

Framework Adjustment 55
to the
Northeast Multispecies FMP

Appendix II

ABC Projection Output

Gulf of Maine Cod (Base Model)

AGEPRO VERSION 4.2

GoM cod 2015 update - short-term projections - M=0.2

Date & Time of Run: 16 Dec 2015 16:09

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_COD_GM_75525\2015_COD_GM_MOD_AGEPRO_PROJECT_M02_75FMSY_ABC.INP

First Age Class: 1
Number of Age Classes: 9
Number of Years in Projection: 6
Number of Fleets: 1
Number of Recruitment Models: 1
Number of Bootstraps: 1000
Number of Simulations: 10

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_COD_GM_75525\2015_COD_GM_MOD_ASAP_M02_MCMC.BSN

Number of Feasible Solutions: 10000 of 10000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Removals	279
2016	Removals	500
2017	Removals	500
2018	Removals	500
2019	F-Mult	0.1390
2020	F-Mult	0.1390

Recruits 1000 Fish

Year	Class	Average	StdDev
2015		3037.1093	2353.6322
2016		4406.1341	3424.6578
2017		5593.1574	4208.1973
2018		6071.5148	4498.3080
2019		6103.2969	4492.3469
2020		6205.3019	4544.4753

Recruits Distribution

Year	Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015		496.6048	680.6454	866.4499	1434.5540	2267.8200	4076.6760	6087.3590	7523.1710	11859.7600
2016		716.7862	994.4253	1254.4690	2048.1000	3271.0175	5930.2000	8903.3580	10853.4500	17081.8000
2017		976.9147	1289.225	1651.2790	2742.4260	4216.2850	7456.2800	11348.8700	13854.0100	21640.2000
2018		1156.4830	1401.2060	1765.5910	3115.5570	4399.2050	8115.6680	11477.4300	14378.4100	23661.2200
2019		1170.7540	1479.1110	1790.2020	3140.9460	4404.3815	8102.5260	11471.4100	14415.1800	23358.3500

2020 1171.9190 1472.2610 1803.4710 3144.3030 4416.8830 8299.3120 11477.8700 14443.9500 23769.6800

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	3.1086	0.6401
2016	4.5397	0.9460
2017	6.2753	1.3948
2018	8.6620	2.1967
2019	12.2523	3.6221
2020	16.5269	5.1061

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.8615	2.1816	2.3454	2.6323	3.0566	3.5283	3.9135	4.2566	4.9771
2016	2.7748	3.1402	3.4013	3.8161	4.4448	5.1666	5.7263	6.2700	7.0684
2017	3.6865	4.2184	4.5873	5.2335	6.1528	7.1693	8.0436	8.8565	9.9491
2018	4.7810	5.5606	6.0700	7.0527	8.4181	9.9904	11.6094	12.6627	14.9051
2019	6.2504	7.3713	8.0890	9.6114	11.7215	14.3234	17.0593	19.0149	23.3208
2020	8.0340	9.6635	10.6908	12.8156	15.7379	19.3622	23.2185	25.9855	32.1626

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	4.5612	0.8865
2016	6.3270	1.2786
2017	8.6979	2.0847
2018	12.0803	3.3629
2019	16.9798	5.0955
2020	22.2136	6.6339

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	2.9087	3.2605	3.4951	3.8869	4.4798	5.1467	5.6565	6.1721	6.9346
2016	3.9351	4.4339	4.7925	5.3675	6.2066	7.1484	7.9472	8.7039	9.6642
2017	5.0201	5.7508	6.2464	7.1650	8.4587	9.9499	11.5082	12.4954	14.6323
2018	6.4332	7.4976	8.1759	9.6137	11.5962	14.0266	16.5459	18.3336	22.2459
2019	8.4041	10.0331	11.0854	13.2672	16.2125	19.8793	23.7303	26.4447	32.2957
2020	10.8361	13.1600	14.5265	17.4075	21.2399	26.0495	30.9663	34.5224	41.9964

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	5.4098	1.0551
2016	7.4767	1.6872
2017	10.2902	2.7710
2018	14.4361	4.3694
2019	19.4767	5.9952
2020	24.6720	7.3424

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3.4259	3.8310	4.1174	4.5927	5.3265	6.0774	6.7414	7.3956	8.1774

2016	4.4547	5.0612	5.4873	6.2257	7.3099	8.5038	9.7443	10.5600	12.2392
2017	5.6174	6.5220	7.1109	8.2691	9.9122	11.8965	14.0055	15.4408	18.5645
2018	7.2204	8.5316	9.4026	11.2279	13.7677	16.9379	20.2307	22.6255	27.7111
2019	9.3718	11.3787	12.5325	15.1598	18.5902	22.8632	27.4112	30.6277	37.7304
2020	12.0760	14.5447	16.2006	19.3562	23.6785	28.8997	34.4136	38.4008	46.6936

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	0.2790	0.0000
2016	0.5000	0.0000
2017	0.5000	0.0000
2018	0.5000	0.0000
2019	1.4717	0.4181
2020	1.9951	0.6266

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790
2016	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2017	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2018	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2019	0.7682	0.9020	0.9891	1.1664	1.4169	1.7074	2.0322	2.2436	2.7259
2020	0.9792	1.1651	1.2885	1.5386	1.8938	2.3420	2.8164	3.1762	3.9071

Landings x 1000 MT

Year	Average	StdDev
2015	0.2790	0.0000
2016	0.5000	0.0000
2017	0.5000	0.0000
2018	0.5000	0.0000
2019	1.4717	0.4181
2020	1.9951	0.6266

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790
2016	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2017	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2018	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2019	0.7682	0.9020	0.9891	1.1664	1.4169	1.7074	2.0322	2.2436	2.7259
2020	0.9792	1.1651	1.2885	1.5386	1.8938	2.3420	2.8164	3.1762	3.9071

Total Fishing Mortality

Year	Average	StdDev
2015	0.1136	0.0251
2016	0.1334	0.0294
2017	0.0946	0.0218
2018	0.0691	0.0169
2019	0.1390	0.0000
2020	0.1390	0.0000

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.0650	0.0787	0.0847	0.0947	0.1104	0.1291	0.1472	0.1579	0.1886
2016	0.0791	0.0919	0.0998	0.1111	0.1304	0.1521	0.1717	0.1864	0.2148
2017	0.0562	0.0632	0.0699	0.0785	0.0917	0.1087	0.1236	0.1355	0.1556
2018	0.0392	0.0454	0.0495	0.0567	0.0666	0.0795	0.0917	0.1006	0.1165
2019	0.1390	0.1390	0.1390	0.1390	0.1390	0.1390	0.1390	0.1390	0.1390
2020	0.1390	0.1390	0.1390	0.1390	0.1390	0.1390	0.1390	0.1390	0.1390

Gulf of Maine Cod (M-Ramp Model, m=0.2 in projection)

AGEPRO VERSION 4.2

GoM cod 2015 update - short-term projections - M-ramp, M=0.2

Date & Time of Run: 16 Dec 2015 16:12

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_COD_GM_75525\2015_COD_GM_MOD_AGEPRO_PROJECT_MRAMP_M02_75FMSY_ABC.INP

First Age Class: 1
 Number of Age Classes: 9
 Number of Years in Projection: 6
 Number of Fleets: 1
 Number of Recruitment Models: 1
 Number of Bootstraps: 1000
 Number of Simulations: 10

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C:\NIT2\GARM08\UPDATE2015_PROJ\2015_COD_GM_75525\2015_COD_GM_MOD_ASAP_MRAMP_MCM C.BSN

Number of Feasible Solutions: 10000 of 10000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Removals	279
2016	Removals	500
2017	Removals	500
2018	Removals	500
2019	F-Mult	0.1400
2020	F-Mult	0.1400

Recruits 1000 Fish

Year	Class	Average	StdDev
2015		3666.4283	2085.1286
2016		5705.6378	3241.1105
2017		7969.0791	4322.5634
2018		8824.3863	4635.9078
2019		8861.2666	4617.9356

