Working Paper A.2

Annual comparisons of the trip-based allocated and the single-species prorated commercial landings, biological samples and numbers of landed fish at age

by

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Working Paper in support of Terms of Reference A: Commercial Landings

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Preamble

This working paper, in support of Terms of Reference A: Commercial Landings, describes the comparisons between the data used in the GARM 2005 stock assessments and the allocated commercial data. Commercial landings, biological samples, and numbers of fish at age derived from the commercial data are compared.

Introduction

Since 1997, single species prorations of commercial landings have been performed on an ad-hoc basis to meet stock assessment and management needs. The single species proration is narrow in scope, only determining landings to stock area (a collection of statistical areas) by calendar quarter (Wigley et al. 1998) and does not estimate effort. The proration method was reviewed at the 24th Stock Assessment Workshop (NEFSC 1997) and again by the National Research Council (NRC 1998) as part of the review of NEFSC stock assessments; the single species proration was found to be an acceptable 'stop-gap' method until a comprehensive, trip-based method was developed.

In August 2005, the Groundfish Assessment Review Meeting reviewed and updated stock assessments for 19 species/stocks using commercial data through 2004 (Mayo and Terciero 2005). Depending upon the available data and management needs, there are four types of assessments that are conducted: index-based, yield-per-recruit, surplus production, and age-based assessments (Table 1).

Since the 2005 GARM, a multi-tier, trip-based allocation was developed. Both the single species proration and the trip-based allocation use the Vessel Trip Report data to determine area fished, but the trip-based allocation also estimates effort. The multi-tier, trip-based allocation derives area fished (statistical area) and effort while maintaining the commercial data's original temporal resolution of month and day at a transaction level (Wigley et al. in review). The allocated data contains the meta field, *Alevel*, to record which tier or 'level' the area fished was determined during Dealer - VTR matching. The trip-base allocated data will supersede the single species prorated data for NEFSC stock assessments and will provide statistical area landings and effort for all species. This trip-based allocation is a major advance over the single species prorations because now questions such as "How many pounds of fish were caught on Georges Bank last year?" can be answered easily and consistently.

This paper describes comparisons of trip-based allocated commercial landings and single species prorated commercial landings, biological samples and derived numbers of fish at age used in the analytical stock assessments for many of the 2005 Groundfish Assessment Review Meeting (GARM) species.

Methods

There are twelve species that are reviewed by the GARM. Five of these twelve species are multi-stock species: cod (*Gadus morhua),* haddock *(Melanogrammus aeglefinus),* yellowtail flounder *(Limanda ferruginea)* winter flounder *(Pseudopleuronectes americanus*) and

windowpane flounder (*Scophthalmus aquosus*). The remaining seven species are single (unit) stocks: American plaice (*Hippoglossoides platessoides*), witch flounder (*Glyptocephalus cynoglossus)*, white hake (*Urophycis tenuis*), pollock (*Pollachius virens*), redfish (*Sebastes fasciatus*), ocean pout *(Zoarces americanus),* and halibut *(Hippoglossus hippoglossus).* Many, but not all, of the GARM species/stocks are compared in this analysis. The section letters used in the 2005 GARM document have been used to identify stocks (Table 1).

Each single species proration was performed by stock assessment scientists and utilized the commercial landings within the Commercial Fisheries Database System (CFDBS) maintained by the Northeast Fisheries Science Center. The commercial data that required single species prorations (landings data with no area fished) are stored in a series of Oracle data tables that include: trip landings data (CFDETTyyyy), species landings data (CFDETSyyyy), length sample data (CFLENyyyyy) and age data (CFAGEyyyy) where yyyy represents year in the series from 1994 to present along with the vessel trip report data (VESLOGyyyyG, VESLOGyyyyT, and VESLOGyyyyS). The single species proration results in species landings by stock area (a collection of statistical areas), market category, port group, gear group and quarter (Wigley et al. 1998).

The multi-tier, trip-based allocation is performed by the Data Management Systems staff and a parallel series of Oracle tables are created (e.g. CFDETTyyyyAA, CFDETSyyyyAA, CFLENyyyyAA, and CFAGEyyyyAA) for 1994 to 2006. Due to Dealer Electronic Reporting compliance issues, incorrect reporting of commercial landings by Dealers occurred in 2004 – 2006; these data are still being processed and should be considered preliminary when made available. The allocated data series (where AA represents 'allocated and audited') contain the same data as the original series, however, area fished and effort have been added. These landing datasets now have explicit areas associated with each trip and catches from any combination of areas can easily and consistently be gathered by stock assessment scientists or anyone else with access to the databases.

All stock landings, with the exception of Georges Bank yellowtail flounder, derived from the single species proration, the number of biological samples (lengths and ages), and numbers of landed fish at age were taken from the 2005 GARM (Mayo and Terceiro 2005). For Georges Bank yellowtail flounder, stock landings, the number of biological samples (lengths and ages), and numbers of landed fish at age were taken from the 2007 Transboundary Resource Assessment Committee (TRAC) stock assessment (Legault et al. 2007).

Stock landings, using the allocated data series, and the biological samples (lengths and ages) with allocated area were used by stock assessment scientists to derive numbers of landed fish at age using Biostat v5.3 (or higher). Biostat v5.3 is a software program that estimates number of landed fish at age using landings, lengths, and age samples by market category (grade) and quarter (or other temporal component). Biostat v5.3 also calculates the uncertainty at age using a bootstrapping technique (Legault et al. in review).

For each of the species/stock evaluated, there are comparisons for: 1) species/stock landings; 2) species/stock length samples over the 1994 to 2003 time period and by year; 3) age samples over the 1994 to 2003 time period and by year; and for analytical assessments, 4) the number of landed fish at age. Annual comparison plots of the number of landed fish at age (LAA) from the

two analyses, with two standard deviations about the numbers of landed fish at age based on the allocated data series, are given.

Results

Summarized below is a brief description of the table content for each species. The table numbering is as follows: Species section is denoted by Roman numeral, followed by table number, followed by GARM stock letter, e.g. Table I.1.A. Note that not all tables were generated for all stocks due to both time limitations and due to some stocks not requiring certain types of information, e.g. stocks that are not aged cannot have comparisons of landings at age from the different data sources.

Table 2 compares species **landings**. For multi-stock species, there will be a *species* landings and *stock* landings for each stock. For multi-stock species, single species prorations were not conducted using current CFDETS for this analysis. Commercial landings data are not static; over time, there are updates and minor corrections to the CFDBS.

Table 3 compares number of **length samples**, for all years combined, by stock for the original data and the trip-based allocated data.

Table 4 compares number of **individual ages or age samples**, for all years combined, by stock and *Alevel* for the original data and the trip-based allocated data. *Alevel* is a meta field used to record the level at which the Dealer trip matched the VTR data in the trip-based allocation. Alevel (blank) indicated ages were taken from a trip that did not enter the allocation.

Table 5 compares the number of **length samples**, by year, used in the 2005 GARM or 2007 TRAC assessments and the trip-based allocated data.

Table 6 compares the number of **individual lengths**, by year, used in the 2005 GARM or 2007 TRAC assessments, and the the trip-based allocated data. Note: 1994 and 1995 are 'transitional years' following changes to the data collection reporting system; CFLEN data are not fully populated with length data for these years.

Table 7 compares the number of **individual ages**, by year, used in the 2005 GARM or 2007 TRAC assessments and the trip-based allocated data.

Tables 8a and 8b summarize **landings at age** (in numbers of fish, 000's) used in the 2005 GARM or 2007 TRAC assessments (a) and derived using the trip-based allocated data (b).

Figure 1. compares annual comparisons of **landings at age** (in numbers of fish, 000's) used in the 2005 GARM or 2007 TRAC assessments and derived using the trip-based allocated data.

Conclusions/Discussion

- There were minor differences in species *total* landings between the data used in the GARM/TRAC assessments and the allocated data. These differences are the results of revisions over time to original data in the CFDETS series and due to rounding of species pounds from split trips in the allocated data series (CFDETS_AA).

- For some species (list here), there were minor differences in *stock* landings between the data used in the GARM/TRAC assessments and the allocated data.

- For some species (list here), there were _____ differences in *stock* landings between the data used in the GARM/TRAC assessments and the allocated data.

- In recent years, some of the differences in stock landings between the GARM/TRAC assessments and allocated data may be attributed to the use of VTR data before all VTR are available (i.e., the timing of the TRAC assessment review meeting precedes when all VTR information is available for the most recent year).

- For single (unit) stock species, changes to landings and biological samples were inconsequential.

- For multi-stock species, changes in stock landings and biological samples resulted in minor changes to the number of landed fish at age. Overall, these changes were not significant. Exceptions: years for stocks where significant borrowing of length or age samples were required to supplement the port sampled data in order to produce length at age for the GARM/TRAC assessments. …

- GARM 2008 stock assessments should utilized the allocated data, depending evaluation of the 2004-2006 data.

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Table 1. List of GARM species and stocks examined in this analysis, with the species section number, GARM stock letter assigned to each stock, and the 2005 GARM assessment type.

Section	Species	Stock	GARM stock letter	Assessment Type
I	Atlantic Cod	Georges Bank	A	Age-based
		Gulf of Maine	F	Age-based
II	Haddock	Georges Bank	B	Age-based
		Gulf of Maine	R	Index-based
III	Yellowtail Flounder	Georges Bank	C	Age-based
		Southern New England-Mid Atlantic	D	Age-based
		Cape Cod-Gulf of Maine	E	Age-based
IV	Winter Flounder	Gulf of Maine	I	Age-based
		Southern New England – Mid-Atlantic	J	Age-based
		Georges Bank	K	Surplus production
V	Windowpane Flounder	Gulf of Maine – Georges Bank	P	Index-based
		Southern New England – Mid-Atlantic	Q	Index-based
VI	Witch Flounder	*unit stock*	G	Age-based
VII	White Hake	*unit stock*	L	Index-based
VIII	Ocean Pout	*unit stock*	O	Index-based
IX	Halibut	*unit stock*	S	Index-based

Section I. **Atlantic Cod**

Table I.2. Landings (mt, live) for **Atlantic cod** used in GARM 2005 and available in CFDETS (original data) and CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS	CFDETS_AA	Difference
1994	17770	17776	17776	6
1995	13557	13634	13633	76
1996	14214	14281	14281	67
1997	12958	12981	12980	22
1998	11115	11115	11115	0
1999	9697	9724	9724	-73
2000	11347	11372	11372	25
2001	15058	15064	15064	6
2002	13094	13111	13111	17
2003	10674	10718	10718	44
2004	10444			

Table I.2.A. Landings (mt, live) for **Georges Bank cod** used in GARM 2005 and available in CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS_AA	Difference
1994	9893	9666	-227
1995	6759	6948	189
1996	7020	7170	150
1997	7537	7469	-68
1998	6959	6987	28
1999	8061	8277	216
2000	7617	7563	-54
2001	10635	10674	39
2002	8998	9293	295
2003	6646	6787	141
2004	3471		

Table I.2.F. Landings (mt, live) for **Gulf of Maine cod** used in GARM 2005 and available in CFDETS_AA, and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS_AA	Difference
1994	7877	7965	88
1995	6798	6453	345
1996	7194	6912	-282
1997	5421	5403	-18
1998	4156	4012	-144
1999	1636	1371	-265
2000	3730	3653	-77
2001	4423	4148	-275
2002	4096	3462	-634
2003	4028	3616	-412
2004	3798		

Table I.3. **Atlantic cod** length samples for 1994 to 2003 combined, by stock.
a_stock = stock based on allocated data; o_stock = stock based on original data; GB = Georges Bank, GM = Gulf of Maine; Oth = other areas not including GB and GM.

Sum of length samples	a_stock			
o_stock	GB	GM	Oth	Grand Total
GB	708	38	20	766
GM	49	747	8	804
Oth	74	57	13	144
Grand Total	831	842	41	1714

Table I.4 **Atlantic cod** ages for 1994 to 2003, by *Alevel* and stock.
a_stock = stock based on allocated data; o_stock = stock based on original data;
GB = Georges Bank, GM = Gulf of Maine; Oth = other areas not including GB and GM.
Alevel (blank) = ages taken from trips that did not enter allocation.

Sum of ages		a_stock			
ALEVEL	o_stock	GB	GM	Oth	Grand Total
A	GB	11597	259	529	12385
	GM	964	11830	175	12969
A Total		12561	12089	704	25354
B	GB	3219	360	21	3600
	GM	278	2361	20	2659
B Total		3497	2721	41	6259
C	GB	602	298		900
	GM	159	1857	41	2057
C Total		761	2155	41	2957
(blank)	GB	541			541
	GM		727		727
(blank) Total		541	727		1268
D	GM	23			23
D Total		23			23
Grand Total		17383	17692	786	35861

Table I.5.A. Number of **GB cod** length samples used in the GARM 2005 stock assessment, the number of length samples currently available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	58	13	51	-7
1995	40	15	38	-2
1996	55	55	61	6
1997	80	80	76	-4
1998	80	80	78	-2
1999	68	70	72	4
2000	154	154	144	-10
2001	108	115	114	6
2002	86	87	101	15
2003	92	97	96	4
2004	125			

Note: 1994 and 1995 are' transitional years' following changes to the data collection reporting system: CFLEN data are not fully populated with sample data for these years.

Table I.5.F. Number of **GoM cod** length samples used in the GARM 2005 stock assessment, the number of length samples currently available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	30	4	29	-1
1995	31	14	31	0
1996	77	71	71	-6
1997	78	84	89	11
1998	46	47	50	4
1999	15	15	10	-5
2000	62	62	74	12
2001	113	115	111	-2
2002	142	142	129	-13
2003	250	250	248	-2
2004	199			

Note: 1994 and 1995 are' transitional years' following changes to the data collection system: CFLEN are not fully populated with length data for these years.

Table I.6.A. Number of **GB cod** lengths used in the GARM 2005 stock assessment, the number of lengths currently available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	4688	1107	4245	-443
1995	2879	959	2645	-234
1996	4600	4599	5134	534
1997	6638	6677	6369	-269
1998	7076	7061	6840	-236
1999	5987	6096	6296	309
2000	12421	12421	11622	-799
2001	8389	8389	8518	129
2002	6400	6400	7197	797
2003	6116	6116	6343	227
2004	8749			

Note: 1994 and 1995 are' transitional years' following changes to the data collection system: CFLEN are not fully populated with length data for these years.

