

Good Faith Approximation of Sea Day Coverage using updated Sector rosters.
July 7, 2009

This analysis was requested at Workshop I. This represents an update of Example 4 provided in *Discard Estimation for use in Weekly Sector Catch Reports Appendix 2: Illustrative Examples* (dated June 9, 2009), a document handed out and discussed at Workshop I. This analysis uses updated sector rosters as of June 19, 2009 (note: Northeast Seafood Coalition chose not to provide a subdivided roster). This analysis is preliminary and advisory only and does not necessarily reflect information and data that may be used when Amendment 16 is implemented by NMFS.

Sectors need information regarding at-sea coverage to determine if the sector will opt for at-sea monitoring program or use the assumed discard rates. This ‘good faith approximation’ assumes fishing patterns will stay the same as the July 2007 to June 2008 period. Under sector management, fishing patterns are expected to change. When SBRM sea days are sub-divided by sector, some coverage may be too small. Pilot coverage, as described in the SBRM Omnibus Amendment, is used when the good faith approximation coverage is below the SBRM pilot coverage.

Pilot coverage as defined in the SBRM Omnibus Amendment:

“Pilot coverage is defined as a minimum level of coverage to acquire bycatch information with which to calculate variance estimates that in turn can be use to further define the level of sampling needed. Based on Evaluating Bycatch: A National Approach to Standardized Bycatch Monitoring Programs (NMFS 2004), pilot coverage can range between 0.5 and 2%. In this study, 2% of the annual VTR trips for a fleet, with a minimum of 12 trips per year (3 trips per quarter) and a maximum of 400 trips per year (100 trips per quarter) was used for pilot coverage.” SBRM Omnibus Amendment (June 2007) page 134.

Clipped from *Discard Estimation for use in Weekly Sector Catch Reports* (dated June 5, 2009), a document handed out and discussed at Workshop I

“Coverage levels for some at-sea monitoring coverage:

The coverage level needed for an at-sea monitoring program is described in the At-Sea Monitoring Provider document. As described there, the coverage level needed to meet SBRM requirements cannot be calculated yet; however the NMFS will work with sectors to develop a good faith approximation of necessary at-sea monitor coverage levels to achieve the desired level of precision based upon past data and gear types by ‘re-scaling’ the SBRM prioritized sea days to each sector. This minimum coverage level will not address bias concerns and would not necessarily be reflective of operations under sectors. A stable coverage estimate would require experience under the proposed sector regime before it could be developed. NMFS will work with sectors to identify the appropriate coverage level for each sector once additional information regarding sector operations, including sector rosters and measures included in the operations plans, becomes available.

Good faith approximation of coverage levels

For each sector, a good faith approximation of the expected coverage, in terms of sea days, could be determined by re-scaling the SBRM sea days needed to achieve a 30% CV for each of the SBRM fleets. This approach would use the SBRM sea days based on the Northeast Fisheries Observer Program (NEFOP) and the Vessel Trip Reports (VTR) data from July 2007 to June 2008 (i.e., the same data used in the 2009 SBRM analysis to estimate the number of sea days needed to achieve a 30% CV), and the days absent in the VTR data for the same time period by trips made by vessels within a sector and by trips made by all vessels in the entire fleet.

The sea day coverage for each sector and gear type would be calculated as the days absent of all trips made by sector vessels multiplied by the ratio of SBRM sea days divided by the total VTR days absent for a gear type. The sea day coverage for each sector would then be summed over all gear types (Equation 4 in Appendix 1).”

Clipped from **Appendix 1** of *Discard Estimation for use in Weekly Sector Catch Reports* (dated June 5, 2009).

“Good faith approximation of expected sea day coverage.

Eq. 4
$$SD_s = \sum_{f \in \{s\}} a_{fs} \frac{n_f}{N_f}$$

where SD_s is the expected sea day coverage for sector s ; a_{fs} is the VTR days absent in the SBRM fleet f for members of sector s ; N_f is the total VTR days absent by all vessels in SBRM fleet f ; n_f is the SBRM sea days for 30%CV by SBRM fleet f ; f represents a given fleet defined as the combination of gear type, region, mesh size, access area, and trip category (the stratification used in the SBRM sea day analysis).

Note that $\sum_{f \in \{s\}} a_{fs}$ is the expected days absent for members of sector s given the previous years fishing patterns.”