2020 8981.7098 4658.2406

Recruits Distribution

Year Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	853.7701	1126.8910	1401.7470	1978.5960	3382.8165	4838.3970	6258.1750	7254.9060	10839.1200
2016	1314.4470	1792.0450	2173.5470	3088.7360	5249.9780	7537.5560	9694.5040	11414.7500	16681.9500
2017	1916.0390	2493.7710	3139.1480	4364.1840	7703.8920	10581.4600	13262.6500	15243.2700	22951.9500
2018	2487.8570	2733.4710	3818.1850	4812.8990	8791.1950	11770.3400	14285.9700	15880.5200	25566.1100
2019	2489.0490	2834.0940	4025.9220	4823.1040	8928.4745	11785.4900	14198.3600	15891.7700	25285.0600
2020	2489.1400	2822.4030	4029.8490	4825.4910	9049.1590	11804.8200	14292.4700	15906.3800	25663.7900

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	3.2483	0.6523
2016	5.0668	1.0376
2017	7.5445	1.6272
2018	10.9271	2.5064
2019	15.7209	3.9285
2020	21.5985	5.4591

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.9428	2.3247	2.4451	2.7680	3.2191	3.6467	4.0919	4.3806	5.0902
2016	3.1006	3.5141	3.8174	4.3265	5.0023	5.6830	6.3678	6.9356	7.9756
2017	4.4812	5.1205	5.5890	6.3986	7.4129	8.4991	9.6371	10.3918	12.2155
2018	6.2279	7.2768	7.9134	9.1543	10.6883	12.3894	14.2147	15.4006	18.1083
2019	8.4726	10.0579	11.0706	12.9169	15.3204	18.0103	20.9882	22.9010	26.7688
2020	11.3850	13.6669	15.1324	17.6978	21.0466	24.8137	28.8296	31.6113	36.6102

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	5.0323	0.9690
2016	7.4616	1.4782
2017	10.7128	2.3637
2018	15.3865	3.6939
2019	22.1350	5.4938
2020	29.5348	7.0822

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3.1850	3.5937	3.8628	4.3374	4.9758	5.6104	6.2544	6.7515	7.7501
2016	4.6543	5.2597	5.6808	6.4168	7.3416	8.3319	9.3520	10.0407	11.6993
2017	6.3059	7.2835	7.8642	9.0356	10.4828	12.0902	13.8120	14.9362	17.4777
2018	8.4886	10.0385	11.0121	12.7628	15.0194	17.5323	20.2838	22.1222	25.7626
2019	11.7963	14.1086	15.6271	18.2084	21.6206	25.4073	29.3758	32.1203	37.1351
2020	15.9631	19.1243	21.0271	24.4993	28.8737	33.8023	38.9048	42.3822	48.6718

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	6.2738	1.2113

2016	9.0910	1.9328
2017	12.9833	3.0617
2018	18.6585	4.7080
2019	25.7432	6.3952
2020	33.3240	7.8140

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3.9345	4.4727	4.8186	5.4197	6.1920	6.9816	7.8246	8.3909	9.7663
2016	5.4479	6.2709	6.7798	7.7230	8.9117	10.2431	11.6050	12.5228	14.6752
2017	7.3487	8.6169	9.3332	10.7977	12.6349	14.7287	17.0466	18.5981	21.7608
2018	9.8352	11.8309	13.0732	15.2555	18.2240	21.4422	24.9571	27.2504	31.7753
2019	13.5771	16.3967	18.0676	21.2163	25.1597	29.5498	34.1614	37.3701	43.2265
2020	18.1026	21.7077	23.9351	27.7457	32.6364	38.1239	43.6005	47.3817	54.4613

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	0.2790	0.0000
2016	0.5000	0.0000
2017	0.5000	0.0000
2018	0.5000	0.0000
2019	1.8598	0.4534
2020	2.5531	0.6620

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790
2016	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2017	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2018	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2019	1.0157	1.2092	1.3183	1.5361	1.8109	2.1246	2.4605	2.6804	3.1410
2020	1.3322	1.6028	1.7746	2.0808	2.4774	2.9353	3.4421	3.7682	4.4208

Landings x 1000 MT

Year	Average	StdDev
2015	0.2790	0.0000
2016	0.5000	0.0000
2017	0.5000	0.0000
2018	0.5000	0.0000
2019	1.8598	0.4534
2020	2.5531	0.6620

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790
2016	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2017	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2018	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2019	1.0157	1.2092	1.3183	1.5361	1.8109	2.1246	2.4605	2.6804	3.1410
2020	1.3322	1.6028	1.7746	2.0808	2.4774	2.9353	3.4421	3.7682	4.4208

Total Fishing Mortality

Year	Average	StdDev
2015	0.1147	0.0253
2016	0.1269	0.0278
2017	0.0826	0.0188
2018	0.0558	0.0129
2019	0.1400	0.0000
2020	0.1400	0.0000

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.0680	0.0799	0.0858	0.0969	0.1119	0.1310	0.1469	0.1571	0.1906
2016	0.0751	0.0884	0.0951	0.1075	0.1221	0.1434	0.1630	0.1756	0.2121
2017	0.0478	0.0567	0.0613	0.0696	0.0799	0.0935	0.1074	0.1176	0.1360
2018	0.0321	0.0379	0.0411	0.0468	0.0541	0.0630	0.0728	0.0797	0.0929
2019	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400
2020	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400

Gulf of Maine Cod (M-Ramp Model, m=0.4 in projection)

AGEPRO VERSION 4.2

GoM cod 2015 update - short-term projections - M-ramp, M=0.4

Date & Time of Run: 16 Dec 2015 16:14

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_COD_GM_75525\2015_COD_GM_MOD_AGEPRO_PROJECT_MRAMP_M04_75FMSY_ABC.INP

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2016	Removals	500
2017	Removals	500
2018	Removals	500
2019	F-Mult	0.1400

2020 F-Mult 0.1400

Recruits 1000 Fish

Year Class	Average	StdDev
2015	3481.9885	1980.7354
2016	4401.8075	2513.9126
2017	5302.7479	3040.6394
2018	6257.6294	3665.6791
2019	7201.0895	4116.9709
2020	8070.1473	4421.8197

Recruits Distribution

Year Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	809.6982	1070.3140	1330.8350	1878.9450	3212.1570	4595.8540	5944.2750	6889.3810	10296.7100
2016	1009.4800	1378.2020	1668.9000	2378.4330	4050.4410	5808.8970	7502.9830	8821.4910	12933.6600
2017	1183.9220	1632.7060	2007.2690	2857.6900	4875.1640	6956.8460	9167.1970	10746.1800	15184.3100
2018	1334.7830	1880.7950	2313.5490	3352.8340	5698.0665	8262.3890	10932.0200	12803.9200	18628.3500
2019	1592.2300	2281.7550	2721.4810	4011.9420	6592.8605	9367.8710	12512.6700	14191.4600	21919.7100
2020	1844.3680	2494.2410	3085.5900	4440.7170	7807.1320	10793.1900	13354.6400	15532.1600	23861.6400

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	3.0848	0.6205
2016	3.9035	0.8092
2017	4.7017	1.0507
2018	5.5917	1.3816
2019	6.7773	1.8977
2020	8.1609	2.4096

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.8429	2.2063	2.3207	2.6283	3.0572	3.4641	3.8874	4.1621	4.8370
2016	2.3694	2.6936	2.9287	3.3257	3.8533	4.3857	4.9204	5.3601	6.1722
2017	2.7168	3.1390	3.4362	3.9586	4.6146	5.3175	6.0543	6.5354	7.7072
2018	3.0140	3.5973	3.9393	4.6157	5.4474	6.3938	7.4104	8.0554	9.5023
2019	3.3647	4.0982	4.5670	5.4236	6.5579	7.8531	9.3225	10.3010	12.2309
2020	3.8923	4.7925	5.3707	6.4332	7.8552	9.5289	11.3675	12.6725	15.1307

