#4 - Groundfish

New England Fishery Management Council

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MEMORANDUM

DATE: September 2, 2011

TO: Science and Statistical Committee

FROM: Groundfish Plan Development Team (PDT)

SUBJECT: **Northeast Multispecies Acceptable Biological Catch (ABC) Recommendations for FY 2012 – 2014**

1.   As adopted by Amendment 16 to the Northeast Multiplies Fisher Management Plan, specifications for groundfish stocks are specified every two years. These specifications include the Overfishing Limits (OFLs) and Acceptable Biological Catches (ABCs). This memo provides the PDT recommendations for OFLs and ABCs for FY 2012 – 2014. These recommendations are summarized in Table 1. Additional supporting data for each stock are provided in enclosure (1).

2.   There are twenty stocks managed by this FMP. There are fifteen stocks last assessed at GARM III (2008); three of these stocks use an index assessment. Georges Bank yellowtail flounder was assessed by the Transboundary Resource Assessment Committee (TRAC) in June, 2011. The three winter flounder stocks were assessed at SARC 51 in June, 2011. Pollock was assessed at SARC XX in June, 2010. This report will address the ABCs in three groups: stocks last assessed with an analytic assessment in GARM III, stocks assessed with an index, and stocks assessed with an analytic assessment after GARM III.

3.   Since the August 2011 SSC meeting, the Northeast Fisheries Science Center (NEFSC) advised the Council that assessment updates for stocks last assessed at GARM III would be completed during the winter of 2011/2012. When those assessments are completed the SSC will be asked to develop ABC recommendations for FY 2013 – 2014. This does not remove the need to determine FY 2012 ABCs. It is not certain that all assessment updates will be successful. In addition, the updates may not be completed in time for FY 2012 ABCs to be implemented These updates are primarily intended to provide advice for FY 2013- 2014, but could be used to modify the 2012 ABCs if necessary.

Stocks Last Assessed at GARM III with an Analytic Assessment

4.   For those stocks last assessed using an analytic assessment at GARM III, the original plan was to base FY 2012 -2014 ABCs on projections from the GARM III assessment, using survey indices to determine whether to deviate from the projection results. At SSC meetings in June and August, 2011, the PDT (augmented with additional members and referred to as the APDT) reported on an evaluation of the performance of mid-term projections and survey indices. Based on those reports, the SSC agreed with the PDT's conclusion that mid-term projections were unreliable and were likely to be biased high, and that survey biomass indices frequently did not accurately match changes in stock size. For these reasons, the SSC directed the PDT to prepare ABC recommendations for these stocks based on the FY 2012 ABCs calculated after GARM III. The SSC further advised that additional work would be needed for setting ABCs for FY 2013 and 2014. Since the August 2011 SSC meeting, the Northeast Fisheries Science Center (NEFSC) advised the Council that assessment updates for these stocks would be completed during the winter of 2011/2012. When those assessments are completed the SSC will be asked to develop ABC recommendations for FY 2013 – 2014.

5.   The OFLs and ABCs for these stocks shown in Table 1 were calculated using projections based on GARM III assessments. Consistent with the SSC's advice these projections have not been updated. The assumptions used for biological factors (recruitment, weights-at-age, etc.) were those approved by the GARM review panel. Generally, these assumptions are based on a recent average of observed values. An estimated catch for 2008 and a predicted catch for 2009 were combined with mortality targets for 2010 and 2011 to project the 2012 catch.

6.   Because of the concern over the uncertainty of mid-term projections, the probability of overfishing is not reported for these stocks. Given the work of the APDT in evaluating projection performance, the values produced by the projection output likely under-estimate the true probability of overfishing.

7.   The APDT's work suggested that mid-term projections prepared using actual catches as an input are typically biased high. These results led the SSC to recommend against updating projections with actual catches for the period 2008 – 2010. The implicit rationale for this decision was that catches in recent years were generally lower than TTACs/ACLs and as result the projections would show the stock growing faster than expected. The concern seemed to be that if the tendency for the projections to be biased high continued into the future the ABCs would be set too high. The PDT explored this implicit assumption by updating the projections with actual catch through 2010 and with an estimated 2011 catch. Updated ABCs for FY 2012 – 2014 from these projections were then compared to the original ABC projection prepared after GARM III to determine which resulted in higher values. Except for GOM haddock, the original ABC was lower than the updated ABC. The differences were relatively small, ranging from -1% to 25%. These differences are always smaller than the errors noted by the APDT for five year projections based on GARM III (Table 2).

8.   In the case of GB cod, the PDT recommends using the FY 2011 ABC rather than the FY 2012 ABC. The reasons for this recommendation are provided in enclosure (1).

Index-assessed stocks

9.   For the three stocks assessed with an index, ABCs are based on the default ABC control rule applied to the most recent estimate of stock size (based on a three-year average of the survey index). In the case of ocean pout, the PDT recommendation this results in an ABC that is higher than recent catches, which may not be appropriate since the stock is overfished and stock size continues to decline. This is discussed in enclosure (1).

Stocks Assessed with an Analytic Assessment After GARM III

10.   ABC recommendations for pollock were adopted in 2010 and do not need to be updated.

11.   ABC recommendations for GB yellowtail flounder are provided for the No Action alternative and two alternate rebuilding strategies that are being considered. Please note the values in this table are based on projections that do not take into account the retrospective pattern. This pattern and its implications are discussed in enclosure (1). The No Action strategy would result in an ABC of 0.

12.   ABC recommendations for GB winter flounder and SNE/MA winter flounder are based on short-term projections.

13.   ABC recommendations for GOM winter flounder are based on applying the default ABC control rule to a swept area biomass estimate.

Enclosure (1): ABC Summary Sheets

Table 1 – PDT recommended OFLs and ABCs for FY 2012 – FY 2014. FY 2011 values provided for context. See enclosure for further discussion of GOM winter flounder and ocean pout.

(1) For US/CA stocks, total ABC is shown. After allowing for Canadian share, US ABC will be lower.

Stock	2011		2012		2013		2014		Remarks
	OFL	ABC	OFL	ABC	OFL	ABC	OFL	ABC	
GB cod[(1)]	7,311	5,616	7,311	5,616	N/A	N/A	N/A	N/A	FY 2011 ABC from GARM III
GOM cod	11,715	9,012	11,742	9,018	N/A	N/A	N/A	N/A	FY 2012 ABC from GARM III
GB haddock[(1)]	59,948	46,784	51,150	39,846	N/A	N/A	N/A	N/A	FY 2012 ABC from GARM III
GOM haddock	1,536	1,206	1,296	1,013	N/A	N/A	N/A	N/A	FY 2012 ABC from GARM III
GB yellowtail flounder[(1) (Option 1)]	3,495	2,650	1,691	1,303	2,136	1,640	3,231	2,481	Rebuild by 2023
GB yellowtail flounder[(1)(Option 2)]	3,495	2,650-	1,691	1,445	2,108	1,797	3,169	2,703	Rebuild by 2032
SNE/MA yellowtail flounder	2,174	687	3,166	1,003	N/A	N/A	N/A	N/A	FY 2012 ABC from GARM III
CC/GOM yellowtail flounder	1,355	1,041	1,508	1,159	N/A	N/A	N/A	N/A	FY 2012 ABC from GARM III
Plaice	4,483	3,444	4,727	3,632	N/A	N/A	N/A	N/A	FY 2012 ABC from GARM III
Witch flounder	1,792	1,369	2,141	1,639	N/A	N/A	N/A	N/A	FY 2012 ABC from GARM III
GB winter flounder	2,886	2,224	4,839	3,753	4,819	3,750	4,626	3,598	75% of FMSY
GOM winter flounder	441	238	1,458	1,078	1,458	1,078	1,458	1,078	75% of F_{MSY}; 60% survey efficiency
SNE/MA winter flounder	2,117	897	2,336	626	2,637	697	3,471	912	Low mortality to promote rebuilding
Redfish	10,903	8,356	12,036	9,224	N/A	N/A	N/A	N/A	FY 2012 ABC from GARM III
White hake	4,805	3,638	5,306	3,638	N/A	N/A	N/A	N/A	FY 2012 ABC from GARM III
Pollock	21,853	16,900	19,887	15,400	20,060	15,600	20,554	16,000	75% of FMSY
N windowpane	225	169	230	173	230	173	230	173	75% of FMSY
S windowpane	317	237	515	386	515	386	515	386	75% of FMSY
Ocean pout	361	271	342	256	342	256	342	256	75% of FMSY
Atlantic halibut	130	78	143	85	N/A	N/A	N/A	N/A	FY 2012 ABC from GARM III
Atlantic wolffish	92	83	92	83	N/A	/A	N/A	N/A	FY 2012 ABC from GARM III

Table 2 – Comparison of the differences between the updated and original FY 2012 ABCs and the errors in estimating SSB using a five-year projection from an investigation into the accuracy of mid-term projections

	ABC			Projection Test Errors in SSB		
	Updated	Original	Difference	5th	Median	95th
	Based on an estimate of 2011 catch					
GB cod	6,613	6,214	6.0%	32.7%	94.4%	160.4%
GOM cod	10,262	9,018	12.1%	48.7%	106.5%	197.5%
GOM haddock	1,003	1,013	-1.0%	49.5%	147.7%	281.6%
Plaice	4,046	3,632	10.2%	49.4%	76.5%	113.3%
Witch flounder	1,735	1,639	5.5%	319.0%	483.4%	671.2%
SNE/MA yellowtail flounder	1,179	1,003	14.9%	-44.2%	66.1%	838.6%
CC/GOM yellowtail flounder	1,264	1,159	8.3%	N/A	N/A	N/A
GB haddock	53,101	39,846	25.0%	N/A	N/A	N/A
Atlantic halibut	86	85	1.2%	N/A	N/A	N/A
Acadian redfish	9,569	9,224	3.6%	N/A	N/A	N/A
White hake	N/A	3,638		N/A	N/A	N/A
	Based on 2011 catch = 2011 ACL					
GB cod	6,391	6,214	2.8%	32.7%	94.4%	160.4%
GOM cod	10,029	9,018	10.1%	48.7%	106.5%	197.5%
GOM haddock	1,000	1,013	-1.3%	49.5%	147.7%	281.6%
Plaice	3,824	3,632	5.0%	49.4%	76.5%	113.3%
Witch flounder	1,662	1,639	1.4%	319.0%	483.4%	671.2%
SNE/MA yellowtail flounder	1,053	1,003	4.7%	-44.2%	66.1%	838.6%
CC/GOM yellowtail flounder	1,202	1,159	3.6%	N/A	N/A	N/A
GB haddock	47,751	39,846	16.6%	N/A	N/A	N/A
Atlantic halibut	86	85	1.2%	N/A	N/A	N/A
Acadian redfish	9,414	9,224	2.0%	N/A	N/A	N/A
White hake	N/A	3,638		N/A	N/A	N/A

Northeast Multispecies
Acceptable Biological Catch

FY 2012 -2014

Contents

Stocks Not Assessed Since GARM III

Georges Bank Cod

I. Stock status

Last assessment/terminal year: 2008/2007 (GARM III)
Assessment Model: VPA
Assessment Results: 12%   of SSB_{MSY}; 120% of F_{MSY} proxy
Overfished/overfishing status: Overfished/overfishing occurring
Rebuilding plan: Rebuild by 2026 with a median probability of
                               success

II. Proposed OFL/ABC

	OFL	Total ABC	U.S. ABC
2010	6,272	4,812	3,800
2011	7,311	5,616	4,766
2012	7,311	5,616	TBD
2013	N/A		N/A
2014	N/A		N/A

Basis: Projection from GARM III assessment based on 75 percent of $F_{MSY\ /Frebuild}$; projection not updated with recent catches

Probability of overfishing/overfished: Not estimated

III. Comments

ABC based on projections performed after GARM III. An assessment update is planned for winter 2011/2012. A benchmark assessment is scheduled for fall 2012.

While the U.S. assessment covers the entire GB stock area and has not been updated since 2008, an assessment is performed annually for the eastern component of the stock as part of the US/CA Resource Sharing Understanding. The Transboundary Resource Assessment Committee (TRAC 2011) assessment of Eastern GB cod indicates that portion of the stock is at the second lowest biomass in the time series and has shown no growth since 2005 (Figure 1). Recruitment of EGB cod has been about 20% of the long-term average since 2006. The 2010 survey recruitment indices are higher than in recent years but the assessment does not estimate terminal year recruitment. Average weight at length has declined for EGB cod. As noted by the TRAC: "Resource productivity is currently very poor due to low recent recruitment and low weights at-age." While the U.S. and TRAC assessment models are not identical, the lack of growth in the eastern

8

component of the stock is a cause for concern. In addition, the NEFSC spring and fall surveys remain at low levels.

The TRAC information suggests that the recent increases in the ABC and OFL may not be supported by actual stock conditions. The recent increases are based on an assessment with a terminal year of 2007 and the 2012 ABC is a five-year projection. NEFSC survey indices for the entire stock are not promising; while the fall survey has shown an increase since 2007, the spring survey is essentially flat and both indices are at low levels compared to the time series values. For this reason the PDT recommends keeping the 2012 ABC at the 2011 level until an assessment update can be completed.

Figure 1 – EGB cod adult biomass and recruitment (from TRAC 2011)
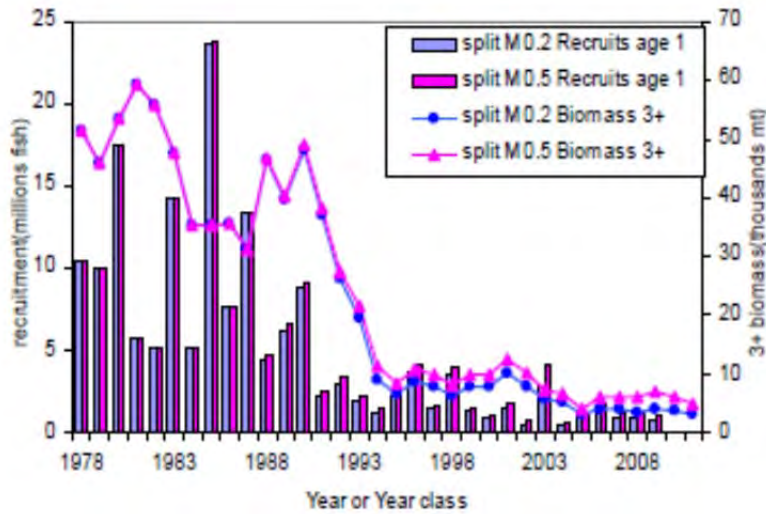
IV. Supporting Data

Survey biomass indices and catch

Year	Spring	Fall	Catch
1978	31.2433	23.2877	48,771
1979	16.2080	16.5066	47,650
1980	24.1331	6.7314	61,172
1981	26.0813	20.2502	53,473
1982	101.9054	6.0756	39,836
1983	23.4843	7.3941	42,422
1984	15.2568	10.0076	26,927
1985	21.6948	3.0916	32,191
1986	16.6843	3.7142	42,044
1987	9.9318	4.4226	34,272
1988	13.4704	5.6003	44,408
1989	10.9433	4.7113	38,916
1990	11.7437	11.5325	29,984
1991	8.9346	1.4229	24,658
1992	7.4413	2.9538	15,845
1993	6.9635	2.1739	9,102
1994	1.2094	3.2573	9,741
1995	8.3729	5.6264	11,795
1996	7.5029	2.7102	9,869
1997	5.2140	1.8938	10,973
1998	11.6512	2.8191	9,727
1999	4.6681	3.0101	13,643
2000	8.2218	1.3518	11,364
2001	5.4726	2.0932	8,881
2002	5.0412	11.2714	5,280
2003	4.1946	2.0933	4,388
2004	14.3256	5.8907	4,537
2005	4.5417	1.5714	5,878
2006	6.0647	2.6450	5,243
2007	5.0645	1.1091	4,711
2008	4.3000	2.8830	3,874
2009	3.3799	4.4280	
2010	3.7609	2.5881	

Figure 2 – GB cod NEFSC spring and fall surveys. Numeric values are average annual change, 2007 - 2010
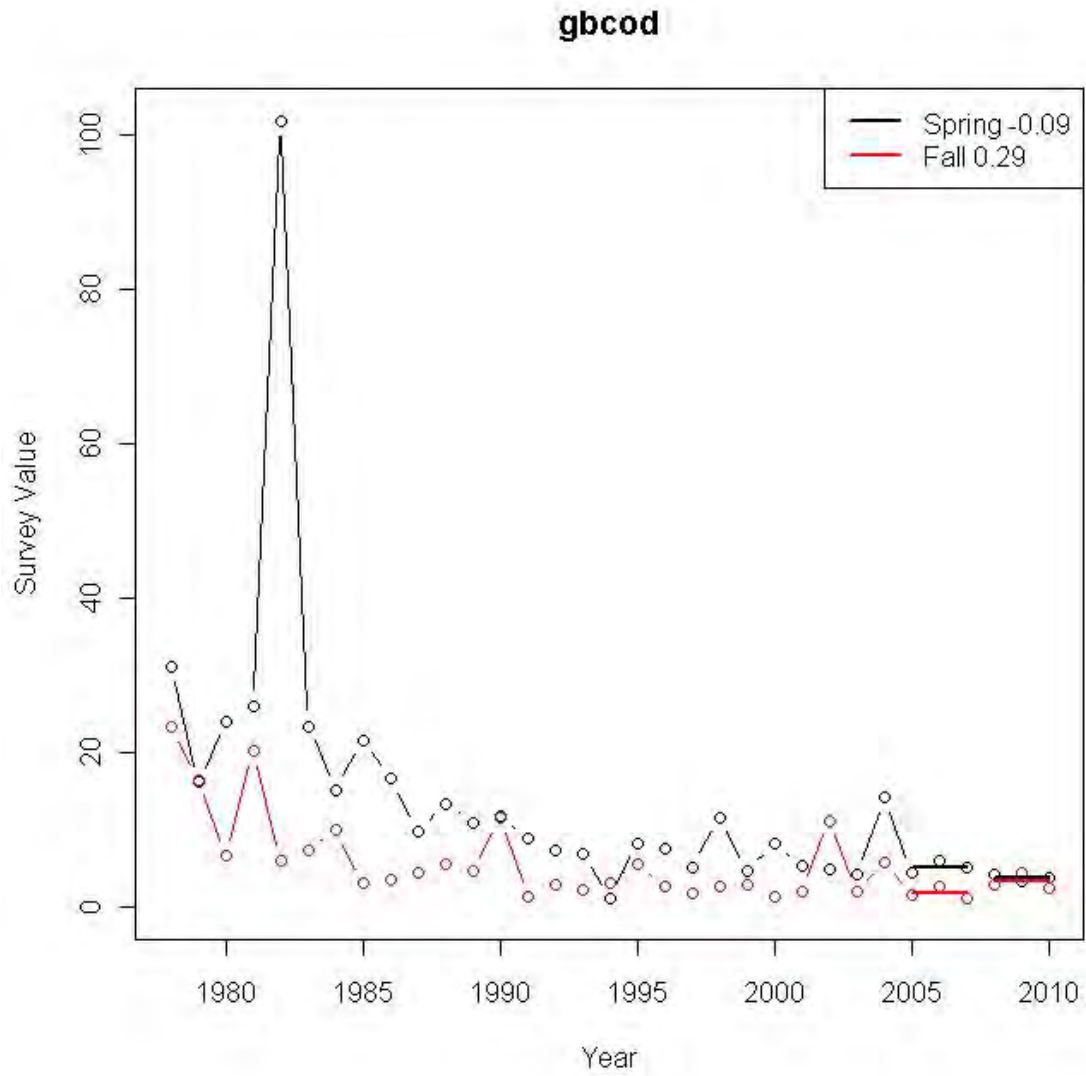
Gulf of Maine Cod

I. Stock status

Last assessment/terminal year: 2008/2007 (GARM III) (SAW 52 assessment planned for December 2011)
Assessment Model: VPA
Assessment Results: 58% of SSB_{MSY}/194% of F_{MSY} proxy
Overfished/overfishing status: Not overfished/overfishing occurring
Rebuilding plan: Rebuild by 2014 with a median probability of success

II. Proposed OFL/ABC

	OFL	ABC
2010	11,089	8,530
2011	11,715	9,012
2012	11,742	9,018
2013	N/A	N/A
2014	N/A	N/A

Basis: Projection from GARM III assessment based on 75 percent of F_{MSY}; projection not updated with recent catches

Probability of overfishing/overfished: Not estimated

III. Comments

ABC based on projections performed after GARM III. A benchmark assessment is scheduled for fall 2011. The results of the benchmark assessment may lead to the need to revise the ABC in January/February 2012. In order to adopt the assessment results, and revise the ABC, if necessary, in time for FY 2012, the Council 47 document will analyze a broad range of ABC alternatives.