Example 4. Good faith approximation of sea day coverage for sectors (updated for workshop II)

Data from 2009 SBRM prioritization analysis utilizing NEFOP and VTR data from July 2007 to June 2008

- 1) Uses 2009 SBRM sea days needed to achieve a 30%CV, VTR sea days from all vessels, VTR sea days from sector vessels
 MA = Mid-Atlantic (corresponding to statistical areas 600 - 639); NE= New England (corresponding to statistical areas in 500 - 562)
- 2) Calculate rescaling ratio (SBRM sea days divided by VTR sea days from all vessels)
- 3) Sum the product of the Sector's VTR sea day multiplied by the rescaling ratio over all SBRM fleets associated with A16 (Equation 4)
- 4) As a check, the non-sector vessels have been included to show that the totals add up.
- 5) Used updated Sector rosters as of June 19, 2009, re-calculated VTR sea days by sector and SBRM fleet

From SBRM sea day prioritization analysis

VTR sea days by sector (a_{fs}) and non-sector and SBRM fleet (f)

SBRM fleet (f)	SBRM sea days (n_f)	VTR sea days (N_f)	Rescaling ratio (n_f/N_f)	Sector							Non-Sector vessels	Total	
				Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7			
MA Longline	108	1,191	0.0906	0	0	0	0	0	0	0	0	1,191	1,191
NE Longline	456	1,508	0.3024	199	570	106	58	0	0	28	28	547	1,508
MA Large-mesh Trawl	1,459	11,531	0.1265	0	3,228	0	39	0	28	0	0	8,236	11,531
NE Large-mesh Trawl	1,233	27,836	0.0443	0	17,387	0	5,208	85	206	547	0	4,403	27,836
MA Large-mesh Gillnet	139	884	0.1576	0	6	0	0	0	0	0	0	878	884
NE Large-mesh Gillnet	187	9,324	0.0200	0	5,937	723	499	0	0	697	0	1,468	9,324
Total Days	3,582	52,274		199	27,128	829	5,804	85	234	1,272	0	16,723	52,274
If fishing patterns stay the same,													
Good faith approximation of sector sea days (SD_s)				60	1,471	47	263	4	13	47	0	1,678	3,582

Note: Along with the other caveats, in some cases, sample size may be untenably small

6) To convert VTR sea days into trips, divide VTR sea days by weighted mean trip length

SBRM fleet (f)	wt mean trip length
MA Longline	9.0
NE Longline	1.4
MA Large-mesh Trawl	1.9
NE Large-mesh Trawl	2.4
MA Large-mesh Gillnet	1.1
NE Large-mesh Gillnet	1.1
Total Trips	

VTR TRIPS by sector

Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7
0	0	0	0	0	0	0
142	407	76	41	0	0	20
0	1,705	0	21	0	15	0
0	7,116	0	2,131	35	84	224
0	6	0	0	0	0	0
0	5,188	632	436	0	0	609
142	14421	707	2629	35	99	853 TRIPS

7) Use 2009 rescaling ratio to calculate good faith approximation of sector trips

SBRM fleet (f)	Rescaling ratio (n_f/N_f)
MA Longline	0.0906
NE Longline	0.3024
MA Large-mesh Trawl	0.1265
NE Large-mesh Trawl	0.0443
MA Large-mesh Gillnet	0.1576
NE Large-mesh Gillnet	0.0200
Total Trips	

If fishing patterns stay the same,

Good faith approximation of sector TRIPS

Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7
0	0	0	0	0	0	0
43	123	23	13	0	0	6
0	216	0	3	0	2	0
0	315	0	94	2	4	10
0	1	0	0	0	0	0
0	104	13	9	0	0	12
43	759	36	118	2	6	28 TRIPS

In some cases, sample size (number of trips) is too small

Apply SBRM pilot coverage standard**

8) Assign SBRM pilot coverage when number of trips is greater than 0 and less than 12.

If fishing patterns stay the same,

Good faith approximation of TRIPS with SBRM minimum pilot coverage applied, by sector. If required number of annual trips is less than 12 and potential effort is greater than zero, then the expected number of trips must be equal to 2% of the trips (12 trip min and 400 trip max).