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	5.0323	0.9690
2016	6.1375	1.2235
2017	7.2777	1.6657
2018	8.6867	2.2644
2019	10.5681	3.0632
2020	12.6712	3.7953

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3.1850	3.5937	3.8628	4.3374	4.9758	5.6104	6.2544	6.7515	7.7501

2016	3.8110	4.3184	4.6625	5.2726	6.0380	6.8562	7.7065	8.2774	9.6050
2017	4.1766	4.8801	5.2838	6.0966	7.1086	8.2439	9.4775	10.2603	12.0341
2018	4.5957	5.4814	6.0499	7.0776	8.4268	9.9755	11.6930	12.8692	15.1264
2019	5.1172	6.2682	7.0379	8.3783	10.1923	12.2996	14.6548	16.2922	19.4144
2020	5.9129	7.3519	8.2516	9.9250	12.1996	14.9134	17.7621	19.7512	23.4951

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	5.6984	1.1015
2016	6.8396	1.4897
2017	8.1007	2.0156
2018	9.7556	2.7611
2019	11.7776	3.5615
2020	14.0203	4.2891

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3.5710	4.0605	4.3750	4.9217	5.6241	6.3420	7.1087	7.6236	8.8744
2016	4.0522	4.6718	5.0567	5.7826	6.6950	7.7229	8.7886	9.5202	11.1092
2017	4.4266	5.2428	5.7148	6.6654	7.8676	9.2391	10.7776	11.7983	13.9005
2018	4.8273	5.9111	6.5780	7.7728	9.4234	11.2983	13.4379	14.8835	17.7918
2019	5.5246	6.8345	7.6521	9.2185	11.3286	13.8195	16.5047	18.4624	22.0235
2020	6.3203	7.9750	8.9906	10.8930	13.5082	16.6518	19.7330	21.9351	25.8880

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	0.2790	0.0000
2016	0.5000	0.0000
2017	0.5000	0.0000
2018	0.5000	0.0000
2019	0.7436	0.2013
2020	0.8904	0.2600

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790
2016	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2017	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2018	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2019	0.3748	0.4583	0.5065	0.5998	0.7200	0.8588	1.0108	1.1117	1.3225
2020	0.4272	0.5270	0.5900	0.7049	0.8567	1.0360	1.2392	1.3739	1.6434

Landings x 1000 MT

Year	Average	StdDev
2015	0.2790	0.0000
2016	0.5000	0.0000
2017	0.5000	0.0000
2018	0.5000	0.0000
2019	0.7436	0.2013
2020	0.8904	0.2600

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790	0.2790
2016	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2017	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2018	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000	0.5000
2019	0.3748	0.4583	0.5065	0.5998	0.7200	0.8588	1.0108	1.1117	1.3225
2020	0.4272	0.5270	0.5900	0.7049	0.8567	1.0360	1.2392	1.3739	1.6434

Total Fishing Mortality

Year	Average	StdDev
2015	0.1264	0.0280
2016	0.1741	0.0391
2017	0.1425	0.0344
2018	0.1194	0.0302
2019	0.1400	0.0000
2020	0.1400	0.0000

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.0748	0.0880	0.0945	0.1067	0.1233	0.1444	0.1620	0.1733	0.2104
2016	0.1021	0.1204	0.1297	0.1469	0.1673	0.1970	0.2248	0.2425	0.2943
2017	0.0805	0.0959	0.1040	0.1188	0.1373	0.1618	0.1874	0.2066	0.2420
2018	0.0660	0.0786	0.0855	0.0982	0.1150	0.1358	0.1594	0.1763	0.2101
2019	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400
2020	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400

Georges Bank Haddock

AGEPRO VERSION 4.2

gbh 2016 update (5yr ave pars) - 5yr proj (drop high recr) - Rho Adj 0.667

Date & Time of Run: 16 Dec 2015 15:18

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_HAD_GB_77787\2015_HAD_GB_MOD_AGEPRO_5YR_DROP
HIGH_RHOADJ_77898_CONSTANT.INP

First Age Class: 1
Number of Age Classes: 9
Number of Years in Projection: 5
Number of Fleets: 1
Number of Recruitment Models: 1
Number of Bootstraps: 1000
Number of Simulations: 100

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_HAD_GB_77787\2015_HAD_GB_MOD_VPA_TOGA_FINAL_B
OOT.BSN

Number of Feasible Solutions: 100000 of 100000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Landings	20686
2016	Landings	77898
2017	Landings	77898
2018	Landings	77898
2019	Landings	77898

Recruits 1000000 Fish

Year	Class	Average	StdDev
2015		56.2598	42.2674
2016		55.9100	42.1757
2017		56.2459	42.1697
2018		56.1101	42.2758
2019		55.9053	42.1149

Recruits Distribution

Year	Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015		1.2550	3.5758	4.7637	15.1937	53.5180	85.9361	122.6247	130.1167	166.4801
2016		1.2499	3.5077	4.7215	15.0547	53.2488	85.4146	122.4500	130.1047	167.2832
2017		1.2368	3.5228	4.7546	15.2299	53.5527	85.8601	122.5271	130.0796	167.1138
2018		1.2330	3.4819	4.7004	15.1141	53.4102	85.7868	122.4503	130.0367	167.4699
2019		1.2617	3.5276	4.7220	15.1069	53.2282	85.4636	122.4259	129.9025	166.2984

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	461.1490	119.2183
2016	1246.3356	436.2815
2017	1419.8368	526.4181
2018	1321.3696	508.1171
2019	1146.3798	454.5518

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	247.2764	295.8632	328.7692	377.8715	450.6637	524.5487	613.3946	677.1027	811.1101
2016	450.7883	642.0625	759.4406	953.0702	1190.5630	1468.1070	1804.9490	2036.7920	2573.8060
2017	455.9593	689.8430	834.0662	1063.4180	1350.0205	1683.6670	2114.4250	2370.0770	3066.3770
2018	395.7282	617.6546	759.4967	977.4734	1253.3430	1578.5600	1988.6540	2243.5740	2917.3130
2019	317.5556	515.6968	642.0454	838.5797	1086.0710	1376.4210	1742.2780	1973.1500	2570.1390

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	1006.8239	319.7691
2016	1470.6898	504.9143
2017	1543.7120	556.9850
2018	1432.5362	534.4263
2019	1248.4813	477.9239

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	428.8823	566.8551	654.3952	790.5046	968.6204	1170.5530	1416.6700	1591.2390	1966.1680
2016	548.7737	770.9403	907.2917	1128.4950	1404.8570	1723.7470	2129.3150	2390.4440	3038.1470
2017	526.8247	771.8998	927.0388	1166.9140	1469.7260	1825.0050	2274.0490	2551.8250	3298.6080
2018	459.5395	692.4082	840.7058	1070.8380	1360.8375	1702.8900	2134.4070	2402.9370	3110.7790
2019	377.2431	586.3186	717.1673	924.2207	1185.0965	1490.1980	1874.2110	2118.5540	2746.6760

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	1270.9963	427.8460
2016	1519.4063	538.2308
2017	1490.7466	549.0029
2018	1312.7421	498.2184
2019	1138.3906	444.7652

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	488.7074	679.4935	794.2153	981.1116	1215.1760	1489.0040	1826.4670	2044.7610	2573.5430
2016	533.8974	772.5874	919.9440	1155.0020	1448.3295	1789.4330	2227.3430	2492.8440	3206.6310
2017	489.0110	730.1266	883.2979	1119.4330	1417.4745	1768.5390	2211.0500	2485.6050	3215.5630
2018	405.4119	622.6093	760.5245	975.1104	1246.1915	1564.5200	1966.7510	2218.9550	2875.7340
2019	326.9880	521.9418	642.7175	836.8732	1079.7040	1364.5160	1720.9480	1949.6430	2528.7380

