

Appendix G. Witch flounder

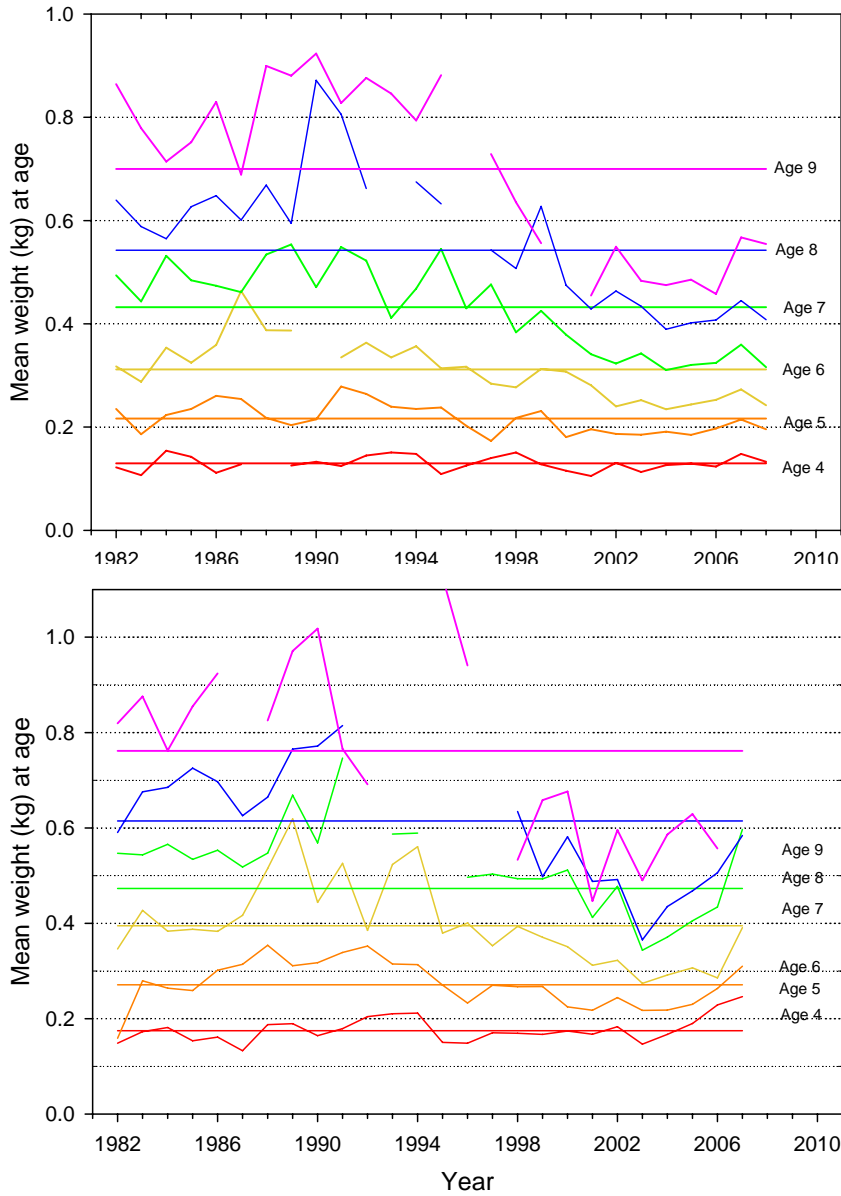
Appendix Tables and Figures by S.E. Wigley and L. Col

Appendix Table G1. Stratified mean number, weight (kg), length (cm), and individual weight (kg) per tow of witch flounder in **Massachusetts Division of Marine Fisheries inshore spring and autumn surveys** in the Cape Cod Bay and Mass. Bay region (Regions 4 and 5), 1978-2007.