Table I.6.F. Number of **GoM cod** lengths used in the GARM 2005 stock assessment, the number of lengths currently available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	2696	354	2575	-121
1995	2568	1152	2557	-11
1996	7027	6684	6486	-541
1997	6657	7245	7559	902
1998	4205	4247	4536	331
1999	1305	1305	733	-572
2000	4881	4881	5737	856
2001	7326	7326	6895	-431
2002	5999	6201	5263	-736
2003	11934	11934	11479	-455
2004	10309			

Note: 1994 and 1995 are' transitional years' following changes to the data collection system: CFLEN are not fully populated with length data for these years.

Table I.6.A. Number of **GB cod** ages used in the GARM 2005 stock assessment, the number of ages currently available in CFAGE (original data), CFAGE_AA (allocated data) and difference between CFAGE_AA and GARM 2005.

Year	GARM 2005	CFAGE	CFAGE_AA	Difference
1994	1064	1110	1001	-63
1995	778	778	722	-56
1996	1080	1106	1185	105
1997	1581	1581	1460	-121
1998	1545	1545	1493	-52
1999	1503	1528	1543	40
2000	3043	3043	2783	-260
2001	2421	2421	2465	44
2002	2179	2179	2493	314
2003	2135	2135	2238	103
2004	2755			

Table I.6.F. Number of **GoM cod** ages used in the GARM 2005 stock assessment, the number of ages currently available in CFAGE (original data), CFAGE_AA (allocated data) and difference between CFAGE_AA and GARM 2005.

Year	GARM 2005	CFAGE	CFAGE_AA	Difference
1994	665	696	649	-16
1995	662	688	682	20
1996	1483	1483	1380	-103
1997	1521	1548	1643	122
1998	912	956	992	80
1999	350	350	195	-155
2000	1490	1490	1680	190
2001	2436	2595	2436	0
2002	2800	2800	2405	-395
2003	5820	5829	5630	-190
2004	3375			

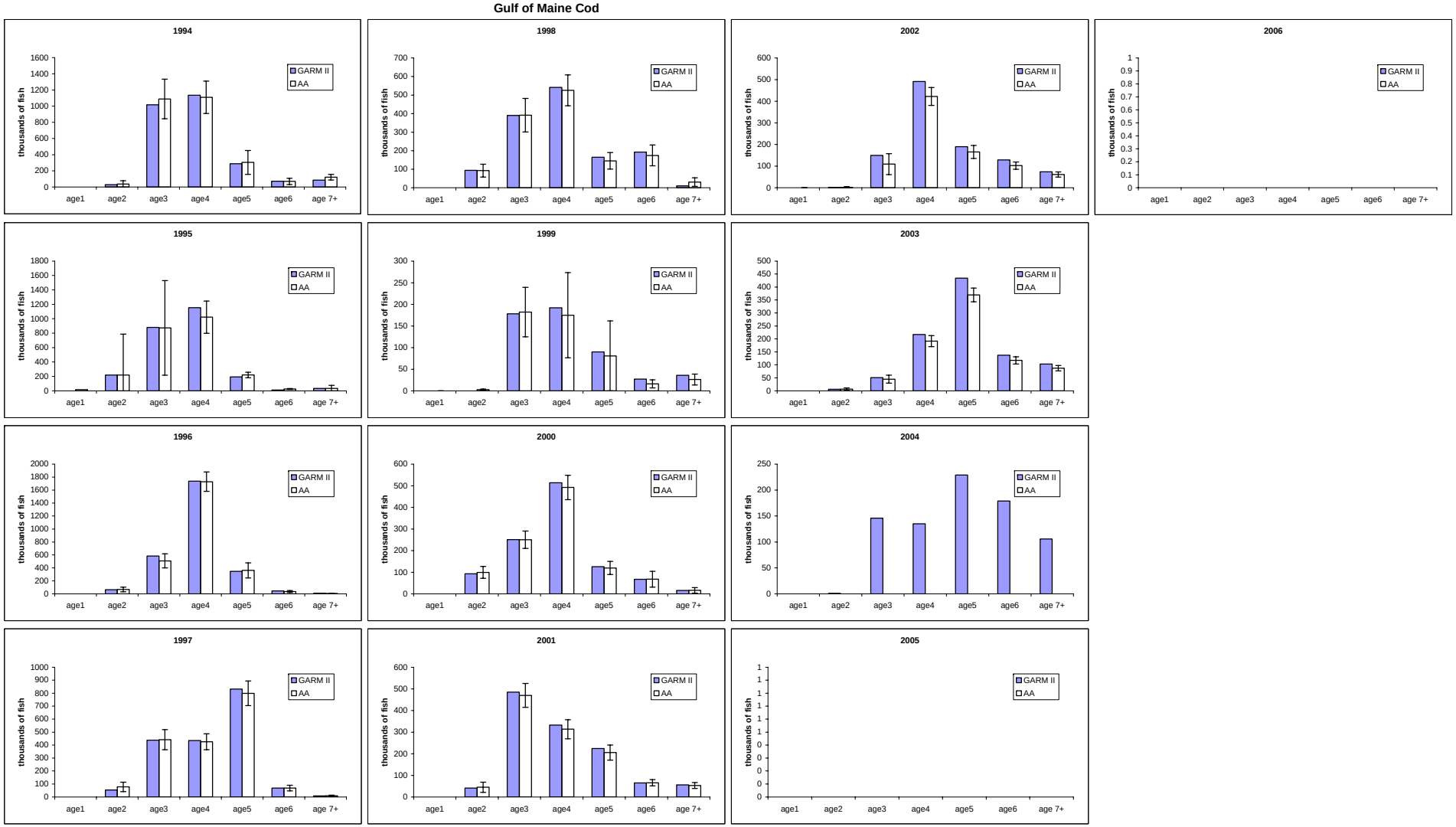
Table I.7.F-a. Landings at age (000s of fish) of **GoM Cod** from GARM 2005.

Year	age1	age2	age3	age4	age5	age6	age 7+
1994	0	29	1016	1135	288	72	86
1995	0	218	880	1153	194	12	34
1996	0	65	584	1738	347	45	10
1997	0	53	438	435	832	68	8
1998	0	94	390	542	165	193	10
1999	0	0	178	192	90	27	36
2000	0	93	251	514	126	67	16
2001	0	41	485	332	224	65	56
2002	0	1	150	491	190	129	74
2003	0	6	51	217	434	137	103
2004	0	1	146	135	229	179	106

Table I.7.F-b. Landings at age (000s of fish) of **GoM Cod** from AA data.

Year	age1	age2	age3	age4	age5	age6	age 7+
1994	0	37	1089	1109	305	69	122
1995	18	218	874	1021	220	26	35
1996	0	68	508	1729	362	36	6
1997	0	78	441	426	799	68	9
1998	0	92	392	526	145	174	31
1999	0	3	182	175	81	16	26
2000	0	99	250	492	120	68	16
2001	0	45	469	313	205	66	53
2002	0	1	109	422	166	102	61
2003	0	7	45	191	370	117	87

Figure I.1.F. Landings at age (in 000's of fish) for **GoM cod** used in GARM 2005 (shaded bar) and using allocated data (open bar) with 2 standard deviation.



Section II. **Haddock**

- Differences in landings for combined stocks (GB+GOM) and for GB stock are negligible (most differences are <5%)

- 87% of length samples retained their original stock assignment; 8% of samples had a stock reassignment (moved from GB to GOM or GOM to GB); 3% of samples 'lost' a stock assignment (moved from GB or GOM to OTH); 2% of samples were newly assigned to a stock (moved from OTH to GB or GOM). Nearly identical proportions found for age samples.

- Differences in the number of length samples between GARM 2005 and CFLEN_AA ranged from -24% to 33%. Differences in the number of lengths ranged from -26% to 47%. Differences were very small in recent years (2001-2003). Differences in numbers at age followed the same patterns.

- Landings at age were compared for years 1999-2003 only. For years before 1999, LAA and discards at age were combined in all reports and it was not possible to separate landings. Differences in the total number of annual LAA ranged from 4-11%; values from the allocated data were larger in 4 out of 5 years. The largest differences in LAA occurred at age 2 (the youngest age caught), where differences in excess of +/- 70% occurred in 3 out of 5 years. In general, landings at age differed by <15%, although in about 20% of the cells the differences were larger than this. There was no pattern to the occurrence of cells with larger differences. For years 1999 and 2000, there are fairly large changes in the 9+ group (-32% and 57%, respectively). CVs from the bootstrap procedure were generally in the range of 5-30% for ages 3-8; for age 9+, CVs ranged from 13-44%, while age 2 had the lowest precision with CVs ranging from 25-136%. In almost all cases, the point estimate for LAA +/- 2 standard deviations overlapped with LAA from GARM 2005.

Table II.2. Landings (mt, live) for **Haddock** used in GARM 2005 and available in CFDETS (original data) and CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005. *Note: Bold italic values in the column "GARM 2005" are known errors in the tabulated GOM landings (see Table II.2.R for corrections).*

Year	GARM 2005	CFDETS	CFDETS_AA	Difference	% Difference
1994	***547***	329	329	-218	-40
1995	***400***	410	410	10	3
1996	***1374***	574	574	-800	-58
1997	1501	1504	1504	3	0
1998	2878	2837	2838	-40	-1
1999	***3688***	3143	3143	-545	-15
2000	4140	4002	4002	-138	-3
2001	5827	5826	5827	0	0
2002	7541	7541	7541	0	0
2003	6785	6786	6786	1	0
2004	8200				

Table II.2.B. Landings (mt, live) for **GB haddock** used in GARM 2005 and available in CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS_AA	Difference	% Difference
1994	218	206	-12	-6
1995	218	231	13	6
1996	313	319	6	2
1997	888	873	-15	-2
1998	1841	1902	61	3
1999	2775	2562	-213	-8
2000	3366	3193	-173	-5
2001	4631	4812	181	4
2002	6330	6523	193	3
2003	5564	5762	198	4
2004	7179			

Table II.2.R. Landings (mt, live) for **GOM haddock** used in GARM 2005, updated single species proration of CFDETS, and available in CFDETS_AA. **Note: GARM 2005 values for 1994 – 1996 and 1999 were determined to be incorrect; due to these discrepancies, a single species proration was rerun using the revised CFDETS data and differences and relative percent differences between CFDETS_AA and the updated single species proration were calculated.*

Year	GARM 2005	Update of single species proration using CFDETS	CFDETS_AA	Difference	Relative difference (%)
1994	***329***	116	122	+6	+4.9
1995	***182***	166	179	+13	+7.3
1996	***1061***	248	255	+7	+2.7
1997	613	590	631	+41	+6.5
1998	1037	991	936	-55	-5.9
1999	***913***	622	581	-41	-7.1
2000	774	795	809	+14	+1.7
2001	1196	1196	1015	-181	-17.8
2002	1211	1191	1018	-173	-17.0
2003	1221	1139	1024	-115	-11.2
2004	1021	941			

Table II.3. **Haddock** length samples by stock in years 1994 to 2003 (combined); a_stock = stock based on allocated data; o_stock = stock based on original data; GB = Georges Bank, GOM = Gulf of Maine; Oth = other areas not including GB and GOM.

Sum of length samples	a_stock			
o_stock	GB	GOM	OTH	Grand Total
GB	299	29	13	341
GOM	18	205	6	229
OTH	5	4		9
Grand Total	322	238	19	579

Table II.4. **Haddock** age samples in years 1994 to 2003 (combined), by *Alevel* and stock; a_stock = stock based on allocated data; o_stock = stock based on original data; GB = Georges Bank, GOM = Gulf of Maine; Oth = other areas not including GB and GOM; *Alevel* (blank) = ages taken from trips that did not enter allocation.

Sum of age samples		a_stock			
ALEVEL	o_stock	GB	GOM	Oth	**Grand Total**
A	GB	223	13	14	**250**
	GOM	11	161	5	**177**
A Total		234	174	19	**427**
B	GB	65	9		**74**
	GOM	3	29		**32**
B Total		68	38		**106**
C	GB	5	7		**12**
	GOM	6	12		**18**
C Total		11	19		**30**
(blank)	GB	5			**5**
	GOM		3		**3**
(blank) Total		5	3		**8**
Grand Total		**318**	**234**	**19**	**571**

Table II.5.B. Number of **GB haddock** length samples used in the GARM 2005 stock assessment, the number of length samples currently available in CFLEN (original data), CFLEN_AA (allocated data) and the difference between CFLEN_AA and GARM 2005. "GARM 2005" values for years 1994-2000 come from GARM 2002, Table B2. The number of samples used in GARM 2005 for years 2001-2004 were not reported in the GARM 2005 document, nor were they available in output files.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference	% Difference
1994	8	8	7	-1	-13
1995	3	3	4	1	33
1996	6	6	5	-1	-17
1997	34	34	26	-8	-24
1998	24	25	24	0	0
1999	28	28	29	1	4
2000	51	51	43	-8	-16
2001	N/A	72	69		
2002	N/A	47	43		
2003	N/A	67	72		
2004	N/A	80			

Table II.5.R. Number of **GOM haddock** length samples currently available in CFLEN (original data), CFLEN_AA (allocated data). *GARM 2005 GOM haddock assessment did not use length samples.*

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994		8	9	
1995		5	4	
1996		7	8	
1997		13	21	
1998		20	20	
1999		13	13	
2000		29	34	
2001		38	34	
2002		27	27	
2003		69	68	
2004				

Table II.6.B. Number of **GB haddock** lengths used in the GARM 2005 stock assessment, the number of lengths currently available in CFLEN (original data), CFLEN_AA (allocated data) and the difference between CFLEN_AA and GARM 2005. "GARM 2005" values for years 1994-2000 come from GARM 2002, Table B2.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference	% Difference
1994	546	546	453	-93	-17
1995	198	198	291	93	47
1996	524	574	457	-67	-13
1997	3203	3098	2381	-822	-26
1998	1692	1740	1628	-64	-4
1999	2268	2268	2277	9	0
2000	3699	3699	3199	-500	-14
2001	5967	5967	5810	-157	-3
2002	3910	3910	3571	-339	-9
2003	5836	5836	6039	203	3
2004	6939	7014			

Table II.6.R. Number of **GOM haddock** lengths currently available in CFLEN (original data), CFLEN_AA (allocated data). *GARM 2005 GOM haddock assessment did not use length sample.*

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994		575	668	
1995		349	256	
1996		663	780	
1997		1252	1967	
1998		1792	1740	
1999		888	944	
2000		2226	2528	
2001		3463	3034	
2002		2408	2360	
2003		5276	5395	
2004				

Table II.7.B. Number of **GB haddock** ages used in the GARM 2005 stock assessment, the number of ages currently available in CFAGE (original data), CFAGE_AA (allocated data) and difference between CFAGE_AA and GARM 2005. "GARM 2005" values for years 1994-2000 come from GARM 2002, Table B2.