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	20.6860	0.0000
2016	77.8980	0.0000
2017	77.8980	0.0000
2018	77.8980	0.0000
2019	77.8980	0.0000

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	20.6860	20.6860	20.6860	20.6860	20.6860	20.6860	20.6860	20.6860	20.6860
2016	77.8979	77.8979	77.8979	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980
2017	77.8979	77.8979	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980	77.8981
2018	77.8979	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980	77.8981
2019	77.8979	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980	77.8981

Landings x 1000 MT

Year	Average	StdDev
2015	20.6860	0.0000
2016	77.8980	0.0000
2017	77.8980	0.0000
2018	77.8980	0.0000
2019	77.8980	0.0000

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	20.6860	20.6860	20.6860	20.6860	20.6860	20.6860	20.6860	20.6860	20.6860
2016	77.8979	77.8979	77.8979	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980
2017	77.8979	77.8979	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980	77.8981
2018	77.8979	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980	77.8981
2019	77.8979	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980	77.8980	77.8981

Total Fishing Mortality

Year	Average	StdDev
2015	0.1022	0.0203
2016	0.1920	0.0598
2017	0.1197	0.0504
2018	0.0839	0.0424
2019	0.0902	0.0532

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.0616	0.0725	0.0786	0.0878	0.1000	0.1144	0.1286	0.1392	0.1587
2016	0.0914	0.1131	0.1272	0.1519	0.1809	0.2216	0.2623	0.3009	0.3857
2017	0.0479	0.0625	0.0706	0.0877	0.1094	0.1387	0.1761	0.2120	0.3171
2018	0.0311	0.0409	0.0463	0.0588	0.0746	0.0967	0.1275	0.1583	0.2613
2019	0.0319	0.0420	0.0477	0.0610	0.0784	0.1032	0.1376	0.1757	0.3102

GOM Haddock

AGEPRO VERSION 4.2

GoM haddock ASAP_final_temp10 (1977-2011 recruitment) - 75% Fmsy

Date & Time of Run: 25 Sep 2015 13:38

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_HAD_GM_51264\2015_HAD_GM_MOD_AGEPRO_PROJECT_BASE_75FMSYCONSTANT.INP

First Age Class: 1
 Number of Age Classes: 9
 Number of Years in Projection: 6
 Number of Fleets: 1
 Number of Recruitment Models: 1
 Number of Bootstraps: 1000
 Number of Simulations: 10

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_HAD_GM_51264\2015_HAD_GM_MOD_ASAP_BASE_MCMC.BSN

Number of Feasible Solutions: 10000 of 10000 Realizations

Input Harvest Scenario

Year Type Value

2015 Removals	885
2016 Removals	3630
2017 Removals	3630
2018 Removals	3630
2019 F-Mult	0.4680
2020 F-Mult	0.4680

Recruits 1000 Fish

Year Class	Average	StdDev
2015	2430.4457	2846.0065
2016	2495.6423	2917.1598
2017	2488.5970	2870.3067
2018	2473.7875	2862.4973
2019	2484.5559	2886.5747
2020	2470.5812	2859.2126

Recruits Distribution

Year Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	163.5037	244.2262	268.1814	445.6675	1328.3610	2712.3250	6592.9600	796.1660	13280.7500
2016	166.7526	239.3561	268.4977	449.5181	1338.2195	2799.1310	6642.7560	8645.3350	13260.3700
2017	170.3152	246.6283	270.9459	449.7529	1337.3445	2842.3850	6630.9860	8105.4800	13206.9400
2018	166.7188	245.0584	267.7605	447.0089	1335.3480	2815.6020	6620.8920	8130.7160	13087.7800
2019	164.6577	245.3456	271.0708	447.5576	1338.0915	2799.9870	6623.1830	8070.3340	13170.8900
2020	168.7337	239.9800	265.4811	444.9618	1334.7010	2837.4150	6629.1700	8119.8480	13052.4700

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	18.2955	4.0805
2016	26.1917	6.4880
2017	26.9152	7.5284
2018	24.4673	7.6028
2019	20.1839	6.6675
2020	14.5691	4.6032

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	9.9531	11.9187	13.1608	15.5488	18.0262	20.7600	23.7786	25.6041	28.8557
2016	13.2990	16.3867	18.3552	21.6926	25.6471	30.0796	34.8709	37.9193	43.4522
2017	12.3751	15.6672	18.0189	21.6655	26.1744	31.3650	36.9256	40.6219	47.2056
2018	9.7024	13.1553	15.4996	19.1884	23.6861	29.0269	34.5976	38.4810	44.8376
2019	7.1835	10.3538	12.3115	15.5325	19.5003	24.1586	29.0930	32.1812	38.1317
2020	5.5741	7.8099	9.0860	11.2977	14.1559	17.3506	20.6527	22.8609	27.1313

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	27.6949	6.3540
2016	31.6102	7.5445
2017	30.5907	8.0621
2018	27.8938	8.0931
2019	24.2313	7.7608
2020	17.9095	5.4672

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	15.0290	18.0031	19.9486	23.3527	27.1540	31.4648	36.1767	39.0682	44.6966
2016	16.8136	20.3395	22.6197	26.3208	30.8815	36.1766	41.7639	45.2408	51.7599
2017	14.8531	18.5046	21.0616	24.9484	29.7906	35.3640	41.2786	45.2011	52.0801
2018	12.1297	15.9068	18.3254	22.2488	27.1124	32.6910	38.7148	42.4505	49.6524
2019	9.0523	12.7370	15.0130	18.8137	23.5126	28.8385	34.6122	38.2697	45.0411
2020	7.1408	9.8272	11.4073	14.0242	17.4554	21.1661	25.1577	27.6661	33.0147

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	30.3297	7.1546
2016	31.5679	8.1078
2017	29.7234	8.2632
2018	26.4135	8.1343
2019	20.9351	6.5699
2020	15.5644	4.7149

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	16.2288	19.5466	21.6339	25.3907	29.6252	34.5935	40.0535	43.2196	49.4723
2016	15.8348	19.5325	21.8726	25.9614	30.6626	36.3771	42.4752	46.3175	53.3700
2017	13.5958	17.3729	19.9425	23.9773	28.9148	34.6743	40.5692	44.9014	51.8594
2018	10.4477	14.4182	16.8243	20.7168	25.5193	31.2073	37.2499	41.1444	48.3289
2019	8.2155	11.1978	13.1531	16.3252	20.3353	24.8513	29.6092	32.7562	38.8890
2020	6.3771	8.5471	9.9876	12.2232	15.1690	18.4348	21.8318	23.8971	28.7759

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	0.8850	0.0000
2016	3.6300	0.0000
2017	3.6300	0.0000
2018	3.6300	0.0000
2019	6.3014	2.2122
2020	4.7996	1.6018

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850
2016	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300
2017	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300
2018	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300
2019	2.1140	3.0470	3.6802	4.7594	6.0460	7.6182	9.2280	10.3134	12.3382
2020	1.7277	2.4250	2.9151	3.6777	4.6257	5.7321	6.9423	7.7224	9.2432

Landings x 1000 MT

Year	Average	StdDev
2015	0.8850	0.0000
2016	3.6300	0.0000

2017	3.6300	0.0000
2018	3.6300	0.0000
2019	6.3014	2.2122
2020	4.7996	1.6018

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850	0.8850
2016	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300
2017	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300
2018	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300	3.6300
2019	2.1140	3.0470	3.6802	4.7594	6.0460	7.6182	9.2280	10.3134	12.3382
2020	1.7277	2.4250	2.9151	3.6777	4.6257	5.7321	6.9423	7.7224	9.2432

Total Fishing Mortality

Year	Average	StdDev
2015	0.1360	0.0342
2016	0.3689	0.1041
2017	0.2945	0.1010
2018	0.2716	0.1308
2019	0.4680	0.0000
2020	0.4680	0.0000