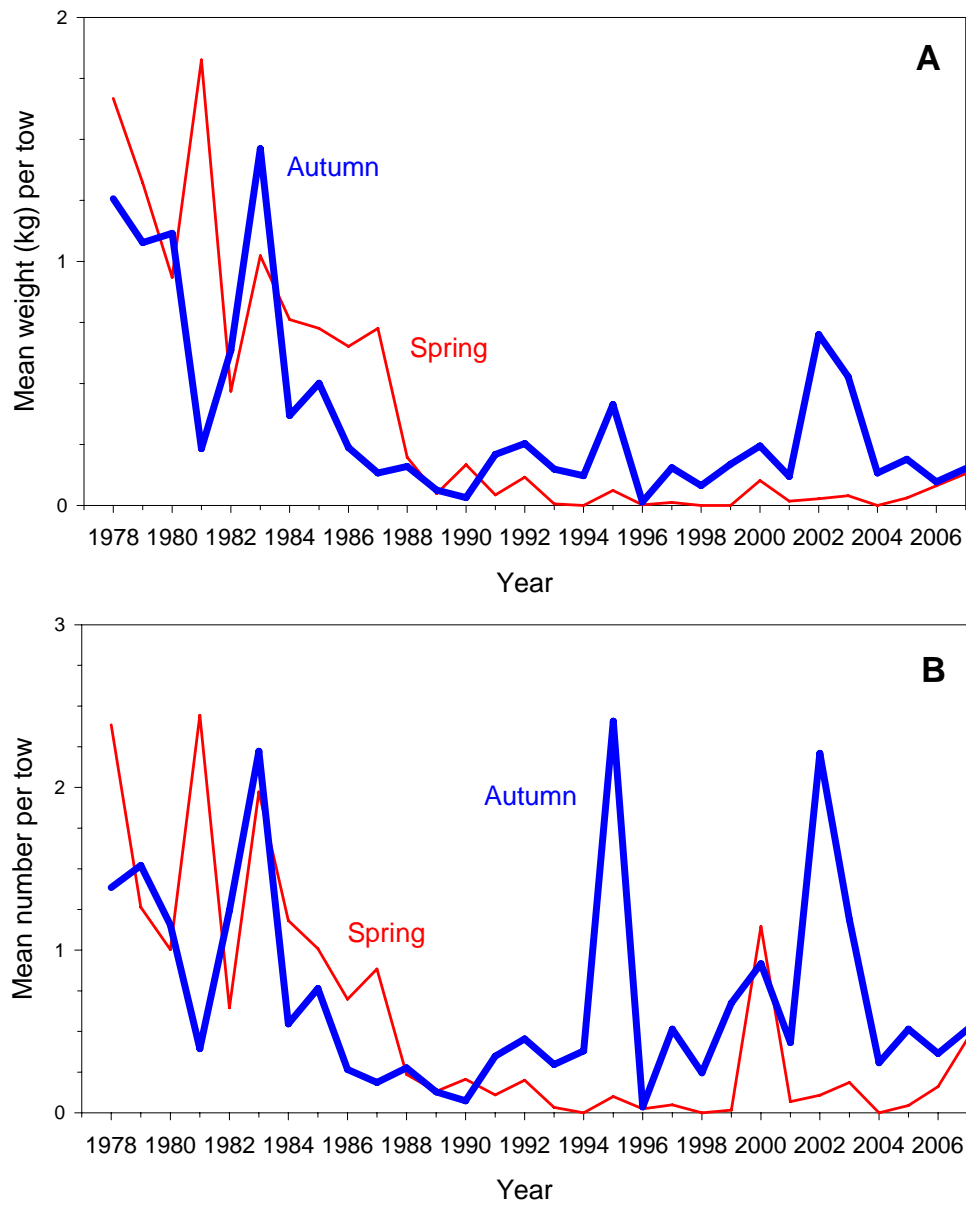
Year	SPRING				AUTUMN			
	Number per tow	Weight per tow	Length per tow	Avg. wt. per tow	Number per tow	Weight per tow	Length per tow	Avg. wt. per tow
1978	2.38	1.67	44.6	0.699	1.38	1.26	46.4	0.908
1979	1.26	1.32	48.3	1.046	1.52	1.08	42.9	0.708
1980	1.00	0.93	44.0	0.932	1.15	1.12	46.5	0.966
1981	2.44	1.83	40.2	0.747	0.39	0.23	41.2	0.589
1982	0.65	0.47	44.2	0.726	1.24	0.64	37.7	0.511
1983	1.97	1.02	36.8	0.519	2.22	1.46	44.6	0.658
1984	1.18	0.76	40.8	0.645	0.55	0.37	43.6	0.674
1985	1.01	0.73	43.4	0.720	0.76	0.50	43.6	0.655
1986	0.70	0.65	47.6	0.934	0.27	0.24	46.4	0.893
1987	0.88	0.73	45.1	0.821	0.19	0.13	44.6	0.713
1988	0.24	0.20	45.6	0.837	0.28	0.16	39.5	0.579
1989	0.13	0.05	34.9	0.369	0.13	0.06	38.1	0.491
1990	0.21	0.17	44.2	0.809	0.07	0.03	36.8	0.436
