Appendix 1.S
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Appendix to Atlantic Halibut

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Appendix Table S1. Input data for Atlantic halibut yield-per-recruit analysis.

Age	Selectivity on Fishing Mortality	Natural Mortality Rate	Fraction Mature	Mean Weight (kg)
0	0	0.15	0.01	0.00
1	0	0.15	0.04	0.02
2	0	0.15	0.06	0.25
3	0	0.15	0.10	0.96
4	1	0.15	0.15	2.36
5	1	0.15	0.23	4.57
6	1	0.15	0.34	7.64
7	1	0.15	0.46	11.57
8	1	0.15	0.59	16.32
9	1	0.15	0.71	21.83
10	1	0.15	0.80	28.01
11	1	0.15	0.87	34.78
12	1	0.15	0.92	42.03
13	1	0.15	0.95	49.68
14	1	0.15	0.97	57.63
15	1	0.15	0.98	65.79
16	1	0.15	0.99	74.09
17	1	0.15	0.99	82.46
18	1	0.15	1.00	90.83
19	1	0.15	1.00	99.15
20	1	0.15	1.00	107.36
21	1	0.15	1.00	115.43
22	1	0.15	1.00	123.33
23	1	0.15	1.00	131.02
24	1	0.15	1.00	138.48
25	1	0.15	1.00	145.70
26	1	0.15	1.00	152.65
27	1	0.15	1.00	159.35
28	1	0.15	1.00	165.77
29	1	0.15	1.00	171.91
30	1	0.15	1.00	177.78
31	1	0.15	1.00	183.38
32	1	0.15	1.00	188.70
33	1	0.15	1.00	193.76
34	1	0.15	1.00	198.57
35	1	0.15	1.00	203.12
36	1	0.15	1.00	207.43
37	1	0.15	1.00	211.50
38	1	0.15	1.00	215.35
39	1	0.15	1.00	218.98
40	1	0.15	1.00	222.40
41-50	1	0.15	1.00	222.40

Appendix Table S2. Mean and minimum sizes of Atlantic halibut discarded and landed from Northeast Fisheries Observer Program data.

Discarded Atlantic Halibut

Year	Mean Length (cm)	Std Err	N	Minimum Length (cm)
1992	33.0	.	1	33
1993	31.3	13.3458	3	17
1994	42.4	5.1049	5	24
1995	27.2	5.4858	6	18
1997	36.3	2.1858	3	32
1999	62.0	.	1	62
2000	57.0	4.0778	13	18
2001	67.5	2.9518	13	48
2002	70.2	4.7648	13	38
2003	64.0	1.6363	91	31
2004	57.1	1.3502	87	26
2005	60.4	1.3042	160	33
2006	63.0	1.495	107	38
2007	64.3	1.9969	75	24

Landed Atlantic Halibut

Year	Mean Length (cm)	Std Err	N	Minimum Length (cm)
1990	46.6	2.0012	6	42
1991	92.0	.	1	92
1992	67.1	5.2457	11	29
1993	62.8	5.5333	10	42
1994	73.3	5.0781	16	46
1995	79.6	4.6356	29	42
1996	69.2	10.027	5	50
1997	67.5	11.3893	6	44
2001	118.0	6	2	112
2002	88.0	9.0738	6	52
2003	81.0	5.349	29	41
2004	83.9	3.9709	33	43
2005	76.4	2.5691	80	40
2006	84.9	3.5611	37	50
2007	90.5	4.225	33	49

Note: 1999-2007 average observed minimum size = 55cm
Minimum size regulation for 1999-present = 91cm

Appendix Table S3. Atlantic halibut yield and biomass per recruit analysis from NFT YPR v.2.7.2.