Year	GARM 2005	CFAGE	CFAGE_AA	Difference	% Difference
1994	212	212	191	-21	-10
1995	58	58	84	26	45
1996	191	191	172	-19	-10
1997	848	848	616	-232	-27
1998	686	710	671	-15	-2
1999	595	622	628	33	6
2000	1256	1354	1176	-80	-6
2001	2035	2035	1966	-69	-3
2002	1303	1303	1221	-82	-6
2003	1718	1718	1718	0	0
2004	1344	1487			

Table II.7.R. Number of **GOM haddock** ages currently available in CFAGE (original data), CFAGE_AA (allocated data). *GARM 2005 GOM haddock assessment did not use age samples, index level assessment.*

Year	GARM 2005	CFAGE	CFAGE_AA	Difference
1994		222	243	
1995		112	86	
1996		150	169	
1997		259	468	
1998		438	402	
1999		287	281	
2000		735	823	
2001		956	828	
2002		916	875	
2003		1819	1801	
2004				

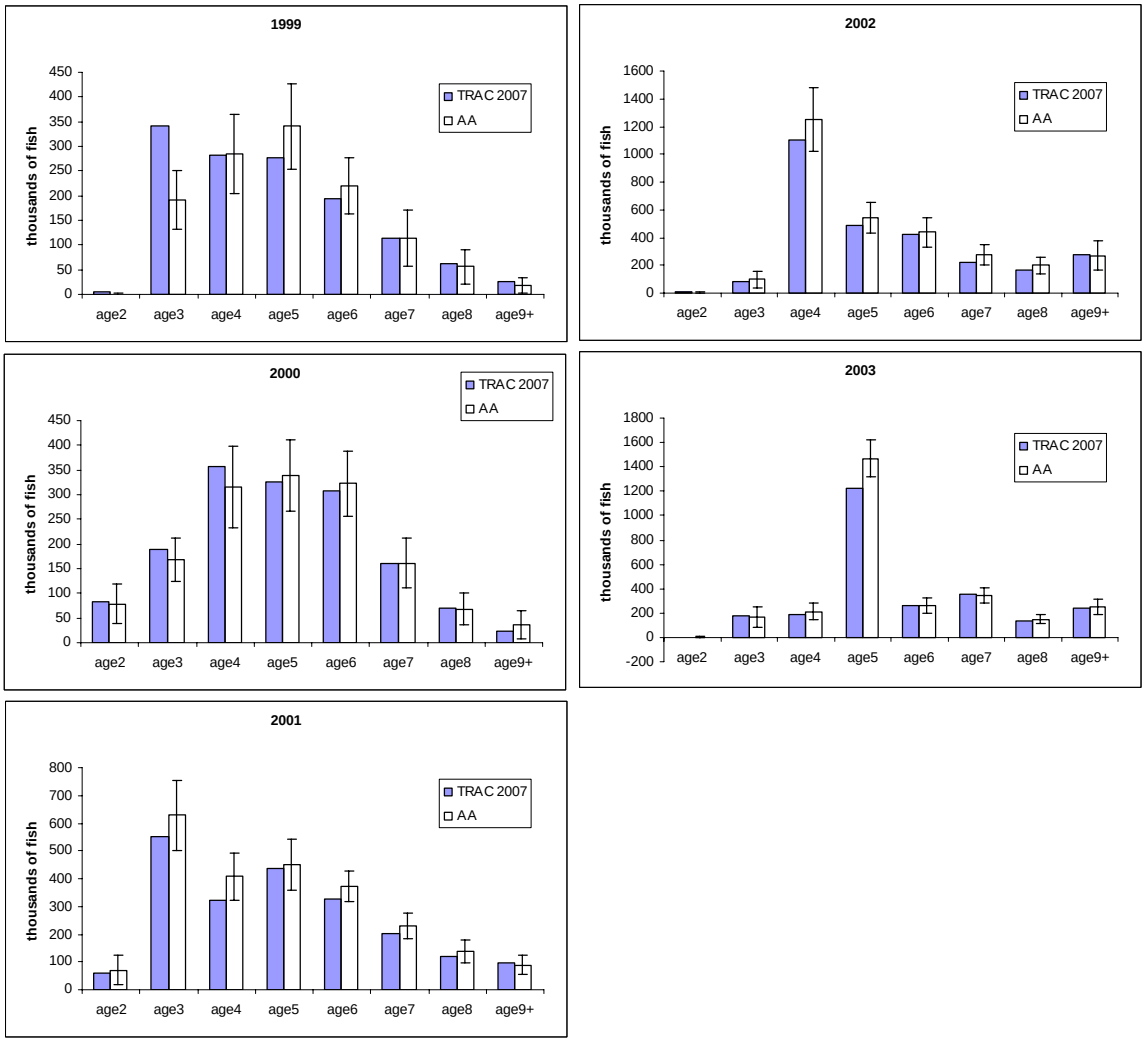
Table II.8.B-a. Landings at age (in 000's of fish) of **GB haddock** from most recent assessment using single-species proration data. Years 2001-2004 came from the GARM 2005 document (Tables 6.1 and 6.2) while years 1999-2000 came from the GARM 2002 document (Table B-3). Years before 2001 were not reported in the GARM-2005 document, and years before 1999 in the GARM 2002 document had landings and discards combined and it was not possible to separate landings at age.

Year	age1	age2	age3	age4	age5	age6	age7	age8	age9+	**TOTAL**
1999	0	5	341	282	278	195	113	63	26	**1303**
2000	0	84	189	356	325	309	161	69	23	**1435**
2001	0	59	550	323	439	329	202	120	97	**2118**
2002	0	8	83	1101	483	427	222	161	279	**2764**
2003	0	1	177	192	1222	256	352	136	236	**2572**
2004	0	0	25	1101	365	1449	283	221	211	**3654**

Table II.8.B-b Landings at age (in numbers, 000's) for **GB haddock** landings at age from Biostat v5.4 using trip-base allocated data. In all years, landings at age were derived by pooling age-length data semi-annually, and unclassified market categories were pro-rated by the combined landings.

Year	age1	age2	age3	age4	age5	age6	age7	age8	age9+	**TOTAL**
1999	0	1	192	284	340	220	114	56	18	**1226**
2000	0	79	168	317	338	323	162	68	35	**1488**
2001	0	71	629	407	450	372	231	137	89	**2385**
2002	0	2	97	1253	543	438	277	199	271	**3080**
2003	0	1	169	213	1467	261	342	147	249	**2850**
2004										

Figure II.1.B Number of fish at age (in 000's) for **GB Haddock,** 1999-2003. TRAC 2007 represents GARM 2005 assessment; AA represents the trip-base allocated data.



Section III. **Yellowtail Flounder**

- Overall the trip-base allocation does not radically change the landings at age for yellowtail flounder.
    - Even though more than 5% of LAA from previous assessment are outside the 2 standard deviations from the AA bootstraps (GB 21%, SNE-MA 26%, and CC-GOM 27%, meaning the differences are statistically significant) these are driven by a few specific years with small samples, so not a true statistical test.
    - Specific years for specific stocks are problematic due to small sample sizes. Previous assessments addressed this problem by borrowing length and age samples. This borrowing has not been done for the trip-base allocated data for this exercise, so it is not a fair comparison for these years.
    - 1994 is especially problematic due to the split nature of the data pre and post mandatory logbook reporting. There is also something weird going on in 1994 because both GB and CC-GOM have age samples but no length samples using CFLEN and CFAGE.
- There are only minor differences (<2%) in total landings of yellowtails.
- There is a general shift in landings from GB to CC-GOM and to a lesser extent to SNE-MA .
- There are shifts in some samples among all three stocks, but most samples on diagonal (meaning no change in stock) and many length samples previously unassigned are now assigned. Only a few split trips were previously assigned to a stock and are not anymore.
- There is a great deal of difficulty in determining number of samples, lengths, and ages used in previous assessments for these comparisons because of the borrowing done to supplement port samples in actual assessments. Some sample sizes for previous assessments are not available because this information was not saved from these assessments.
- Comparison of AA and orig L&A results in figures demonstrate that good sampling leads to consistent landings at age even when some length and age samples switch stocks. However years and stocks with small sample sizes can vary widely (even more than implied by the bootstrapping – which fails because samples are too small to be representative of the total landings). (see text table below for summary of data sources)

Data	Original Assessment	AA	orig L&A
Landings	single species proration	trip-base proration	trip-base proration
L-W relationship	Lux	Lux	Lux
Length Samples	CFLEN + some observer	CFLEN_AA	CFLEN only
Age Samples	CFAGE + some survey ages	CFAGE_AA	CFAGE only

Table III.2 Landings (mt, live) for **yellowtail flounder** used in GARM 2005 and available in CFDETS (original data) and CFDETS_AA, (allocated data) and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS	CFDETS_AA	Difference
1994	3099	3097	3097	-2
1995	1928	1928	1928	0
1996	2403	2397	2397	-6
1997	2864	2872	2872	8
1998	3656	3620	3620	-36
1999	4431	4428	4428	-3
2000	7055	6934	6934	-121
2001	7323	7289	7289	-33
2002	5308	5325	5325	17
2003	5564	5566	5566	2
2004	7202			

Table III.2.C. Landings (mt, live) for **GB yellowtail flounder** used in TRAC 2007 and available in CFDETS_AA (allocated data), and difference between CFDETS_AA and TRAC 2007.

Year	TRAC 2007	CFDETS_AA	Difference
1994	1456	1435	-21
1995	413	355	-58
1996	777	740	-37
1997	969	889	-80
1998	1836	1606	-229
1999	2066	1810	-256
2000	3678	3362	-316
2001	3768	3601	-168
2002	2532	2427	-104
2003	3343	3228	-116
2004	6208		

Table III.2.D. Landings (mt, live) for **SNE-MA yellowtail flounder** used in GARM 2005 and available in CFDETS_AA, (allocated data) and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS_AA	Difference
1994	391	368	-23
1995	187	202	16
1996	455	476	21
1997	781	838	57
1998	578	685	107
1999	1155	1308	152
2000	966	1118	152
2001	1062	1292	229
2002	753	784	31
2003	419	499	80
2004	165		

Table III.2.E. Landings (mt, live) for **CC-GOM yellowtail flounder** used in GARM 2005 and available in CFDETS_AA (allocated), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS_AA	Difference
1994	1299	1144	-155
1995	1328	1370	42
1996	1171	1181	9
1997	1114	1144	30
1998	1243	1329	86
1999	1211	1310	100
2000	2413	2454	42
2001	2505	2397	-108
2002	2024	2114	91
2003	1802	1839	37
2004	829		

Table III.3. **Yellowtail flounder** length samples for 1994 to 2003 combined, by stock; a_stock = stock based on allocated data; o_stock = stock based on original data; CCGOM = Cape Cod-Gulf of Maine GB = Georges Bank; SNEMA= Southern New England- Mid-Atlantic; Oth = other areas not including GB and GM; Zero = samples that came from split trips.

Sum of length samples	a_stock					
o_stock	CCGOM	GB	SNEMA	Oth	zero	Grand Total
CCGOM	233	8	6		4	251
GB	18	176	13	1	11	219
SNEMA	7	4	141	1		153
Oth	24	22	11		8	65
Grand Total	282	210	171	2	23	688

Table III.4. **Yellowtail flounder** age samples for 1994 to 2003, by Alevel and stock; a_stock = stock based on allocated data; o_stock = stock based on original data; CCGOM = Cape Cod-Gulf of Maine GB = Georges Bank; SNEMA= Southern New England- Mid-Atlantic; Oth = other areas not including GB and GM; Zero = samples that same from split trips; Alevel (blank) = ages taken from trips that did not enter allocation.

Sum of age samples		a_stock					
ALEVEL	o_stock	CCGOM	GB	SNEMA	Oth	zero	Grand Total
A	CCGOM	160	7	2		3	172
	GB	10	126	6	1	16	159
	SNEMA	8	1	85	1	2	97
	Oth	1		1			2
A Total		179	134	94	2	21	430
B	CCGOM	52	3	1			56
	GB	5	51	1			57
	SNEMA	2	4	30			36
	Oth	1					1
B Total		60	58	32			150
C	CCGOM	17	2	2			21
	GB	3	8	5			16
	SNEMA	2		4			6
	Oth			1			1
C Total		22	10	12			44
D	CCGOM	1					1
D Total		1					1
(blank)	CCGOM	15					15
	GB		4				4
	SNEMA			13			13
	Oth				1		1
(blank) Total		22	15	4	13	1	
Grand Total		277	206	151	3	21	658

Table III.5.C. Number of **GB yellowtail flounder** length samples used in the TRAC 2007 stock assessment, the number of length samples current available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005. Note the number of length samples for some years are not available from previous assessments.

Year	TRAC 2007	CFLEN	CFLEN_AA	Difference
1994		0	12	
1995		3	11	
1996		11	9	
1997		21	19	
1998		14	14	
1999		17	11	
2000	28	26	23	-5
2001	34	35	30	-4
2002	30	30	26	-4
2003	59	62	55	-4
2004	83			

Table III.5.D. Number of **SNE-MA yellowtail flounder** length samples used in the GARM 2005 stock assessment, the number of length samples current available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994		1	7	
1995		1	1	
1996		13	17	
1997		34	30	
1998		12	13	
1999		17	25	
2000		16	15	
2001		21	26	
2002	27	27	24	-3
2003	11	11	13	2
2004	5			

Table III.5.E. Number of **CC-GOM yellowtail flounder** length samples used in the GARM 2005 stock assessment, the number of length samples current available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	7	0	7	0
1995	10	7	12	2
1996	13	13	13	0
1997	24	23	28	4
1998	13	12	11	-2
1999	8	8	6	-2
2000	61	61	67	6
2001	24	24	26	2
2002	39	39	44	5
2003	64	64	68	4
2004	34			

Table III.6.C. Number of **GB yellowtail flounder** lengths used in the TRAC 2007 stock assessment, the number of lengths current available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and TRAC 2007.