SBRM fleet (f)	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7
MA Longline	0	0	0	0	0	0	0
NE Longline	43	123	23	13	0	0	12
MA Large-mesh Trawl	0	216	0	12	0	12	0
NE Large-mesh Trawl	0	315	0	94	12	12	12
MA Large-mesh Gillnet	0	12	0	0	0	0	0
NE Large-mesh Gillnet	0	104	13	12	0	0	12
Total Trips	43	770	36	131	12	24	36 TRIPS
Sea Days	60	1,482	47	285	29	52	60 DAYS

Under sector management, fishing patterns are expected to change: Sector rosters are not final, gear types and trip length may be different
 The rescaling ratio, by region and gear type, can be used to determine at-sea monitoring coverage

Tool for At-Sea Monitoring Program coverage in FY2010

1) Enter expected mean trip length (days) and expected number of VTR trips in FY2010 for your sector

SBRM fleet (f)	wt mean trip length	VTR TRIPS
MA Longline	0.0	0
NE Longline	0.0	0
MA Large-mesh Trawl	0.0	0
NE Large-mesh Trawl	5.0	100
MA Large-mesh Gillnet	0.0	0
NE Large-mesh Gillnet	3.0	100
Total Trips		200 TRIPS

2) Use good faith re-scaling ratio by gear type and region

SBRM fleet (f)	Rescaling ratio (nf/Nf)	Good faith approx. coverage with Good faith approx. coverage	SBRM pilot coverage applied
MA Longline	0.0906	0	0
NE Longline	0.3024	0	0
MA Large-mesh Trawl	0.1265	0	0
NE Large-mesh Trawl	0.0443	4	12
MA Large-mesh Gillnet	0.1576	0	0
NE Large-mesh Gillnet	0.0200	2	12
Total Trips		6	24 TRIPS with an at-sea monitor, distributed throughout the year
Sea Days		28	96 DAYS with an at-sea monitor, distributed throughout the year

* Northeast Seafood Coalition (NSC) has not partitioned their list into individual sectors as of June 19, 2009

**SBRM standards

<http://www.nefmc.org/issues/sbrm/index.html>

SBRM Omnibus Amendment Final, pages 157-169 and pages 206-209

Outline of data for at-sea coverage and assumed discard rates
July 7, 2009

At-Sea Monitoring Program			Assumed Discard Rate	
	SBRM Omnibus Pilot Coverage Standard	Good Faith Approximation	Fleet-wide	Sector-specific
<p>FY2010 At-Sea Monitoring Program is optional</p> <p>If selected: coverage will be maximum of SBRM Pilot Coverage or Good Faith Approx.</p>	<p>2% of trips (with minimum of 12 trips per year and maximum of 400 trips per year)</p>	<p>Use rescaling ratio (by gear type and region based on 2009 SBRM Sea Day Prioritization analysis using July 2007 to June 2008 data) and expected FY2010 sector activity</p>	<p>Use 2009 SBRM data set (July 2007 to June 2008);</p> <p><i>Data Sufficiency:</i> Sample size minimum 12 trips per year; use species-gear-region stratification to meet sample size criteria. Analysis conducted showing sampling sizes and discard rates</p>	<p>Use 2009 SBRM data set (July 2007 to June 2008);</p> <p><i>Data Sufficiency:</i> Sample size minimum 12 trips per year; use fleet-wide rates to meet sample size criteria</p> <p>Analysis conducted when sector rosters are final</p>
<p>FY2011 At-Sea Monitoring Program is optional</p> <p>If selected: coverage will be maximum of SBRM Pilot Coverage or Good Faith Approx.</p>	<p>2% of trips (with minimum of 12 trips per year and maximum of 400 trips per year)</p>	<p>Use rescaling ratio (by gear type and region based on 2010 SBRM Sea Day Prioritization analysis using July 2008 to June 2009 data) and expected FY2011 sector activity</p>	<p>Use 2010 SBRM data set (July 2008 to June 2009);</p> <p><i>Data Sufficiency:</i> Sample size minimum 12 trips per year; use species-gear-region stratification to meet sample size criteria</p>	<p>Use 2010 SBRM data set (July 2008 to June 2009);</p> <p><i>Data Sufficiency:</i> Sample size minimum 12 trips per year; use fleet-wide rates to meet sample size criteria. Other additional criteria may be needed.</p>
<p>Note: Coverage levels in FY 2011 and beyond may change to account for any bias determined in previous years</p>				
<p>FY2012 At-Sea Monitoring Program is mandatory</p>	<p>Coverage TBD (2011 SBRM Prioritization will include sectors)</p>		<p>Not Applicable in FY2012</p>	

Discard Rate Analysis

REVISED to correct mislabeled columns in Table 2; underline red font indicates changes from the original document.

July 7, 2009

Introduction

The NOAA Fisheries Northeast Regional Office held the Dockside and At-Sea Monitoring Program Workshop I on June 10-11, 2009 in Gloucester, MA for potential groundfish sector participants to come to a shared understanding of monitoring and reporting requirements. During the workshop, participants requested a discard rate analysis which excluded discard data associated with trip limit regulations.