Yield per Recruit and Spawning Stock Biomass per Recruit
YPR Version 2.7
Date of Run: 29 Jul 2008 16:19
Input Data File: L:\HALIBUT\NFTYPR\BRP2008\HALIBUT_YPR_M=0.15_0-40_50+_FINAL.DAT
Model Title: HalibutYPR6307

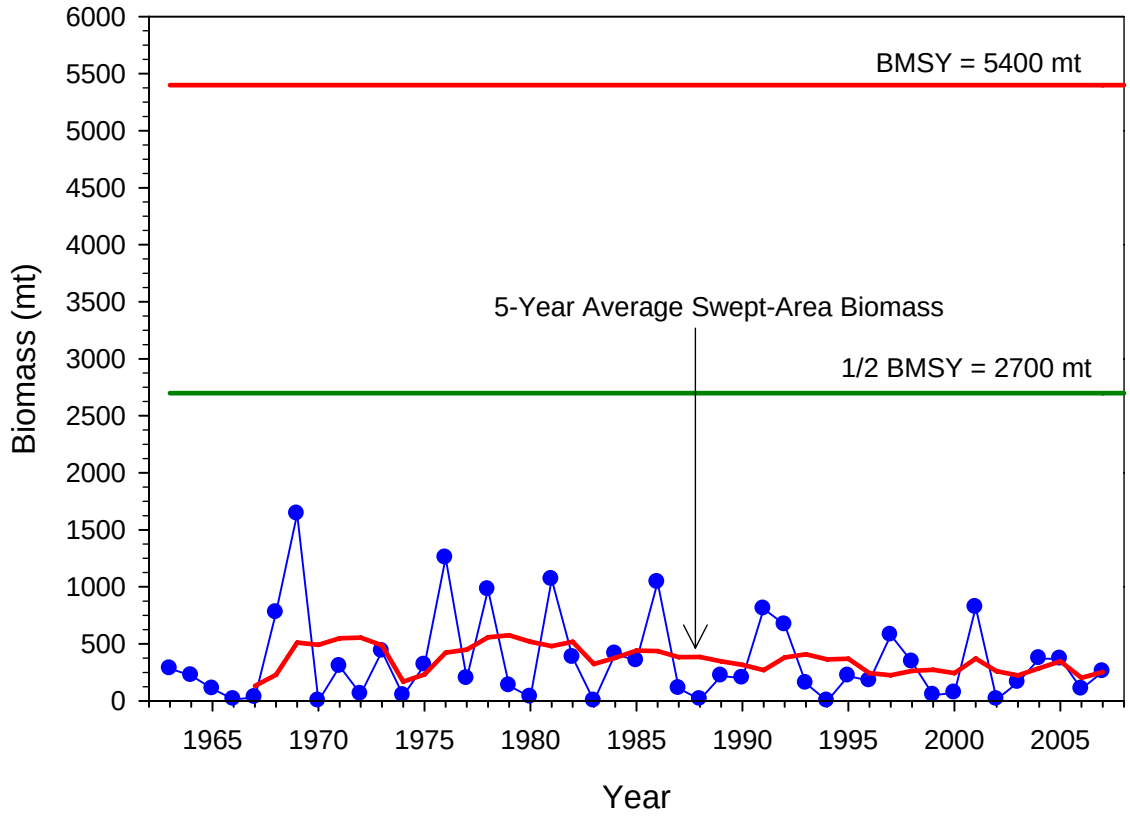
Start Age = 0
End Age = 40 - Includes Plus Group with Maximum Age = 50
Fishing Mortality Upper Bound = 1.0000
Fishing Mortality Calculation Increment = 0.0001
Fishing Mortality Printing Increment = 0.001
Natural Mortality = 0.1500
Proportion Fishing Mortality Before Spawning = 0.9200
Proportion Natural Mortality Before Spawning = 0.9200