IV. Supporting Data

Survey biomass indices and catch

Year	MA Spring	MA Fall	NEFSC Spring	NEFSC Fall	Catch
1982	12.16	0.66	8.6160	15.9190	16,712
1983	18.75	0.09	10.9620	8.4160	15,651
1984	7.24	0.13	6.1430	8.7350	12,147
1985	4.76	0.07	7.6450	8.2640	12,739
1986	7.84	0.25	3.4760	4.7150	11,504
1987	7.86	0.35	1.9760	3.3940	10,894
1988	7.70	0.37	3.6030	6.6160	10,255
1989	17.35	0.22	2.4240	4.5350	14,202
1990	15.88	0.76	3.0760	4.9120	20,296
1991	8.73	0.48	2.8910	2.7810	21,753
1992	8.77	0.27	8.6260	2.4480	12,585
1993	5.86	1.35	5.8750	1.0020	10,293
1994	4.33	2.00	2.4270	2.7370	9,309
1995	3.99	0.81	2.4310	3.6650	7,828
1996	3.15	0.08	5.4270	2.3510	8,014
1997	2.50	0.01	5.6150	1.8720	5,873
1998	3.25	0.36	4.1800	1.5000	4,706
1999	9.00	0.31	5.0890	3.5050	3,395
2000	20.60	0.27	3.2110	4.6520	6,620
2001	26.44	0.76	6.2160	7.3250	9,007
2002	11.16	3.99	10.9330	24.6590	7,056
2003	10.98	1.85	9.4950	5.9930	7,361
2004	8.15	5.58	2.4140	4.9000	6,453
2005	10.40	0.21	2.7030	2.8700	5,826
2006	9.18	1.94	2.7000	4.2300	4,436
2007	8.43	0.08	15.8100	2.7100	5,229
2008	12.23	2.38	9.3900	5.3065	7,606
2009	4.49	0.81	7.2215	5.7439	8,652
2010	5.65	1.40	3.3999	3.3999	5,892

Figure 3 – NEFSC GOM cod fall and spring survey biomass indices
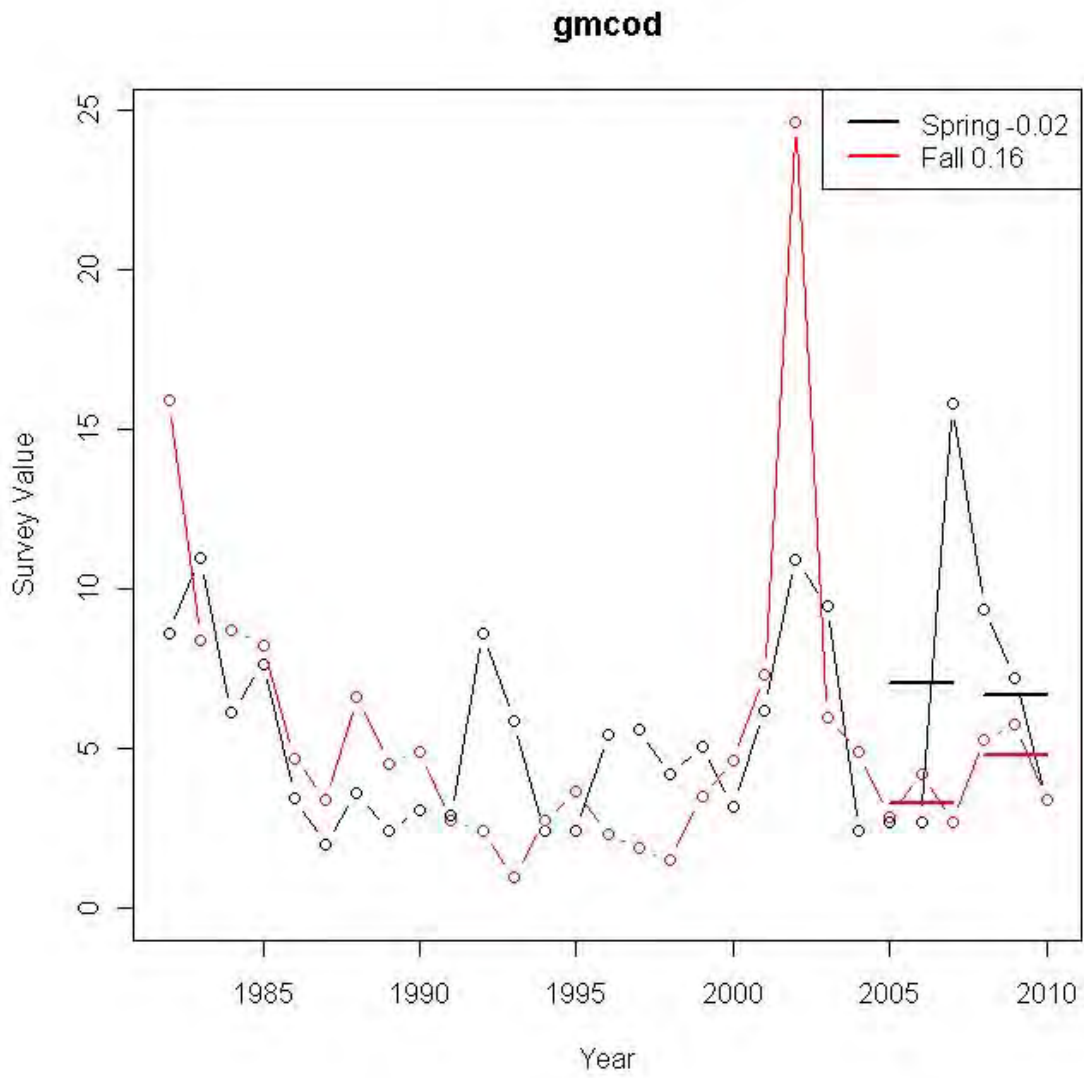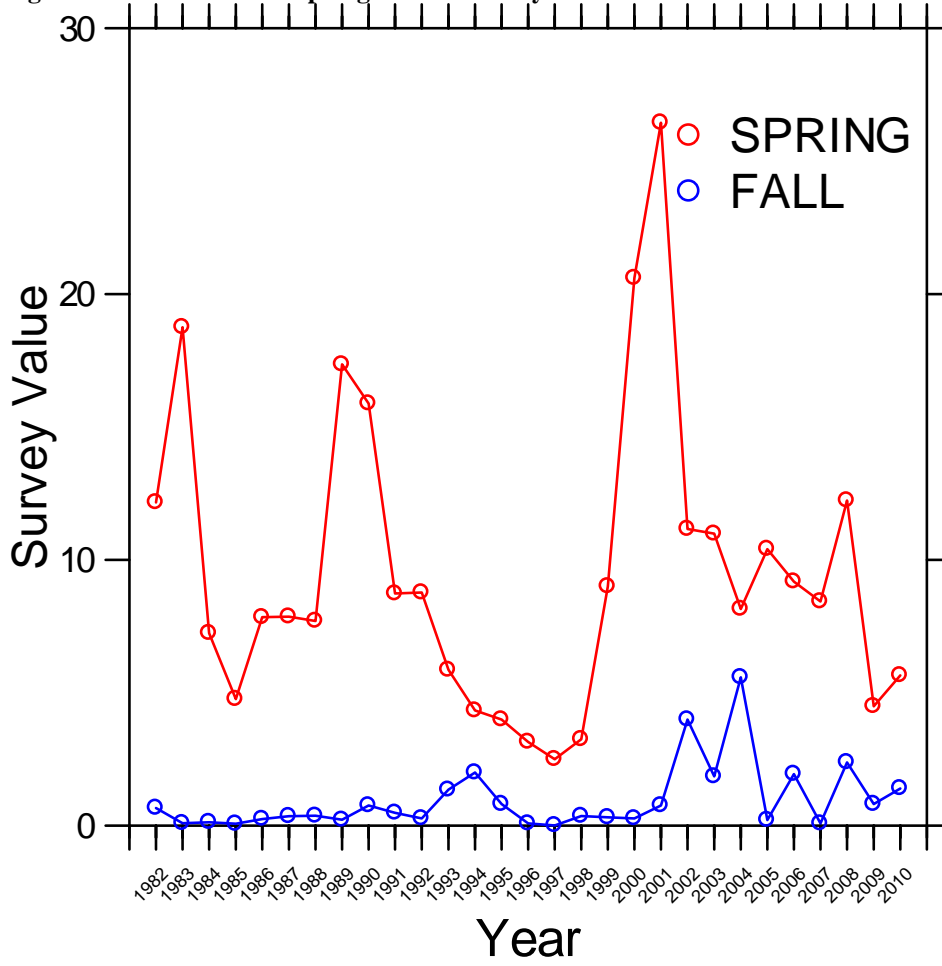
Figure 4 – MA GOM cod spring and fall survey biomass indices

Georges Bank Haddock

I. Stock status

Last assessment/terminal year: 2008/2007 (GARM III)
Assessment Model: VPA
Assessment Results: 200%   of SSB_{MSY}/66% of FMSY
Overfished/overfishing status: Not overfished/overfishing not occurring
Rebuilding plan: N/A

II. Proposed OFL/ABC

	OFL	Total ABC	U.S. ABC
2010	80,007	62,515	44,903
2011	59,948	46,784	34,244
2012	51,150	39,846	TBD
2013	N/A		N/A
2014	N/A		N/A

Basis: Projection from GARM III assessment based on 75 percent of F_{MSY}; projection not updated with recent catches

Probability of overfishing/overfished: Not estimated

III.   Comments

ABC based on projections performed after GARM III. An assessment update is planned for winter 2011/2012.

While the U.S. assessment covers the entire GB stock area and has not been updated since 2008, an assessment is performed annually for the eastern component of the stock as part of the US/CA Resource Sharing Understanding. Annual assessments since 2008 of the eastern component confirmed the status of the stock as the very large 2003 year dominated the population and the fishery. The TRAC noted declines in growth, presumably due to density dependence, caused by the extraordinary size of the 2003 year class. These declines were not included in the GARM III projection assumptions, with the result there may be errors in the selectivity and weight-at-age assumptions used in the GARM III projections. The TRAC 2011 assessment of Eastern GB haddock indicates there is a possibility the 2010 year class may be large.

IV. Supporting Data

Survey biomass indices and catch

Year	Spring	Fall	Catch
1963		79.8000	
1964		96.8000	
1965		72.8000	
1966		29.9000	
1967		25.5000	
1968	20.5838	15.4000	
1969	16.9306	8.4000	
1970	17.1274	13.5000	
1971	5.0312	5.6000	
1972	7.5031	8.5000	
1973	15.3751	9.8000	
1974	17.7071	4.0000	
1975	8.2117	15.1000	
1976	15.7166	35.8000	
1977	26.4687	27.5000	
1978	31.2728	18.1000	
1979	19.6971	32.0000	
1980	53.8303	22.0000	
1981	38.1074	14.0000	
1982	13.1402	7.3000	
1983	13.2132	5.8000	
1984	7.4452	4.5000	
1985	11.1427	3.9000	
1986	5.9002	5.1000	
1987	5.5953	2.6000	
1988	3.4306	5.6000	
1989	4.6967	4.7000	
1990	7.5717	2.6000	
1991	4.3885	0.9000	
1992	1.4082	3.2000	
1993	2.4803	4.3000	
1994	3.6375	2.9000	
1995	5.7232	10.7000	
1996	25.7270	4.1000	
1997	18.5044	6.5000	
1998	6.1159	5.8000	
1999	7.7445	33.1000	
2000	17.8811	15.4000	

Year	Spring	Fall	Catch
2001	6.1097	20.0000	
2002	22.3317	36.3000	
2003	15.6098	23.0000	
2004	41.3542	55.8000	
2005	17.7312	39.4000	
2006	17.3402	37.4000	
2007	34.5917	43.9000	
2008	23.7639	17.9501	
2009	27.6750	34.1992	
2010	40.6819	19.9019	
2011	19.7681		

Figure 5 – NEFSC GB haddock fall and spring survey biomass indices
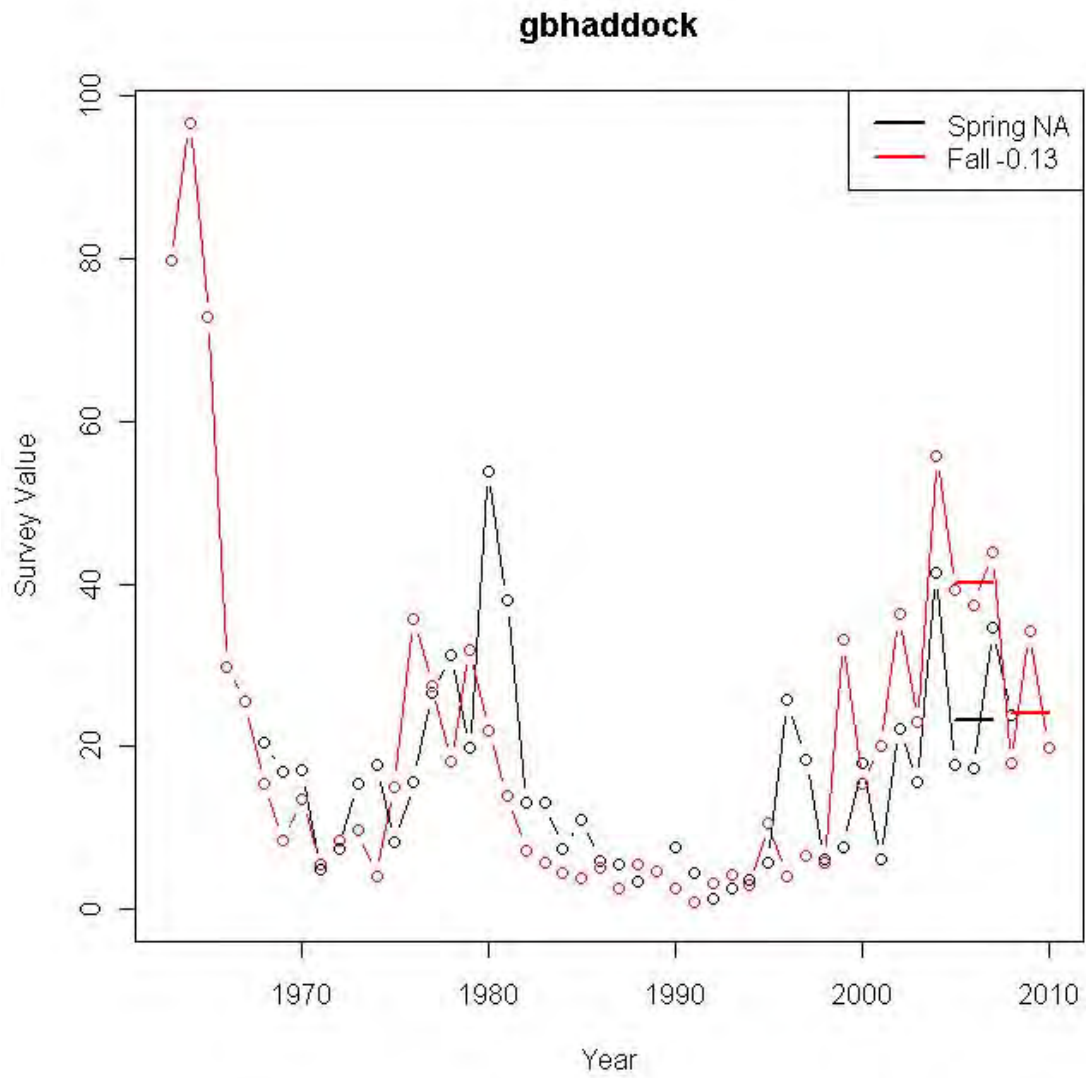
Gulf of Maine Haddock

I. Stock status

Last assessment/terminal year:	2008/2007 (GARM III)
Assessment Model:	VPA
Assessment Results:	99% of SSB_{MSY}/81% of F_{MSY}
Overfished/overfishing status:	Not overfished/overfishing not occurring
Rebuilding plan:	None

II. Proposed OFL/ABC

	OFL	ABC
2010	1,617	1,265
2011	1,536	1,206
2012	1,296	1,013
2013	N/A	N/A
2014	N/A	N/A

Basis: Projection from GARM III assessment based on 75 percent of F_{MSY}; projection not updated with recent catches

Probability of overfishing/overfished: Not estimated

III. Comments

ABC based on projections performed after GARM III. An assessment update is planned for winter 2011/2012

IV. Supporting Data

Survey biomass indices and catch

Year	MA Spring	MA Fall	NEFSC Spring	NEFSC Fall	Catch
1977			6.7253	8.7519	
1978	11.06	1.51	1.4342	21.6584	
1979	14.28	1.05	3.9477	15.5669	
1980	14.51	1.28	2.6725	9.8346	6,521
1981	18.69	3.64	3.5452	10.8744	6,259
1982	12.16	0.66	2.5548	4.1640	6,931
1983	18.75	0.09	3.5672	5.2193	7,601
1984	7.24	0.13	1.1442	3.8933	4,050
1985	4.76	0.07	1.8816	6.1490	3,031
1986	7.84	0.25	1.2844	1.3924	1,815
1987	7.86	0.35	0.0625	2.6454	829
1988	7.70	0.37	0.3010	1.4759	416
1989	17.35	0.22	0.1245	0.6305	273
1990	15.88	0.76	0.0000	0.4322	436
1991	8.73	0.48	0.0657	0.1196	435
1992	8.77	0.27	0.2712	0.0913	333
1993	5.86	1.35	0.1997	0.4724	223
1994	4.33	2.00	0.2530	0.2174	177
1995	3.99	0.81	0.3498	1.0988	453
1996	3.15	0.08	0.3384	3.5428	359
1997	2.50	0.01	1.2224	2.4240	1,015
1998	3.25	0.36	0.1123	2.9174	958
1999	9.00	0.31	1.1075	4.9100	570
2000	20.60	0.27	1.8150	14.0316	937
2001	26.44	0.76	3.2045	11.9806	1,170
2002	11.16	3.99	2.7932	4.8352	1,164
2003	10.98	1.85	3.9078	5.3593	1,237
2004	8.15	5.58	1.1985	7.1708	1,408
2005	10.40	0.21	0.9709	3.9318	1,714
2006	9.18	1.94	2.6614	3.9453	1,168
2007	8.43	0.08	0.6750	4.3934	1,356
2008	12.23	2.38	1.5102	3.1465	1,166
2009	4.49	0.81	2.6966	1.1535	1,045
2010	5.65	1.40	2.3188	3.5416	1,370

Figure 6 – GOM haddock NEFSC fall and spring surveys.
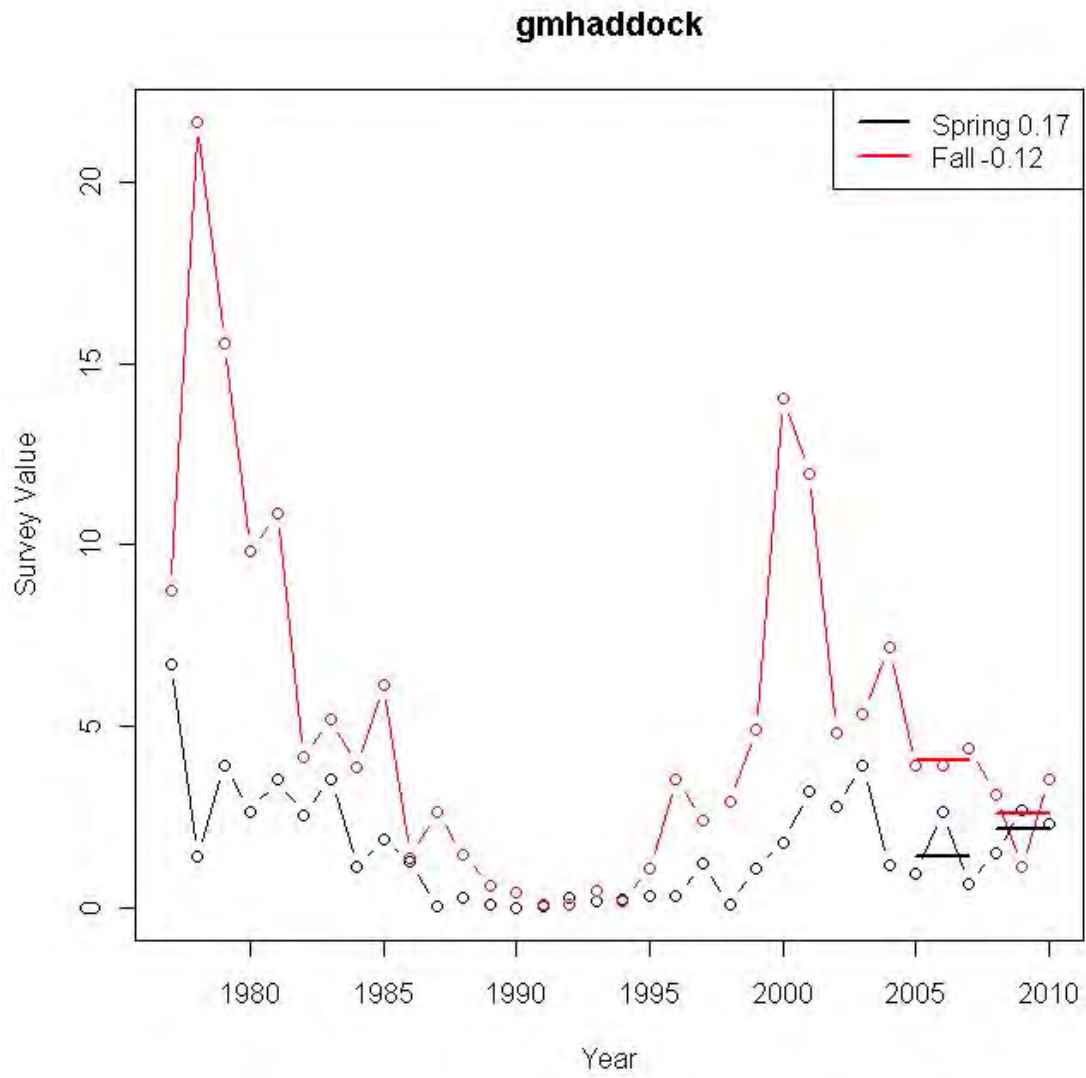
Southern New England Yellowtail Flounder

I. Stock status

Last assessment/terminal year:	2008/2007 (GARM III)
Assessment Model:	VPA
Assessment results:	13% of SSB_{MSY}/160% of F_{MSY}
Overfished/overfishing status:	Overfished/Overfishing occurring
Rebuilding plan:	Rebuild by 2014 with a median probability of success

II. Proposed OFL/ABC

	OFL	ABC
2010	1,553	493
2011	2,174	687
2012	3,166	1,003
2013	N/A	N/A
2014	N/A	N/A

Basis: Projection from GARM III assessment based on Frebuild; projection not updated with recent catches

Probability of overfishing/overfished: Not estimated

III. Comments

ABC based on projections performed after GARM III. A benchmark assessment is scheduled for spring 2012.