Data Used

This analysis is based on Northeast Fisheries Observer Program (NEFOP) and Dealer data from July 2007 to June 2008, the same data set used in the 2009 Standardized Bycatch Reporting Methodology (SBRM) Sea Day Prioritization. As part of the NEFOP data collection protocols for observed hauls, at-sea observers report the fish disposition associated with discards; these codes are given in Table 1. In this analysis, discard rates were calculated for the 16 stocks and three gear types listed in Table 15 of Amendment 16 using all data from the SBRM data set and using a 'reduced' data set that excludes discard reasons '014 - Regulations prohibit retention, quota filled' and '063 - Retaining only certain size better price trip quota in effect'. As in the SBRM, the discard rate for a stock is the weighted sum of discarded pounds of a stock divided by the weighted sum of the kept pounds of all species from trips using the same gear type fishing in the same geographic area pooled over calendar quarter (Equation 1 in the Appendix).

Results and Interpretation

The observed discard pounds and discard ratio for each species, stock, and gear type are given in Table 2, by data set (all data and 'reduced' data). The number of observed trips, number of observed kept pounds for all species, and number of kept pounds for all species from Dealer data are also given for each species, stock and gear type. The trip limit effect is calculated by the 'all' discard ratio divided by the 'reduced' discard ratio (Table 2). For some stocks, this analysis indicates there are differences in discard rates derived using all data and 'reduced' data. For cod, yellowtail flounder and winter flounder, the trip limit effect ratio is greater than one indicating that the 'all' discard rates are higher than the corresponding 'reduced' discard rate, by as much as 2 to 3 times. For other species without trip limits, the discard rates and observed pounds are the same or similar between data sets. Table 2 reveals some minor data irregularities associated with the reported fish disposition. For example, redfish and pollock indicate small amounts of discards due to trip limits (e.g. redfish: $38,217 - 37,954 = 263$ pounds; pollock: $2,748 - 2,736 = 12$ pounds; Table 2), however there were no trip limits in place for these species between July

2007 and June 2008. These data irregularities are considered minor and may not alter any conclusions drawn from this analysis.

When calculating assumed discard rates for Amendment 16 for sectors without at-sea monitoring programs, discard reasons associated with trip limits are removed to provide an assumed discard rate associated with management regulations operating without trip limits (i.e., groundfish sectors). However, it is unknown whether or not future fishing practices under sector management will be similar to fishing practices emulated by this analysis (effort control regulations with trip limits removed). It is not known how fishing practices and discard rates will change as stock-specific annual catch entitlements (ACE) are reached. The data used in this analysis reflects stock dynamics (e.g., the presence/absence of a large year class) as well as management regulations at the time the data were collected. Removing discards associated with trip limits does not alter the premise that future discard rates *assume* fishing practices and stock conditions similar to recent observations.

This analysis is preliminary and advisory only and does not necessarily reflect information and data that may be used if Amendment 16 is implemented by NMFS.

Appendix

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

where $r_{c,j}$ is the combined discard ratio of stock j ; d_{jih} is discards of stock j from trip i in stratum h ; k_{ih} is kept pounds of all species on trip i in stratum h ; N_h is the number of Dealer trips in stratum h ; n_h is the number of observed trips in stratum h . Stratum h represents a calendar quarter. Each estimate of the discard ratio is associated with a gear type. The subscript for gear type has been dropped to improve readability.

Clarification Notes:

- 1) N_h and n_h are not presented in Table 2. The combined ratio for all data is given in Column H in Table 2 and the combined ratio for the ‘reduced’ data is given in Column J in Table 2.
- 2) The collection of statistical areas that define stocks is species specific.

Table 1. Northeast Fisheries Observer Program fish disposition codes for discards, by category. The shaded rows are the discard reasons excluded in the ‘reduced’ data set of this analysis.

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

Table 2. Number of observed trips, observed kept pounds of **all species**, **Dealer** kept pounds of all species, observed discard pounds of the stock and discard ratio for all data and 'reduced' data where discards associated with trip limits have been excluded. The trip limit effect is the ratio of the 'All data' discard ratio divided by the 'Reduced data' discard ratio. All weights are in live pounds.