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.0785	0.0911	0.0978	0.1121	0.1306	0.1536	0.1816	0.2011	0.2420
2016	0.2044	0.2341	0.2560	0.2974	0.3510	0.4183	0.5043	0.5682	0.6995
2017	0.1482	0.1751	0.1912	0.2280	0.2755	0.3378	0.4180	0.4820	0.6311
2018	0.1238	0.1473	0.1639	0.1990	0.2459	0.3124	0.3993	0.4748	0.6631
2019	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680
2020	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680	0.4680

SNE Yellowtail Flounder

AGEPRO VERSION 4.2

recent Rec 75 PERC FMSY

Date & Time of Run: 16 Dec 2015 15:11

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_YEL_SNEMA_95751\2015_YEL_SNEMA_MOD_AGEPRO_PROJECTIONS_RECENT_REC_267CONSTANT_15CAT422.INP

First Age Class: 1
 Number of Age Classes: 6
 Number of Years in Projection: 4
 Number of Fleets: 1
 Number of Recruitment Models: 1
 Number of Bootstraps: 1000
 Number of Simulations: 10

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_YEL_SNEMA_95751\2015_YEL_SNEMA_MOD__ASAP_MCM
C1.BSN

Number of Feasible Solutions: 9978 of 10000 Realizations

Input Harvest Scenario

Year Type Value

2015 Landings	422
2016 Landings	267
2017 Landings	267
2018 Landings	267

Recruits 1 Fish

Year Class	Average	StdDev
2015	4426608.2452	2457519.5643
2016	4386809.8932	2429226.7931
2017	4352730.9586	2429820.7906
2018	4409244.8893	2451719.7835

Recruits Distribution

Year Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	618460.9	1300708	1833398	2632452	3790724	5974003	7731173	9701941	10949910
2016	637857.2	1291463	1834003	2581530	3734492	5897413	7699401	9487604	109424600
2017	613574.7	1267386	1801321	2579020	3691438	5769169	7690019	9457598	10874010
2018	588509.4	1317586	1825415	2567110	3786780	5936659	7699074	9579597	10965660

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	0.6420	0.1059
2016	0.4794	0.1356
2017	0.5572	0.2202
2018	0.9476	0.4175

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.4303	0.4807	0.5162	0.5682	0.6295	0.7085	0.7819	0.8276	0.9411
2016	0.2049	0.2807	0.3206	0.3863	0.4596	0.5642	0.6584	0.7296	0.8533
2017	0.1427	0.2373	0.2947	0.3977	0.5306	0.6947	0.8620	0.9610	1.1323
2018	0.2037	0.3590	0.4537	0.6390	0.8876	1.2070	1.5372	1.7294	2.0465

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	1.0280	0.1363
2016	1.0484	0.2637
2017	1.3208	0.3990
2018	1.7045	0.5399

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.7585	0.8264	0.8715	0.9333	1.0070	1.1127	1.2123	1.2818	1.4109
2016	0.5663	0.6721	0.7370	0.8561	1.0108	1.2137	1.4175	1.5390	1.7525
2017	0.5766	0.7397	0.8390	1.0265	1.2784	1.5746	1.8716	2.0455	2.3457
2018	0.6885	0.9054	1.0447	1.3060	1.6601	2.0553	2.4389	2.6602	3.1188

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	0.8590	0.1534
2016	0.9993	0.3072
2017	1.4040	0.4919
2018	1.8169	0.6176

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.5514	0.6344	0.6788	0.7546	0.8362	0.9513	1.0649	1.1392	1.2838
2016	0.4449	0.5662	0.6417	0.7749	0.9528	1.1929	1.4325	1.5808	1.8220
2017	0.4966	0.6933	0.8139	1.0398	1.3477	1.7144	2.0897	2.3058	2.6752
2018	0.6547	0.9079	1.0591	1.3601	1.7674	2.2126	2.6455	2.9052	3.4295

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	0.4220	0.0000
2016	0.2670	0.0000
2017	0.2668	0.0068
2018	0.2669	0.0055

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.4220	0.4220	0.4220	0.4220	0.4220	0.4220	0.4220	0.4220	0.4220
2016	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670
2017	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670
2018	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670

Landings x 1000 MT

Year	Average	StdDev
2015	0.4220	0.0000
2016	0.2670	0.0000
2017	0.2668	0.0068
2018	0.2669	0.0055

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.4220	0.4220	0.4220	0.4220	0.4220	0.4220	0.4220	0.4220	0.4220
2016	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670
2017	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670
2018	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670	0.2670

Total Fishing Mortality

Year	Average	StdDev
2015	0.8539	0.1414
2016	0.7769	0.2425
2017	0.8606	0.4585
2018	0.6130	0.4172

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.5681	0.6386	0.6805	0.7530	0.8468	0.9422	1.0319	1.1035	1.2284
2016	0.3996	0.4721	0.5204	0.6060	0.7471	0.8859	1.0635	1.2279	1.6370
2017	0.3562	0.4232	0.4773	0.5842	0.7502	0.9892	1.3390	1.6239	2.6841
2018	0.2140	0.2555	0.2883	0.3689	0.5097	0.7140	1.0111	1.3097	2.2997

CC/GOM Yellowtail Flounder

AGEPRO VERSION 4.2

CCGOM_2015_BASEMODELUPDATE_Short-Term Projections

Date & Time of Run: 16 Dec 2015 14:55

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_YEL_CCGM_76441\2015_YEL_CCGM_MOD_AGEPRO_PROJECTIONS_NAA_RETRO_ADJ_75FMSYCONSTANT.INP

First Age Class: 1
Number of Age Classes: 6
Number of Years in Projection: 4
Number of Fleets: 1
Number of Recruitment Models: 1
Number of Bootstraps: 1000
Number of Simulations: 10

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_YEL_CCGM_76441\2015_YEL_CCGM_MOD_VPA_BOOTSTRAP.BSN

Number of Feasible Solutions: 10000 of 10000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Landings	376
2016	Landings	427
2017	Landings	427
2018	Landings	427

Recruits 1000 Fish

Year Class	Average	StdDev
2015	6914.5365	3338.9020

2016	6948.5948	3362.3481
2017	6949.6374	3414.1456
2018	6940.3275	3309.4285

Recruits Distribution

Year	Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	2938.1590	3261.1040	3510.7570	4622.7960	6156.3010	8688.3030	9995.3530	12618.0700	20395.4700	
2016	2934.7530	3234.6700	3498.8570	4621.0100	6271.5880	8730.8750	10026.6300	12632.3000	20719.8000	
2017	2936.3740	3236.7030	3499.6260	4521.5920	6156.7120	8714.0650	10073.4600	13010.2500	20738.3300	
2018	2936.3970	3233.4530	3517.5320	4668.7740	6273.5630	8710.7750	10002.9700	12519.0100	20263.0800	

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	1.7884	0.2823
2016	2.5476	0.4946
2017	3.1430	0.5450
2018	4.1528	0.8679

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.1860	1.3636	1.4464	1.5967	1.7622	1.9529	2.1467	2.2996	2.5195
2016	1.6180	1.8439	1.9569	2.1942	2.4853	2.8480	3.2073	3.4764	3.8429
2017	2.1166	2.3737	2.4983	2.7500	3.0741	3.4799	3.8763	4.1321	4.5795
2018	2.6259	2.9713	3.1673	3.5402	4.0531	4.6103	5.2201	5.7016	6.9896

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	3.3827	0.4790
2016	4.3463	0.6842
2017	5.3752	0.9245
2018	6.5279	1.2176

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	2.4736	2.7021	2.8099	3.0394	3.3252	3.6784	4.0040	4.2690	4.6128
2016	3.0685	3.3694	3.5439	3.8547	4.2662	4.7495	5.2597	5.5980	6.3108
2017	3.6914	4.0953	4.2975	4.7206	5.2707	5.8873	6.5626	7.0663	8.1646
2018	4.3740	4.8324	5.1101	5.6803	6.3826	7.1960	8.0883	8.7892	10.2074

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	3.5888	0.5597
2016	4.5173	0.7506
2017	5.6643	1.0878
2018	6.7820	1.3491