1991	0.11	0.04	34.1	0.393	0.35	0.21	41.1	0.602
1992	0.20	0.12	40.2	0.583	0.45	0.25	40.7	0.557
1993	0.03	0.01	33.0	0.200	0.30	0.15	40.9	0.500
1994	0.00	0.00	-	-	0.38	0.12	31.0	0.321
1995	0.10	0.06	36.0	0.613	2.41	0.41	26.7	0.172
1996	0.02	<0.01	21.0	0.100	0.04	0.01	40.0	0.400
1997	0.05	0.01	31.5	0.250	0.51	0.15	36.0	0.300
1998	0.00	0.00	-	-	0.25	0.08	35.2	0.332
1999	0.02	<0.01	11.0	0.000	0.67	0.17	33.7	0.251
2000	1.15	0.10	23.5	0.089	0.92	0.24	31.6	0.266
2001	0.07	0.02	33.0	0.250	0.43	0.12	33.2	0.275
2002	0.11	0.03	33.4	0.253	2.21	0.70	36.5	0.317
2003	0.19	0.04	30.2	0.217	1.19	0.53	39.8	0.445
2004	0.00	0.00	-	-	0.31	0.13	40.5	0.432
2005	0.05	0.03	45.5	0.675	0.51	0.19	37.8	0.369
2006	0.16	0.08	40.9	0.500	0.37	0.10	33.0	0.265
2007	0.46	0.13	34.6	0.286	0.51	0.15	36.8	0.295