Year	TRAC 2007	CFLEN	CFLEN_AA	Difference
1994	0	0	1241	1241
1995	259	259	1109	850
1996	1160	1160	964	-196
1997	2088	2088	1912	-176
1998	1329	1329	1329	0
1999	1721	1721	1148	-573
2000	2596	2596	2222	-374
2001	3474	3474	3024	-450
2002	2533	2533	2144	-389
2003	4634	5112	4542	-92
2004	7964			

Table III.6.D. Number of **SNE-MA yellowtail flounder** lengths used in the GARM 2005 stock assessment, the number of lengths current available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	969	102	754	-215
1995	714	78	78	-636
1996	1160	1388	1820	660
1997	2714	3392	3017	303
1998	1106	1236	1328	222
1999	929	1662	2434	1505
2000	2081	1628	1539	-542
2001	2744	2229	2702	-42
2002	2648	2648	2439	-209
2003	998	998	1149	151
2004	495			

Table III.6.E. Number of **CC_GOM yellowtail flounder** lengths used in the GARM 2005 stock assessment, the number of lengths current available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	681	0	681	0
1995	1144	770	1438	294
1996	1222	1340	1340	118
1997	2736	2411	2886	150
1998	1108	1124	967	-141
1999	722	722	534	-188
2000	5121	5716	6341	1220
2001	1988	2509	2702	714
2002	4109	4207	4634	525
2003	5217	5924	6293	1076
2004	2026			

Table III.7.C. Number of **GB yellowtail flounder** ages used in the TRAC 2007 stock assessment, the number of ages currently available in CFAGE (original data), CFAGE_AA (allocated data) and difference between CFAGE_AA and TRAC 2007.

Year	TRAC 2007	CFAGE	CFAGE_AA	Difference
1994	406	406	302	-104
1995	186	186	284	98
1996	319	319	260	-59
1997	579	579	508	-71
1998	293	293	293	0
1999	300	300	213	-87
2000	605	605	499	-106
2001	597	839	702	105
2002	552	638	543	-9
2003	1116	1304	1144	28
2004	1692			

Table III.7.D. Number of **SNE-MA yellowtail flounder** ages used in the GARM 2005 stock assessment, the number of ages currently available in CFAGE (original data), CFAGE_AA (allocated data) and difference between CFAGE_AA and GARM 2005.

Year	GARM 2005	CFAGE	CFAGE_AA	Difference
1994	58	209	204	146
1995	143	193	36	-107
1996	0	365	456	456
1997	546	801	693	147
1998	275	312	337	62
1999	237	237	337	100
2000	184	385	348	164
2001	297	603	736	439
2002	609	609	553	-56
2003	270	270	289	19
2004	101			

Table III.7.E. Number of **CC_GOM yellowtail flounder** ages used in the GARM 2005 stock assessment, the number of ages currently available in CFAGE (original data), CFAGE_AA (allocated data) and difference between CFAGE_AA and GARM 2005.

Year	GARM 2005	CFAGE	CFAGE_AA	Difference
1994	422	175	175	-247
1995	353	307	327	-26
1996	681	367	367	-314
1997	1190	615	703	-487
1998	360	342	259	-101
1999	106	106	78	-28
2000	1298	1332	1410	112
2001	628	638	630	2
2002	1192	1022	1131	-61
2003	1415	1442	1479	64
2004	749			

Table III.8.C-a. Landings at age (in thousands of fish) for **GB yellowtail flounder** from TRAC 2007 using single-species proration data.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6+
1994	0	129	2614	853	253	48
1995	0	17	385	395	98	27
1996	0	161	751	482	144	11
1997	0	205	616	875	175	57
1998	0	422	1625	1156	366	67
1999	0	1217	1645	666	277	59
2000	0	1213	3111	1904	458	180
2001	5	669	3619	1682	578	213
2002	6	664	1660	1237	405	219
2003	1	751	2140	1383	564	537
2004	0	431	2570	3651	1927	1391

Table III.8.C-b. Landings at age (in thousands of fish) for **GB yellowtail flounder** using trip-base allocated data.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6+
1994	0	50	2335	807	163	74
1995	0	105	373	280	57	17
1996	0	234	849	401	110	16
1997	0	141	603	853	104	39
1998	0	250	1367	802	684	32
1999	5	447	2082	433	304	129
2000	0	1339	2693	1720	381	176
2001	0	875	3154	1792	511	169
2002	9	634	1379	1343	425	255
2003	0	809	1834	1385	558	538
2004						

Table III.8.D-a. Landings at age (in thousands of fish) for **SNE-MA yellowtail flounder** from GARM 2005 using single-species proration data.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7+
1994	0	22	266	239	284	125	4
1995	0	199	139	189	19	3	7
1996	0	341	544	214	47	15	6
1997	0	68	1070	524	60	5	6
1998	0	396	497	256	71	9	3
1999	0	27	2066	258	89	11	5
2000	0	494	1057	432	15	3	2
2001	0	233	1286	408	126	32	19
2002	0	208	847	348	37	8	5
2003	0	33	490	197	58	12	4
2004	0	11	20	75	97	28	10

Table III.8.D-b Landings at age (in thousands of fish) for **SNE-MA yellowtail flounder** using trip-base allocated data.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7+
1994	0	15	291	220	202	71	4
1995	0	0	84	254	47	11	19
1996	0	292	619	173	20	14	9
1997	0	40	941	645	86	15	24
1998	0	623	774	278	39	4	1
1999	0	229	2019	439	84	23	0
2000	2	655	1153	454	49	10	0
2001	0	388	1618	467	125	25	15
2002	0	224	939	377	23	0	0
2003	0	122	464	343	25	3	3
2004							

Table III.8.E-a. Landings at age (in thousands of fish) for **CC-GOM yellowtail flounder** from GARM 2005 using single-species proration data.

Year	Age 1	Age 2	Age 3	Age 4	Age 5+
1994	0	129	1367	850	471
1995	0	253	1926	898	257
1996	0	157	1181	891	346
1997	0	493	1164	767	187
1998	0	269	1787	503	196
1999	0	356	1253	731	169
2000	0	1004	2788	1221	176
2001	0	841	3085	1157	210
2002	22	967	2367	977	72
2003	0	589	1858	1152	214
2004	0	71	938	422	321

Table III.8.E-b. Landings at age (in thousands of fish) for **CC-GOM yellowtail flounder** using trip-base allocated data.

Year	Age 1	Age 2	Age 3	Age 4	Age 5+
1994	0	108	1367	669	307
1995	0	380	1444	1137	346
1996	0	450	1918	428	58
1997	0	636	1180	634	132
1998	0	52	1920	623	95
1999	0	513	2036	355	59
2000	0	933	2816	1356	157
2001	0	951	3357	827	169
2002	21	1016	2375	892	140
2003	0	611	1928	1158	222
2004					

Figure III.1.C. Comparison of landings at age for **GB yellowtail flounder** from most recent assessment (TRAC 2007), current data using trip-base allocated data (AA), and current data with original area assignments for length and age samples (orig L&A). Error bars denote plus and minus two standard deviations from bootstrapping the length and age samples in BioStat.

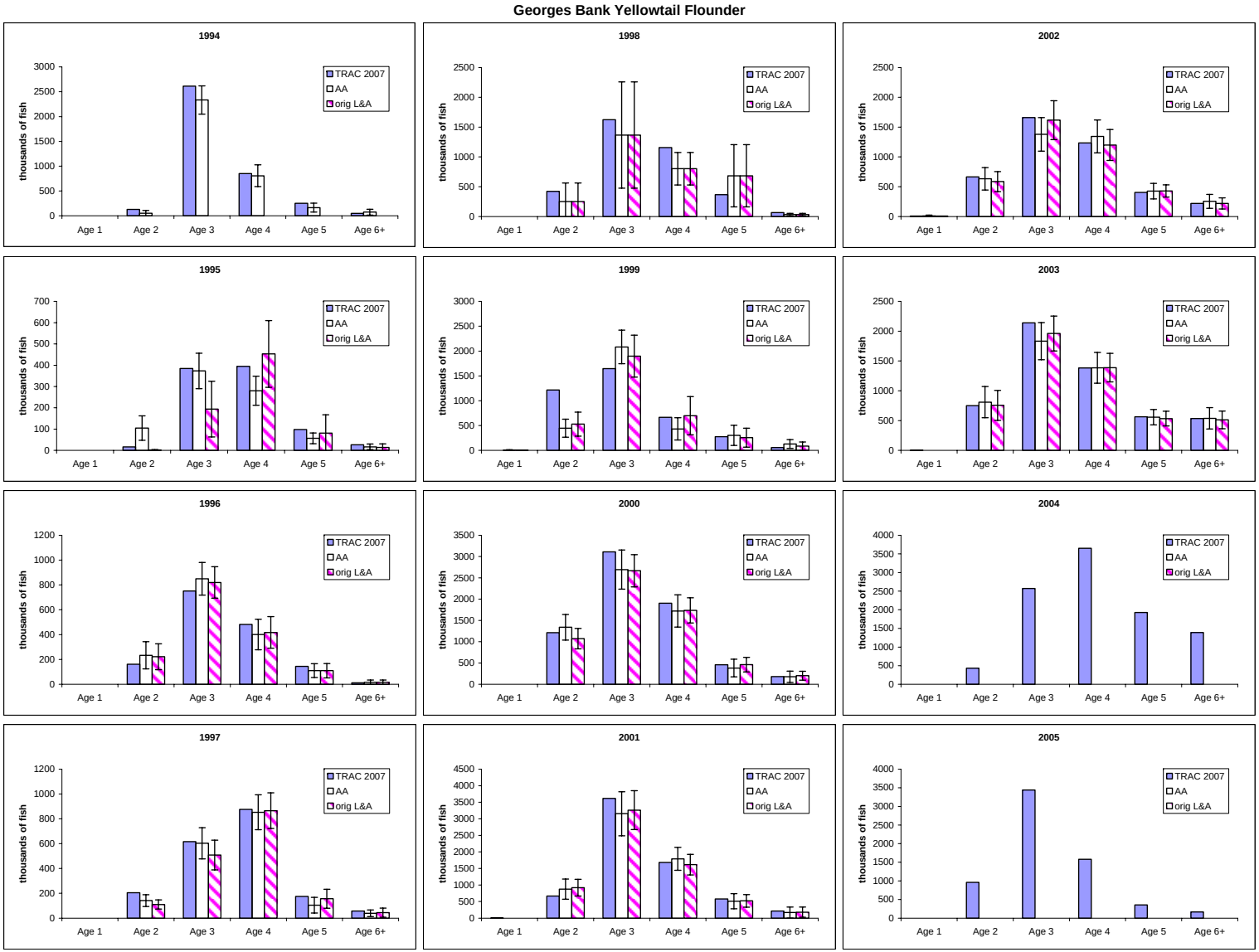


Figure III.1.D. Comparison of landings at age for **SNE-MA yellowtail flounder** from most recent assessment (GARM 2005), current data using trip-base allocated data (AA), and current data with original area assignments for length and age samples (orig L&A). Error bars denote plus and minus two standard deviations from bootstrapping the length and age samples in BioStat.

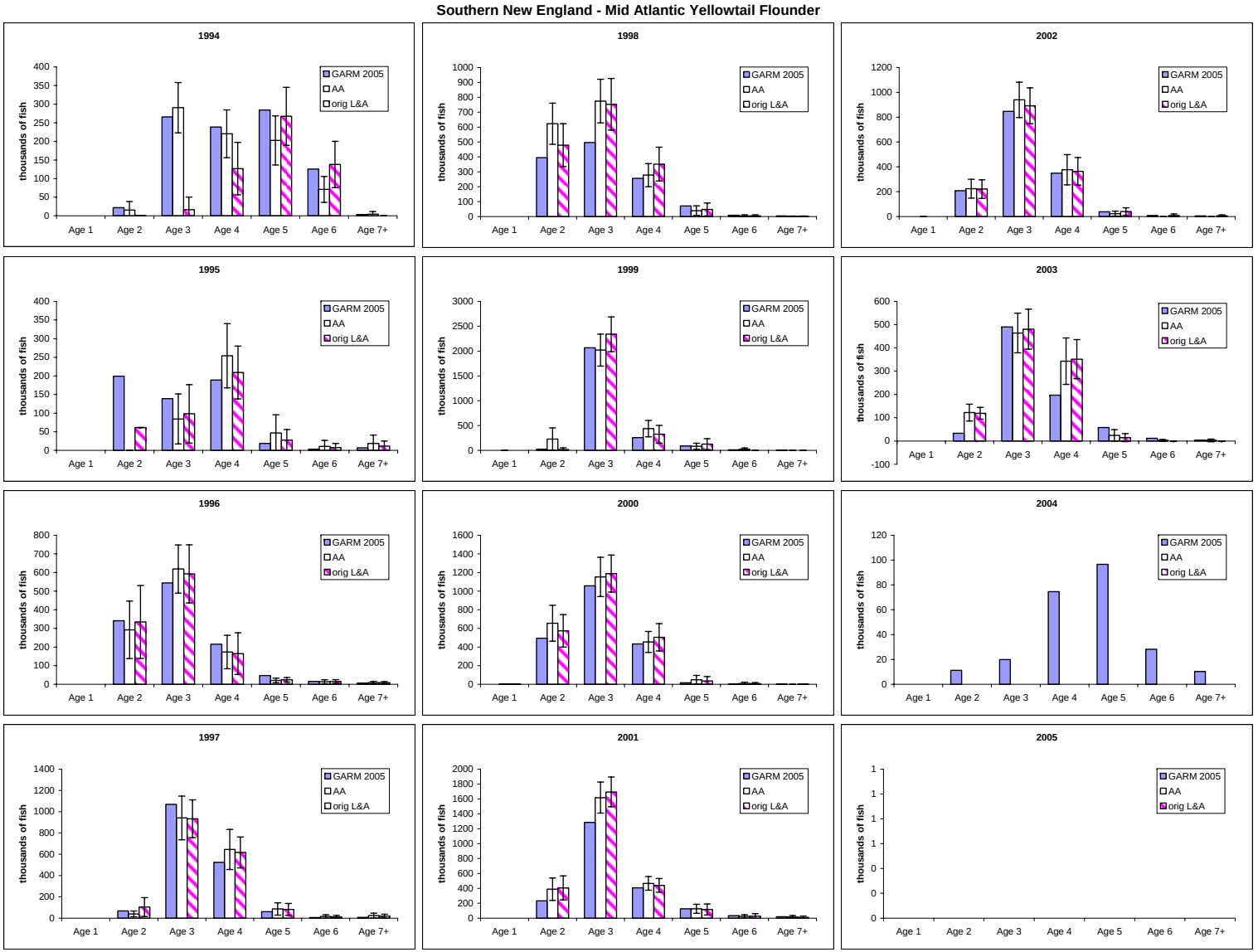
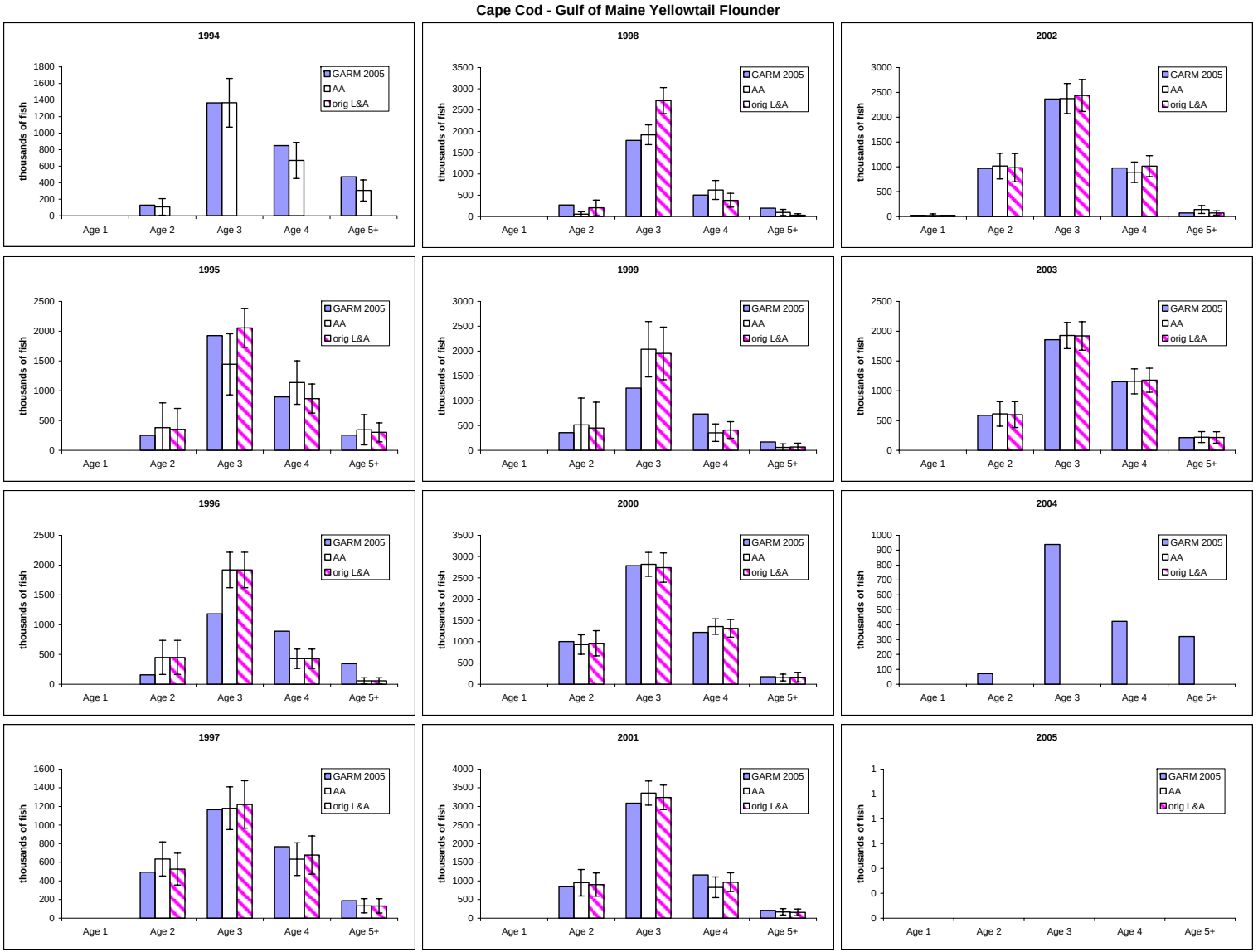