Age	Selectivity F	Selectivity M	Stock Weight	Catch Weight	SSB Weight	Maturity
0	0.0000	1.0000	0.0000	0.0000	0.0000	0.0129
1	0.0000	1.0000	0.0169	0.0169	0.0169	0.0370
2	0.0000	1.0000	0.2460	0.2460	0.2460	0.0606
3	0.0000	1.0000	0.9620	0.9620	0.9620	0.0977
4	1.0000	1.0000	2.3647	2.3647	2.3647	0.1538
5	1.0000	1.0000	4.5742	4.5742	4.5742	0.2338
6	1.0000	1.0000	7.6432	7.6432	7.6432	0.3388
7	1.0000	1.0000	11.5719	11.5719	11.5719	0.4625
8	1.0000	1.0000	16.3222	16.3222	16.3222	0.5910
9	1.0000	1.0000	21.8294	21.8294	21.8294	0.7081
10	1.0000	1.0000	28.0116	28.0116	28.0116	0.8029
11	1.0000	1.0000	34.7772	34.7772	34.7772	0.8724
12	1.0000	1.0000	42.0311	42.0311	42.0311	0.9199
13	1.0000	1.0000	49.6783	49.6783	49.6783	0.9507
14	1.0000	1.0000	57.6275	57.6275	57.6275	0.9700
15	1.0000	1.0000	65.7927	65.7927	65.7927	0.9819
16	1.0000	1.0000	74.0950	74.0950	74.0950	0.9892
17	1.0000	1.0000	82.4628	82.4628	82.4628	0.9935
18	1.0000	1.0000	90.8325	90.8325	90.8325	0.9961
19	1.0000	1.0000	99.1484	99.1484	99.1484	0.9977
20	1.0000	1.0000	107.3624	107.3624	107.3624	0.9986
21	1.0000	1.0000	115.4336	115.4336	115.4336	0.9992
22	1.0000	1.0000	123.3278	123.3278	123.3278	0.9995
23	1.0000	1.0000	131.0170	131.0170	131.0170	0.9997
24	1.0000	1.0000	138.4787	138.4787	138.4787	0.9998
25	1.0000	1.0000	145.6957	145.6957	145.6957	0.9999
26	1.0000	1.0000	152.6549	152.6549	152.6549	0.9999
27	1.0000	1.0000	159.3473	159.3473	159.3473	1.0000
28	1.0000	1.0000	165.7673	165.7673	165.7673	1.0000
29	1.0000	1.0000	171.9121	171.9121	171.9121	1.0000
30	1.0000	1.0000	177.7815	177.7815	177.7815	1.0000
31	1.0000	1.0000	183.3774	183.3774	183.3774	1.0000
32	1.0000	1.0000	188.7034	188.7034	188.7034	1.0000
33	1.0000	1.0000	193.7647	193.7647	193.7647	1.0000
34	1.0000	1.0000	198.5676	198.5676	198.5676	1.0000
35	1.0000	1.0000	203.1192	203.1192	203.1192	1.0000
36	1.0000	1.0000	207.4276	207.4276	207.4276	1.0000
37	1.0000	1.0000	211.5011	211.5011	211.5011	1.0000
38	1.0000	1.0000	215.3487	215.3487	215.3487	1.0000
39	1.0000	1.0000	218.9795	218.9795	218.9795	1.0000
40	1.0000	1.0000	222.4026	222.4026	222.4026	1.0000