IV. Supporting Data

Survey biomass indices and catch

Year	Spring	FALL	Catch
1973	7.9380	4.0000	
1974	3.6390	1.9770	
1975	0.9670	0.7290	
1976	1.1250	2.5010	
1977	1.3320	1.2240	
1978	2.6000	2.1800	
1979	0.8290	1.9780	
1980	3.1800	1.4730	6,300
1981	4.3590	4.4020	5,400
1982	6.3810	7.3040	10,726
1983	5.2450	5.7480	18,500
1984	1.6670	1.3230	10,100
1985	0.9480	0.2530	3,600
1986	1.0520	0.6570	3,548
1987	0.3190	0.4010	1,771
1988	0.3780	0.5100	994
1989	1.7760	2.0050	2,897
1990	4.3040	1.1090	8,236
1991	2.1320	0.6420	4,113
1992	0.7940	0.1470	1,640
1993	0.3410	0.0980	674
1994	0.1160	0.3080	735
1995	0.3290	0.3040	343
1996	0.7470	0.2080	774
1997	0.7890	0.8510	1,226
1998	0.8480	0.6550	1,088
1999	1.1380	0.4680	1,450
2000	0.9900	0.7180	1,239
2001	0.6530	0.4200	1,326
2002	0.5100	1.0950	811
2003	0.1670	0.4340	607
2004	0.2290	0.1030	614
2005	0.2220	0.4960	362
2006	0.3900	0.7010	363
2007	0.3670	0.4510	366
2008	0.4440	0.9360	504
2009	0.6530	0.4282	457
2010	0.8260	3.6870	242

Figure 7 – NEFSC SNE/MA yellowtail flounder fall and spring survey biomass indices
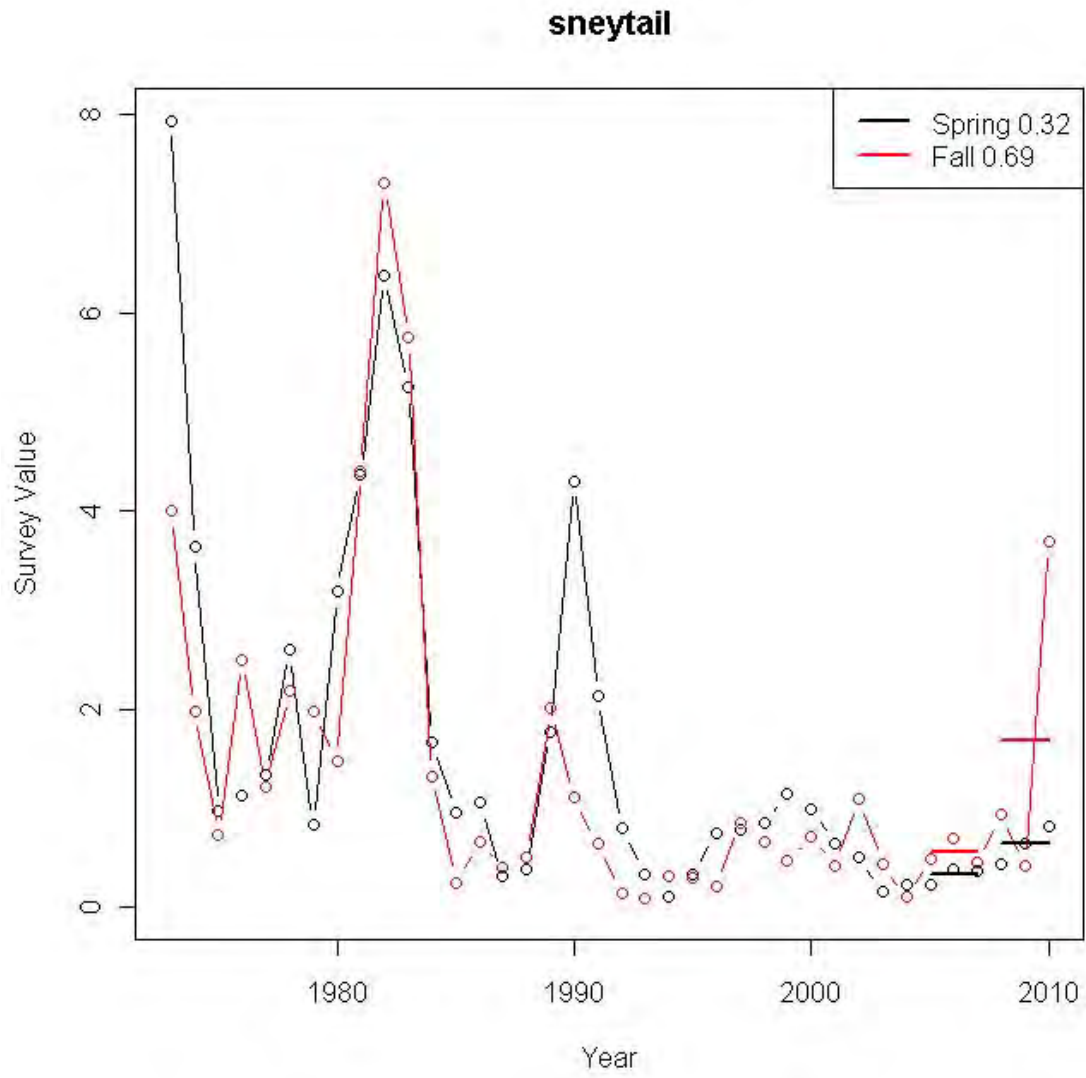
Cape Cod/Gulf of Maine Yellowtail Flounder

I. Stock status

Last assessment/terminal year: 2008/2007 (GARM III)
Assessment Model: VPA
Assessment Results: 25% of SSB_{MSY}/170% of F_{MSY}
Overfished/overfishing status: Overfished/Overfishing occurring
Rebuilding plan: Rebuild by 2023 with a median probability of
                                   success

II. Proposed OFL/ABC

	OFL	ABC
2010	1,124	863
2011	1,355	1,041
2012	1,508	1,159
2013	N/A	N/A
2014	N/A	N/A

Basis: Projection from GARM III assessment based on 75 percent of F_{MSY}; projection not updated with recent catches.

Probability of overfishing/overfished: Not estimated

III. Comments

ABC based on projections performed after GARM III. An assessment update is planned for winter 2011/2012.

IV. Supporting Data

Survey biomass indices and catch

Year	MA Spring	MA Fall	NEFSC Spring	NEFSC Fall	Catch
1985	4.85	1.31	0.6150	1.5610	1,171
1986	4.40	1.37	0.4700	0.9070	1,205
1987	3.42	1.05	2.5270	0.5560	1,353
1988	3.50	3.92	1.0770	1.1260	1,275
1989	4.34	1.46	0.7330	1.8710	1,117
1990	6.32	3.43	1.6560	1.9930	3,222
1991	2.85	2.30	1.5160	1.0220	1,737
1992	5.35	1.91	0.7650	1.9320	1,031
1993	3.97	3.03	0.5010	0.9400	786
1994	5.58	2.37	1.0200	2.7010	1,351
1995	7.74	4.66	2.0360	0.7830	1,515
1996	6.58	1.19	1.1080	2.6140	1,509
1997	4.73	1.38	1.3110	2.2770	1,676
1998	3.34	2.08	1.1550	1.6370	1,619
1999	3.67	3.74	1.9770	5.9830	1,451
2000	12.96	2.86	9.5060	3.4720	2,586
2001	11.74	2.67	2.2870	1.8910	2,615
2002	6.30	1.27	3.6930	0.7080	2,159
2003	6.24	3.26	1.9110	3.4440	1,971
2004	3.99	4.37	1.0750	0.4910	1,187
2005	6.37	1.99	1.4150	0.6220	997
2006	8.20	2.52	1.2690	0.8060	621
2007	9.21	2.23	3.4570	3.4510	640
2008	12.95	3.16	2.9580	4.7850	723
2009	10.23	2.85	3.6020	5.9569	611
2010	10.35	4.88	5.2550	3.7327	633

Figure 8 – CC/GOM yellowtail flounder NEFSC fall and spring survey biomass indices
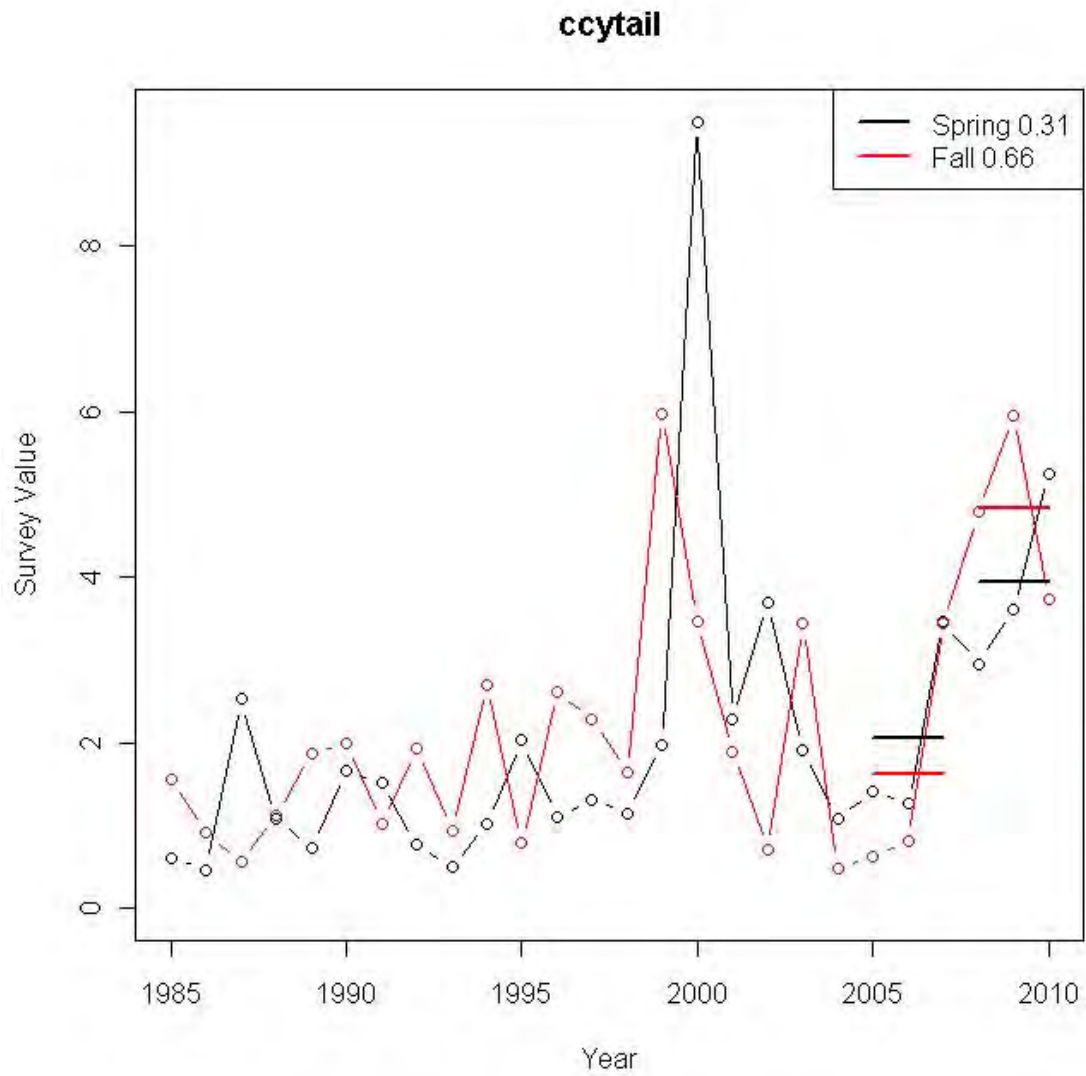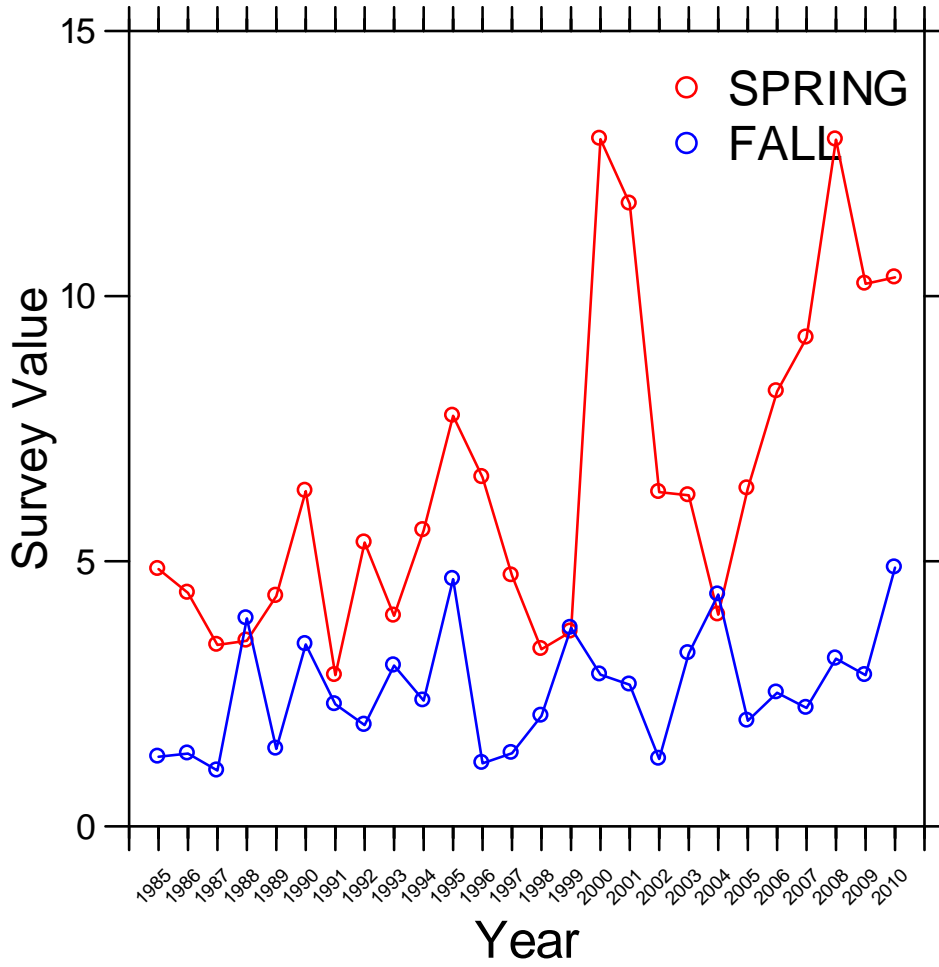
Figure 9 – MA CC/GOM yellowtail flounder spring and fall survey biomass indices

Plaice

I. Stock status

Last assessment/terminal year: 2008/2007 (GARM III)
Assessment Model: VPA
Assessment results: 50% of SSB_{MSY}/47% of F_{MSY} proxy
Overfished/overfishing status: Not overfished/overfishing not occurring
Rebuilding plan: Rebuild by 2014 with a median probability of
                                  success

II. Proposed OFL/ABC

	OFL	ABC
2010	4,110	3,156
2011	4,483	3,444
2012	4,727	3,632
2013	N/A	N/A
2014	N/A	N/A

Basis: Projection from GARM III assessment based on 75 percent of F_{MSY}; projection not updated with recent catches.

Probability of overfishing/overfished: Not estimated

III. Comments

ABC based on projections performed after GARM III. An assessment update is planned for winter 2011/2012.

IV. Supporting Data

Survey biomass indices and catch

Year	MA Spring	MA Fall	NEFSC Spring	NEFSC Fall	Catch
1980	10.57	5.78	4.7816	5.1216	12,729
1981	11.56	2.84	5.8774	5.6167	12,929
1982	10.35	5.56	3.7967	2.4859	15,146
1983	8.13	4.45	4.5982	3.4497	13,171
1984	4.72	2.36	1.4204	2.0227	10,171
1985	5.02	3.86	1.8781	1.9962	7,037
1986	7.60	5.41	0.9202	1.5565	4,513
1987	3.94	2.65	0.8075	1.0935	3,835
1988	5.62	7.75	0.8350	1.4608	3,430
1989	8.63	10.83	0.7451	1.1733	3,661
1990	8.50	6.70	0.7530	2.8951	4,145
1991	7.17	14.51	1.0475	1.5548	6,176
1992	8.55	8.31	1.3555	1.7787	7,254
1993	5.00	8.00	1.3885	2.3945	6,332
1994	6.41	9.66	0.8540	2.6721	5,658
1995	8.16	6.81	1.9385	2.5805	5,711
1996	5.59	8.31	1.6892	2.2255	4,957
1997	5.53	5.63	1.6201	1.9358	4,789
1998	3.96	3.03	1.1117	2.2197	4,450
1999	4.65	6.07	1.1974	2.5737	3,886
2000	9.59	6.74	2.3034	2.7974	4,653
2001	6.34	7.86	2.1874	2.6326	5,028
2002	4.80	6.45	1.7553	2.2429	3,745
2003	6.60	5.43	0.8688	2.2670	2,844
2004	6.12	5.19	1.3513	0.9670	2,181
2005	4.78	7.18	0.8278	0.9897	1,642
2006	6.57	6.25	0.9895	1.7082	1,390
2007	8.21	6.26	1.2850	1.4390	1,255
2008	8.45	6.50	1.4720	2.1070	1,358
2009	8.99	5.06	1.0225	1.4395	1,773
2010	5.43	4.93	1.1592	1.4980	1,777