Appendix Table G2. Stratified mean number, weight (kg), length (cm), and individual weight (kg) per tow of witch flounder in the **ASMFC summer shrimp surveys** in the Gulf of Maine (strata set 1,3,6,8), 1984 - 2007.

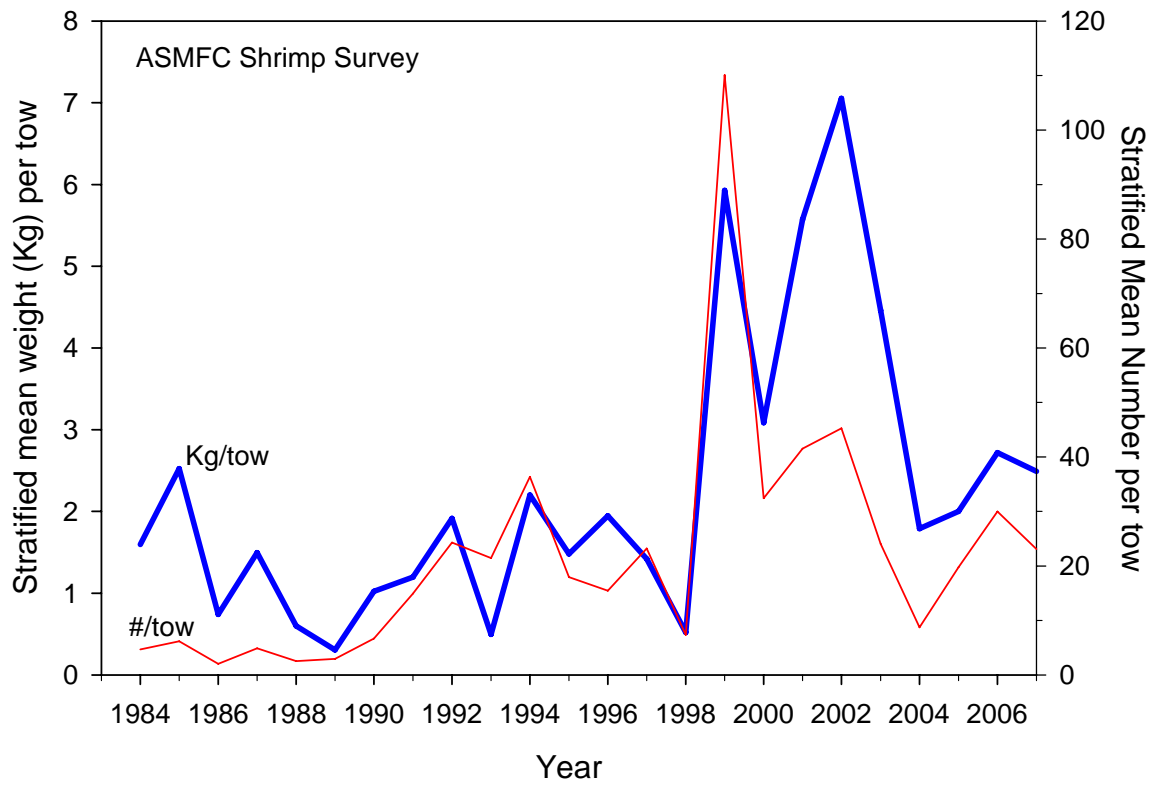
Year	Number per tow	Weight per tow	Length per tow	Ave. wt. per tow
1984	4.68	1.60	33.9	0.341
1985	6.19	2.52	36.0	0.408
1986	2.05	0.74	35.9	0.362
1987	4.87	1.50	26.5	0.307
1988	2.53	0.60	25.8	0.238
1989	2.92	0.31	22.8	0.105
1990	6.66	1.02	24.5	0.154
1991	14.94	1.20	19.6	0.080
1992	24.28	1.91	20.5	0.079
1993	21.42	0.50	12.8	0.023
1994	36.36	2.20	19.1	0.061
1995	17.95	1.48	22.6	0.082
1996	15.45	1.95	25.2	0.126
1997	23.19	1.42	19.1	0.061
1998	7.35	0.52	21.9	0.071
1999	110.07	5.93	18.7	0.054
2000	32.43	3.09	24.2	0.095
2001	41.52	5.57	27.2	0.134
2002	45.25	7.05	28.8	0.156
2003	24.06	4.46	30.6	0.185
2004	8.75	1.79	31.3	0.205
2005	19.77	2.00	21.6	0.101
2006	29.98	2.72	22.6	0.091
2007	23.10	2.49	25.1	0.108