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	2.5481	2.8046	2.9246	3.1853	3.5177	3.9261	4.3384	4.6405	5.0502

2016	3.1498	3.4515	3.6508	3.9821	4.4291	4.9342	5.4907	5.8825	6.7446
2017	3.7567	4.1881	4.4148	4.9017	5.5310	6.2425	7.0272	7.6763	9.1222
2018	4.4243	4.9125	5.2146	5.8414	6.6040	7.5068	8.5572	9.3255	10.8508

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	0.3760	0.0000
2016	0.4270	0.0000
2017	0.4270	0.0000
2018	0.4270	0.0000

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.3760	0.3760	0.3760	0.3760	0.3760	0.3760	0.3760	0.3760	0.3760
2016	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270
2017	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270
2018	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270

Landings x 1000 MT

Year	Average	StdDev
2015	0.3760	0.0000
2016	0.4270	0.0000
2017	0.4270	0.0000
2018	0.4270	0.0000

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.3760	0.3760	0.3760	0.3760	0.3760	0.3760	0.3760	0.3760	0.3760
2016	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270
2017	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270
2018	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270	0.4270

Total Fishing Mortality

Year	Average	StdDev
2015	0.2799	0.0438
2016	0.2118	0.0398
2017	0.1622	0.0309
2018	0.1262	0.0237

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.1956	0.2148	0.2281	0.2509	0.2764	0.3048	0.3370	0.3544	0.4067
2016	0.1373	0.1519	0.1641	0.1836	0.2097	0.2358	0.2638	0.2805	0.3191
2017	0.1031	0.1156	0.1239	0.1400	0.1606	0.1818	0.2023	0.2141	0.2448
2018	0.0774	0.0899	0.0971	0.1097	0.1245	0.1411	0.1571	0.1677	0.1895

American Plaice

AGEPRO VERSION 4.2

Am. plaice F40% TY07 wts

Date & Time of Run: 22 Sep 2015 09:58

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_PLA_UNIT_72666\2015_PLA_UNIT_MOD_AGEPRO_RHO_NA
A_AP_TY14_4YR_2015_196_MAT_75FMSY.INP

First Age Class: 1
Number of Age Classes: 11
Number of Years in Projection: 4
Number of Fleets: 1
Number of Recruitment Models: 1
Number of Bootstraps: 1000
Number of Simulations: 100

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_PLA_UNIT_72666\2015_PLA_UNIT_MOD_TY14_RUN1_BASE
_RHO_NAA_MAT.BSN

Number of Feasible Solutions: 100000 of 100000 Realizations

Input Harvest Scenario

Year Type	Value
2015 Landings	1395
2016 F-Mult	0.1470
2017 F-Mult	0.1470
2018 F-Mult	0.1470

Recruits 1000000 Fish

Year Class	Average	StdDev
2015	23.3828	10.8061
2016	23.4111	10.8250
2017	23.4047	10.8279
2018	23.4748	10.8454

Recruits Distribution

Year Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	8.8288	9.6245	11.6611	15.2300	22.5002	26.2307	40.8813	45.5683	53.5538
2016	8.8328	9.6452	11.7208	15.2354	22.4665	26.2559	40.8855	45.6548	53.5986
2017	8.8286	9.6091	11.6737	15.2478	22.4465	26.2500	40.8883	45.6899	53.6263
2018	8.8277	9.6294	11.6585	15.2627	22.6609	26.2690	40.9046	45.7610	53.6373

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	8.9740	0.6993
2016	8.7538	0.7243
2017	8.7720	0.8067
2018	9.5724	1.3073

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	7.3902	7.8519	8.0740	8.4969	8.9473	9.4467	9.8678	10.1601	10.6324
2016	7.0382	7.5878	7.8479	8.2599	8.7426	9.2366	9.6081	9.9742	10.5693
2017	7.0232	7.5252	7.7712	8.2334	8.7399	9.2672	9.7757	10.1658	10.8441
2018	7.1328	7.7376	8.0555	8.6743	9.4167	10.2483	11.3062	11.9968	13.0971

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	11.1766	0.8060
2016	11.2870	0.9611
2017	11.6903	1.2937
2018	12.7787	1.9258

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	9.3327	9.8486	10.1558	10.6330	11.1614	11.7188	12.1613	12.5442	13.1192
2016	9.1880	9.7309	10.0918	10.6210	11.2830	11.9004	12.4927	12.8706	13.8344
2017	9.0781	9.7789	10.1431	10.8161	11.5816	12.4115	13.3984	14.0355	15.1749
2018	9.2995	10.1335	10.5868	11.4548	12.5171	13.8151	15.3090	16.3399	18.2757

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	11.2637	0.8679
2016	11.8366	1.1556
2017	12.9215	1.8585
2018	13.6441	2.3960

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	9.2462	9.8399	10.1807	10.6633	11.2685	11.8500	12.3530	12.7265	13.4547
2016	9.3584	10.0810	10.4053	11.0649	11.7713	12.5184	13.3072	13.8384	14.9496
2017	9.4959	10.3505	10.7872	11.6441	12.6843	13.8937	15.3628	16.4028	18.2053
2018	9.5491	10.4706	10.9911	11.9826	13.2726	14.8947	16.7011	18.0624	21.2357

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	1.3950	0.0000
2016	1.2968	0.1066
2017	1.3463	0.1399
2018	1.4311	0.2083

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.3950	1.3950	1.3950	1.3950	1.3950	1.3950	1.3950	1.3950	1.3950
2016	1.0535	1.1211	1.1637	1.2227	1.2971	1.3655	1.4291	1.4739	1.5617
2017	1.0549	1.1377	1.1764	1.2533	1.3361	1.4271	1.5252	1.5988	1.7352
2018	1.0536	1.1455	1.1929	1.2882	1.4042	1.5385	1.7040	1.8172	2.0220

Landings x 1000 MT

Year	Average	StdDev
2015	1.3950	0.0000
2016	1.2968	0.1066
2017	1.3463	0.1399
2018	1.4311	0.2083

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.3950	1.3950	1.3950	1.3950	1.3950	1.3950	1.3950	1.3950	1.3950
2016	1.0535	1.1211	1.1637	1.2227	1.2971	1.3655	1.4291	1.4739	1.5617
2017	1.0549	1.1377	1.1764	1.2533	1.3361	1.4271	1.5252	1.5988	1.7352
2018	1.0536	1.1455	1.1929	1.2882	1.4042	1.5385	1.7040	1.8172	2.0220

Total Fishing Mortality

Year	Average	StdDev
2015	0.1569	0.0126
2016	0.1470	0.0000
2017	0.1470	0.0000
2018	0.1470	0.0000

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.1311	0.1374	0.1417	0.1479	0.1562	0.1646	0.1734	0.1785	0.1902
2016	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470
2017	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470
2018	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470	0.1470

Witch Flounder (75%F_{MSY} = 399)

AGEPRO VERSION 4.2

WITCH 14 SPLIT RUN F UPDATE 2015 (using 32 values) with ssb rho adjustment factor

Date & Time of Run: 08 Jan 2016 14:56

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_WIT_UNIT_83958\ROUND2\2015_WIT_UNIT_MOD_PROJ_WITCH14_SPLIT_RUN_75FMSYCONSTANT_RHOADJ.INP

First Age Class: 1
Number of Age Classes: 9
Number of Years in Projection: 11
Number of Fleets: 1
Number of Recruitment Models: 1
Number of Bootstraps: 1000
Number of Simulations: 100

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_WIT_UNIT_83958\2015_WIT_UNIT_MOD_PROJ_WITCH14_SPLIT_RUN_F_BT.BSN

Number of Feasible Solutions: 100000 of 100000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Landings	601
2016	Landings	399
2017	Landings	399
2018	Landings	399
2019	Landings	399
2020	Landings	399
2021	Landings	399
2022	Landings	399
2023	Landings	399
2024	Landings	399
2025	Landings	399