Figure III.1 E. Comparison of landings at age for **CC-GOM yellowtail flounder** from most recent assessment (GARM 2005), current data using trip-base allocated data (AA), and current data with original area assignments for length and age samples (orig L&A). Error bars denote plus and minus two standard deviations from bootstrapping the length and age samples in BioStat.



Section IV. **Winter Flounder**

GOM winter flounder

- GOM winter flounder stock is the smallest of the three winter flounder stocks.
- Length sampling for some market categories is poor.
- Kept lengths taken in the observer data was used to supplement the sampling of the port unclassified landings.
- Observer gillnet lengths was also used to characterized the gillnet landings.
- Changes in the proportion of landings by gear in the trip-based allocation could influence landings at age for GOM winter flounder.
- Some 'across-year-borrowing' of length samples was done in the 2005 GARM assessment to characterize large market category landings which did not have any samples.
- Similar landings at age distributions are seen between the 2005 GARM assessment and the trip-based allocation, despite the poor temporal sampling of some market categories.

GB Winter Flounder

- Differences between the annual prorated landings and the GARM 2005 landings were small for the combined stocks and ranged between -2.6% and +2.5%. Prorated landings for the GB stock were less than the GARM 2005 landings during all but one year (1996) and were substantially less during 2001 (-23%), with an overall range of -23% to 2% (mean = -9%).

- GARM 2005 assessment consisted of an updated biomass dynamics model (ASPIC) but an age-based assessment model will also be prepared for GARM 2008.

Table IV.2. Landings (mt, live) for **winter flounder** used in GARM 2005 and available in CFDETS (original data) and CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS	CFDETS_AA	Difference
1994	3618	3603	3603	-15
1995	4136	4029	4029	-7
1996	4646	4760	4760	+114
1997	5346	5343	5343	-3
1998	5088	5088	5089	+1
1999	4635	4637	4637	+2
2000	5859	5842	5843	-13
2001	6904	6930	6930	+26
2002	5877	5877	5878	+1
2003	5898	5891	5892	-6
2004	4866			

Table IV.2.I. Landings (mt, live) for **GOM winter flounder** used in GARM 2005 and available in CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS_AA	Difference
1994	552	533	-19
1995	796	700	-96
1996	600	600	0
1997	618	566	-52
1998	637	641	4
1999	253	349	96
2000	382	533	151
2001	588	689	101
2002	631	658	27
2003	680	718	38
2004	477		

Table IV.2.J Landings (mt, live) for **SNE/MA winter flounder** used in GARM 2005 and available in CFDETS_AA, and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS_AA	Difference
1994	2159	2124	-35
1995	2634	2588	-46
1996	2781	2771	-10
1997	3441	3551	+110
1998	3208	3141	-67
1999	3444	3347	-97
2000	3800	3707	-93
2001	4687	4542	-145
2002	3136	3127	-9
2003	2427	2318	-109
2004	1458		

Table IV.2.K Landings (mt, live) for **GB winter flounder** used in GARM 2005 and available in CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS_AA	Difference
1994	972	929	-43
1995	760	727	-33
1996	1,336	1,367	+31
1997	1,430	1,221	-209
1998	1,336	1,304	-32
1999	1,042	936	-106
2000	1,838	1,599	-239
2001	2,158	1,658	-500
2002	2,354	2,047	-307
2003	3,101	2,814	-287
2004	3,122		

Table IV.3 **Winter flounder** length samples for 1994 to 2003 combined, by stock; a_stock = stock based on allocated data, o_stock = stock based on original data; GBK = Georges Bank; GOM = Gulf of Maine, SNE = Southern New England; OTH = areas not included in GBK, GOM, SNE.

Sum of sample	a_stock				
o_stock	GBK	GOM	SNE	OTH	Grand Total
GBK	167	6	23	10	206
GOM		242	11		253
SNE	17	9	382	7	415
OTH	28	20	82	6	136
Grand Total	212	277	498	23	1010

Table IV.3. **Winter flounder** age samples for 1994 to 2003, by *Alevel* and stock; a_stock = stock based on allocated data, o_stock = stock based on original data; GBK = Georges Bank; GOM = Gulf of Maine, SNE = Southern New England; OTH = areas not included in GBK, GOM, SNE.; *Alevel* (blank) = ages taken from trips that did not enter allocation.

Sum of age sample		a_stock				
ALEVEL	O_stock	GBK	GOM	SNE	OTH	Grand Total
A	GBK	47		6	5	58
	GOM		163	4		167
	SNE	12		274	8	294
	OTH			1		1
A Total		59	163	285	13	520
B	GBK	16	1	5		22
	GOM		60	5		65
	SNE	3	7	83		93
	OTH			2		2
B Total		19	68	95		182
C	GBK	5	2	5		12
	GOM		23	3		26
	SNE	4	3	27		34
	OTH			2		2
C Total		9	28	37		74
D	GOM		1			1
	SNE			2		2
D Total			1	2		3
(blank)	GBK	2				2
	GOM		9			9
	SNE			21		21
(blank) Total			2	9	21	
Grand Total		89	269	440	13	811

Table IV.4.I. Number of **GOM winter flounder** length samples used in the GARM 2005 stock assessment, the number of length samples current available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	7	1	6	-1
1995	10	6	10	0
1996	15	16	16	1
1997	23	22	25	2
1998	19	19	19	0
1999	5	8	9	4
2000	64	87	96	32
2001	14	13	13	-1
2002	29	29	30	1
2003	52	52	53	1
2004	38			

Note: 1994 and 1995 are' transitional years' following changes to the data collection system: CFLEN are not fully populated with length data for these years

Table IV.4.J. Number of **SNE/MA winter flounder** length samples used in the GARM 2005 stock assessment, the number of length samples current available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	29	0	27	-2
1995	20	18	32	+12
1996	29	24	30	+1
1997	n/a	46	52	n/a
1998	38	37	39	+1
1999	53	45	50	-3
2000	78	71	80	+2
2001	63	57	68	+5
2002	72	64	67	-5
2003	52	53	53	+1
2004	65			

Note: 1994 and 1995 are' transitional years' following changes to the data collection system: CFLEN are not fully populated with length data for these years.

Table IV.5.I. Number of **GOM winter flounder** lengths used in the GARM 2005 stock assessment, the number of lengths current available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	594	71	492	-102
1995	989	592	989	0
1996	1525	1525	1511	-14
1997	1709	1659	1841	132
1998	1504	1504	1504	0
1999	355	528	628	273
2000	4717	4742	5327	610
2001	1136	1037	1067	-69
2002	2147	2149	2201	54
2003	2576	2576	2567	-9
2004	2055			

Note: 1994 and 1995 are' transitional years' following changes to the data collection system: CFLEN are not fully populated with length data for these years.

Table IV.5.J. Number of **SNE/MA winter flounder** lengths used in the GARM 2005 stock assessment, the number of lengths current available in CFLEN (original data), CFLEN_AA (allocated data) and difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	2593	0	2483	-110
1995	1876	1518	2816	+940
1996	1964	2164	2695	+731
1997	4005	3608	4052	+47
1998	3581	3270	3416	-165
1999	4607	4073	4370	-237
2000	6453	5427	6150	-303
2001	6042	5455	6393	+351
2002	5900	5169	5406	-494
2003	4678	4531	4470	-208
2004	5175			

Note: 1994 and 1995 are' transitional years' following changes to the data collection system: CFLEN are not fully populated with length data for these years.

Table IV.6. Number of **GOM winter flounder** ages used in the GARM 2005 stock assessment, the number of ages currently available in CFAGE (original data), CFAGE_AA (allocated data) and difference between CFAGE_AA and GARM 2005.

Year	GARM 2005	CFAGE	CFAGE_AA	Difference
1994	139	139	114	-25
1995	248	248	248	0
1996	246	246	239	-7
1997	295	295	328	33
1998	341	341	341	0
1999	149	149	149	0
2000	883	1019	1071	188
2001	246	253	243	-3
2002	446	446	433	-13
2003	694	694	669	-25
2004	511			

Table IV.6.J. Number of **SNE/MA winter flounder** ages used in the GARM 2005 stock assessment, the number of ages currently available in CFAGE (original data), CFAGE_AA (allocated data) and difference between CFAGE_AA and GARM 2005.

Year	GARM 2005	CFAGE	CFAGE_AA	Difference
1994	530	530	539	+9
1995	452	452	534	+82
1996	566	530	580	+14
1997	n/a	938	898	n/a
1998	616	616	606	-10
1999	887	862	849	-38
2000	1249	1239	1264	+15
2001	1192	1166	1228	+109
2002	1119	1119	1004	-15
2003	884	1001	878	-6
2004	924			

Table IV.7.I-a. Landings at age (in numbers, 000's) **for GOM winter flounder** from GARM 2005.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8+	Total
1994	0	4	386	557	130	31	7	0	1116
1995	0	8	267	680	456	162	21	15	1609
1996	0	107	693	347	61	11	1	3	1224
1997	0	93	512	455	105	27	4	2	1198
1998	0	25	217	458	321	105	34	5	1166
1999	0	0	49	158	143	59	19	9	437
2000	0	1	57	212	173	50	14	9	516
2001	0	1	30	306	415	189	70	37	1047
2002	0	3	102	339	383	176	52	18	1072
2003	0	3	116	319	368	211	71	41	1128
2004	0	8	58	230	176	141	48	49	710

Table IV.7.I-b. Landings at age (in numbers, 000's) for **GOM Winter Flounder** using trip-base allocated data. No borrowing of samples across years was done using the trip-base allocated data. The only large length sample available at GARM 2005 was lost in the trip-based allocation in 1996 and 2001. However large samples were obtained in 2000 and 2003 which required across year borrowing of samples in the GARM 2005 assessment.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8+	Total
1994	0	5	431	546	116	31	9	1	1138
1995	0	5	267	715	371	115	14	15	1501
1996	lost the only large length sample to SNE (521) at level B								
1997	0	145	489	361	73	17	4	3	1092
1998	0	26	219	431	321	110	37	11	1154
1999	no large length sample								
2000	0	29	98	398	283	95	22	10	936
2001	lost the only large length sample to SNE (521) at level A								
2002	0	3	116	321	357	160	48	40	1044
2003	0	1	111	330	380	228	84	38	1172
2004	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

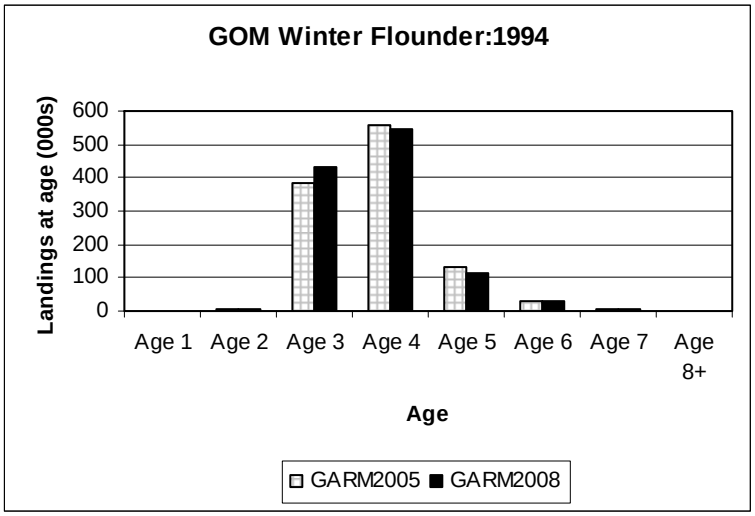
Table IV.7.J-a. Landings at age (in numbers, 000's) for **SNE/MA winter flounder** from GARM 2005.