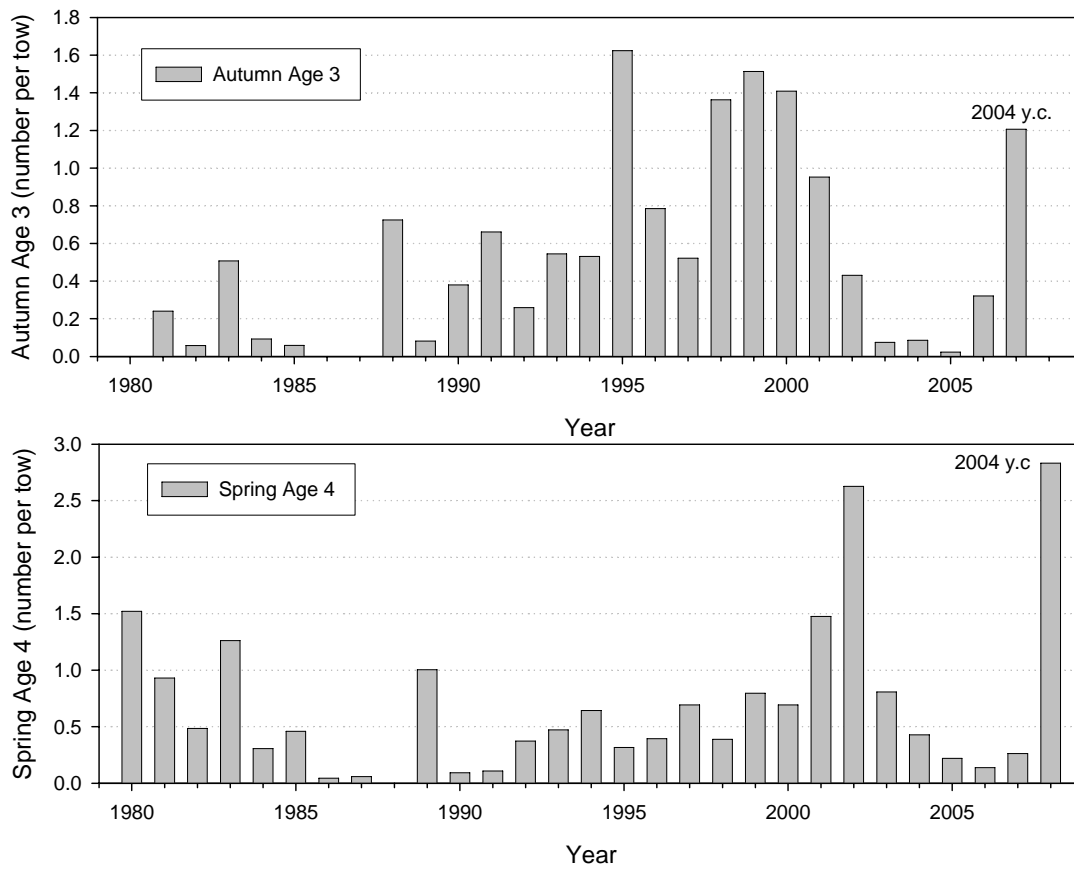
Appendix Figure G1. Mean weight at age of witch flounder (age groups 4 – 9) in the NEFSC spring (top) and autumn (bottom) survey, 1980-2007.



Appendix Figure G2 Stratified mean catch per tow, in weight (A) and number (B), of witch flounder in the Massachusetts Division of Marine Fisheries spring and autumn bottom trawl surveys in Cape Cod Bay – Mass Bay region, 1978 – 2007.



Appendix Figure G3. Stratified mean catch per tow, in weight (kg) and numbers, of witch flounder in the Atlantic States Marine Fisheries Commission summer northern shrimp survey, 1984-2007.



Appendix Figure G4. Stratified mean number per tow of age 3 witch flounder in the NEFSC autumn survey, 1980- 2007 (top), and age 4 witch flounder in the NEFSC spring survey, 1980 - 2008 (bottom).