Plaice

Figure 10 – NEFSC plaice fall and spring survey biomass indices

amerplaice
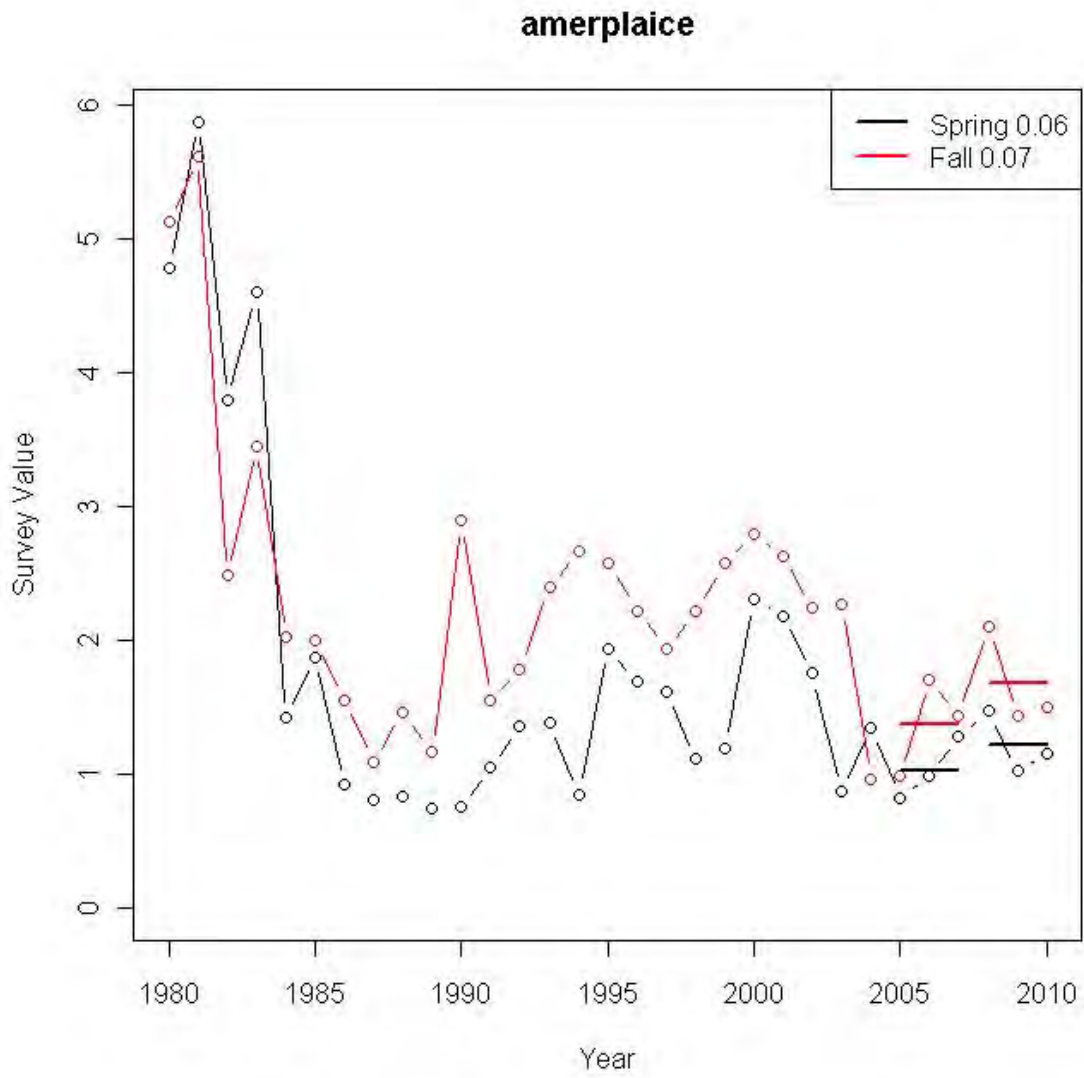
Figure 11 – MA plaice spring and fall survey biomass indices
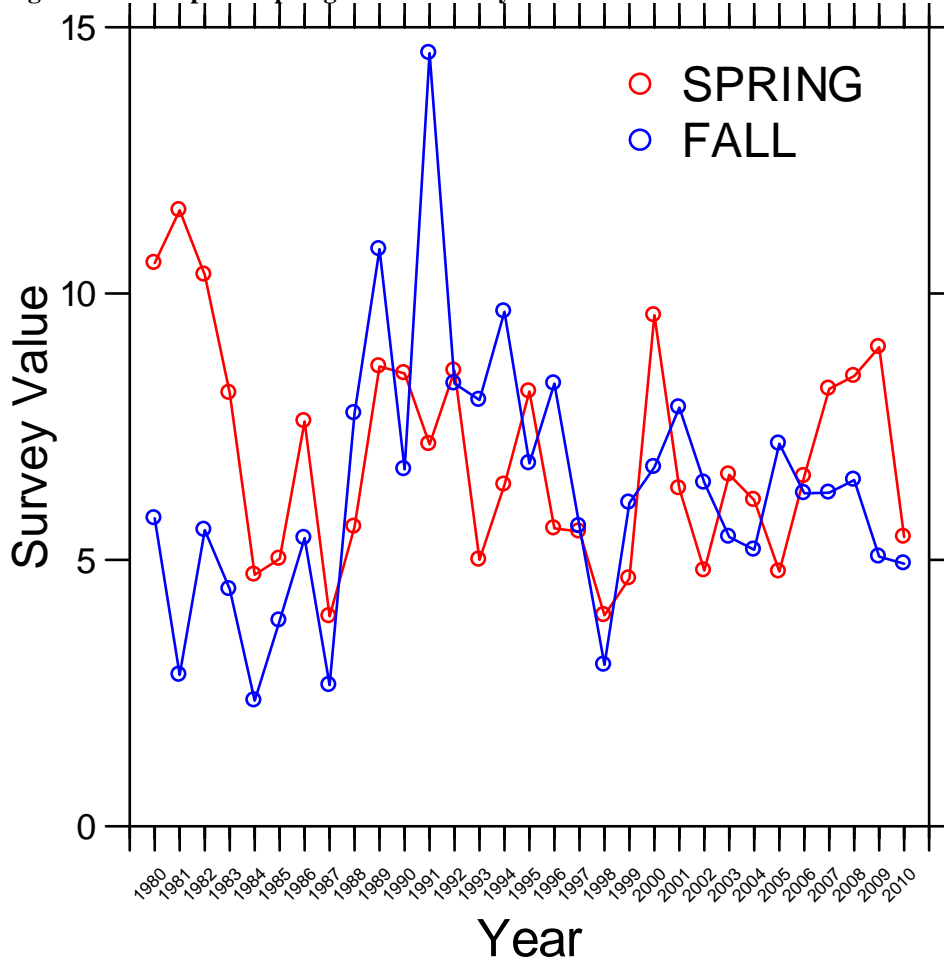
Witch Flounder

I. Stock status

Last assessment/terminal year:	2008/2007 (GARM III)
Assessment Model"	VPA
Assessment Results:	30% of SSB_{MSY}/126% of F_{MSY} proxy
Overfished/overfishing status:	Overfished/overfishing occurring
Rebuilding plan:	Rebuild by 2017 with a 75 percent probability of success

II. Proposed OFL/ABC

	OFL	ABC
2010	1,239	944
2011	1,792	1,369
2012	2,141	1,639
2013	N/A	N/A
2014	N/A	N/A

Basis: Projection from GARM III assessment based on 75 percent of F_{MSY}; projection not updated with recent catches.

Probability of overfishing/overfished: Not estimated

III.   Comments

ABC based on projections performed after GARM III. An assessment update is planned for winter 2011/2012.

Because this species is not fully-recruited until age 8, projected catches for this stock are less sensitive to errors in estimating recruitment.

IV. Supporting Data

Survey biomass indices and catch

Year	MA Spring	MA Fall	NEFSC Spring	NEFSC Fall	Catch
1982	0.47	0.64	1.8666	0.8343	4,963
1983	1.02	1.46	2.7377	2.1160	6,207
1984	0.76	0.37	1.6629	2.3350	6,775
1985	0.73	0.50	2.7522	1.5935	6,492
1986	0.65	0.24	1.3480	1.0857	5,241
1987	0.73	0.13	0.6506	0.3732	3,866
1988	0.20	0.16	0.8456	0.5701	3,725
1989	0.05	0.06	0.7437	0.3754	2,454
1990	0.17	0.03	0.2364	0.4004	1,575
1991	0.04	0.21	0.5741	0.5365	2,001
1992	0.12	0.25	0.4820	0.2384	2,446
1993	0.01	0.15	0.3595	0.5394	2,835
1994	0.00	0.12	0.5314	0.4209	3,043
1995	0.06	0.41	0.4667	0.6243	2,423
1996	0.00	0.01	0.2771	1.0203	2,304
1997	0.01	0.15	0.4332	0.7679	1,988
1998	0.00	0.08	0.7700	0.4700	2,056
1999	0.00	0.17	0.4800	0.8800	2,417
2000	0.10	0.24	0.5200	1.1100	2,670
2001	0.02	0.12	0.7500	1.7100	3,359
2002	0.03	0.70	1.6100	1.0600	3,447
2003	0.04	0.53	1.3000	0.7900	3,488
2004	0.00	0.13	1.0800	1.0300	3,258
2005	0.03	0.19	0.8900	0.3800	2,821
2006	0.08	0.10	0.7200	0.4600	1,966
2007	0.13	0.15	0.5800	0.5700	1,190
2008	0.09	0.40	1.4004	0.6400	1,071
2009	0.08	0.40	0.5164	0.4528	1,060
2010	0.05	0.46	0.5443	0.3607	849

Figure 12 – NEFSC witch flounder spring and fall survey biomass indices
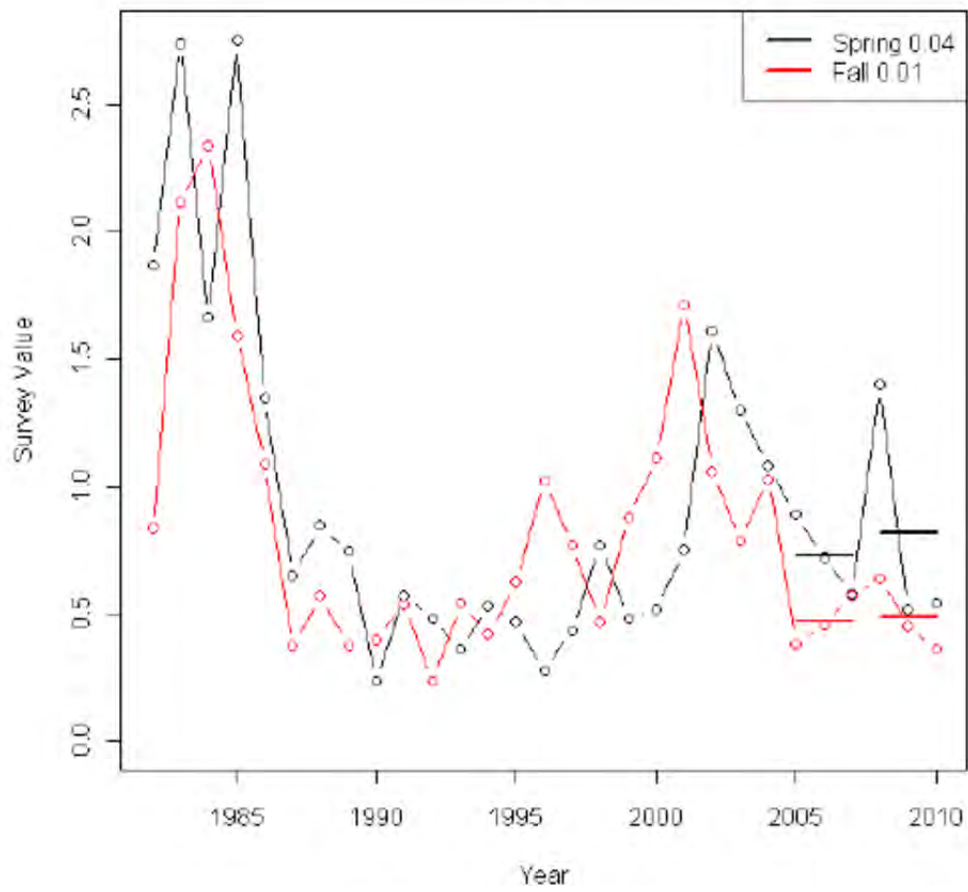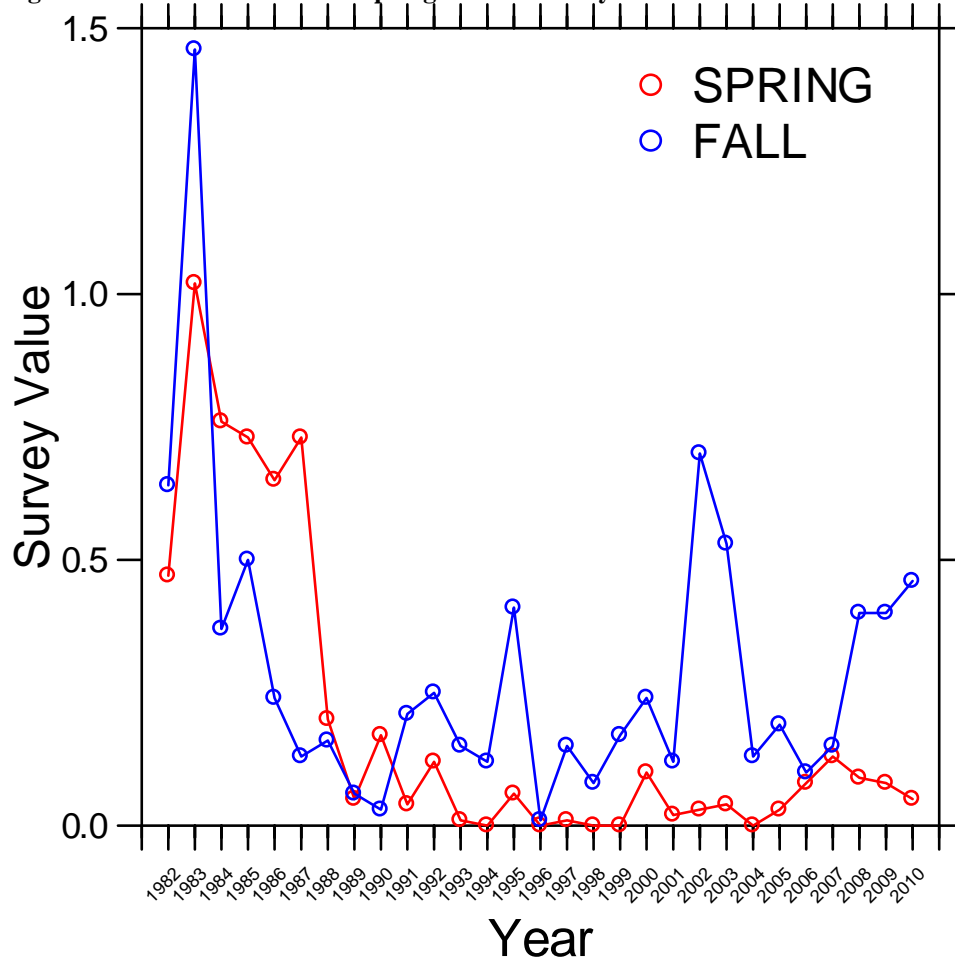
Figure 13 – MA witch flounder spring and fall survey biomass indices

Gulf of Maine/Georges Bank Acadian redfish

I. Stock status

Last assessment/terminal year: 2008/2007 (GARM III)
Assessment Model: ASAP
Assessment Results: 64%   of SSB_{MSY}/17% of F_{MSY} proxy
Overfished/overfishing status: Not overfished/overfishing not occurring
Rebuilding plan: Rebuild by 2051 with a median probability of
                                      success

II. Proposed OFL/ABC

	OFL	ABC
2010	9,899	7,586
2011	10,903	8,356
2012	12,036	9,224
2013	N/A	N/A
2014	N/A	N/A

Basis: Projection from GARM III assessment based on 75 percent of F_{MSY}; projection not updated with recent catches.

Probability of overfishing/overfished: Not estimated

III. Comments

ABC based on projections performed after GARM III. An assessment update is planned for winter/spring 2011.

IV. Supporting Data

Survey time series biomass indices and catch

Year	Spring	FALL	Catch
1963		24.1100	
1964		53.6400	
1965		13.2000	
1966		29.2700	
1967		24.3700	
1968	17.0865	40.4300	
1969	19.6890	23.7600	
1970	18.9317	32.9600	
1971	71.5629	23.4200	
1972	44.3628	24.6300	
1973	25.2981	17.0300	
1974	18.8366	24.1600	
1975	17.6112	39.9500	
1976	26.1939	15.2900	
1977	11.5881	17.2500	
1978	12.1666	20.7400	
1979	32.2127	15.9800	
1980	20.3439	12.6300	10,183
1981	18.3066	12.2400	7,915
1982	9.4073	3.4800	6,903
1983	6.0685	4.1200	5,328
1984	2.6798	3.9300	4,793
1985	6.6059	5.6900	4,282
1986	3.2168	8.0100	2,929
1987	12.9264	5.4600	1,894
1988	3.2664	6.3300	1,177
1989	2.9825	6.8100	671
1990	6.8144	12.1600	639
1991	4.2622	8.3600	2,068
1992	10.6712	8.0900	979
1993	17.4981	11.2000	1,054
1994	3.9201	5.9400	569
1995	1.9166	4.6500	640
1996	11.8872	30.6300	755
1997	34.0375	18.9400	430
1998	7.8381	31.7200	580
1999	19.0186	22.8600	389
2000	56.0080	26.1600	488

Year	Spring	FALL	Catch
2001	37.9675	28.1700	724
2002	61.2065	41.8800	497
2003	33.3354	65.4900	571
2004	55.6702	36.6300	520
2005	46.2613	46.9500	662
2006	10.3311	50.2200	657
2007	35.0957	50.3900	1,164
2008	46.0144	62.2791	1,373
2009	59.9395	41.3076	1,667
2010	29.4131	81.4783	1,852

Figure 14 – NEFSC redfish fall and spring survey biomass indices
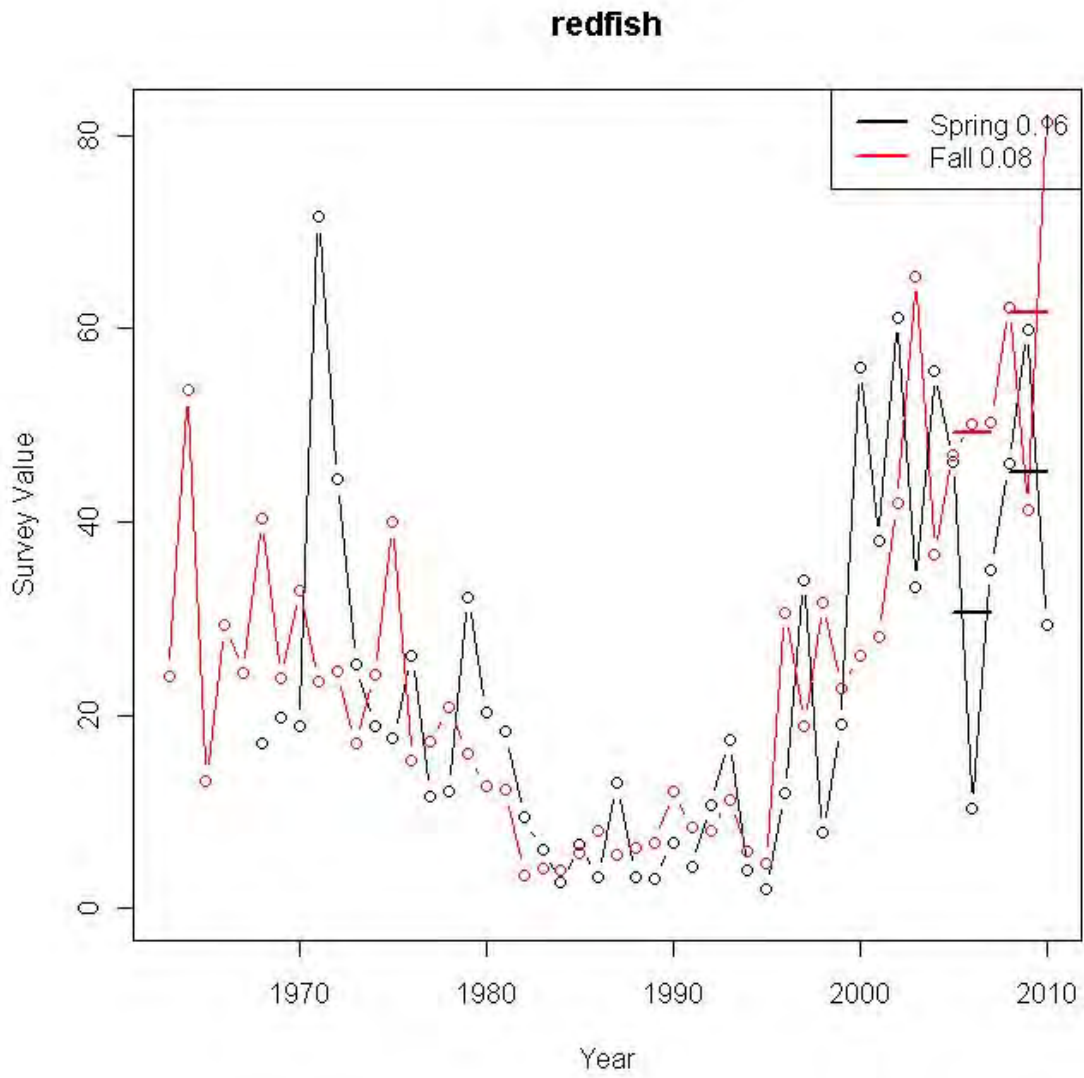
Gulf of Maine/Georges Bank White Hake

I. Stock status

Last assessment/terminal year: 2008/2007 (GARM III)
Assessment Model: SCAA
Assessment Results: 35%   of SSB_{MSY}/125% of FMSY
Overfished/overfishing status: Overfished/overfishing occurring
Rebuilding plan: Rebuild by 2014 with a median probability of success

II. Proposed OFL/ABC

	OFL	ABC
2010	4,130	2,832
2011	4,805	3,295
2012	5,306	3,638
2013	N/A	N/A
2014	N/A	N/A

Basis: Projection from GARM III assessment based on Frebuild; projection not updated with recent catches.

Probability of overfishing/overfished: Not estimated

III. Comments

ABC based on projections performed after GARM III.