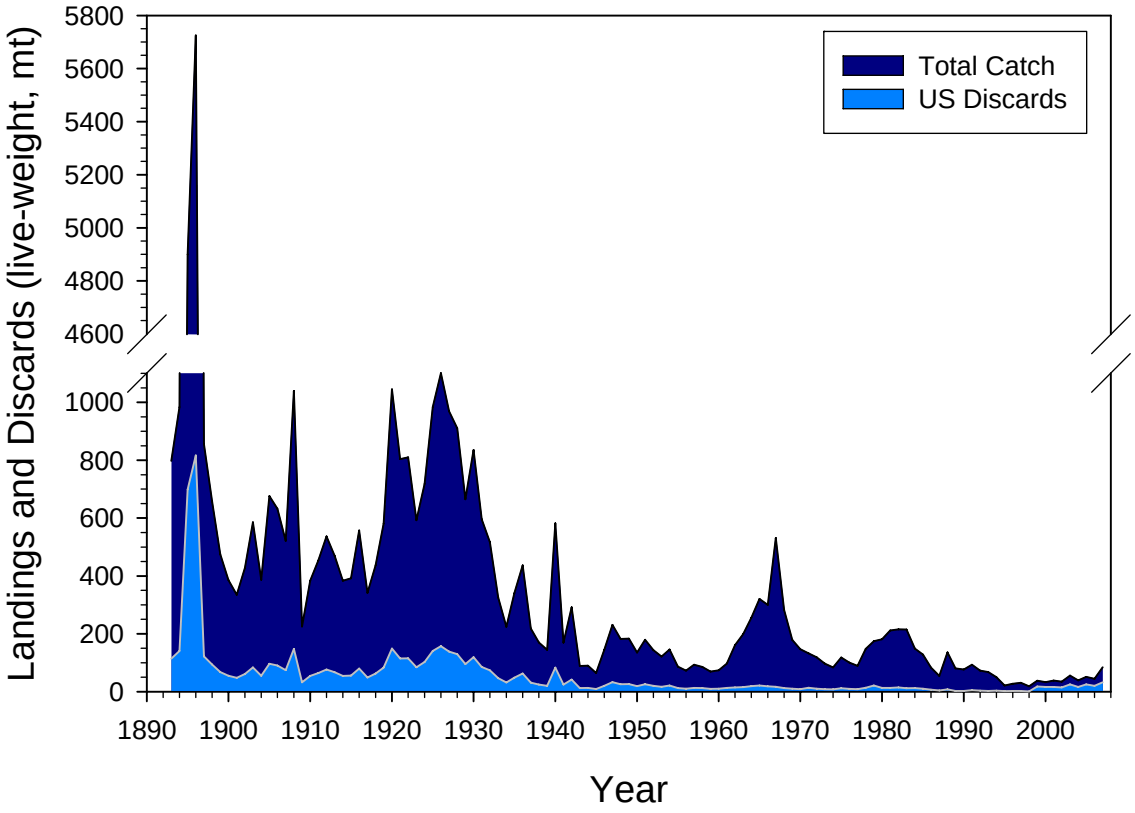
Reference Point	F	YPR	SSBR	TSBR	Mean Age	Mean GT	Exp Spawn
F Zero	0.00000	0.00000	108.95342	139.95624	6.15487	19.23819	2.15020
F-01	0.07310	3.85176	39.12487	59.59793	4.38024	15.29431	1.21703
F-Max	0.11400	4.06943	24.49929	41.42598	3.84422	13.82353	0.94950
F at 40 %MSP	0.06430	3.71728	43.63489	65.03725	4.52548	15.66619	1.29108

FMORT	CTHN	CTHW	STKN	STKW	SPNSTK	SPNSTKW	MSP	MNAGE	MNGT	EXSP
0.07300	0.17965	3.85047	5.98471	59.65593	1.23950	39.17269	35.95361	4.38182	15.29841	1.21783