Appendix H. Gulf of Maine – Georges Bank American plaice by Loretta O'Brien, Jay Burnett , and Michele Traver

Appendix H. Table H1. Bootstrapped estimates of mean landings in numbers, with standard deviation (Stdev) and coefficient of variation (CV), and average length and weight with 5% confidence intervals (5% CI, 95% CI) at age

YEAR	Gulf of Maine											Georges Bank										
	Age	Mean Catch	Stdev	CV	Length			Weight			Age	Mean Catc	Stdev	CV	Length			Weight				
					Average	5% CI	95% CI	Average	5% CI	95% CI					Average	5% CI	95% CI	Average	5% CI	95% CI		
2003	4	121373	61040.49	0.50	35.935	35.192	36.798	0.395	0.369	0.427	4	18324	20691.28	1.13	36.763	0	38	0.424	0	0.472		
	5	641249	59791.17	0.09	37.209	36.855	37.636	0.446	0.431	0.464	5	95926	45619.39	0.48	37.112	36.25	38.867	0.44	0.405	0.524		
	6	724331	53850.96	0.07	39.264	38.903	39.652	0.536	0.521	0.554	6	318260	74368.41	0.23	41.076	40.163	42.034	0.623	0.572	0.677		
	7	380708	40874.67	0.11	42.01	41.396	42.71	0.675	0.644	0.711	7	288011	46336.09	0.16	43.184	42.58	43.783	0.735	0.7	0.77		
	8	275690	27778.66	0.10	44.97	44.172	45.769	0.846	0.801	0.89	8	209754	44891.03	0.21	45.621	44.814	46.823	0.89	0.837	0.976		
	9	122912	12307	0.10	47.639	46.561	48.505	1.027	0.962	1.083	9	119416	29827.97	0.25	46.264	44.52	48.63	0.956	0.84	1.122		
	10	88951	12092.29	0.14	47.993	46.897	49.036	1.059	0.992	1.133	10	52166	23966.4	0.46	49.596	46.576	54.747	1.21	0.986	1.61		
	11	46010	8141.45	0.18	49.486	47.62	51.042	1.176	1.07	1.294	11	19747	10464.62	0.53	51.556	47.925	57.123	1.356	1.063	1.865		
	12	13087	3331.84	0.25	52.212	50.354	54.114	1.401	1.25	1.572	12	10070	7117	0.71	54.375	52.929	59	1.586	1.444	2.058		
	13	5403	3727.05	0.69	53.254	49.221	58	1.513	1.226	1.95	13	1616	1787.39	1.11	54	0	54	1.531	0	1.531		
	14	2163	993.67	0.46	52.853	51.474	55.727	1.445	1.313	1.733	14	1871	1860.87	0.99	55.385	0	62	1.672	0	2.43		
	15	605	420.95	0.70	57	0	66	1.896	0	2.995	15	1244	882.28	0.71	59.372	0	62	2.109	0	2.43		
	2004	3										3	8676	7026.83	0.81	34.4	32.742	35	0.34	0.288	0.359	
		4	63995	16941.22	0.26	36.961	36.106	37.793	0.433	0.4	0.466	4	77740	26973.58	0.35	37.365	36.265	38.249	0.449	0.406	0.489	
		5	312148	38419.34	0.12	37.515	37.13	37.859	0.456	0.441	0.471	5	157236	23926.21	0.15	38.688	37.867	39.451	0.512	0.474	0.548	
6		539603	32973.76	0.06	39.501	39.113	40.072	0.548	0.531	0.576	6	269574	39632.04	0.15	39.956	39.172	40.788	0.574	0.537	0.614		