IV. Supporting Data

Survey time series biomass indices and catch

Year	Spring	Fall	Catch
1963	6.3100		
1964	4.1400		
1965	6.8600		
1966	7.6700		
1967	3.6400		
1968	1.7400	4.5400	
1969	5.0900	13.0900	
1970	11.8600	12.8200	
1971	5.1400	12.1000	
1972	12.6600	13.1000	
1973	12.2200	13.4600	
1974	13.9900	11.0000	
1975	11.2200	7.2300	
1976	17.0100	10.5600	
1977	11.0100	13.7400	
1978	6.1400	12.5400	
1979	4.9700	10.3100	
1980	13.9600	16.6600	6,630
1981	19.9200	12.1600	8,428
1982	8.9100	2.1100	9,112
1983	3.1200	10.7900	9,471
1984	4.1700	8.2300	10,195
1985	5.3800	9.7400	10,898
1986	5.6100	11.5600	9,270
1987	6.4400	9.6200	8,362
1988	3.6900	9.8800	6,976
1989	3.2200	9.2300	7,955
1990	18.3700	10.5800	8,154
1991	6.1400	12.2000	8,215
1992	7.1100	11.2400	12,602
1993	6.8400	11.6600	10,342
1994	3.1700	7.0200	7,108
1995	4.0200	8.2000	5,791
1996	3.0700	6.3500	4,108
1997	0.8900	4.5500	3,391
1998	1.0900	4.2700	3,724
1999	2.9700	3.4400	4,462
2000	3.3300	6.7200	4,375

Year	Spring	Fall	Catch
2001	5.1800	7.9700	5,998
2002	6.3200	6.7300	3,763
2003	5.7300	4.9100	5,081
2004	5.1900	3.7200	4,229
2005	5.5200	3.5900	3,136
2006	1.4600	4.1800	2,256
2007	2.6400	6.5600	2,163
2008	3.7700	6.6690	1,911
2009	4.1837	4.5649	2,375
2010	5.4973	7.9349	2,219

Figure 15 – NEFSC white hake fall and spring survey biomass abundance indices
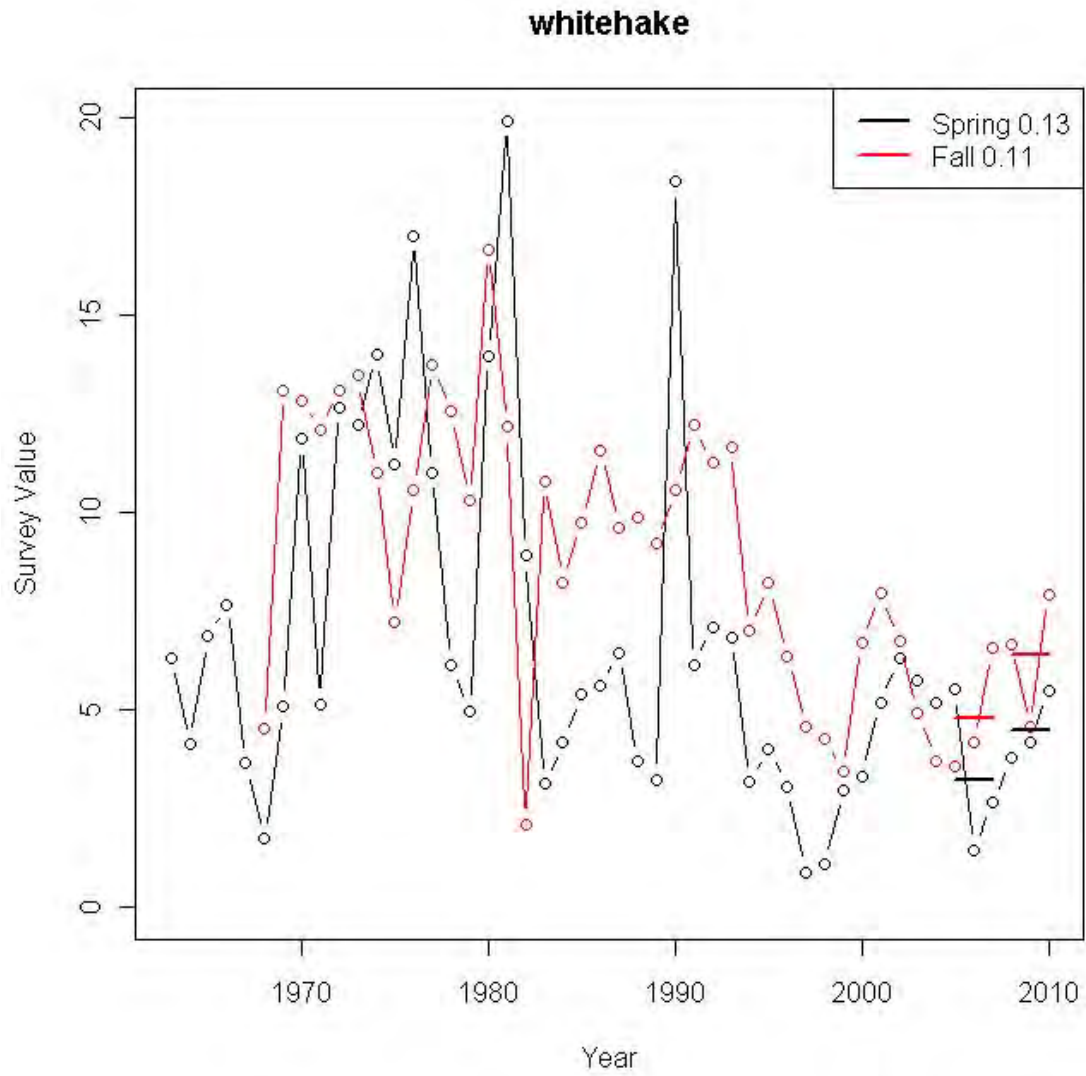
Atlantic Halibut

I. Stock status

Last assessment/terminal year:　　　2008/2007
Assessment Model:　　　　Replacem　　　ent yield
Assessment Results:　　　　5% of B_{MSY}/89% of F_{MSY} proxy
Overfished/overfishing status:　　　Overfished/overfishing not occurring
Rebuilding plan:　　　　Rebuild by 2055

II. Proposed OFL/ABC

	OFL	ABC
2010	119	71
2011	130	78
2012	143	85
2013	N/A	N/A
2014	N/A	N/A

Basis: Projection from last assessment at Frebuild.

Probability of overfishing/overfished: Not estimated

III.　Comments

ABC based on projections performed after most recent assessment.

IV. Supporting Data

Survey time series biomass indices and catch

Year	Spring	Fall	Catch
1963		0.0850	
1964		0.0670	
1965		0.0320	
1966		0.0040	
1967		0.0090	
1968	0.1290	0.2330	
1969	0.2360	0.4940	
1970	0.1050	0.0000	
1971	0.0330	0.1390	
1972	0.0050	0.0180	
1973	0.1130	0.1310	
1974	0.1120	0.0140	
1975	0.0000	0.0950	
1976	0.6440	0.3780	
1977	0.1420	0.0590	
1978	0.1630	0.2940	
1979	0.3570	0.0400	
1980	0.5630	0.0100	181
1981	0.0660	0.3210	211
1982	0.0820	0.1150	215
1983	0.6110	0.0000	215
1984	0.0220	0.1240	149
1985	0.0630	0.1060	128
1986	0.0000	0.3130	81
1987	0.2870	0.0330	54
1988	0.0230	0.0040	136
1989	0.0000	0.0660	80
1990	0.0640	0.0600	88
1991	0.0620	0.2430	93
1992	0.0370	0.2010	73
1993	0.0060	0.0460	67
1994	0.0170	0.0000	50
1995	0.0050	0.0660	21
1996	0.0130	0.0530	27
1997	0.0630	0.1740	30
1998	0.0170	0.1030	18
1999	0.2390	0.0150	38
2000	0.0000	0.0210	33

Atlantic Halibut

Year	Spring	Fall	Catch
2001	0.1630	0.2470	38
2002	0.1280	0.0040	35
2003	0.0520	0.0490	56
2004	0.1680	0.1120	39
2005	0.0250	0.1110	51
2006	0.3830	0.0310	45
2007	0.1950	0.0770	89
2008	0.1000	0.0700	96
2009	0.0370	0.1280	123
2010	0.1630	0.2860	62

Figure 16 – NEFSC halibut fall and spring survey biomass indices
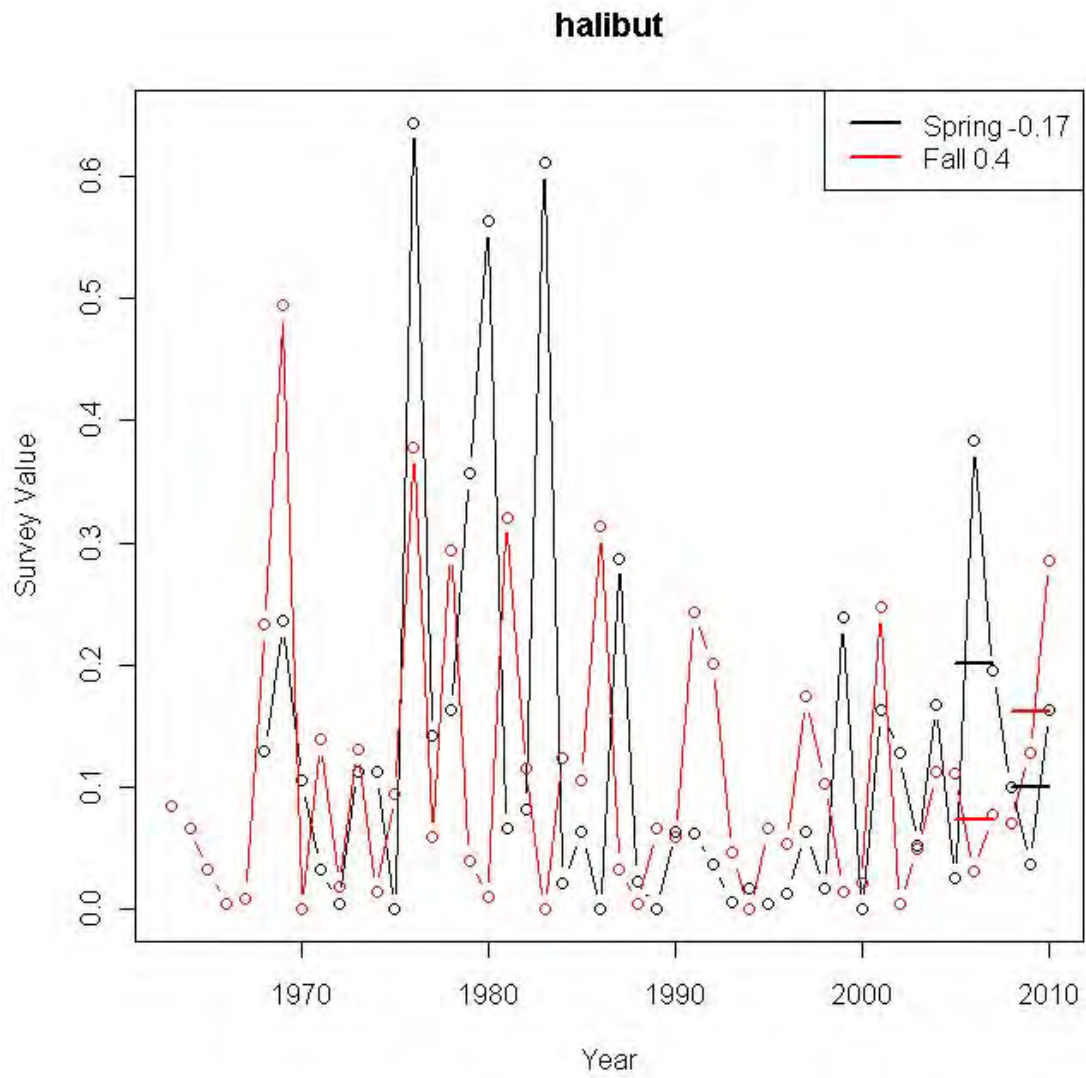
Atlantic Wolffish

I. Stock status

Last assessment/terminal year: 2008/2007
Assessment Model: SCALE
Assessment Results: 26%-45% of B_{MSY} proxy/Uncertain
Overfished/overfishing status: Overfished/unknown
Rebuilding plan: Rebuild; unable to determine end date

II. Proposed OFL/ABC

	OFL	ABC
2010	92	83
2011	92	83
2012	92	83
2013	92	83
2014	92	83

Basis: 75% of F_{MSY} proxy applied to most recent biomass estimate

Probability of overfishing/overfished: Not estimated

III. Comments

The assessment model has not been updated, and there is no ability to perform projections for this stock. OFLs and ABCs are held constant.

There is no conversion coefficient to convert R/V Bigelow surveys to R/V Albatross equivalents, which introduces additional uncertainty for this stock.

IV. Supporting Data

Survey time series biomass indices and catch

Year	Spring	Fall	Catch
1963		0.0040	
1964		0.1857	
1965		0.2968	
1966		0.1692	
1967		0.2325	
1968	0.3799	0.4071	
1969	1.1103	0.0338	
1970	1.1237	0.3578	
1971	0.6016	0.1618	
1972	0.5097	0.1618	
1973	0.8667	0.1330	
1974	1.1093	0.0962	
1975	0.9243	0.0324	
1976	0.5306	0.0463	
1977	0.6196	0.0849	
1978	1.1690	0.5369	
1979	0.7128	0.1027	
1980	0.6965	0.1802	838
1981	0.6278	1.1376	680
1982	0.6806	0.1919	845
1983	0.7378	0.3342	1,130
1984	0.4743	0.0713	959
1985	0.7418	0.3194	951
1986	1.4389	0.3688	861
1987	0.9137	0.0633	751
1988	0.5418	0.1023	546
1989	0.4035	0.1065	551
1990	0.1665	0.2145	430
1991	0.3601	0.2954	516
1992	0.1148	0.1836	757
1993	0.4201	0.4117	598
1994	0.1389	0.2797	503
1995	0.1965	0.2666	503
1996	0.1670	0.0141	402
1997	0.0411	0.2081	336
1998	0.1047	0.0072	323
1999	0.0595	0.1859	286
2000	0.2084	0.0250	213

2001	0.0630	0.1226	279
2002	0.0840	0.0717	190
2003	0.1817	0.0844	158
2004	0.0000	0.0206	135
2005	0.0000	0.0195	130
2006	0.0000	0.0016	101
2007	0.0093	0.0000	81
2008	0.0000	0.1471	63
2009	0.0631	0.0348	45
2010	0.1088	0.1270	17

Figure 17 – NEFSC wolffish fall and spring survey biomass indices

wolffish
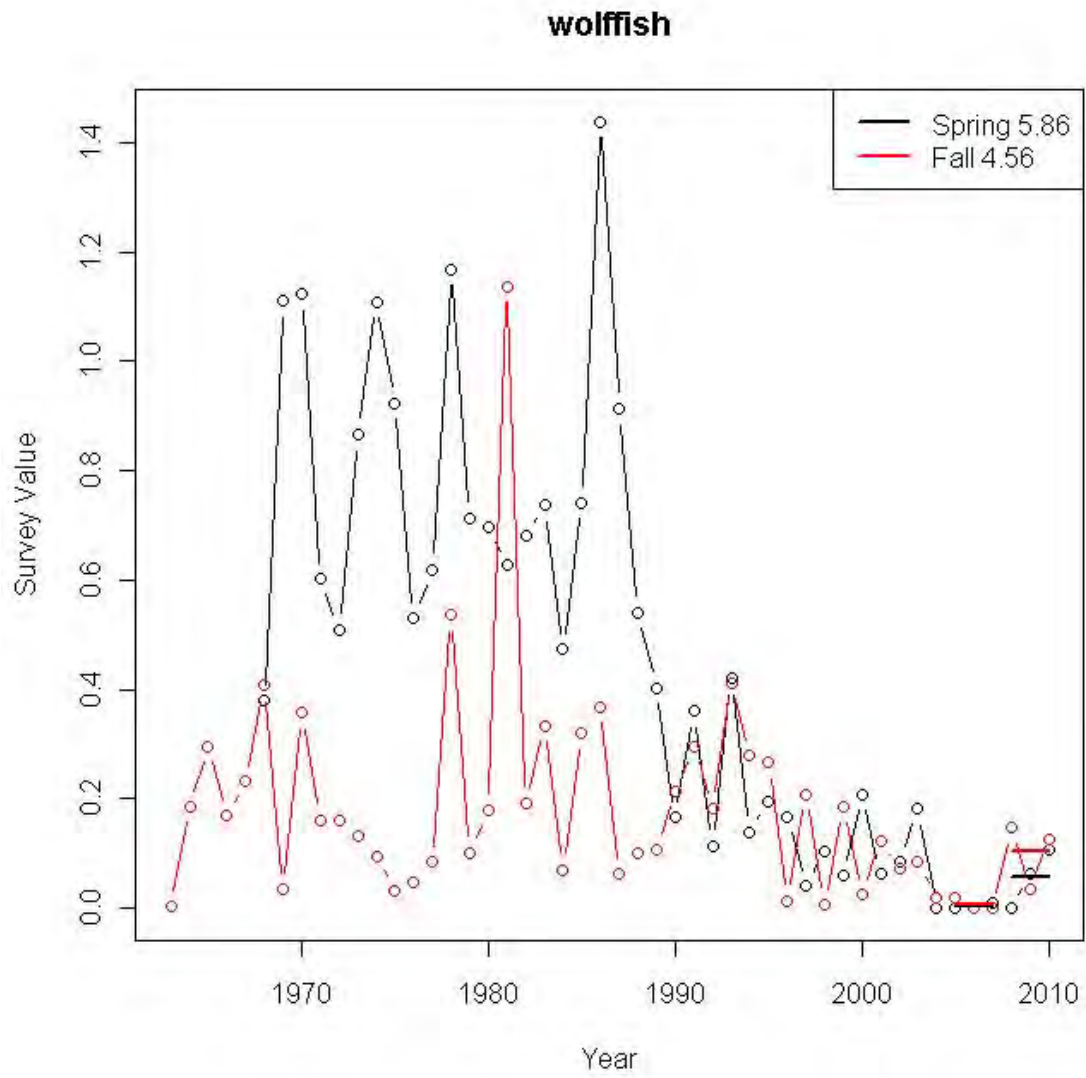
Index Based Stocks

Gulf of Maine/Georges Bank Windowpane Flounder

I. Stock status

Last assessment/terminal year: 2008/2007
Assessment Model: AIM
Assessment Results: 34% of B_{MSY} proxy/392% of F_{MSY} proxy
Overfished/overfishing status: Overfished/overfishing occurring
Rebuilding plan: Rebuild by 2017

II. Proposed OFL/ABC

	OFL	ABC
2010	225	169
2011	225	169
2012	230	173
2013	230	173
2014	230	173

Basis: 75% of F_{MSY} proxy applied to most recent biomass estimate

Probability of overfishing/overfished: Not estimated

III.   Comments

A benchmark assessment is scheduled for fall 2012.

This stock is assessed using a lagged three-year moving average of the NEFSC fall survey biomass index. Additional uncertainty in stock status is created by the adoption of the R/V Bigelow. The new survey vessel does not survey inshore strata that were previously included in the survey index for this stock.

Since this stock is assessed using a three-year moving average of the survey index (lagged), an estimate of stock size can be determined for 2010 and used to develop catch advice. In 2010 the stock was at 21% of the BSMY proxy (1.4 kg/tow), and the relative F value was at 102% of F_{MSY}. Current stock size is lower than in 2007. The catch in 2010 exceeded the catch at FMSY for this stock. Relative F has exceeded the F_{MSY} proxy since 2005.