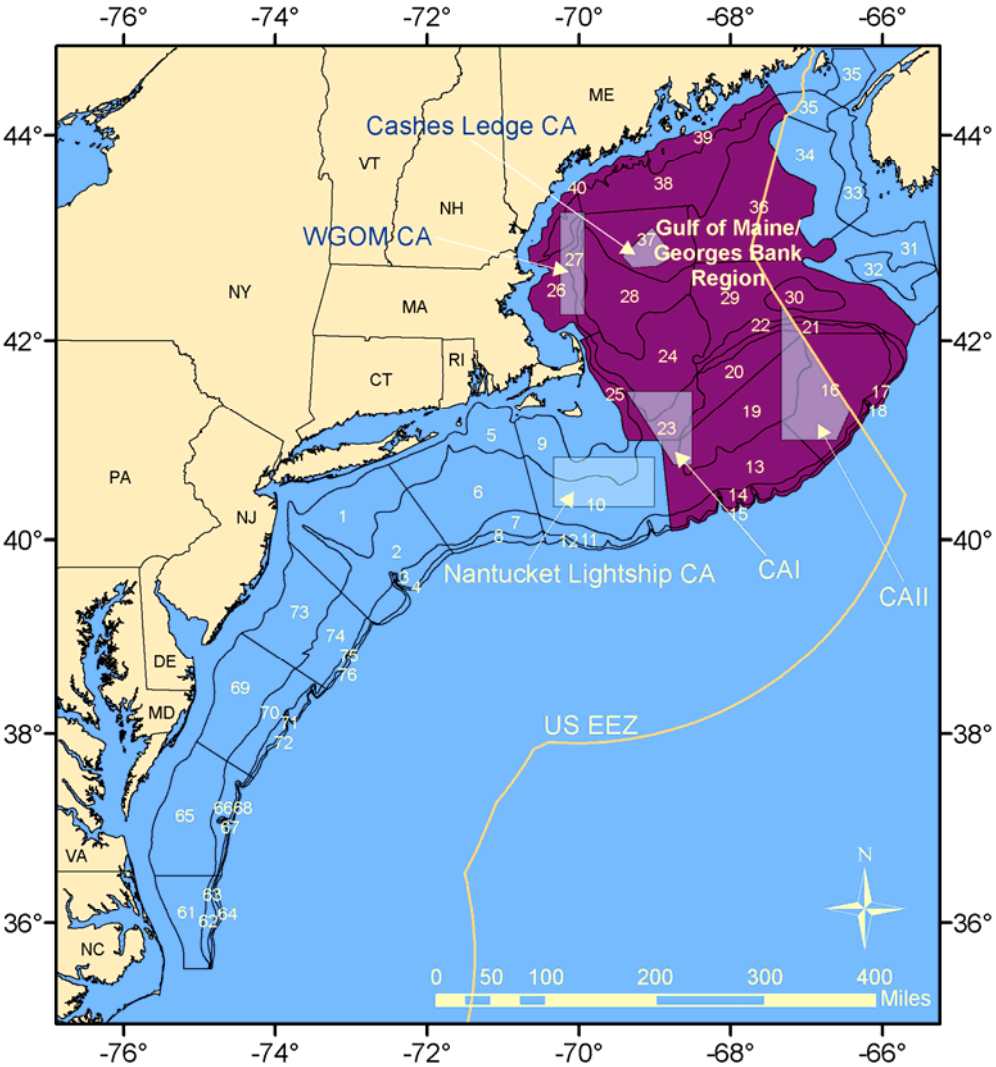
Appendix Figure S1. Trends in Atlantic halibut swept-area biomass indices from Northeast Fisheries Science Center autumn bottom trawl surveys and previous index-based assessment reference points.



