive internal scientific review and most issues receive copy editing.

Resource Survey Report (formerly *Fishermen's Report*) -- This information report is a regularly-issued, quick-turnaround report on the distribution and relative abundance of selected living marine resources as derived from each of the NEFSC's periodic research vessel surveys of the Northeast's continental shelf. This report undergoes internal review, but receives no technical or copy editing.

TO OBTAIN A COPY of a *NOAA Technical Memorandum NMFS-NE* or a *Northeast Fisheries Science Center Reference Document*, either contact the NEFSC Editorial Office (166 Water St., Woods Hole, MA 02543-1026; 508-495-2350) or consult the NEFSC webpage on "Reports and Publications" (http://www.nefsc.noaa.gov/nefsc/publications/). To access *Resource Survey Report*, consult the Ecosystem Surveys Branch webpage (http://www.nefsc.noaa.gov/femad/ecosurvey/mainpage/).

ANY USE OF TRADE OR BRAND NAMES IN ANY NEFSC PUBLICATION OR REPORT DOES NOT IMPLY ENDORSEMENT.