IV. Supporting Data

Survey time series biomass indices and catch

Year	MA Spring	MA Fall	NEFSC Fall	3 Year Average	Catch	Catch/Avg. Survey
1975			0.6291		1,553	
1976			1.9102		1,799	
1977			2.0330	1.5241	1,539	1.010
1978	1.26	0.56	1.5052	1.8161	1,364	0.751
1979	1.25	2.06	0.9576	1.4986	1,382	0.922
1980	0.89	0.77	0.8988	1.1205	979	0.874
1981	1.85	0.39	1.0222	0.9595	1,059	1.103
1982	1.46	1.58	0.8198	0.9136	1,229	1.345
1983	1.74	1.01	0.9397	0.9272	1,357	1.464
1984	1.42	1.05	3.3053	1.6883	1,557	0.922
1985	1.65	0.56	0.8282	1.6911	2,833	1.675
1986	3.16	1.11	1.1434	1.7590	2,465	1.401
1987	1.76	0.49	0.6286	0.8667	2,013	2.322
1988	1.39	0.98	0.7115	0.8278	2,083	2.516
1989	1.75	0.57	0.3226	0.5542	2,060	3.717
1990	2.44	0.60	0.9252	0.6531	2,121	3.248
1991	0.92	1.50	0.1933	0.4804	3,646	7.589
1992	3.26	0.95	0.4294	0.5160	1,846	3.579
1993	1.59	1.50	0.4644	0.3624	1,579	4.357
1994	0.71	0.23	0.2627	0.3855	681	1.767
1995	2.24	1.47	0.7895	0.5055	1,467	2.902
1996	1.30	1.04	0.5126	0.5216	1,183	2.268
1997	1.17	0.49	0.4233	0.5751	1,547	2.690
1998	1.48	0.23	1.5879	0.8413	670	0.797
1999	1.11	0.64	0.7589	0.9234	104	0.113
2000	2.25	0.98	0.7079	1.0182	349	0.343
2001	1.85	0.49	0.8911	0.7860	233	0.296
2002	1.38	0.62	0.8559	0.8183	167	0.204
2003	0.55	0.61	0.7417	0.8296	371	0.447
2004	0.52	0.14	0.6694	0.7557	315	0.417
2005	0.63	0.18	0.6795	0.6969	956	1.372
2006	1.13	0.46	0.6603	0.6697	687	1.025
2007	1.14	0.37	0.2421	0.5273	1,097	2.080
2008	0.73	0.47	0.4469	0.4498	378	0.841
2009	0.81	0.77	0.6407	0.4432	440	0.993
2010	0.46	0.40	0.2948	0.4608	236	0.512

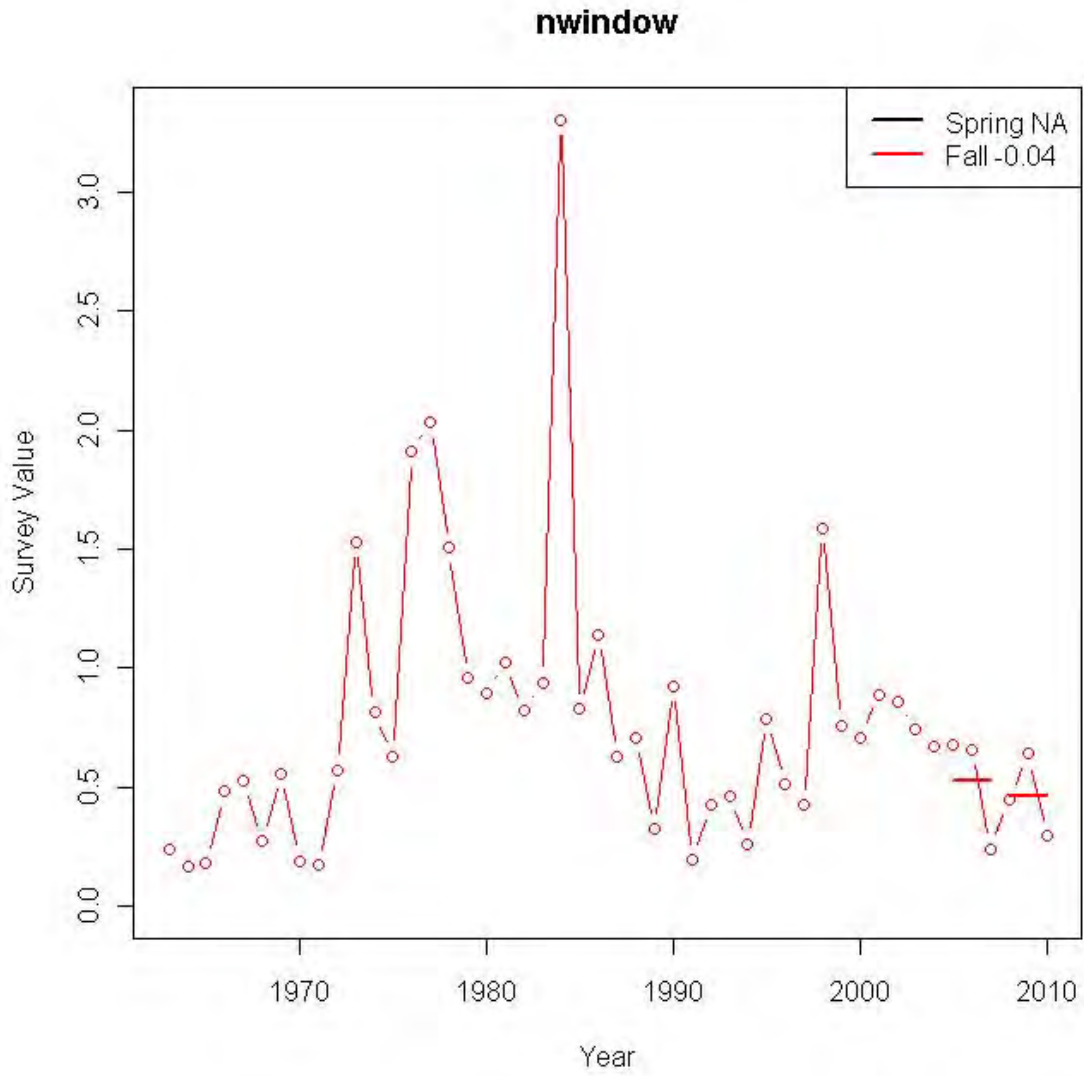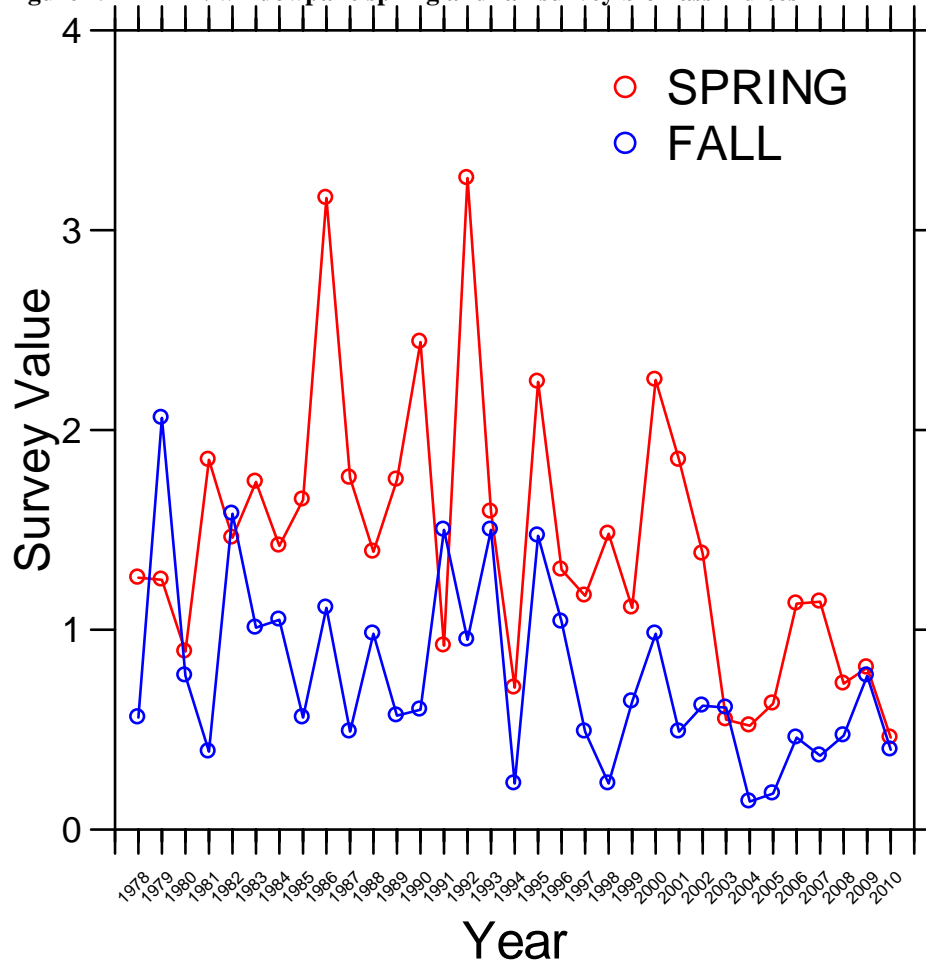**Figure 18 – NEFSC No windowpane spring and fall survey biomass indices**

Figure 19 – MA N windowpane spring and fall survey biomass indices

Southern New England/Mid-Atlantic Bight Windowpane Flounder

I. Stock status

Last assessment/terminal year: 2008/2007
Assessment Model: AIM
Assessment Results: 56% of B_{MSY} proxy/126% of F_{MSY} proxy
Overfished/overfishing status: Not overfished/overfishing occurring
Rebuilding plan: Rebuild by 2014

II. Proposed OFL/ABC

	OFL	ABC
2010	317	237
2011	317	237
2012	515	386
2013	515	386
2014	515	386

Basis: 75% of F_{MSY} proxy applied to most recent biomass estimate

Probability of overfishing/overfished: Not estimated

III.   Comments

A benchmark assessment is scheduled for fall 2012.

This stock is assessed using a lagged three-year moving average of the NEFSC fall survey biomass index. Additional uncertainty in stock status is created by the adoption of the R/V Bigelow. The conversion of the R/V Bigelow to R/V Albatross indices does not use a length-based conversion. The new survey vessel does not survey inshore strata that were previously included in the survey index for this stock. Since in the past windowpane flounder were frequently caught in these inshore strata, the survey index was recalculated for the entire time series using just the R/V Bigelow strata to determine if this would indicate a different trend in the survey in recent years. The trends using the Bigelow strata are similar to the trends using the original strata for most of the time series (Figure 20).

Figure 20 – Comparison of S windowpane flounder fall survey biomass index using the original Albatross (original) strata set and the Bigelow strata set
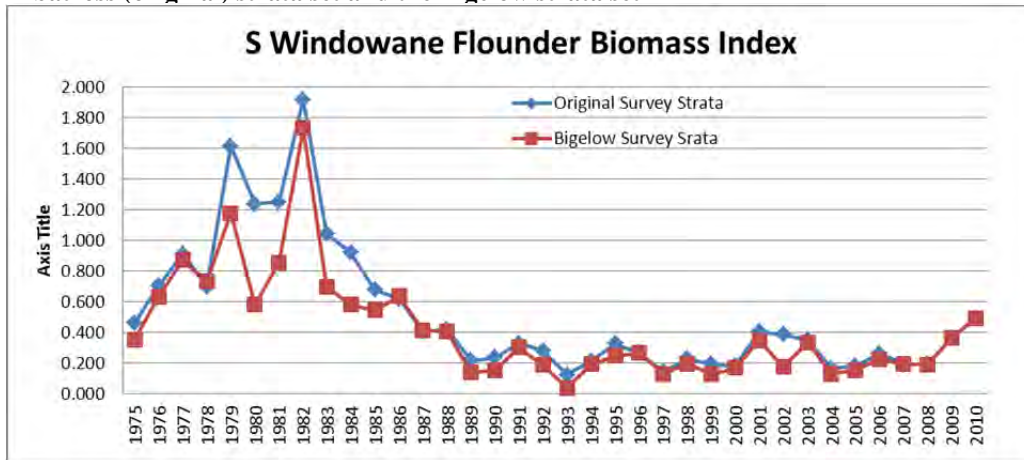
Since this stock is assessed using a three-year moving average of the survey index (lagged), an estimate of stock size can be determined for 2010 and used to develop catch advice. The average of the 2008/2009/2010 fall surveys is 0.350, which exceeds the biomass target (0.34 kg/tow). The stock is accordingly rebuilt, but official notice has not yet been provided to the Council. Catches in 2010 were 564 mt with about 300 mt the result of discards in the scallop dredge fishery, roughly a five-fold increase from recent years. Overfishing was occurring because the relative exploitation index was 106% of the F_{MSY} proxy (1.47).

The large increase in scallop discards of this stock in 2010 appear to be the result of increased scallop fishing activity in the stock area, coupled with recent increases in stock size. This stock may become a constraint on a scallop fishing activity. Two approaches to increase the ABC might mitigate those impacts:

- Setting ABC at a higher relative F than the default ABC control rule of 75% of the F_{MSY} proxy. The default control rule was recommended by the SSC and implemented by the Council because of a concern scientific uncertainty could not be accurately quantified. There does not seem to be less uncertainty for this stock since the control rule was adopted. The change in survey vessels and resulting strata and the lack of a length-based survey calibration coefficient suggest uncertainty may have increased. Indeed, the change in status is highly dependent on the calibration factor. Given the fact the survey index is highly variable, it is possible that the stock's status might change next year after this year's fall survey.
- If/when the Council is officially notified that this stock is rebuilt, it may be a candidate for the Mixed Stock Exception to allow overfishing for this stock. The Council has not yet had that discussion and the criteria for application of this provision are stringent. It is not clear those standards can be met.

IV. Supporting Data

Survey time series biomass indices and catch

| Year	MA Spring	MA Fall	NEFSC Fall	3 Year Average	Catch	Catch/Avg. Survey
1975			0.4603		1166	
1976			0.7022		1187	
1977			0.9119	0.6915	1230	1.78
1978	15.01	1.36	0.6997	0.7713	1889	2.45
1979	14.71	1.83	1.6153	1.0756	1704	1.58
1980	14.56	2.25	1.2376	1.1842	1517	1.28
1981	19.26	1.64	1.2496	1.3675	1788	1.31
1982	20.06	1.83	1.9167	1.4680	3595	2.45
1983	12.25	0.65	1.0448	1.4037	4455	3.17
1984	6.32	0.54	0.9213	1.2943	4530	3.50
1985	6.00	0.72	0.6773	0.8811	4805	5.45
1986	6.28	1.47	0.6218	0.7401	4536	6.13
1987	5.32	0.39	0.4047	0.5679	3987	7.02
1988	3.03	0.30	0.4207	0.4824	4299	8.91
1989	6.77	0.36	0.2169	0.3474	4625	13.31
1990	5.21	0.22	0.2350	0.2909	5400	18.56
1991	0.89	0.50	0.3293	0.2604	3950	15.17
1992	9.92	1.14	0.2815	0.2819	1134	4.02
1993	8.17	0.75	0.1243	0.2450	872	3.56
1994	8.74	1.05	0.2151	0.2070	1175	5.68
1995	11.69	1.24	0.3275	0.2223	486	2.19
1996	11.74	1.09	0.2653	0.2693	605	2.25
1997	5.46	0.38	0.1450	0.2459	340	1.38
1998	1.97	1.51	0.2283	0.2129	524	2.46
1999	1.32	0.44	0.1939	0.1891	526	2.78
2000	1.66	0.64	0.1797	0.2006	263	1.31
2001	0.83	0.79	0.4061	0.2599	181	0.70
2002	0.42	0.29	0.3866	0.3241	246	0.76
2003	0.86	0.46	0.3497	0.3808	449	1.18
2004	0.61	0.52	0.1662	0.3008	380	1.26
2005	1.08	0.40	0.1809	0.2323	313	1.35
2006	0.97	0.20	0.2618	0.2030	462	2.27
2007	1.01	0.06	0.1906	0.2111	418	1.98
2008	0.40	0.12	0.1931	0.2152	328	1.53
2009	0.48	0.14	0.3665	0.2501	477	1.91
2010	1.07	0.23	0.4941	0.3512	564	1.61
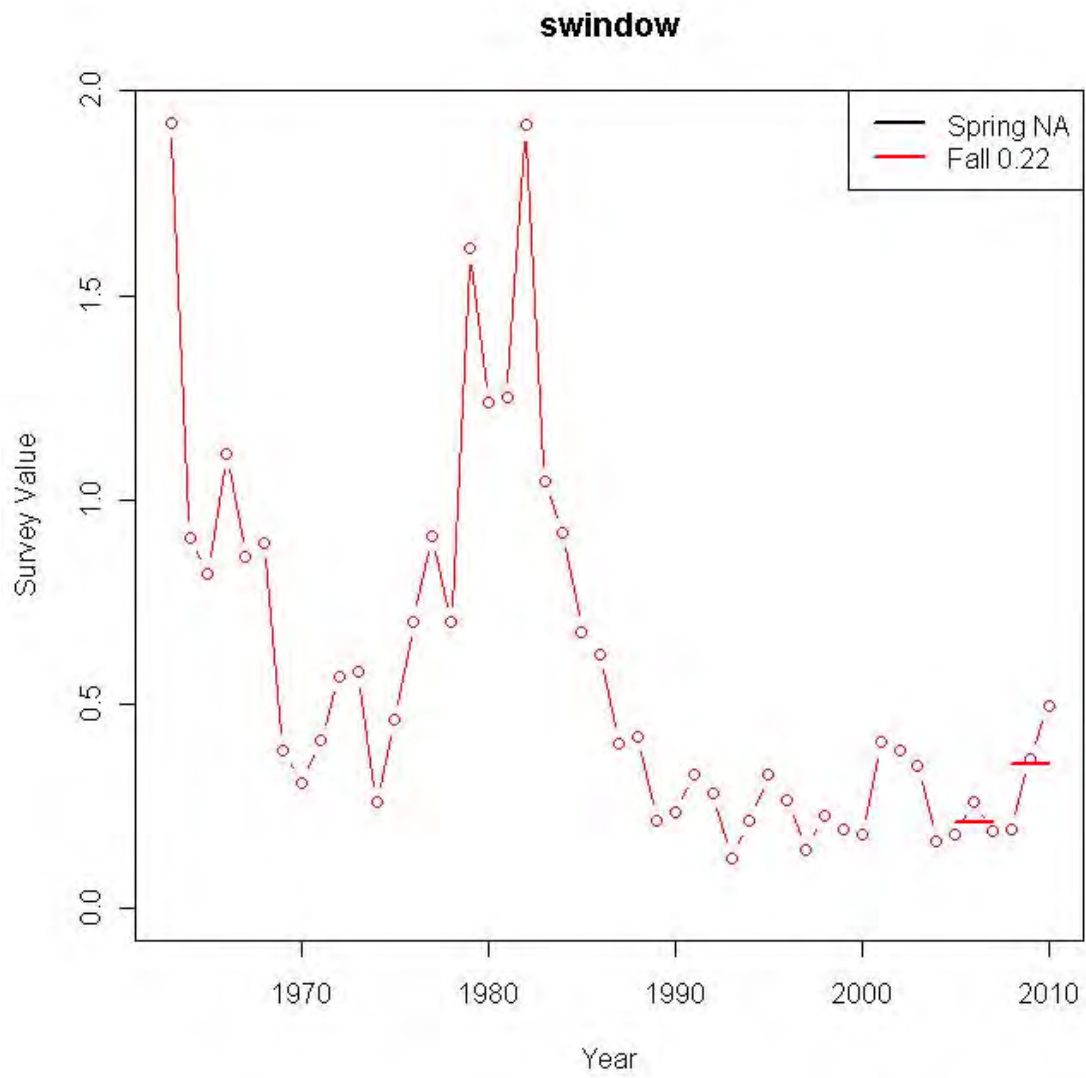
swindow

Figure 21 – MA S windowpane flounder spring and fall survey biomass indices
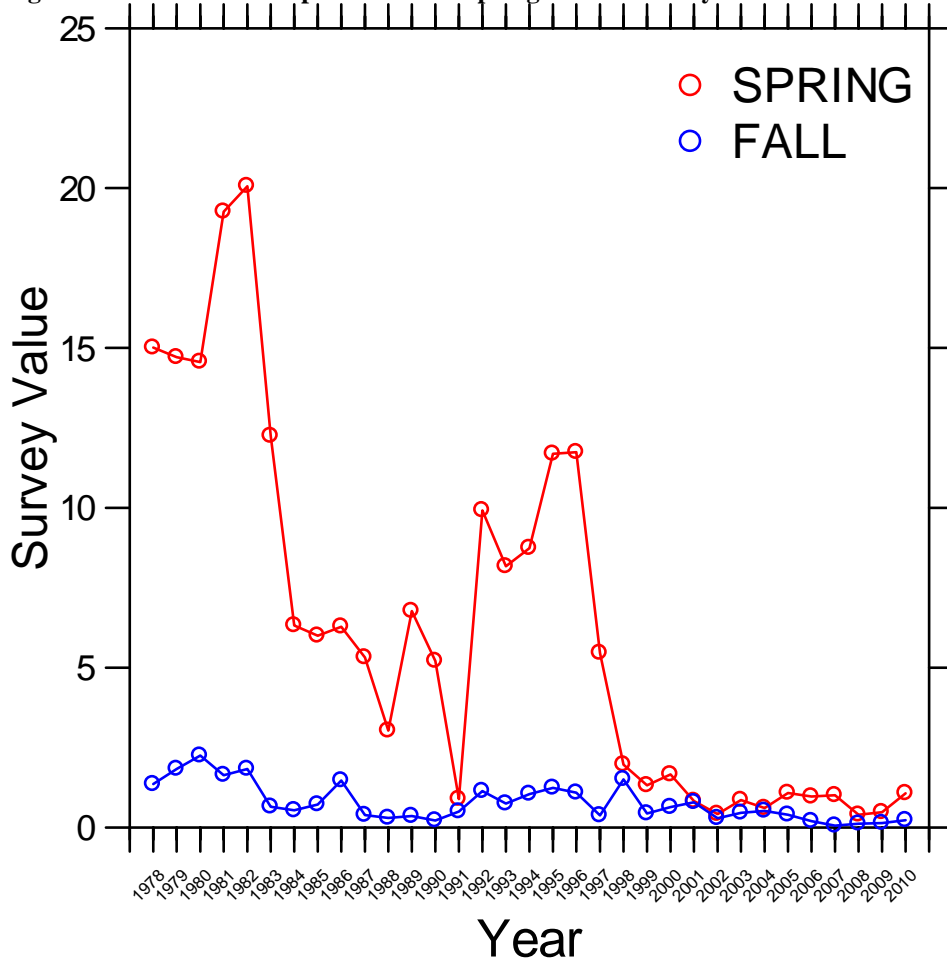
Ocean Pout

I. Stock status

Last assessment/terminal year: 2008/2007
Assessment Model: Survey   index and exploitation ratio
Assessment Results: 10% of B_{MSY} proxy/50% of F_{MSY} proxy
Overfished/overfishing status: Overfished/overfishing not occurring
Rebuilding plan: Rebuild by 2017 with a 75 percent probability of
                                   success

II. Proposed OFL/ABC

	OFL	ABC
2010	361	271
2011	361	271
2012	342	256
2013	342	256
2014	342	256

Basis: 75% of F_{MSY} proxy applied to most recent biomass estimate

Probability of overfishing/overfished: Not estimated

III. Comments

This stock is assessed using a centered three-year moving average of the NFSC spring
survey biomass index. Additional uncertainty in stock status is created by the adoption of
the R/V Bigelow. The conversion of the R/V Bigelow to R/V Albatross indices does not
use a length-based calibration factor.

Since this stock is assessed using a three-year moving average of the survey index
(centered), an estimate of stock size can be determined for 2010 and used to inform catch
advice. Stock size in 2010 was 8% of the B_{MSY} proxy (4.94 kg/tow), a slight decline since
2007. The relative F was 40% of the F_{MSY} proxy (0.76), so overfishing was not
occurring.