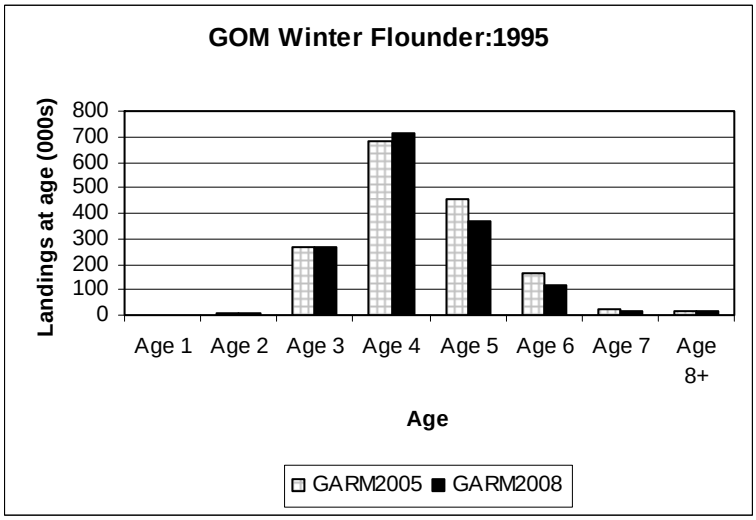
Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7+	Total
1994	0	1304	1724	905	203	29	22	4187
1995	0	167	3338	1248	202	51	11	5017
1996	0	1263	2471	1049	271	39	24	5117
1997	0	1417	2574	1370	356	70	47	5834
1998	0	1021	3057	1483	450	83	133	6227
1999	0	2009	3347	1538	386	59	17	7356
2000	0	1073	2801	1942	592	135	47	6590
2001	0	1854	3372	1949	669	157	86	8087
2002	0	324	1749	1598	804	255	104	4834
2003	0	412	1585	1073	374	170	83	3697
2004	0	205	770	671	263	160	121	2190

Table IV.7.J-b. Landings at age (in numbers, 000's) for **SNE/MA winter flounder** using trip-base allocated data.

Year	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7+	Total
1994	2	1377	1617	905	238	71	29	4239
1995	0	115	2060	1928	423	77	20	4623
1996	145	645	2131	1495	422	123	32	4993
1997	1	1484	2708	1737	387	60	38	6415
1998	0	976	2694	1517	501	133	109	5930
1999	0	1539	3290	1465	457	130	14	6895
2000	0	1064	2706	1859	545	130	66	6370
2001	0	1715	3206	1857	671	157	95	7701
2002	0	382	1680	1482	743	292	163	4742
2003	0	361	1430	1009	419	175	106	3500
2004								

Figure IV.1.I. Numbers of fish at age (in 000's) for **GOM Winter Flounder** used in GARM2005 (hatched bar) and using allocated data (solid bar labeled GARM2008)..





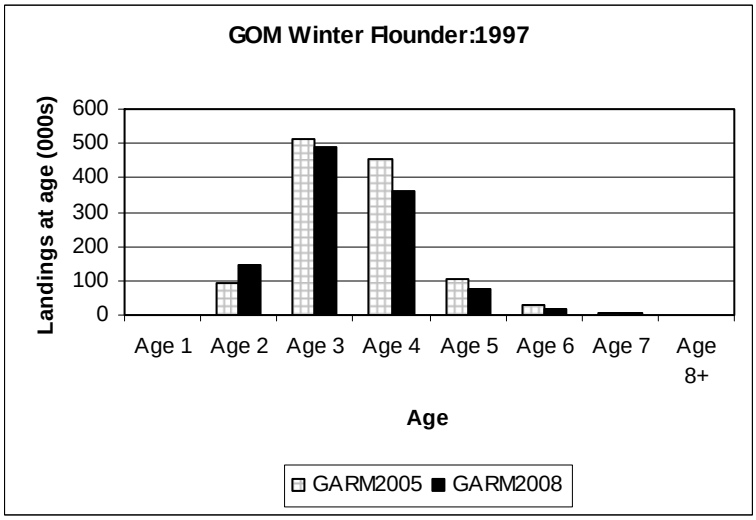
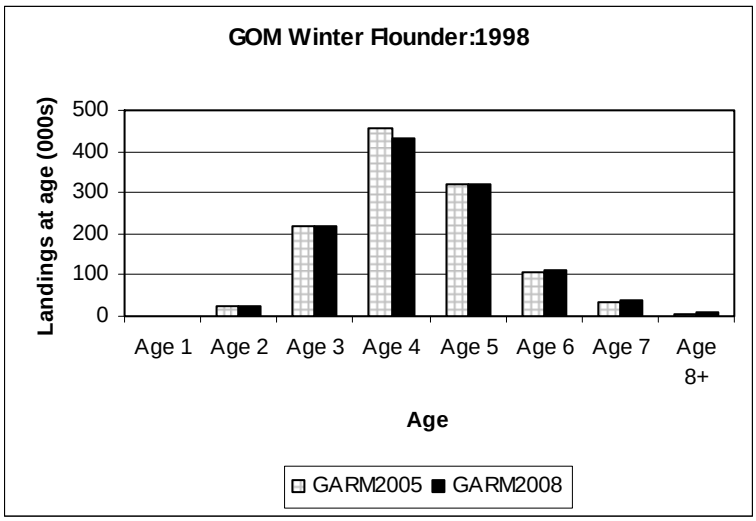
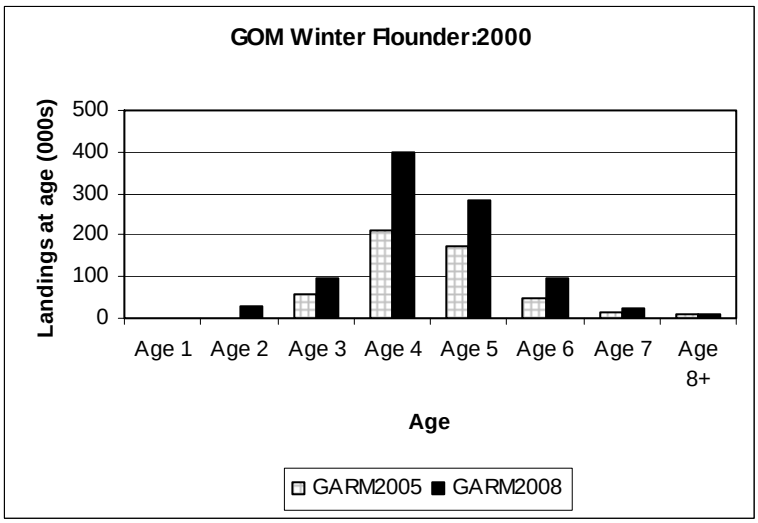
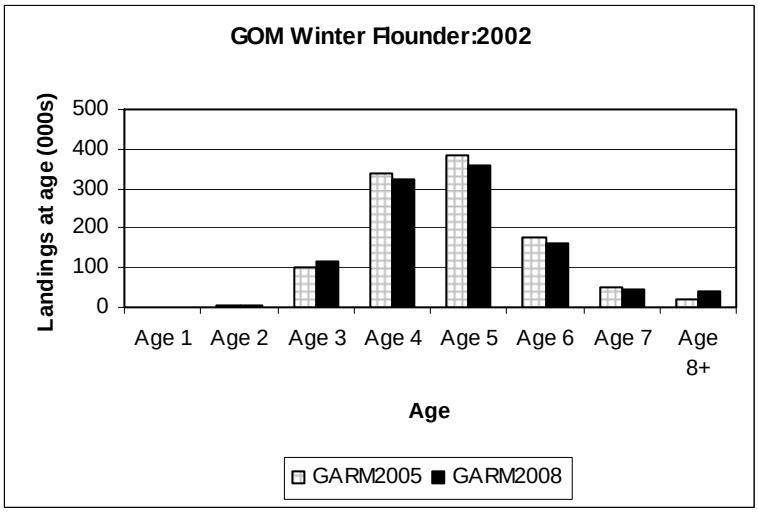


Figure IV.1.I continued.







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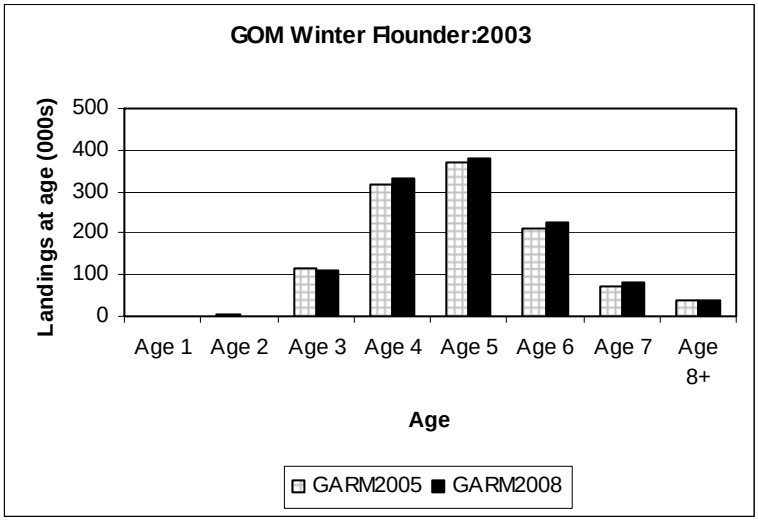
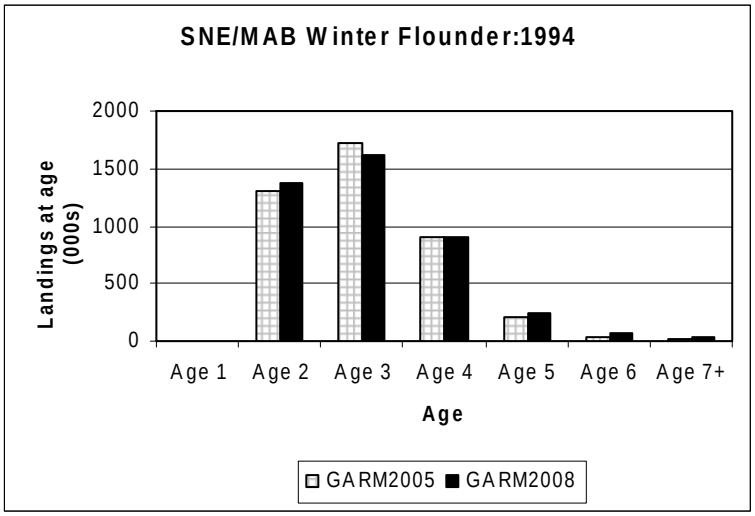
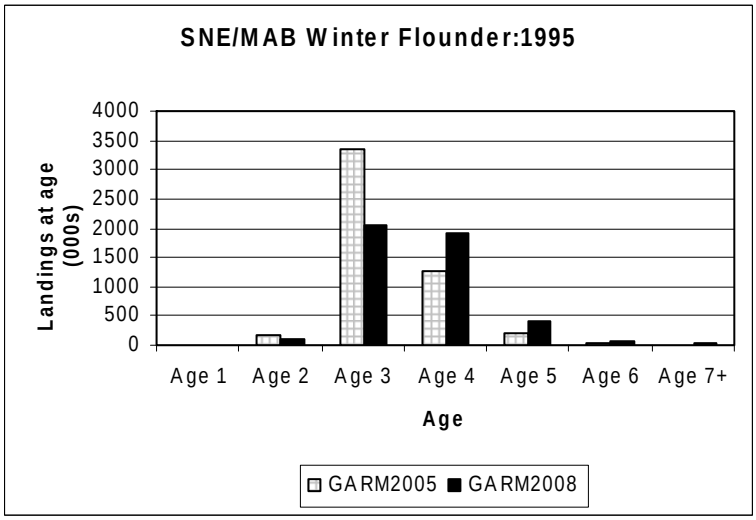
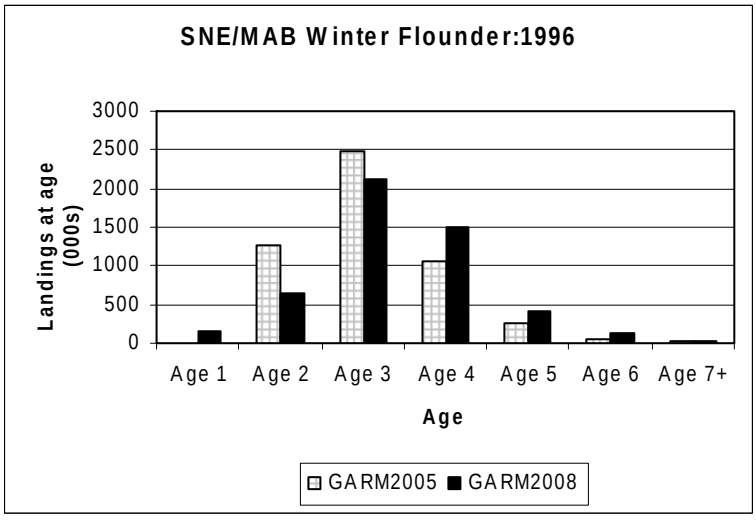


Figure IV.1.J. Landings at age (in numbers, 000's) from GARM2005 (hatched bar) and using allocated data (solid bar labeled GARM2008) .