7		273875	34504.72	0.13	41.719	41.205	42.34	0.661	0.634	0.693	7	146571	18649.88	0.13	43.56	42.408	44.758	0.766	0.699	0.84		
8		206459	27493.88	0.13	44.173	43.558	45.564	0.802	0.767	0.883	8	116892	22875.12	0.20	44.437	43.224	46.124	0.839	0.764	0.951		
9		109896	13118.82	0.12	46.79	45.914	47.751	0.971	0.915	1.033	9	57978	12151.3	0.21	48.857	47.59	50.728	1.142	1.043	1.285		
10		44927	9013.48	0.20	47.124	45.686	48.912	1.002	0.907	1.123	10	33243	13130.16	0.40	47.467	45.171	51.179	1.033	0.866	1.33		
11		26445	4645.92	0.18	48.78	46.766	50.84	1.148	1.009	1.293	11	21298	8875.66	0.42	49.45	46.929	54.633	1.204	0.987	1.649		
12		6113	1745.55	0.29	52.374	50.921	53.89	1.401	1.275	1.535	12	10408	8710.93	0.84	48.177	0	57	1.083	0	1.852		
13		4385	1772.16	0.40	52.575	50.651	54.711	1.424	1.261	1.617												
14		1683	957.72	0.57	54.348	51.706	56.824	1.582	1.365	1.828	14	577	995.45	1.72								
15		235	156.49	0.67	55.389	52	59.31	1.684	1.349	2.095												
2005		3										3	2760	2391.39	0.87	37	0	37	0.432	0	0.432	
		4	55806	20451.62	0.37	36.289	35.602	36.974	0.408	0.383	0.434	4	130609	17945.66	0.14	36.411	35.906	36.809	0.413	0.393	0.429	
	5	337958	35010.32	0.10	38.137	37.861	38.389	0.483	0.471	0.494	5	250463	31662.41	0.13	38.265	37.725	38.877	0.491	0.469	0.516		
	6	349848	32468.56	0.09	39.754	39.349	40.228	0.561	0.542	0.582	6	204810	21103.92	0.10	40.108	39.444	40.875	0.582	0.55	0.618		
	7	212722	22920.28	0.11	42.096	41.465	42.747	0.684	0.653	0.719	7	154143	26025.59	0.17	42.725	41.689	44.044	0.722	0.665	0.793		
	8	96617	13459.16	0.14	44.783	44.085	45.645	0.835	0.793	0.887	8	63540	10143.65	0.16	46.092	45.343	47.016	0.918	0.867	0.98		
	9	56631	9150.59	0.16	46.844	45.418	48.088	0.975	0.889	1.055	9	36807	8431.68	0.23	46.41	44.456	48.94	0.956	0.833	1.115		
	10	31525	7026.8	0.22	47.158	45.569	49.044	1.004	0.899	1.113	10	9804	2914.52	0.30	51.113	50.144	52.221	1.303	1.224	1.391		
	11	18296	4313.46	0.24	50.301	49.361	51.396	1.219	1.149	1.311	11	5806	1646.54	0.28	52.676	50.285	55.113	1.438	1.233	1.658		
	12	7425	3516.19	0.47	47.159	44.475	52.678	1.021	0.828	1.426	12	6978	2315.46	0.33	51.058	48.998	52.862	1.289	1.126	1.434		
	13	3627	1629.78	0.45	52.346	50.838	54.022	1.387	1.254	1.548	13	2649	1191.04	0.45	51.74	49.373	55.338	1.352	1.156	1.662		
	14	1726	1165.54	0.68	53.764	51.684	55.97	1.517	1.328	1.734	14	567	433.41	0.76	56.831	0	59	1.819	0	2.058		
	15	776	1029.15	1.33	53	0	53	1.438	0	1.438	15	399	410.71	1.03	53	0	53	1.438	0	1.438		