Recruits 1 Fish

Year	Class	Average	StdDev
2015	8954748.6947	4300388.1833	
2016	8982504.8981	4297802.6545	
2017	8975618.6242	4311259.1751	
2018	8969876.3732	4305742.6648	
2019	8963520.7716	4299159.1749	
2020	8972734.6833	4289523.2256	
2021	8960303.1139	4290132.9047	
2022	8978626.4649	4296610.9122	
2023	8938260.2625	4298497.1294	
2024	8972811.6428	4302899.6878	
2025	8939856.3832	4293450.2739	

Recruits Distribution

Year	Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3166346	3386480	3624616	4912543	8231694.5	12135900	15338200	16265340	17297440	
2016	3168428	3402559	3631434	4929752	8273070.0	12167130	15352810	16268800	17290800	
2017	3165776	3391738	3623836	4906361	8254282.5	12184380	15365960	16273040	17311970	
2018	3167531	3398213	3629946	4912972	8237269.5	12182480	15365590	16267200	17301290	
2019	3167366	3411227	3630820	4915273	8214915.5	12150460	15365990	16268100	17267150	
2020	3168475	3406489	3631716	4930757	8259331.0	12137950	15325370	16266670	17287650	
2021	3166947	3411781	3634214	4924932	8240684.0	12147130	15337100	16261540	17295600	
2022	3166670	3399873	3627412	4933257	8265511.5	12149390	15377140	16272370	17282710	
2023	3167243	3401704	3629125	4907196	8173131.5	12130100	15336070	16264610	17292180	
2024	3168274	3406296	3631471	4919932.0	8240372	12172870	15336080	16269390	17292020	
2025	3166629	3396700	3628155	4909007.0	8202367	12103540	15322420	16264990	17299310	

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	2.5932	0.3526
2016	3.2835	0.5308
2017	4.4128	0.8147
2018	5.7886	1.1519

2019	7.3662	1.4862
2020	9.0564	1.7933
2021	10.6232	2.0446
2022	12.3658	2.2971
2023	14.0184	2.5674
2024	15.5104	2.7251
2025	16.8282	2.8391

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.8344	2.0633	2.1680	2.3457	2.5618	2.8107	3.0526	3.2285	3.5125
2016	2.1607	2.4928	2.6495	2.8979	3.2532	3.6031	3.9787	4.2321	4.7294
2017	2.7601	3.1907	3.4249	3.8460	4.3421	4.9097	5.4814	5.8846	6.5889
2018	3.5149	4.0699	4.3959	4.9828	5.6880	6.4833	7.3253	7.8712	8.9213
2019	4.3901	5.1233	5.5567	6.3218	7.2558	8.2852	9.3265	10.0040	11.3539
2020	5.3750	6.3088	6.8353	7.7944	8.9438	10.1943	11.4068	12.1964	13.7512
2021	6.3613	7.4371	8.0650	9.1933	10.5206	11.9402	13.2954	14.1619	15.8486
2022	7.5103	8.7442	9.4729	10.7607	12.2716	13.8663	15.3559	16.3065	18.1292
2023	8.5858	9.9806	10.7927	12.2221	13.9116	15.6975	17.3652	18.4210	20.4844
2024	9.6669	11.1677	12.0597	13.6042	15.4246	17.3252	19.0780	20.1364	22.1681
2025	10.6621	12.2737	13.2081	14.8531	16.7566	18.7287	20.5302	21.6202	23.6938

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	4.7874	0.7707
2016	5.9213	1.0677
2017	7.4172	1.3878
2018	9.0079	1.6773
2019	10.7079	1.9504
2020	12.4764	2.2119
2021	14.1002	2.4362
2022	15.8941	2.6640
2023	17.5941	2.9086
2024	19.1246	3.0546
2025	20.4781	3.1611

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3.2527	3.6543	3.8386	4.2596	4.7027	5.2591	5.7923	6.2004	6.8299
2016	3.8012	4.3203	4.6165	5.1694	5.8330	6.5716	7.3364	7.8394	8.7882
2017	4.6364	5.3202	5.7240	6.4417	7.3088	8.2746	9.2532	9.8839	11.1278
2018	5.5682	6.4333	6.9288	7.8311	8.9059	10.0757	11.2158	11.9361	13.4121
2019	6.6377	7.6749	8.2790	9.3409	10.6092	11.9611	13.2557	14.0970	15.7153
2020	7.8037	8.9991	9.7013	10.9306	12.3829	13.9151	15.3674	16.2820	18.0667
2021	8.9076	10.2407	11.0356	12.3960	14.0121	15.7034	17.2700	18.2565	20.1714
2022	10.1732	11.6627	12.5190	14.0423	15.8036	17.6557	19.3703	20.4227	22.4391
2023	11.3683	12.9746	13.9249	15.5715	17.4934	19.5086	21.3779	22.5572	24.7945
2024	12.4747	14.2301	15.2420	16.9965	19.0379	21.1573	23.1077	24.2845	26.5566
2025	13.5569	15.4017	16.4349	18.2800	20.4078	22.5950	24.5897	25.8049	28.0489

Mean Biomass x 1000 MT

Year	Average	StdDev
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2015	4.1720	0.7172
2016	5.3196	0.9923
2017	6.7093	1.2895
2018	8.1867	1.5583
2019	9.7640	1.8119
2020	11.4060	2.0546
2021	12.9131	2.2629
2022	14.5774	2.4741
2023	16.1546	2.7010
2024	17.5748	2.8365
2025	18.8309	2.9354

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	2.7417	3.1186	3.2875	3.6804	4.0934	4.6118	5.1067	5.4862	6.0724
2016	3.3488	3.8316	4.1070	4.6209	5.2375	5.9241	6.6351	7.1021	7.9844
2017	4.1258	4.7607	5.1361	5.8029	6.6088	7.5059	8.4151	9.0013	10.1575
2018	4.9904	5.7944	6.2548	7.0933	8.0921	9.1789	10.2380	10.9073	12.2777
2019	5.9814	6.9460	7.5075	8.4942	9.6730	10.9286	12.1308	12.9126	14.4160
2020	7.0640	8.1758	8.8277	9.9699	11.3189	12.7422	14.0918	14.9406	16.5978
2021	8.0899	9.3285	10.0664	11.3300	12.8315	14.4021	15.8570	16.7737	18.5520
2022	9.2625	10.6470	11.4430	12.8577	14.4937	16.2128	17.8055	18.7827	20.6559
2023	10.3731	11.8640	12.7475	14.2764	16.0610	17.9321	19.6681	20.7633	22.8416
2024	11.4000	13.0291	13.9688	15.5984	17.4941	19.4623	21.2733	22.3667	24.4751
2025	12.4041	14.1176	15.0765	16.7894	18.7656	20.7967	22.6484	23.7782	25.8615

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	0.6010	0.0000
2016	0.3990	0.0000
2017	0.3990	0.0000
2018	0.3990	0.0000
2019	0.3990	0.0000
2020	0.3990	0.0000
2021	0.3990	0.0000
2022	0.3990	0.0000
2023	0.3990	0.0000
2024	0.3990	0.0000
2025	0.3990	0.0000

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010
2016	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2017	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2018	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2019	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2020	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2021	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2022	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2023	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2024	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2025	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990

Landings x 1000 MT

Year	Average	StdDev
2015	0.6010	0.0000
2016	0.3990	0.0000
2017	0.3990	0.0000
2018	0.3990	0.0000
2019	0.3990	0.0000
2020	0.3990	0.0000
2021	0.3990	0.0000
2022	0.3990	0.0000
2023	0.3990	0.0000
2024	0.3990	0.0000
2025	0.3990	0.0000

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010
2016	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2017	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2018	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2019	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2020	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2021	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2022	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2023	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2024	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990
2025	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990	0.3990