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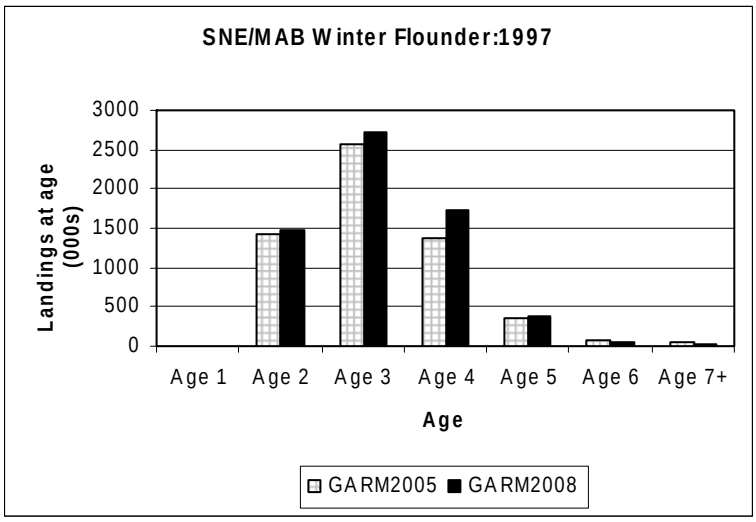

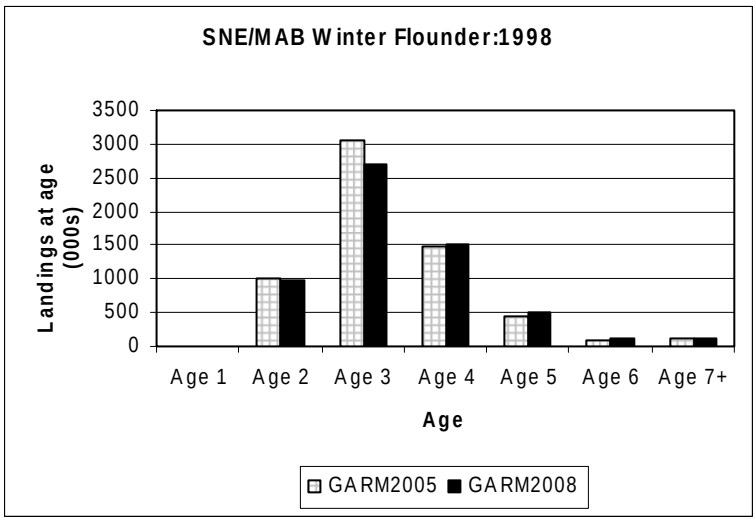

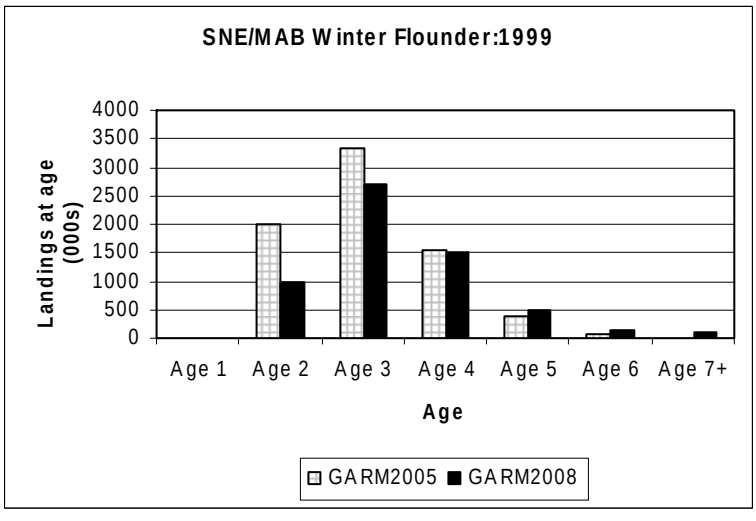

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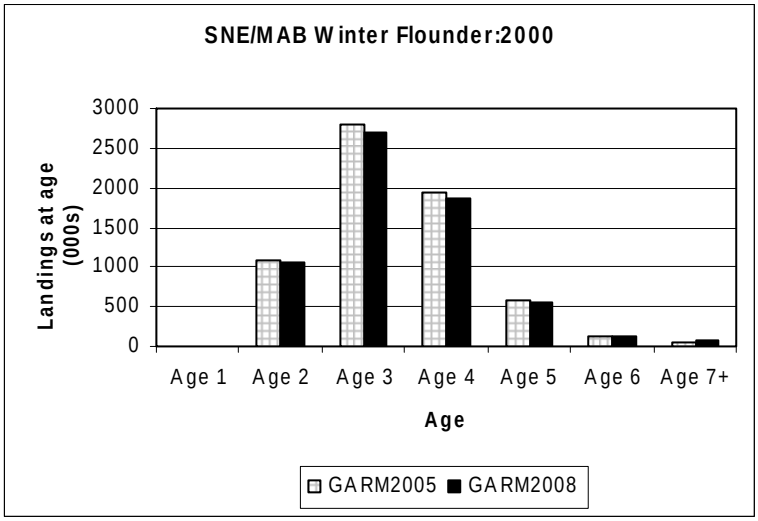
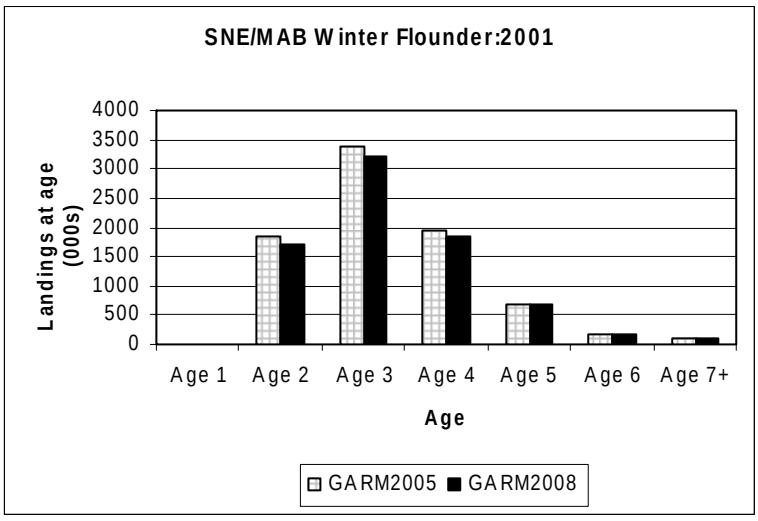




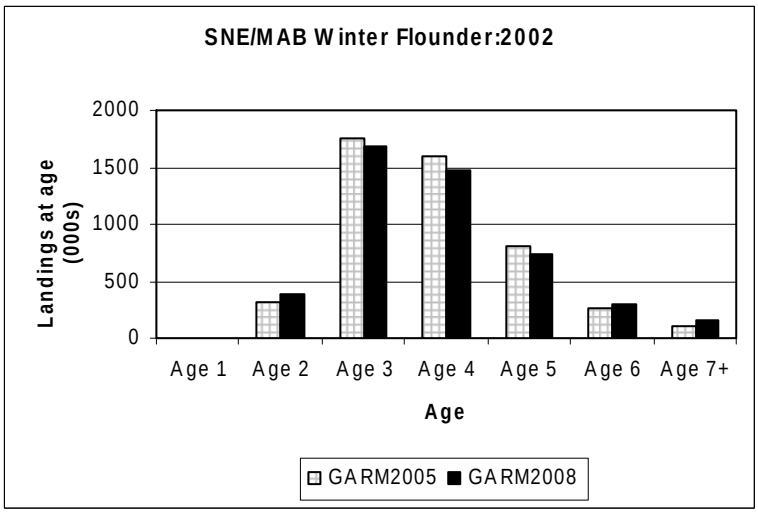
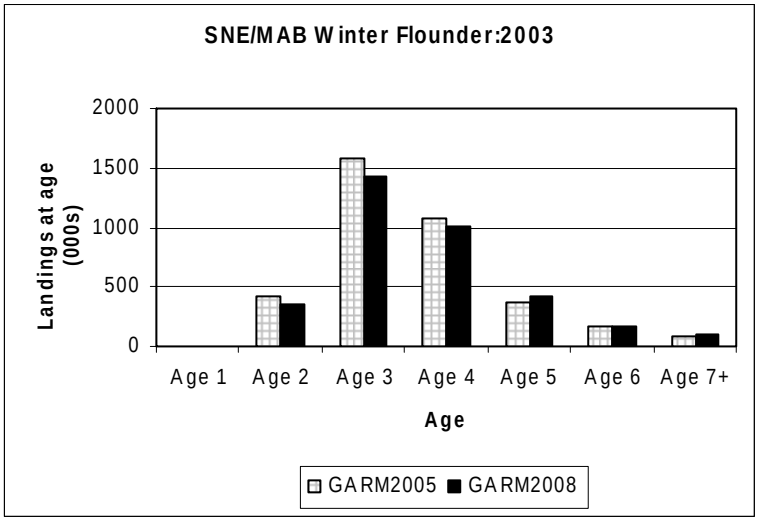


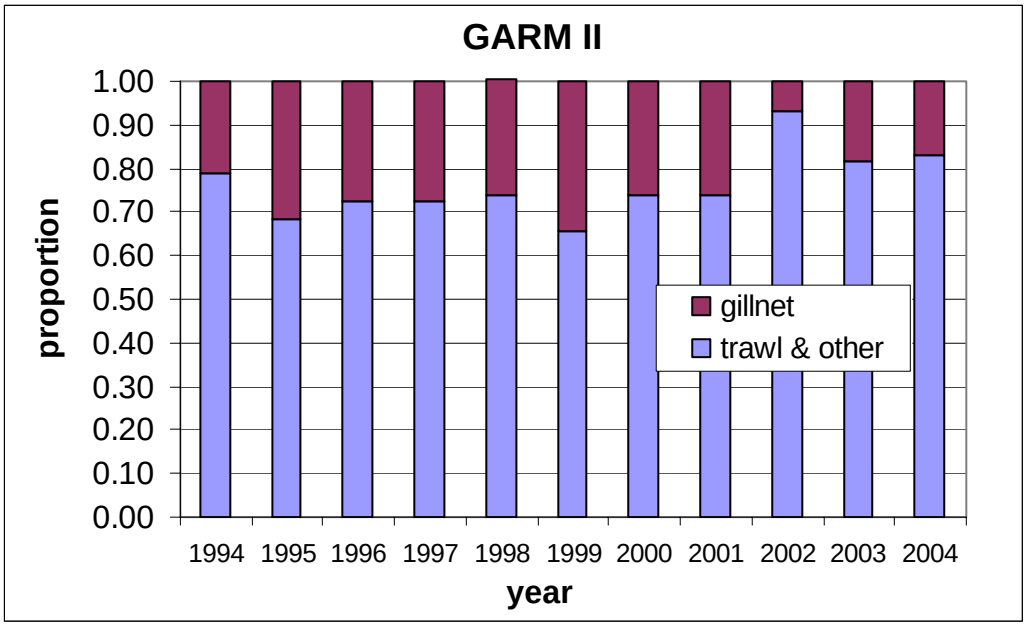
Figure IV.1.J continued.

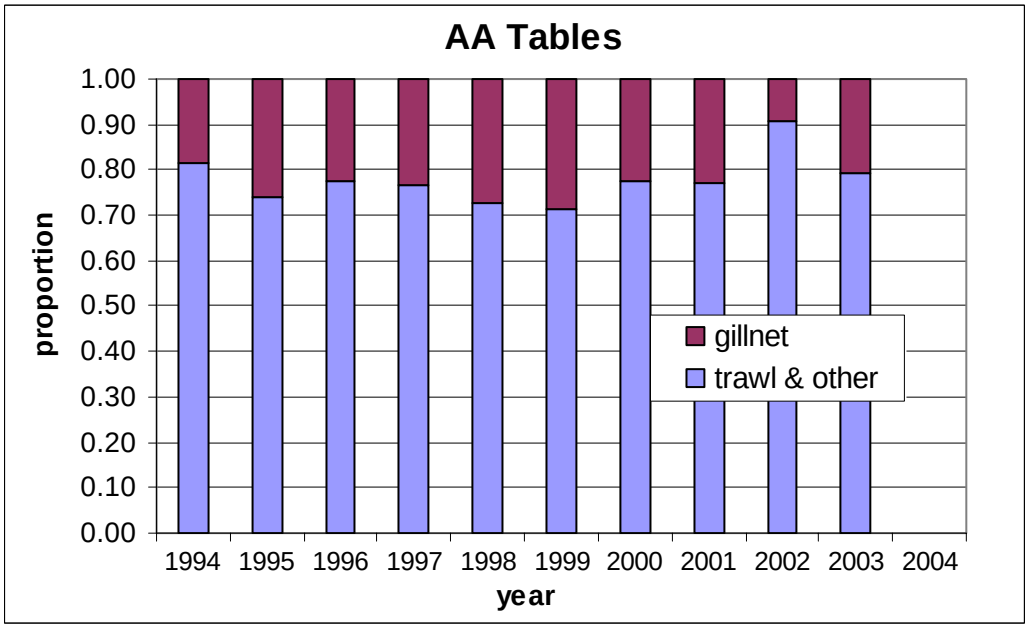


Appendix Table IV.1.I. **GOM winter flounder** proportion of the landings by gear estimated in GARM 2005 and the trip-based allocation. Observer length data was used to characterize the gillnet landings in GARM 2005. Observer trawl lengths data was also used to supplement the port sampling of unclassified landings.

	GARM 2005		AA tables	
year	trawl & other	gillnet	trawl & other	gillnet
1994	0.79	0.21	0.82	0.18
1995	0.68	0.32	0.74	0.26
1996	0.73	0.27	0.78	0.22
1997	0.73	0.27	0.77	0.23
1998	0.74	0.26	0.73	0.27
1999	0.66	0.34	0.71	0.29
2000	0.74	0.26	0.77	0.23
2001	0.74	0.26	0.77	0.23
2002	0.93	0.07	0.91	0.09
2003	0.82	0.18	0.79	0.21
2004	0.83	0.17		

Appendix Figure IV.1.I. **GOM winter flounder** proportion of the landings by gear estimated in GARM 2005 and the trip-based allocation.





Section V. **Windowpane flounder**

- Annual prorated landings for the combined stocks were greater than the GARM 2005 landings during most years but the differences were generally small and ranged between -1.6% and +7.1%.

- Prorated landings for the GOM/GB stock were generally greater than or equal to the GARM 2005 landings and any differences were usually small, ranging between -6% and +13% (mean = 2%).

- Prorated landings for the SNE/MAB stock were generally greater than the GARM 2005 landings and were usually small, ranging between -7.0% and +16.9% (mean = 1.8%).

- A large portion of the annual catch for both stocks is likely discards.

Table V.2. Landings (mt, live) for **windowpane flounder** used in GARM 2005 and available in CFDETS (original data) and CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS	CFDETS_AA	Difference
1994	500	525	525	25
1995	800	787	787	-13
1996	900	964	964	64
1997	525	532	532	7
1998	519	520	520	1
1999	162	166	166	4
2000	268	272	272	4
2001	173	177	177	4
2002	97	98	98	1
2003	64	64	64	0
2004	69			

Table V.2.P. Landings (mt, live) for **GOM/GB windowpane flounder** used in GARM 2005 and available in CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS_AA	Difference
1994	300	339	39
1995	700	671	-29
1996	700	774	74
1997	418	418	0
1998	396	396	0
1999	46	48	2
2000	142	150	8
2001	45	42	-3
2002	12	12	0
2003	17	16	-1
2004	25		

Table V.2.Q. Landings (mt, live) for **SNE/MAB windowpane flounder** used in GARM 2005 and available in CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS_AA	Difference
1994	200	186	-14
1995	100	117	17
1996	200	190	-10
1997	107	114	7
1998	123	123	0
1999	116	118	2
2000	126	122	-4
2001	128	135	7
2002	85	86	1
2003	47	47	0
2004	44		

Section VI. **Witch flounder**

- Negligible differences in species landings between data sets
- Area changes in biological sampling are inconsequential.