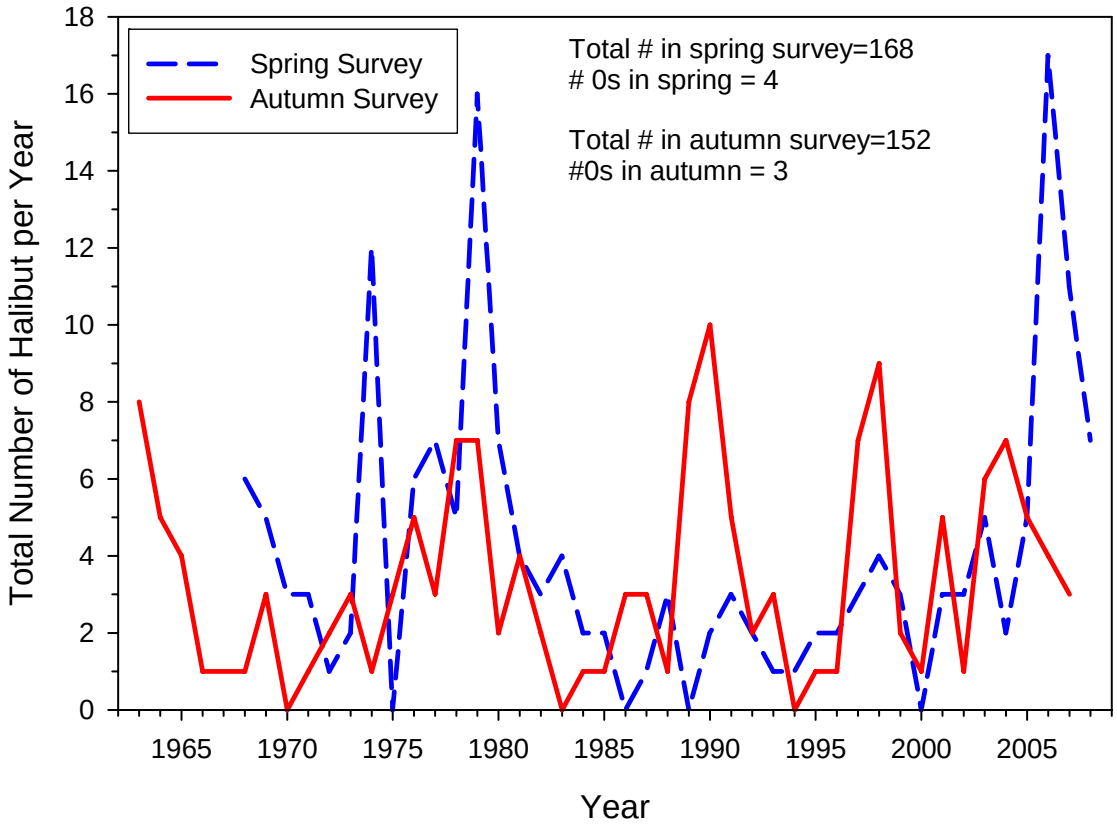
Appendix Figure S2. Atlantic halibut total catch (mt) from the Gulf of Maine-Georges Bank region (NAFO divisions 5Y and 5Z), 1893-2007.



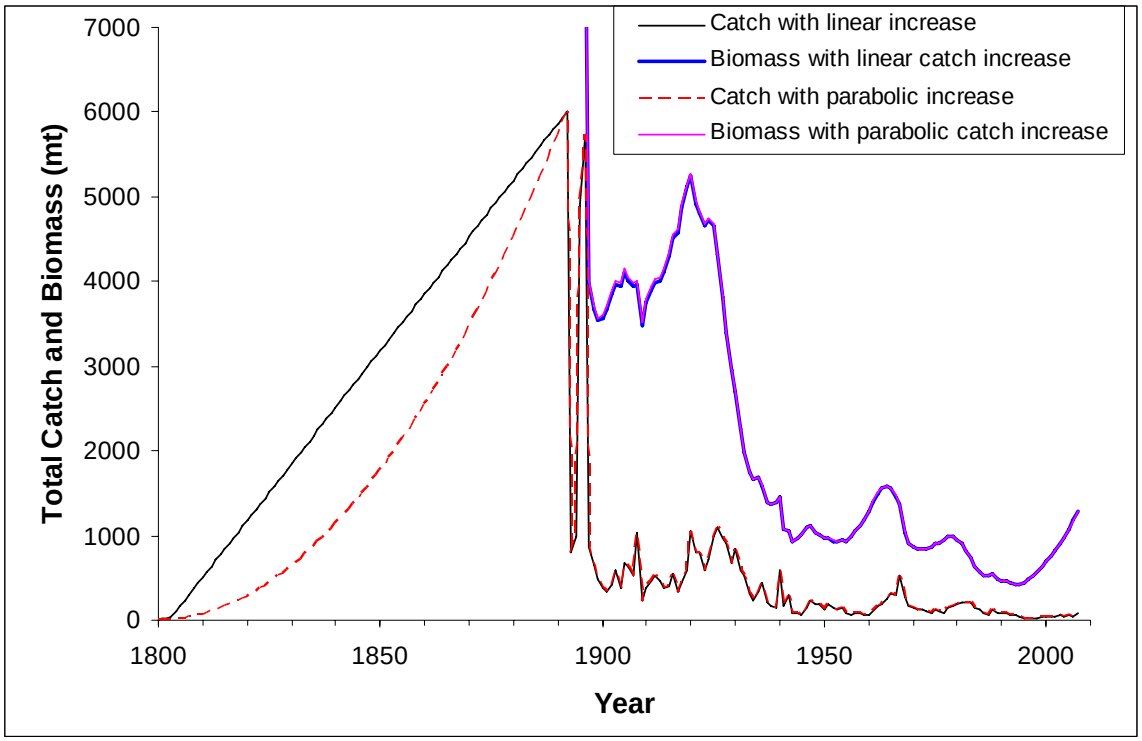
Appendix Figure S3. Northeast Fisheries Science Center offshore bottom trawl survey strata used for calculating Gulf of Maine-Georges Bank Atlantic halibut biomass indices.