Appendix H. Table H1 continued. Bootstrapped estimates of mean landings in numbers, with standard deviation (Stdev) and coefficient of variation (CV), and average length and weight with confidence intervals (5% CI, 95% CI) , at age, for American plaice, 2003-2007

2006	3										3	2245	2277.92	1.01	34	0	34	0.326	0	0.326
	4	71243	16414.63	0.23	36.724	36.159	37.275	0.424	0.402	0.446	4	85354	13899.22	0.16	37.062	36.675	37.469	0.438	0.421	0.456
	5	257796	31417.66	0.12	37.652	37.319	38.061	0.463	0.449	0.481	5	230286	24587.07	0.11	38.567	38.106	38.956	0.504	0.484	0.52
	6	214990	29231.96	0.14	39.389	38.957	39.838	0.541	0.522	0.563	6	176564	24138.32	0.14	41.226	40.618	41.985	0.637	0.607	0.675
	7	169875	33267.54	0.20	40.963	40.134	42.414	0.623	0.581	0.695	7	110260	18343.21	0.17	43.607	43.025	44.278	0.766	0.733	0.807
	8	99224	11534.42	0.12	44.564	43.78	45.276	0.82	0.776	0.863	8	69859	9452.87	0.14	45.456	44.533	46.303	0.891	0.836	0.946
	9	57051	10638.29	0.19	45.294	43.935	46.697	0.873	0.795	0.96	9	32295	4884.53	0.15	47.742	46.688	48.916	1.052	0.974	1.139
	10	41034	8842.36	0.22	46.686	45.493	48.189	0.962	0.885	1.062	10	10804	2363.07	0.22	50.963	49.869	52.152	1.287	1.19	1.393
	11	15437	5075.82	0.33	48.746	46.396	51.251	1.114	0.953	1.3	11	9489	2366.06	0.25	51.758	49.492	53.948	1.37	1.18	1.559
	12	7427	3635.37	0.49	51.835	50.449	53.689	1.349	1.235	1.517	12	2435	1214.19	0.50	54.873	51.455	60.208	1.67	1.324	2.24
	13	2115	1232.96	0.58	52.624	50.943	55.97	1.42	1.267	1.755	13	1415	657.83	0.46	54.657	51.294	58.351	1.623	1.302	2.012
	14	1185	606.09	0.51	54.461	53.18	55.375	1.577	1.455	1.665	14	308	234.67	0.76	54.631	0	56	1.595	0	1.729
	15	1989	2080.71	1.05	53.723	52	57.571	1.515	1.349	1.897	15	147	200.46	1.36						
2007	3										3	18293	13455.03	0.74	35.637	0	36.165	0.382	0	0.401
	4	73360	27600.5	0.38	37.192	36.63	38.324	0.444	0.421	0.492	4	182533	27657.49	0.15	35.672	35.436	35.992	0.385	0.376	0.397
	5	372751	57933.98	0.16	37.876	37.168	38.341	0.473	0.445	0.492	5	212803	34719.88	0.16	37.691	37.236	38.239	0.466	0.447	0.489
	6	282839	43098.41	0.15	39.315	38.537	40.15	0.543	0.508	0.582	6	125986	16895.72	0.13	40.225	39.447	41.152	0.586	0.55	0.633
	7	137063	24917.26	0.18	41.992	40.667	43.253	0.679	0.615	0.745	7	55387	14026.68	0.25	41.37	40.248	43.731	0.649	0.591	0.77
	8	80369	21578.32	0.27	44.114	41.481	46.185	0.803	0.664	0.917	8	27632	7709.54	0.28	46.448	44.885	48.447	0.949	0.849	1.082
	9	53043	14383.79	0.27	45.787	42.303	47.785	0.921	0.724	1.038	9	13474	3491.69	0.26	51.897	49.407	54.074	1.368	1.153	1.565
	10	20473	3930.33	0.19	49.334	48.17	50.71	1.15	1.065	1.257	10	9638	4832.51	0.50	46.441	42.171	52.138	0.973	0.718	1.369
	11	10467	2530.08	0.24	50.483	49.382	51.683	1.241	1.15	1.337	11	3546	1241.23	0.35	52.964	52.1	54.586	1.449	1.364	1.608
	12	2665	1054.52	0.40	51.743	50.123	54.159	1.342	1.201	1.559	12	3182	1559.82	0.49	54.495	51.814	56.699	1.592	1.357	1.809
	13	1258	661.55	0.53	53.578	51.185	57.148	1.511	1.29	1.865	13	5371	2798.47	0.52	56.667	54	62	1.83	1.531	2.43
	14	1155	925.83	0.80	51.733	49	56	1.342	1.106	1.729	14	955	565.83	0.59	58.906	57.211	60	2.051	1.857	2.177
	15										15	1019	668.75	0.66	58.198	53	61.9	1.998	1.438	2.417