Table VI.2. Landings (mt, live) for **witch flounder** used in GARM 2005 and available in CFDETS (original data series) and CFDETS_AA (allocated data series), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS	CFDETS_AA	Difference
1994	2665	2669.49	2669.50	5
1995	2209	2209.00	2209.03	0
1996	2087	2086.48	2086.50	0
1997	1771	1771.74	1771.76	1
1998	1848	1847.78	1847.80	0
1999	2121	2120.53	2120.54	0
2000	2439	2438.94	2438.96	0
2001	3019	3019.69	3019.76	1
2002	3188	3188.24	3188.28	0
2003	3124	3124.30	3124.34	0
2004	2917			

Table VI.3. **Witch flounder** length samples for 1994 to 2003 combined, by stock (unit stock); a_stock = stock based on allocated data, o_stock = stock based on original data, (blank) = no area assigned to samples.

Sum of length samples	a_stock		
o_stock	A	(blank)	Grand Total
O	451	11	462
(blank)	58	2	60
Grand Total	509	13	522

Table VI.4. **Witch Flounder** ages for 1994 to 2003, by *Alevel* and stock (unit stock); Alevel (blank) = ages taken from trips that did not enter allocation; (blank) = no area assigned to ages.

Sum of ages		a_stock		
ALEVEL	o_stock	A	(blank)	Grand Total
A	O	5517	172	5689
B	O	1279		1279
C	O	336		336
(blank)	O	306		306
Grand Total		7438	172	7610

Table VI.5. Number of **witch flounder** length samples used in the GARM 2005 stock assessment, the number of length samples currently available in CFLEN (original data) and CFLEN_AA (allocated data), and the difference between CFLEN_AA and GARM 2005. *GARM 2005 witch flounder assessment excludes 'unclassified' samples.*

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	37	38	38	1
1995	26	26	26	0
1996	42	42	42	0
1997	52	53	53	1
1998	23	24	24	1
1999	41	42	42	1
2000	110	116	116	6
2001	43	43	43	0
2002	35	37	37	2
2003	101	101	101	0
2004	113			

Table VI.6. Number of **witch flounder** lengths used in the GARM 2005 stock assessment, the number of lengths currently available in CFLEN (original data) and CFLEN_AA (allocated data), and the difference between CFLEN_AA and GARM 2005. *GARM 2005 assessment excludes 'unclassified' samples.*

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	4067	4067	4067	0
1995	2557	2557	2557	0
1996	4106	4106	4106	0
1997	4678	4695	4695	17
1998	1904	2004	2004	100
1999	3091	3143	3143	52
2000	6971	7610	7610	639
2001	3609	3609	3609	0
2002	2815	2944	2944	129
2003	6542	6542	6542	0
2004	8623			

Table VI.7. Number of **witch flounder** ages used in the GARM 2005 stock assessment, the number of ages currently available in CFAGE (original data), CFAGE_AA (allocated data) and the difference between CFAGE_AA and GARM 2005. *GARM 2005 assessment did not 'unclassified' ages samples.*

Year	GARM 2005	CFAGE	CFAGE_AA	Difference
1994	678	678	678	0
1995	569	569	569	0
1996	756	756	756	0
1997	786	786	786	0
1998	242	275	275	33
1999	359	363	363	4
2000	1320	1321	1321	1
2001	707	708	708	1
2002	655	656	656	1
2003	1498	1498	1498	0
2004	1504			

Table VI.8-a. Landings at age (in numbers, 000's) for **witch flounder**, 1994 – 2004, taken from GARM 2005.

GARM 2005

Year	age4	age5	age6	age7	age8	age9	age10	age11+
1994	201	1429	1286	827	197	539	113	325
1995	24	763	1597	849	267	97	269	157
1996	46	468	1264	1430	263	215	57	114
1997	212	528	1049	1014	591	83	50	70
1998	18	488	1214	1583	371	141	16	70
1999	185	586	1392	1178	763	251	32	54
2000	75	262	1073	1671	1004	558	93	235
2001	19	380	931	1683	1455	632	427	310
2002	169	649	1233	2107	1270	640	94	201
2003	57	518	1223	1761	1536	741	434	347
2004	189	696	1221	1404	1123	785	313	285

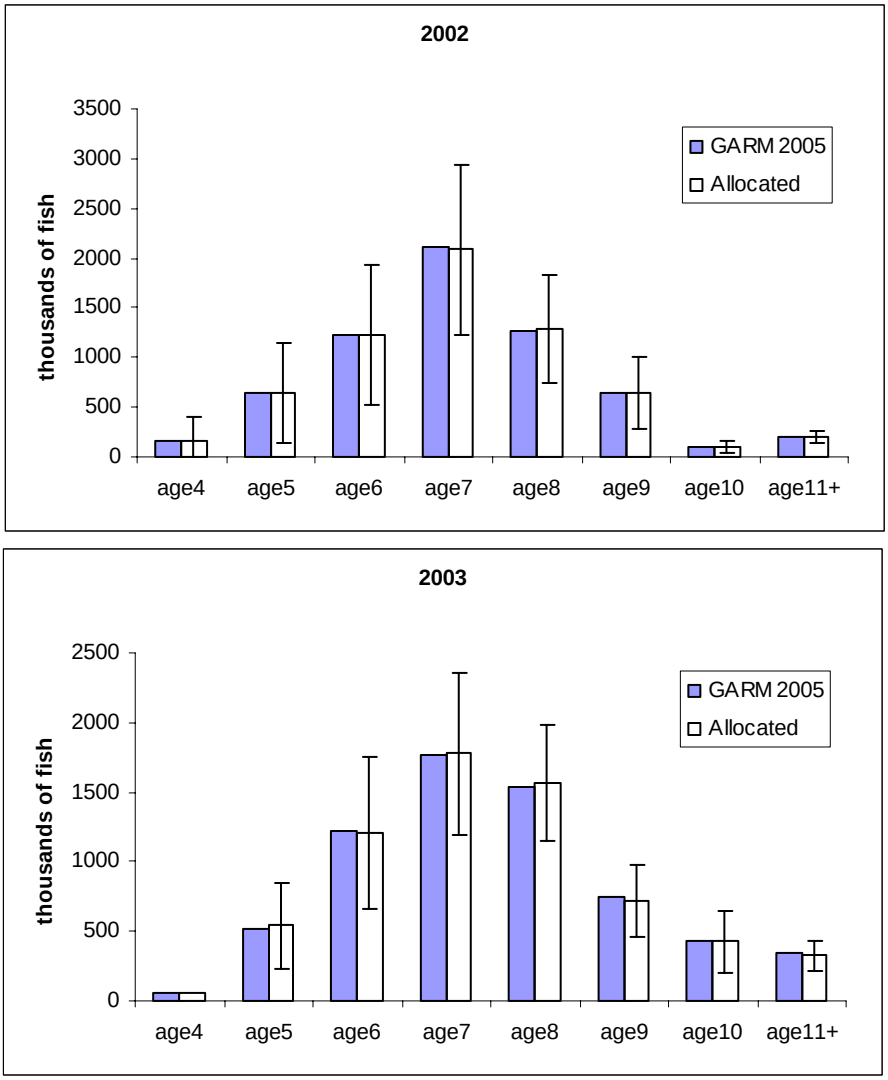
Table VI.8-b. Landings at age (in numbers, 000's) for **witch flounder**, 2002 – 2003, using trip-based allocated data.

Allocated

Year	age4	age5	age6	age7	age8	age9	age10	age11+
1994								
1995								
1996								
1997								
1998								
1999								
2000								
2001								
2002	169	646	1229	2087	1279	645	94	204
2003	59	539	1208	1778	1566	715	428	325
2004								

.

Figure VI.1. Landings at age (in numbers, 000's) of **witch flounder** from GARM 2005 (solid bar) and derived using allocated data (open bar) and error bars represent 2 standard deviations.



Section VII. **White Hake**

- Lengths are used in the white hake assessment to split catch by size group.

Table VII.2. Landings (mt, live) for **White hake** used in GARM 2005 and available in CFDETS (original data) and CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS	CFDETS_AA	Difference
1994	4737	4737.14	4737.13	0
1995	4333	4323.97	4323.99	-9
1996	3287	3281.19	3281.20	-6
1997	2225	2223.03	2223.04	-2
1998	2364	2365.96	2365.97	2
1999	2624	2620.78	2620.78	-3
2000	2990	2983.97	2983.99	-6
2001	3482	3481.49	3481.52	0
2002	3266	3265.82	3266.02	0
2003	4435	4434.48	4434.51	0
2004				

Table VII.3. **White hake** length samples for 1994 to 2003 combined, by stock (unit stock); (blank) = no area assigned to samples.

Sum of sample	a_stock		
o_stock	A	(blank)	Grand Total
O	329	10	339
(blank)	74	1	75
Grand Total	403	11	414

Table VIL4. Number of **White hake** length samples used in the GARM 2005 stock assessment, the number of length samples currently available in CFLEN (original data) and CFLEN_AA (allocated data), and the difference between CFLEN_AA and GARM 2005. *Note: GARM 2005 white hake assessment contained an error for 1996. There were actually 30.*

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	33	33	33	0
1995	12	12	12	0
1996	**27**	30	30	**3**
1997	70	70	70	0
1998	32	32	32	0
1999	22	22	22	0
2000	25	26	26	1
2001	36	36	36	0
2002	56	56	56	0
2003	97	97	97	0
2004	84			

Table VII.5. Number of **White hake** lengths used in the GARM 2005 stock assessment, the number of lengths currently available in CFLEN (original data) and CFLEN_AA (allocated data), and the difference between CFLEN_AA and GARM 2005.

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994	3469	3469	3469	0
1995	1257	1257	1257	0
1996	3234	3234	3234	0
1997	6982	6982	6982	0
1998	3922	3922	3922	0
1999	2320	2320	2320	0
2000	2772	2883	2883	111
2001	4009	4009	4009	0
2002	5428	5428	5428	0
2003	8723	8723	8723	0
2004	7592			

Lengths are used in the white hake assessment to split catch by size group.

Section VIII. **Ocean Pout**

- Negligible differences in species landings between data sets;
- Area changes in biological sampling are inconsequential.

Table VIII.2. Landings (mt, live) for **Ocean pout** used in GARM 2005 and available in CFDETS (original data) and CFDETS_AA (allocated data), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS	CFDETS_AA	Difference
1994	196	196.44	196.44	0
1995	65	65.37	65.37	0
1996	51	51.19	51.19	0
1997	33	33.19	33.19	0
1998	17	17.52	17.52	1
1999	18	18.26	18.26	0
2000	19	18.67	18.67	0
2001	18	17.59	17.59	0
2002	12	12.13	12.13	0
2003	26	25.59	25.59	0
2004	5			

Table VIII.3. **Ocean pout** length samples for 1994 to 2003 combined, by species; a_stock = stock defined with allocated data; o_stock = stock defined with original data; (blank) = no area assigned to length samples.

Sum of length samples	a_stock		
o_stock	A	(blank)	Grand Total
O	167	1	168
(blank)	55	2	57
Grand Total	222	3	225

No commercial age data available for ocean pout.

Table VIII.4. Number of **Ocean pout** length samples used in the GARM 2005 stock assessment, the number of length samples currently available in CFLEN (original data) and CFLEN_AA (allocated data), and the difference between CFLEN_AA and GARM 2005. *GARM 2005 ocean pout assessment does not use length samples, index level assessment.*

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994				
1995		1	1	
1996		1	1	
1997				
1998				
1999				
2000				
2001				
2002		1	1	
2003		4	4	
2004				

Table VIII.5. Number of **Ocean pout** lengths used in the GARM 2005 stock assessment, the number of lengths currently available in CFLEN (original data) and CFLEN_AA (allocated data), and the difference between CFLEN_AA and GARM 2005. *GARM 2005 ocean pout assessment did not use length samples, index level assessment.*

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994				
1995		76	76	
1996		17	17	
1997				
1998				
1999				
2000				
2001				
2002		109	109	
2003		212	212	
2004				

Section IX. **Atlantic Halibut**

Table IX.2. Landings (mt, live) for **Atlantic halibut** used in GARM 2005 and available in CFDETS (original data series) and CFDETS_AA (allocated data series), and difference between CFDETS_AA and GARM 2005.

Year	GARM 2005	CFDETS	CFDETS_AA	Difference
1994	22	21.77	21.77	0
1995	11	10.54	10.54	0
1996	13	13.32	13.32	0
1997	14	14.01	14.01	0
1998	8	8.41	8.42	0
1999	12	11.51	11.51	0
2000	11	11.07	11.07	0
2001	11	10.82	10.82	0
2002	10	10.00	10.01	0
2003	17	16.68	16.68	0
2004	9			

Table IX.3. **Atlantic halibut** length samples for 1994 to 2003 combined, by stock (unit stock); a_stock = stock based on allocated data, o_stock = stock based on original data; (blank) = no area assigned to length samples.

Sum of length samples	a_stock		
o_stock	(blank)	A	Grand Total
(blank)	1	2	3
O		14	14
Grand Total	1	16	17

No commercial age data available for Atlantic halibut.

Table IX.4. Number of **Atlantic halibut** length samples used in the GARM 2005 stock assessment, the number of length samples currently available in CFLEN (original data) and CFLEN_AA (allocated data), and the difference between CFLEN_AA and GARM 2005. *GARM 2005 Atlantic halibut assessment does not use length samples, index level assessment.*

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994		2	2	
1995				
1996				
1997				
1998				
1999				
2000				
2001				
2002				
2003		1	1	
2004		14	14	

Table IX.5. Number of **Atlantic halibut** lengths used in the GARM 2005 stock assessment, the number of lengths currently available in CFLEN (original data) and CFLEN_AA (allocated data), and the difference between CFLEN_AA and GARM 2005. *GARM 2005 Atlantic halibut assessment does not use length samples, index level assessment.*

Year	GARM 2005	CFLEN	CFLEN_AA	Difference
1994		2	2	
1995				
1996				
1997				
1998				
1999				
2000				
2001				
2002				
2003		1	1	
2004		14	14	