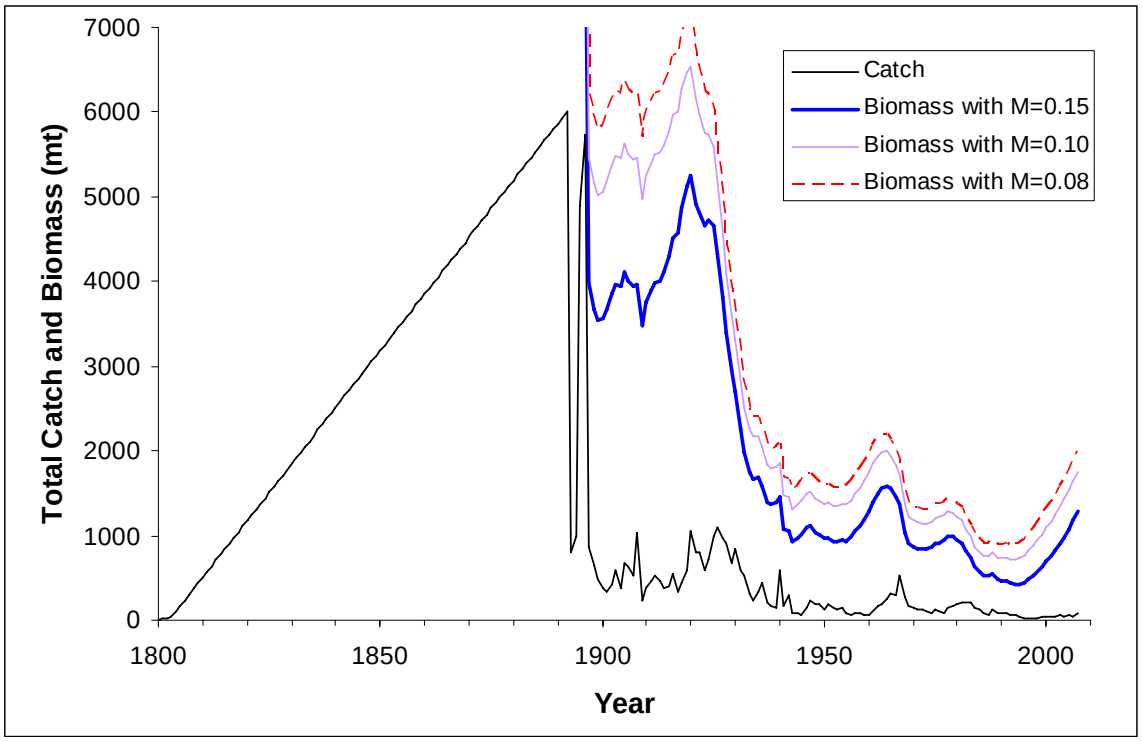
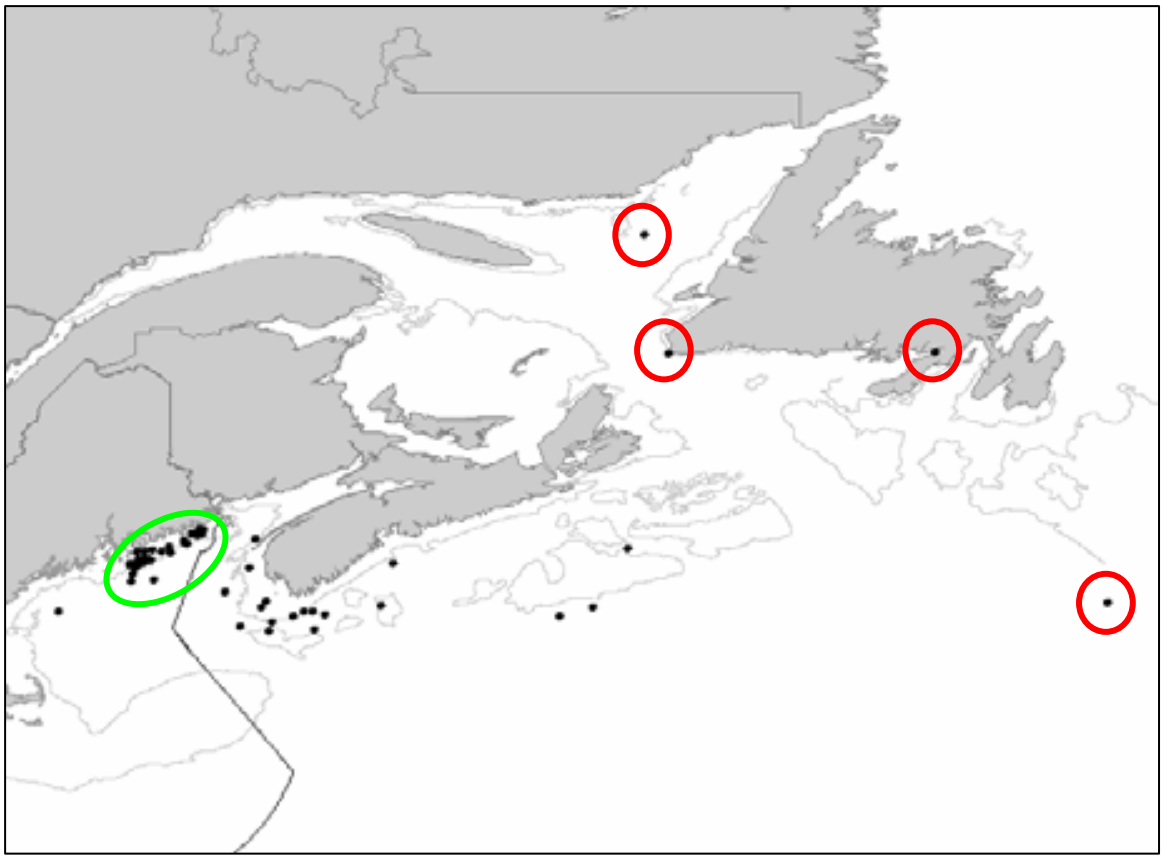
Appendix Figure S4. Total numbers of Atlantic halibut caught annually in Northeast Fisheries Science Center spring and autumn surveys.



Appendix Figure S5. Replacement Yield Model estimated Atlantic halibut biomass as a result of using a linear increase versus a parabolic increase in historic catch from 1800 to1892.



Appendix Figure S6. Replacement Yield Model estimated Atlantic halibut biomass as a result of using alternative assumptions of natural mortality.



Appendix Figure S7. 2000-2004 Experimental Halibut Fishery tagging release location (green oval) and recapture locations (black dots). Red circles represent recapture locations where Atlantic halibut traveled more that 1,000 km.