GARM III reviewers cautioned that ocean pout may be in a dispensatory state where the
stock is unlikely to rebuild even in the absence of removals. Recent catches have been
below the ABC but stock size continues to decline. Given the depressed nature of this
stock, possible depensatory condition, rebuilding requirements, and the concerns

expressed at GARM III it may not be appropriate to implement an ABC that is nearly three times higher than recent catches. It may be more appropriate to us an ad hoc approach to set ABCs for this stock until stock size increase.

IV. Supporting Data

Survey time series biomass indices and catch

Year	Spring	3 Year Average	Catch	Catch/Avg. Survey
1968	5.4461		16.5379	
1969	6.1538	5.5810	30.1015	5.394
1970	5.1431	4.4974	9.9378	2.210
1971	2.1953	3.9339	7.9315	2.016
1972	4.4634	3.3439	4.8492	1.450
1973	3.3729	3.1052	6.6642	2.146
1974	1.4794	2.0484	4.8659	2.375
1975	1.2930	1.3908	0.9936	0.714
1976	1.4000	2.0993	1.2002	0.572
1977	3.6049	2.7919	1.9871	0.712
1978	3.3709	2.8229	2.4126	0.855
1979	1.4929	3.5311	2.1813	0.618
1980	5.7294	4.9424	2.3659	0.479
1981	7.6048	6.0258	2.9942	0.497
1982	4.7433	5.5282	4.7605	0.861
1983	4.2364	4.8399	4.8967	1.012
1984	5.5400	5.4234	5.0162	0.925
1985	6.4939	6.1262	4.665	0.761
1986	6.3446	5.1810	4.0984	0.791
1987	2.7046	4.0977	4.8086	1.173
1988	3.2440	2.9135	4.0546	1.392
1989	2.7920	3.7033	8.7289	2.357
1990	5.0738	3.8828	10.746	2.768
1991	3.7827	3.7044	6.3496	1.714
1992	2.2566	3.0411	1.994	0.656
1993	3.0840	2.5497	1.5779	0.619
1994	2.3085	2.4362	1.4769	0.606
1995	1.9161	2.0943	0.6385	0.305
1996	2.0583	1.8687	0.6796	0.364
1997	1.6317	1.8076	0.5545	0.307
1998	1.7329	1.9752	0.6899	0.349
1999	2.5611	2.1033	0.8041	0.382
2000	2.0160	2.4583	0.3668	0.149
2001	2.7978	2.2795	0.5492	0.241
2002	2.0248	2.5270	0.5879	0.233
2003	2.7584	1.7765	0.4524	0.255
2004	0.5463	1.2769	0.296	0.232

Year	Spring	3 Year Average	Catch	Catch/Avg. Survey
2005	0.5259	0.5328	0.2048	0.384
2006	0.5263	0.5096	0.1875	0.368
2007	0.4765	0.4749	0.1785	0.376
2008	0.4220	0.4915	0.127	0.258
2009	0.576	0.4563	0.168	0.368
2010	0.371	0.4153	0.127	0.306
2011	0.299			

Figure 22 – NEFSC ocean pout fall and spring survey biomass indices
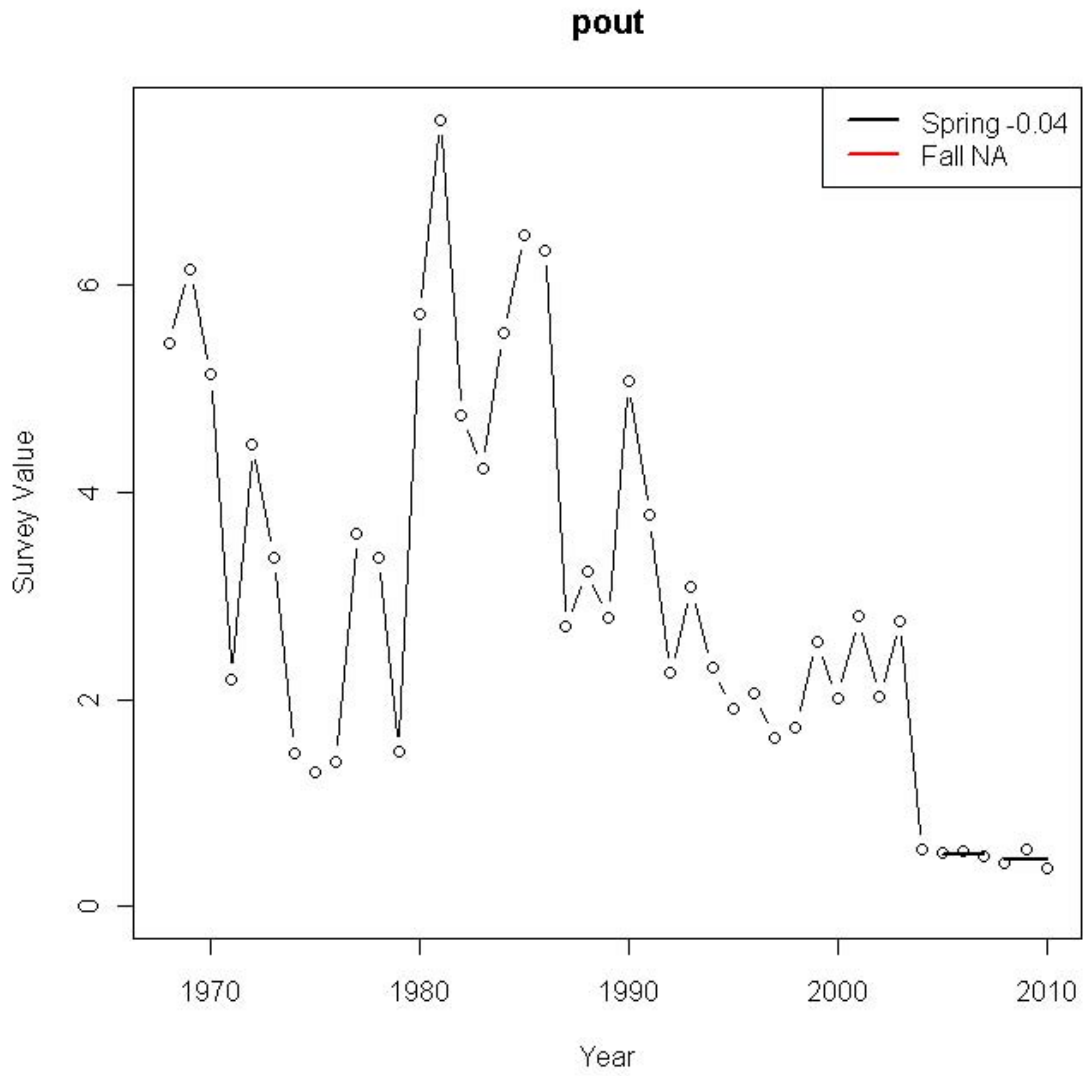
Stocks Assessed Since GARM III

Pollock

I. Stock status

Last assessment/terminal year: 2010/2009
Assessment Model: ASAP
Assessment Results: 215%   of SSB_{MSY}/28% of FMSY
Overfished/overfishing status: Rebuilt; not overfished/overfishing not occurring
Rebuilding plan: N/A

II. Proposed OFL/ABC

	OFL	ABC
2011	21,853	16,900
2012	19,887	15,400
2013	20,060	15,600
2014	20,554	16,000

Basis: Projection from last assessment at 75 percent of F_{MSY}

Probability of overfishing/overfished: Not estimated

III. Comments

ABC based on projections performed after most recent assessment; no update is necessary/planned. Information included for thoroughness only.

IV. Supporting Data

Survey time series and catch

Year	Spring	Fall	Catch
1970	4.9261	2.1476	
1971	3.1398	3.9696	
1972	4.7823	4.9370	
1973	4.9600	3.9059	
1974	3.8358	3.4876	
1975	5.3317	2.1098	
1976	7.5887	19.2565	
1977	3.1715	9.5120	
1978	4.9087	6.1973	
1979	4.1141	4.8278	
1980	3.8639	2.8443	22,201
1981	5.6958	2.8419	22,975
1982	6.4527	2.1294	20,909
1983	1.5732	3.1995	19,539
1984	3.0365	0.3524	21,126
1985	29.8801	2.1249	21,273
1986	8.3654	1.0007	25,171
1987	2.5905	1.6488	20,554
1988	1.9278	13.8629	15,403
1989	5.4338	1.1409	11,521
1990	1.8300	2.0459	9,937
1991	4.1693	1.0493	8,498
1992	3.3426	1.1684	7,477
1993	1.5334	0.8238	5,884
1994	1.1363	0.5735	4,373
1995	3.8206	1.0505	4,305
1996	1.1053	1.1244	3,754
1997	4.8808	1.4914	4,756
1998	2.8449	1.2006	5,954
1999	0.9726	3.2042	4,961
2000	1.4424	1.4114	4,756
2001	2.1515	3.2394	5,528
2002	1.6386	6.3706	4,808
2003	0.8555	8.6273	5,810
2004	0.6905	4.1533	6,083
2005	6.0496	7.8736	7,401
2006	2.7805	1.8927	6,959
2007	5.1097	0.8497	9,278

2008	6.3564	2.2643	12,194
2009	1.7650	0.2219	8,735
2010	1.3898	3.2218	

Georges Bank Yellowtail Flounder

I. Stock status

Last assessment/terminal year:		2011/2010
Assessment Model:	VPA	
Assessment Results:	20%	of SSB_{MSY} /52% of F_{MSY} proxy
Overfished/overfishing status:		Overfished/overfishing not occurring
Rebuilding plan:		Rebuild by 2016 with a median probability of success

II. Proposed OFL/ABC

	OFL	Total ABC	U.S. ABC
2010	5,148	1,500	1,200
2011	3,495	2,650	1,458
2012(1)	1,691	1,303	TBD
2012(2)	1,691	1,445	
2013(1)	2,136	1,640	
2013(2)	2,108	1,797	
2014(1)	3,231	2,481	
2014(2)	3,169	2,703	

Basis: (1) Rebuild by 2023 with a median probability of success
(2) Rebuild by 2032 with a median probability of success

Probability of overfishing/overfished:

Year	Catch	Overfishing	Overfished
2012	580	0	100%
2012	643	0	100%
2012	1,303	12%	100%
2012	1,445	23.5%	100%

III. Comments

ABC based on projections performed after most recent assessment.

The TRAC 2011 assessment indicates this stock cannot rebuild by 2016 in the absence of all fishing mortality. Two options are being considered for a revised rebuilding strategy; OFLs and ABCs are recommended for each strategy. The two strategies are:

(1) Rebuild by 2023 with a median probability of success. This strategy is based on fishing at the default ABC control rule (75 percent of F_{MSY}) after taking into account the retrospective pattern in the estimates of terminal year numbers at age.
(2) Rebuild by 2032 with a median probability of success. This strategy is based on fishing at the maximum fishing mortality that will rebuild to SSBMSY; the current estimate is similar to the mortality that will average an annual ten percent increase in SSB until the stock is rebuilt. Note that this mortality differs from the F_{MSY} proxy because of changes in the fishery that have occurred since SSB_{MSY} was estimated; F_{MSY} will no longer rebuild to SSB_{MSY}.

IV. Special Considerations

1. In spite of the fact the model formulation for this assessment uses a split-survey time series that was adopted to reduce the retrospective pattern, this assessment exhibits a retrospective pattern that over-estimates terminal year stock size and under-estimates terminal year fishing mortality (Table 1). The magnitude of the retrospective error has increased since the 2010 TRAC.

Table 1 – Comparison of recent TRAC estimates of fishing mortality and biomass for GB yellowtail flounder

Assessment Year	Fishing Mortality (Age 4+)						SSB					
	2005	2006	2007	2008	2009	2010	2005	2006	2007	2008	2009	2010
2006	1.37	-	-	-	-	-	5.4	-	-	-	-	-
2007	1.22	0.89	-	-	-	-	4.4	5.0	-	-	-	-
2008	1.16	0.89	0.29	-	-	-	4.2	4.4	9.5	-	-	-
2009 – Excl.	1.25	1.06	0.41	0.09	-	-	3.7	4.4	10.0	17.8	-	-
2009 – Incl.	1.23	1.01	0.38	0.08			3.8	4.7	11.7	22.9		
2010	1.30	1.18	0.53	0.15	0.15	-	3.5	3.5	6.2	10.6	14.0	-
2011	1.35	1.35	0.72	0.28	0.27	0.13	3.3	2.9	4.4	7.1	9.3	8.8

2. While fishing mortality has declined, through 2009 it was not below the FMSY proxy (F40%); the 2010 estimate of F is 0.13 but this does not take into account the retrospective pattern. There has been little rebuilding of ages 6 and over. The 2009 year class is estimated to be the smallest in the time series at Age 1 (less than a million fish;

the time series average is 20.3 million). Stock size increased through 2009 but declined in 2010.

Figure 23 – GB Yellowtail flounder SSB and recruitment
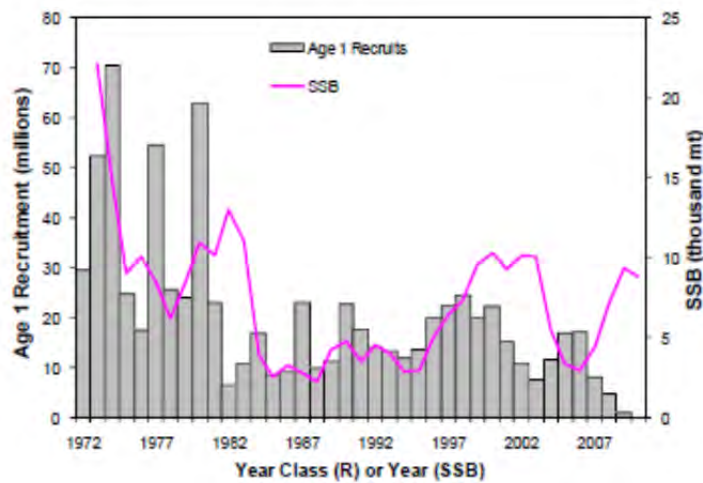
3. The TRAC Status Report (TSR) for 2011 explored the implications of the retrospective pattern on catch advice in two ways. First, the assessment population abundance at age in 2011 was adjusted to account for the retrospective pattern in SSB. Second, catch estimates were prepared using a different VPA formulation (without a split in the survey time series). Based on these analyses the TRAC advised "In light of the implications of the alternative models, if managers wish to base the 2012 catch on consideration of both Fref and a desire to maintain stock biomass, a catch in the range of 900 - 1,400 mt is indicated." The TRAC does not provide advice on rebuilding objectives.

4. The approved assessment model for this stock does not include an adjustment for the retrospective pattern that is present. The approach in GARM III was that one of two methods would be used to account for retrospective patterns: either a split–survey time series or an adjustment to the numbers at age in the terminal year. GARM did not apply both approaches to the same stock. Nevertheless, the pattern is a cause for concern and as noted at the TRAC it should be considered if catches are to result in the targeted fishing mortality and stock rebuilding. To examine the impacts of the retrospective pattern on catch advice, ABCs were calculated for the two rebuilding strategies after making an adjustment for the retrospective pattern. In this case the adjustment ("rho adjustment") was based on the average error in SSB, applied to each number at age. The results are shown in Table 2, and the probability of overfishing occurring or being overfished at these catches is shown in Table 3.

Table 2 – GB yellowtail flounder ABCs after applying a retrospective adjustment

Total ABC	Total ABC
2012(1)	580
2012(2)	643
2013(1)	786
2013(2)	863
2014(1)	1,269
2014(2)	1,385

Table 3 – Probability of overfishing occurring or being overfished at four catch levels, taking into account an adjustment for the retrospective pattern

		Rho Adjustment	
Year	Catch	Overfishing	Overfished
2012	580	19.9%	100%
2012	643	29.4%	100%
2012	1,303	99.1%	100%
2012	1,445	99.8%	100%

5. Status determination criteria for this stock were established at the GARM III benchmark meeting in 2008. The GARM III estimate of SSB_{MSY} is used as the rebuilding target. Status determination criteria are normally re-estimated only at benchmark assessments. There are a number of differences between the inputs used to establish determination criteria at GARM III and values determined at TRAC 2011. The status determination criteria and stock projections use a recruitment time series that includes hindcast recruitment for the period 1963 to 1972; the median recruitment for the full time series is 24.7 million Age 1 fish. Without the hindcast values, median recruitment declines to 22.2 million and the maximum declines to 70.6 million. Weights at age have also declined in recent years, and there have been changes in partial recruitment. The impacts of these new values on estimates of SSB_{MSY} and MSY are shown in Table 4.

Table 4 – Changes in GB Yellowtail Flounder status determination criteria using different assumptions for recruitment, weights and partial recruitment at age

	SSB_{MSY}		MSY	
	Wt and PR at Age		Wt and PR at Age	
SR Data	GARM III	New	GARM III	New
GARM III	43,200	38,800	9,400	8,600
New with HC	41,000	36,600	8,800	8,100
New, No HC	26,600	23,600	5,700	5,200

6.   Different recruitment assumptions have little impact on catch advice for 2012 because the recruitment stream does not affect the catch significantly in the two year length of the projection, but they do influence rebuilding potential.

5. U.S. and Canadian catches of this stock are coordinated through the Transboundary Resource Management Guidance Committee (TMGC). The TMGC will meet before the SSC and the SSC will be informed of the results of that meeting. In 2011, the International Fishery Agreement Clarification Act (IFAC) allows consideration of the TMGC recommendations when setting annual catch levels, and allows the rebuilding program to extend beyond ten years. The IFACA does not remove the requirement that catch levels be consistent with the recommendations of the SSC.

IV. Supporting Data

Survey time series biomass indices and catch

Year	Spring	Fall	Catch
1973	2.939	6.490	
1974	2.720	3.669	
1975	1.676	2.326	
1976	2.273	1.508	
1977	0.999	2.781	
1978	0.742	2.343	
1979	1.271	1.494	
1980	4.456	6.607	7,539
1981	1.960	2.576	6,979
1982	2.500	2.270	12,520
1983	2.642	2.131	11,989
1984	1.646	0.593	6,280
1985	0.988	0.709	3,267
1986	0.847	0.820	3,474
1987	0.329	0.509	3,580
1988	0.566	0.171	2,759
1989	0.729	0.977	1,783
1990	0.699	0.725	4,089
1991	0.631	0.730	2,564
1992	1.566	0.576	5,299
1993	0.482	0.546	4,300
1994	0.661	0.897	4,158
1995	2.579	0.354	1,135
1996	2.853	1.303	1,700
1997	4.359	3.781	2,464
1998	2.324	4.347	3,985
1999	9.307	7.973	4,963
2000	6.696	5.838	7,341
2001	5.006	11.553	7,419
2002	9.563	3.754	5,663
2003	6.722	4.038	6,562
2004	1.891	5.117	6,815
2005	3.407	2.463	3,851
2006	2.420	4.521	2,109
2007	4.701	8.151	1,662
2008	3.247	7.109	1,504
2009	4.758	7.003	1,806
2010	5.833	2.310	1,160

Year	Spring	Fall	Catch
2011	2.492		

Year	Spring	Fall	Catch

gbytail
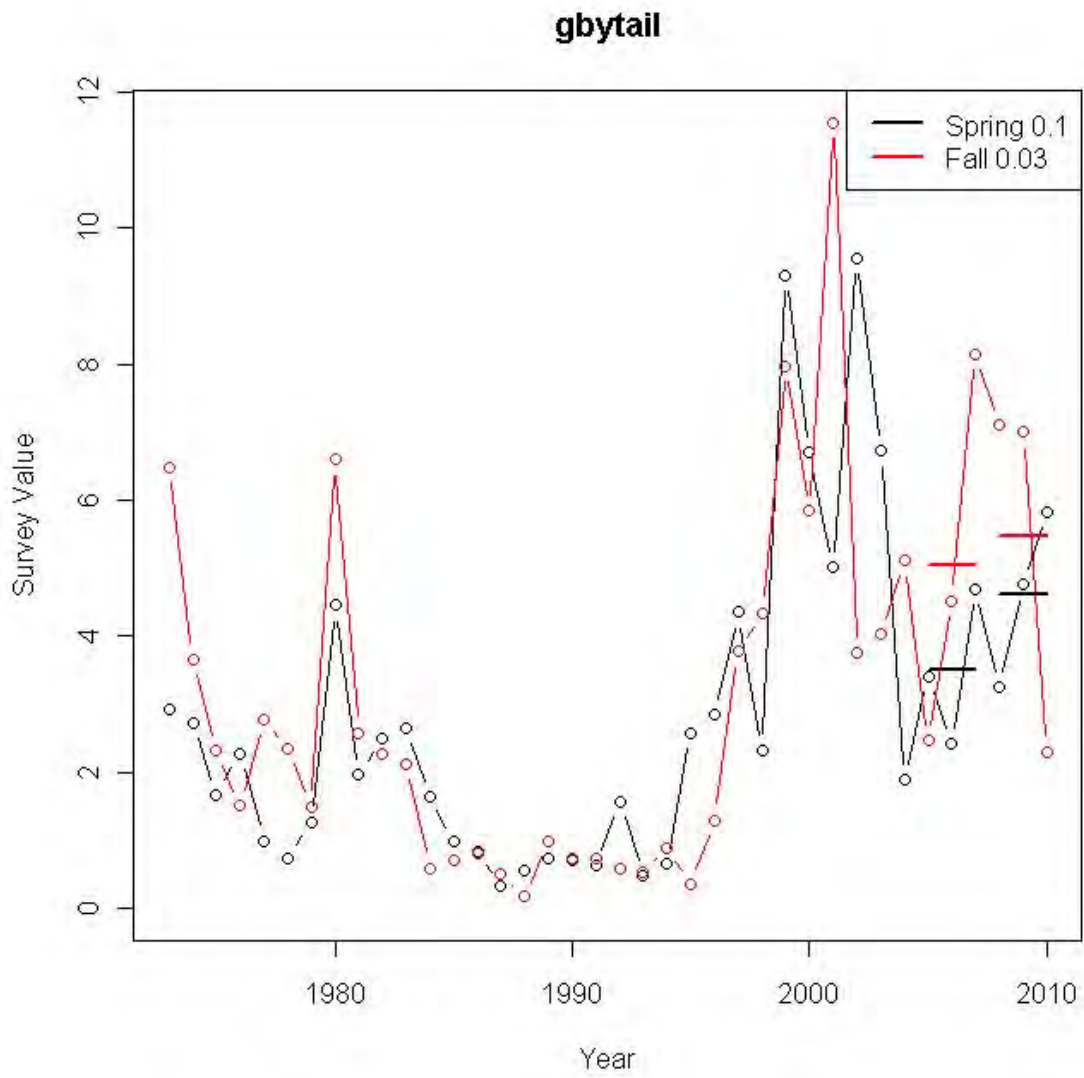
Georges Bank Winter Flounder

I. Stock status

Last assessment/terminal year: 2011/2010
Assessment Model: VPA
Assessment Results: 96%   of SSB_{MSY}; 36% of F_{MSY}
Overfished/overfishing status: Not overfished/overfishing not occurring
Rebuilding plan: Rebuild by 2017 with a 75 percent probability of success

II. Proposed OFL/ABC

	OFL	ABC
2010	2,660	2,052
2011	2,886	2,224
2012	4,839	3,753
2013	4,819	3,750
2014	4,626	3,598

Basis: Projection from last assessment at 75 percent of F_{MSY}

Probability of overfishing/overfished:

	Overfishing	Overfished
2012	16%	< 1 %
2013	19%	< 1 %
2014	21%	< 2 %

III.   Comments

The most recent assessment of this stock is a new VPA model formulation. Further details will be provided at the SSC meeting.