Species	Stock	Gear Type	Number of observed trips	Observed kept pounds of all species	Dealer kept pounds of all species	All data		'Reduced' data		Trip limit effect
						Observed discard pounds of the stock	Discard ratio	Observed discard pounds of the stock	Discard ratio	
Cod	Georges Bank	Longline	61	290,338	3,940,450	6,245	0.03379	2,749	0.01442	2.34
		Otter Trawl	675	10,147,042	83,053,044	184,562	0.01816	123,981	0.01220	1.49
		Gillnet	58	64,183	28,696,849	3,735	0.05784	2,047	0.03179	1.82
	Gulf of Maine	Longline	35	35,991	644,061	6,194	0.21904	6,021	0.21089	1.04
		Otter Trawl	229	1,729,486	21,996,288	39,326	0.02415	23,005	0.01410	1.71
		Gillnet	103	392,115	14,832,374	4,659	0.01179	2,546	0.00653	1.81
Haddock	Georges Bank	Longline	60	266,076	1,906,194	13,404	0.05081	13,404	0.05081	1.00
		Otter Trawl	511	9,613,303	63,872,466	152,966	0.01593	152,416	0.01588	1.00
		Gillnet	46	57,933	8,076,707	37	0.00064	37	0.00064	1.00
	Gulf of Maine	Longline	35	35,991	644,061	305	0.01357	305	0.01357	1.00
		Otter Trawl	229	1,729,486	21,996,288	412	0.00021	412	0.00021	1.00
		Gillnet	103	392,115	14,832,374	150	0.00039	150	0.00039	1.00
Yellowtail Fld.	Georges Bank	Otter Trawl	340	5,931,278	24,523,684	138,410	0.02334	97,979	0.01652	1.41
		Gillnet	2	Information blocked due to confidentiality issues (< 3 trips).						
	Cape Cod/Gulf of Maine	Otter Trawl	419	4,303,586	40,517,634	22,878	0.00532	6,703	0.00153	3.48
		Gillnet	135	452,463	19,758,106	830	0.00200	416	0.00100	2.00
	Southern New England/ Mid-Atlantic (SNE)	Otter Trawl	311	1,745,697	40,680,849	5,846	0.00329	4,343	0.00241	1.36
		Gillnet	26	12,626	23,180,207	0	0.00000	0	0.00000	n/a
Winter Fld.	Georges Bank	Otter Trawl	340	5,931,278	24,523,684	5,930	0.00100	3,185	0.00054	1.86
		Gillnet	2	Information blocked due to confidentiality issues (< 3 trips).						
	Gulf of Maine	Otter Trawl	230	1,833,519	22,647,753	3,073	0.00163	3,073	0.00163	1.00
		Gillnet	104	404,787	14,919,133	29	0.00007	29	0.00007	1.00
	Southern New England/ Mid-Atlantic (SNE)	Otter Trawl	526	4,215,764	58,549,923	11,749	0.00263	8,807	0.00198	1.33
		Gillnet	57	60,301	28,019,180	96	0.00164	96	0.00164	1.00
Witch Fld.	Otter Trawl	840	11,980,561	105,701,604	16,694	0.00140	16,694	0.00140	1.00	
	Gillnet	162	468,970	43,617,877	45	0.00010	45	0.00010	1.00	
American Plaice	Otter Trawl	586	10,636,963	66,015,927	60,330	0.00569	60,330	0.00569	1.00	
	Gillnet	135	443,672	20,621,061	130	0.00031	130	0.00031	1.00	
Pollock	Longline	94	302,067	2,886,840	11	0.00004	11	0.00004	1.00	
	Otter Trawl	804	11,792,828	95,657,464	2,748	0.00023	2,736	0.00023	1.00	
	Gillnet	156	466,275	24,723,931	12,875	0.02842	12,875	0.02842	1.00	
White Hake	Longline	95	326,329	4,451,978	333	0.00059	333	0.00059	1.00	
	Otter Trawl	838	11,936,195	102,505,539	4,309	0.00036	4,309	0.00036	1.00	
	Gillnet	160	468,193	40,172,672	475	0.00104	475	0.00104	1.00	
Redfish	Longline	92	270,613	1,824,531	30	0.00006	30	0.00006	1.00	
	Otter Trawl	586	10,740,996	66,667,392	38,217	0.00356	37,954	0.00354	1.01	
	Gillnet	136	456,344	20,707,820	729	0.00165	729	0.00165	1.00	
Wolffish	Longline	88	228,627	1,576,710	11	0.00003	11	0.00003	1.00	
	Otter Trawl	575	10,431,096	65,423,537	440	0.00004	440	0.00004	1.00	
A	B	C	D	E	F	G	H	I	J	K=H/J