IV. Supporting Data

Survey time series biomass indices and catch

Year	Spring	Fall	Catch
1963		3.0200	
1964		2.7700	
1965		3.0300	
1966		5.2600	
1967		2.1100	
1968	2.9900	1.8300	
1969	4.0200	2.5300	
1970	2.2000	7.7300	
1971	2.0400	1.3200	
1972	4.9000	1.5600	
1973	1.7300	2.3000	
1974	3.1600	1.5500	
1975	0.7200	2.0900	
1976	1.5700	3.6300	
1977	0.9000	3.9700	
1978	2.5200	3.4700	
1979	1.0900	4.0800	
1980	1.4500	2.3200	
1981	2.0000	4.4100	
1982	1.5700	3.3200	3,338
1983	6.9300	2.8900	4,203
1984	5.2200	3.2800	4,182
1985	2.4400	1.1800	2,432
1986	1.2600	2.0000	2,110
1987	1.1600	1.0300	3,138
1988	1.5100	1.2900	3,278
1989	0.7300	0.9600	2,343
1990	1.4800	0.3400	2,442
1991	1.2100	0.2400	2,310
1992	0.8300	0.3800	2,056
1993	0.5800	0.7800	1,873
1994	0.5600	0.5600	1,151
1995	1.3800	1.6200	842
1996	1.3800	1.6800	1,554
1997	1.0900	1.5500	1,562
1998	0.7100	3.4000	1,568
1999	3.2100	2.4700	1,235
2000	3.5500	4.8200	2,027

87

Georges Bank Winter Flounder

Year	Spring	Fall	Catch
2001	1.1600	4.8500	2,413
2002	4.8200	5.6000	2,558
2003	1.3000	2.9600	3,328
2004	0.5100	4.0600	3,025
2005	0.8000	2.1100	2,348
2006	0.4900	1.4200	1,125
2007	0.6800	2.0000	1,039
2008	5.4200	2.7000	1,179
2009	1.3600	5.2000	2,013
2010	1.3600	1.8300	1,544

Figure 24 – NEFSC GB winter flounder spring and fall survey biomass indices
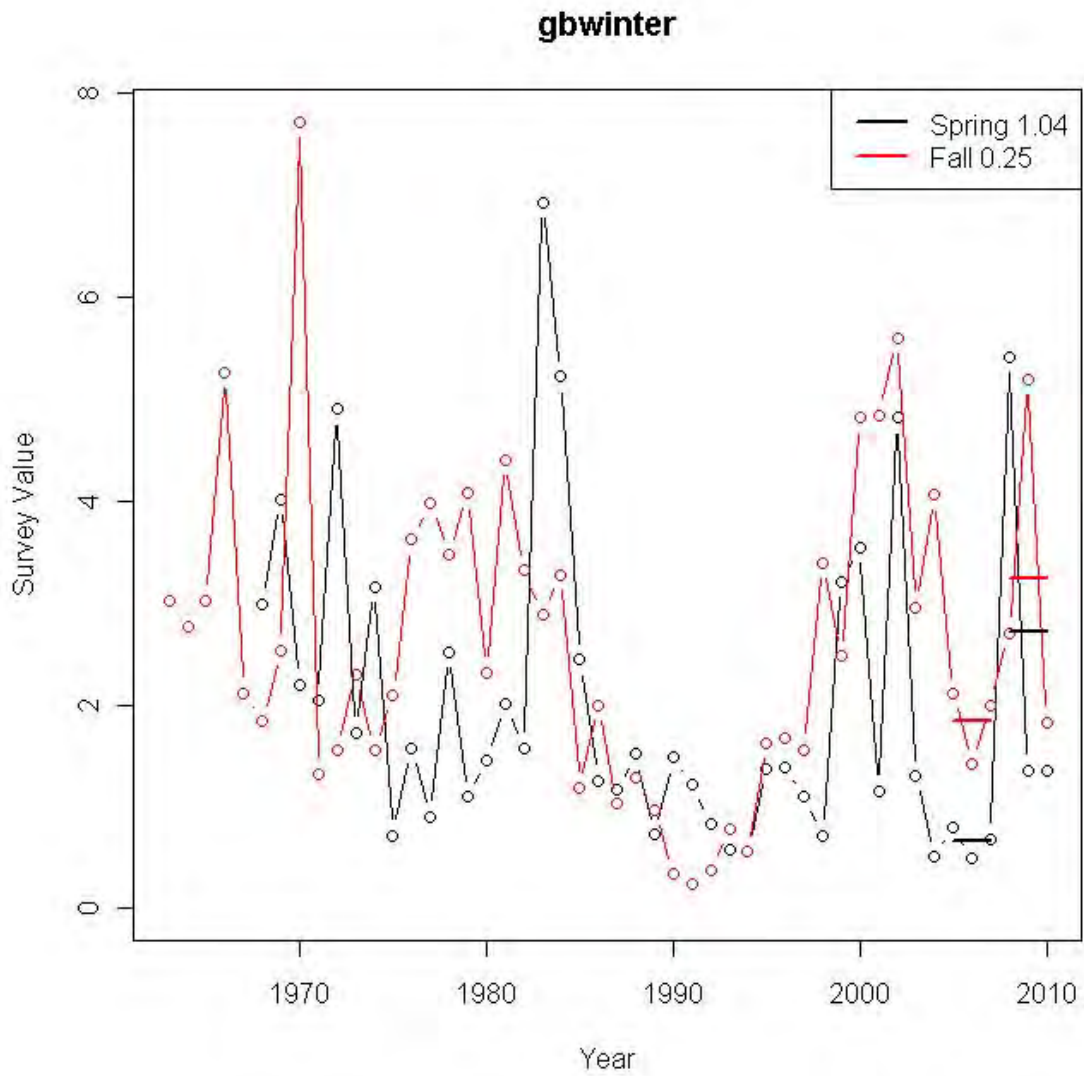
Gulf of Maine Winter Flounder

I. Stock status

Last assessment/terminal year: 2011/2010
Assessment Model: Swept   area biomass
Assessment Results: Unknown; 13% of F_{MSY} proxy
Overfished/overfishing status: Unknown/overfishing not occurring
Rebuilding plan: Not defined

II. Proposed OFL/ABC

	OFL	ABC
2010	441	238
2011	441	238
2012	1,458	1,078
2013	1,458	1,078
2014	1,458	1,078

Basis: 75% of F_{MSY} proxy applied to swept area biomass estimate

Probability of overfishing/overfished: Fill in

III.   Comments

SARC 52 did not accept the VPA or ASAP models for this stock, and instead adopted a swept area biomass approach using combined surveys. A B_{MSY} proxy was not determined and as a result it cannot be determined if the stock is overfished. This stock is not in a formal rebuilding plan. ABC advice is based on applying 75% for the F_{MSY} proxy to the swept area biomass estimate. The swept are biomass approach is subject to a number of uncertainties that are not quantified. For example, the estimate assumes fish are distributed evenly, which may not be the case given winter flounder's preference for certain habitats. Estimates assume that wing spread is an appropriate measure for the area swept, there is no net movement during the time when the surveys are conducted and that all three surveys have similar efficiencies.

Catch advice for this stock is dependent on the assumption on the efficiency of the trawl surveys, with a lower efficiency leading to higher catches. The SARC reviewers concluded that, based on a comparison to the GB winter flounder assessment, survey efficiency of 60 percent seemed appropriate. The recommended OFL and ABC are based on this value and result in large increases from recent catches. Given the uncertainties in this assessment method and the sensitivity of the estimates with small changes in the assumed gear efficiency, it may advisable to select a more moderate catch.

IV. Supporting Data

Survey time series biomass indices and catch

Year	MA Spring	MA Fall	NEFSC Spring	NEFSC Fall	Catch
1978	20.7721	12.7408			
1979	15.7868	32.8373			
1980	19.1081	17.8676			
1981	30.3827	13.5950			
1982	14.7133	24.4176			6,178
1983	28.9842	15.1426			3,035
1984	16.7156	12.2119			2,883
1985	15.3017	8.2881			3,327
1986	16.3522	6.9200			1,692
1987	18.6397	8.0178			2,713
1988	11.2656	8.2372			1,927
1989	13.9400	8.6020			2,315
1990	14.3750	13.2181			1,511
1991	11.5132	17.5796			1,136
1992	15.3559	15.0890			947
1993	12.0514	15.1087			778
1994	9.7786	13.2455			640
1995	14.9598	15.0923			776
1996	12.0820	13.1441			674
1997	12.9590	14.4376			660
1998	13.4733	15.4544			689
1999	14.9566	23.2036			399
2000	34.1597	25.0995			587
2001	24.5097	17.7425			756
2002	22.3907	16.2637			740
2003	17.3232	15.8014			801
2004	11.2011	14.0905			687
2005	11.9799	11.8122			387
2006	14.4339	15.4629			247
2007	10.0602	11.5988			297
2008	8.4238	18.0845			405
2009	12.2768	22.6767			367
2010	13.6758	18.6116			195

Figure 25 – NEFSC GOM winter flounder fall and spring survey biomass indices
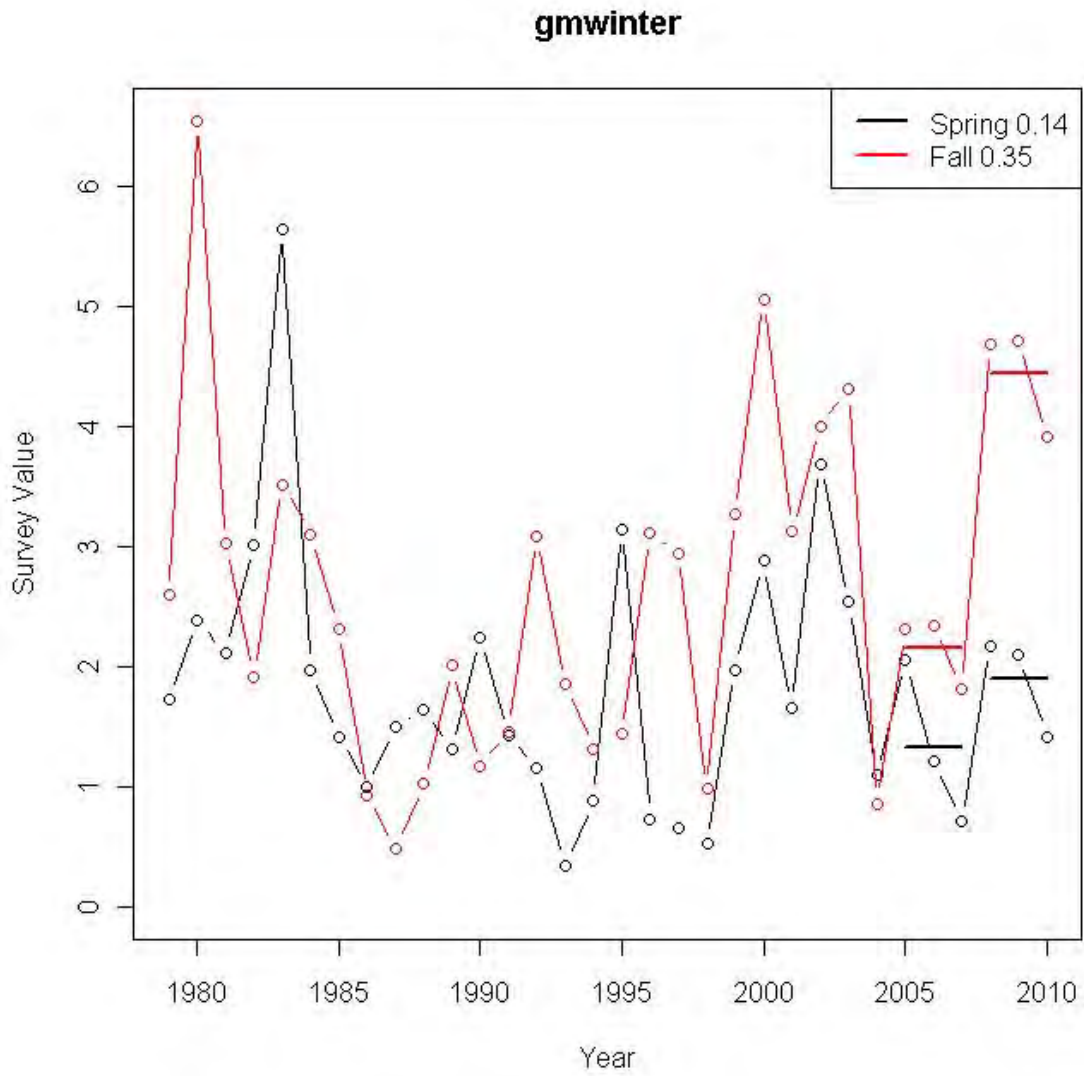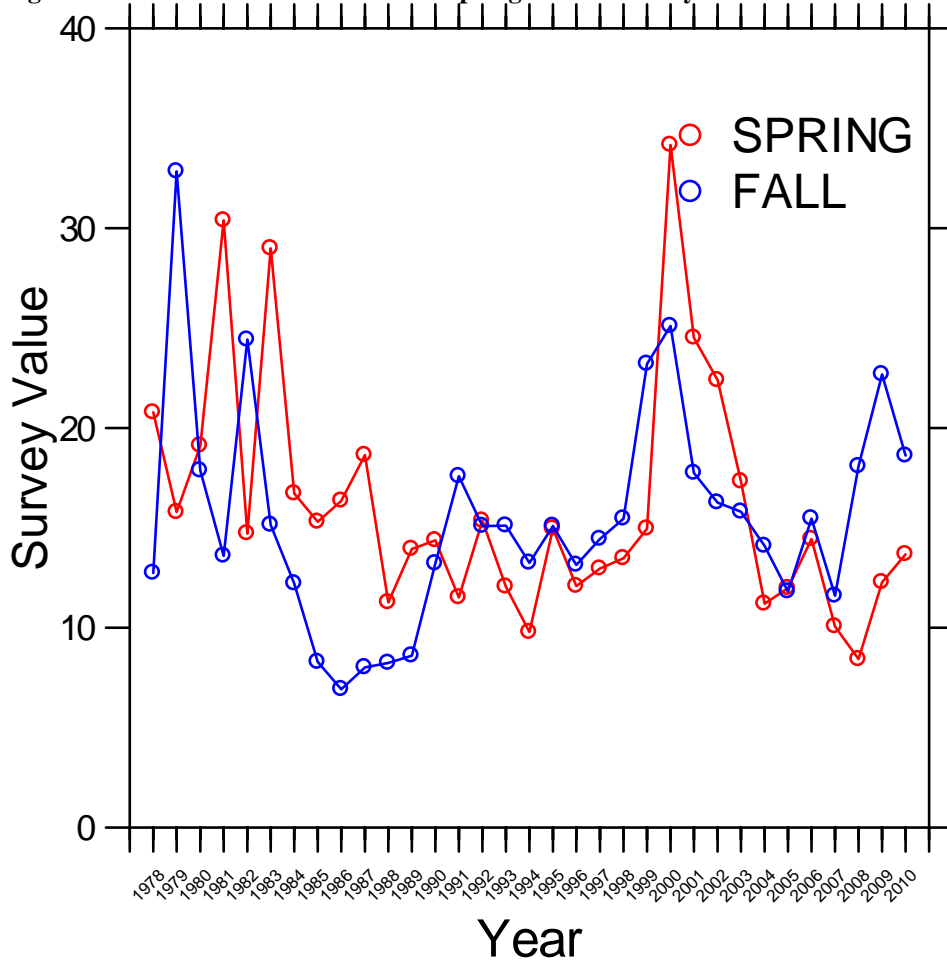
Figure 26 – MA GOM winter flounder spring and fall survey biomass indices

SNE/MA Winter Flounder

I. Stock status

Last assessment/terminal year: 2011/2010
Assessment Model: VPA
Assessment Results: 16%   of SSB_{MSY}; 18% of F_{MSY}
Overfished/overfishing status: Overfished/overfishing not occurring
Rebuilding plan: Rebuild by 2014 with a median probability of success

II. Proposed OFL/ABC

	OFL	ABC
2010	1,568	644
2011	2,117	897
2012	2,336	626
2013	2,637	697
2014	3,471	912

Basis: Projection from last assessment at lowest possible fishing mortality

Probability of overfishing/overfished:

	Overfishing	Overfished
2012	0	100%
2013	0	100%
2014	0	99%

III. Comments

The stock cannot rebuild by 2014 in the absence of all fishing mortality. Amendment 16 adopted the strategy of achieving as low a fishing mortality rate as possible – sometimes described as "unavoidable" fishing mortality. The SSC's advice in 2009 was that this should be accompanied with efforts to reduce bycatch. For 2010 and 2011, the fishing mortality used to set ABCs s was based on an estimate of fishing mortality that came from the closed area model used to develop effort controls. With the recent assessment, however, there are about 32 months of empirical evidence of the fishing mortality rate that results from fishing activity when retention of SNE/MA winter flounder is prohibited. Fully recruited (ages 4-5) mortality in 2009 was 0.09, and in 2010 was 0.05

(80 percent confidence intervals do not overlap). The PDT based ABC calculations on the average of these two years, or 0.07.

In FY 2010 and 2011, landing SNE/MA winter flounder was prohibited. The Council is considering a measure that would allow both sector and common pool vessels to land this stock in FY 2012 and beyond. This will reduce bycatch and will also improve the information available for future assessments.

IV. Supporting Data

Survey time series biomass indices and catch

Year	Spring	Fall	Catch
1976	0.4410	1.4910	
1977	0.6000	2.0460	
1978	0.9500	1.7010	
1979	0.5270	2.5970	
1980	2.0730	3.5520	
1981	2.6820	3.2970	15,764
1982	1.3660	1.6050	14,143
1983	1.9530	3.0340	13,582
1984	1.3840	0.8830	15,526
1985	1.6290	0.8770	13,891
1986	0.7410	0.4600	9,217
1987	0.5150	0.4920	9,352
1988	0.7050	0.4610	8,795
1989	0.5110	0.3780	6,915
1990	0.5100	0.6080	5,999
1991	0.6510	0.7780	6,842
1992	0.4220	0.9310	4,729
1993	0.1990	0.8330	4,311
1994	0.3400	1.7110	3,092
1995	0.5880	0.6490	3,434
1996	0.4430	1.1870	3,702
1997	0.4130	3.0240	4,483
1998	0.7690	2.5300	3,614
1999	1.2280	1.8250	3,745
2000	1.1690	2.2570	4,754
2001	0.5980	1.3240	5,147
2002	0.6930	4.3020	3,412
2003	0.2560	1.7040	2,827
2004	0.4160	1.0290	1,942
2005	0.3350	1.5740	1,563
2006	0.4700	1.1820	2,023
2007	0.3220	1.3930	1,866
2008	0.4130	1.5820	1,298
2009	0.4600	0.6480	532
2010	0.3040	1.1630	363

Figure 27 – NEFSC SNE/MA winter flounder spring and fall survey biomass indices

snewinter