Total Fishing Mortality

Year	Average	StdDev
2015	0.4120	0.0639
2016	0.2123	0.0377
2017	0.1458	0.0284
2018	0.1092	0.0234
2019	0.0788	0.0178
2020	0.0599	0.0142
2021	0.0488	0.0114
2022	0.0406	0.0091
2023	0.0351	0.0076
2024	0.0312	0.0065
2025	0.0284	0.0056

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.2883	0.3171	0.3337	0.3654	0.4086	0.4495	0.4933	0.5238	0.5967
2016	0.1399	0.1575	0.1681	0.1865	0.2088	0.2353	0.2602	0.2791	0.3239
2017	0.0925	0.1047	0.1125	0.1265	0.1423	0.1631	0.1812	0.1954	0.2338
2018	0.0671	0.0760	0.0819	0.0927	0.1068	0.1223	0.1400	0.1514	0.1809
2019	0.0473	0.0540	0.0582	0.0663	0.0765	0.0885	0.1021	0.1115	0.1332
2020	0.0347	0.0402	0.0435	0.0500	0.0581	0.0677	0.0783	0.0859	0.1027
2021	0.0293	0.0335	0.0360	0.0407	0.0471	0.0550	0.0639	0.0699	0.0835

2022	0.0254	0.0285	0.0304	0.0341	0.0392	0.0455	0.0526	0.0576	0.0686
2023	0.0222	0.0249	0.0266	0.0297	0.0339	0.0392	0.0451	0.0494	0.0583
2024	0.0203	0.0226	0.0240	0.0266	0.0302	0.0347	0.0397	0.0433	0.0510
2025	0.0190	0.0209	0.0221	0.0244	0.0275	0.0315	0.0358	0.0388	0.0454

Witch Flounder (460)

AGEPRO VERSION 4.2

WITCH 14 SPLIT RUN F UPDATE 2015 (using 32 values) with ssb rho adjustment factor

Date & Time of Run: 08 Jan 2016 15:08

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_WIT_UNIT_83958\ROUND2\2015_WIT_UNIT_MOD_PROJ_WITCH14_SPLIT_RUN_75FMSYCONSTANT460_RHOADJ.INP

First Age Class: 1
 Number of Age Classes: 9
 Number of Years in Projection: 11
 Number of Fleets: 1
 Number of Recruitment Models: 1
 Number of Bootstraps: 1000
 Number of Simulations: 100

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_WIT_UNIT_83958\2015_WIT_UNIT_MOD_PROJ_WITCH14_SPLIT_RUN_F_BT.BSN

Number of Feasible Solutions: 100000 of 100000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Landings	601
2016	Landings	460
2017	Landings	460
2018	Landings	460
2019	Landings	460
2020	Landings	460
2021	Landings	460
2022	Landings	460
2023	Landings	460
2024	Landings	460
2025	Landings	460

Recruits 1 Fish

Year	Class	Average	StdDev
2015		8954748.6947	4300388.1833
2016		8982504.8981	4297802.6545
2017		8975618.6242	4311259.1751
2018		8969876.3732	4305742.6648
2019		8963520.7716	4299159.1749

2020	8972734.6833	4289523.2256
2021	8960303.1139	4290132.9047
2022	8978626.4649	4296610.9122
2023	8938260.2625	4298497.1294
2024	8972811.6428	4302899.6878
2025	8939856.3832	4293450.2739

Recruits Distribution

Year Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3166346.0000	3386480	3624616	4912543	8231694.5	12135900	15338200	16265340.0000	17297440.0000
2016	3168428.0000	3402559	3631434	4929752	8273070.0	12167130	15352810	16268800.0000	17290800.0000
2017	3165776.0000	3391738	3623836	4906361	8254282.5	12184380	15365960	16273040.0000	17311970.0000
2018	3167531.0000	3398213	3629946	4912972	8237269.5	12182480	15365590	16267200.0000	17301290.0000
2019	3167366.0000	3411227	3630820	4915273	8214915.5	12150460	15365990	16268100.0000	17267150.0000
2020	3168475.0000	3406489	3631716	4930757	8259331.0	12137950	15325370	16266670.0000	17287650.0000
2021	3166947.0000	3411781	3634214	4924932	8240684.0	12147130	15337100	16261540.0000	17295600.0000
2022	3166670.0000	3399873	3627412	4933257	8265511.5	12149390	15377140	16272370.0000	17282710.0000
2023	3167243.0000	3401704	3629125	4907196	8173131.5	12130100	15336070	16264610.0000	17292180.0000
2024	3168274.0000	3406296	3631471	4919932	8240372.0	12172870	15336080	16269390.0000	17292020.0000
2025	3166629.0000	3396700	3628155	4909007	8202367.0	12103540	15322420	16264990.0000	17299310.0000

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	2.5932	0.3526
2016	3.2738	0.5310
2017	4.3467	0.8151
2018	5.6628	1.1523
2019	7.1751	1.4861
2020	8.7985	1.7929
2021	10.3126	2.0436
2022	11.9961	2.2957
2023	13.6012	2.5635
2024	15.0574	2.7215
2025	16.3496	2.8362

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.8344	2.0633	2.1680	2.3457	2.5618	2.8107	3.0526	3.2285	3.5125
2016	2.1502	2.4826	2.6395	2.8880	3.2435	3.5936	3.9694	4.2227	4.7203
2017	2.6923	3.1236	3.3587	3.7798	4.2760	4.8438	5.4157	5.8192	6.5234
2018	3.3885	3.9438	4.2698	4.8568	5.5619	6.3581	7.2003	7.7458	8.7969
2019	4.1992	4.9321	5.3653	6.1311	7.0648	8.0946	9.1349	9.8122	11.1632
2020	5.1182	6.0518	6.5775	7.5374	8.6856	9.9366	11.1491	11.9362	13.4923
2021	6.0526	7.1273	7.7563	8.8831	10.2101	11.6293	12.9841	13.8501	15.5342
2022	7.1444	8.3756	9.1048	10.3926	11.9012	13.4954	14.9838	15.9336	17.7562
2023	8.1778	9.5704	10.3805	11.8083	13.4946	15.2779	16.9426	17.9970	20.0553
2024	9.2243	10.7203	11.6109	13.1536	14.9719	16.8691	18.6186	19.6758	21.7062
2025	10.1932	11.7995	12.7330	14.3742	16.2778	18.2475	20.0478	21.1343	23.2118

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	4.7874	0.7707

2016	5.9213	1.0677
2017	7.3552	1.3877
2018	8.8826	1.6771
2019	10.5153	1.9500
2020	12.2159	2.2113
2021	13.7867	2.4354
2022	15.5210	2.6628
2023	17.1732	2.9051
2024	18.6674	3.0514
2025	19.9951	3.1585

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3.2527	3.6543	3.8386	4.2596	4.7027	5.2591	5.7923	6.2004	6.8299
2016	3.8012	4.3203	4.6165	5.1694	5.8330	6.5716	7.3364	7.8394	8.7882
2017	4.5743	5.2580	5.6621	6.3796	7.2469	8.2125	9.1909	9.8217	11.0659
2018	5.4422	6.3082	6.8033	7.7059	8.7804	9.9501	11.0901	11.8107	13.2857
2019	6.4461	7.4827	8.0878	9.1481	10.4170	11.7684	13.0632	13.9040	15.5204
2020	7.5418	8.7385	9.4413	10.6700	12.1221	13.6540	15.1071	16.0198	17.8071
2021	8.5955	9.9281	10.7220	12.0828	13.6988	15.3886	16.9558	17.9424	19.8555
2022	9.8019	11.2912	12.1474	13.6701	15.4300	17.2835	18.9972	20.0487	22.0676
2023	10.9580	12.5593	13.5064	15.1543	17.0738	19.0844	20.9514	22.1293	24.3613
2024	12.0231	13.7782	14.7886	16.5424	18.5820	20.6982	22.6442	23.8210	26.0914
2025	13.0788	14.9226	15.9554	17.7981	19.9253	22.1121	24.1011	25.3177	27.5676

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	4.1720	0.7172
2016	5.2915	0.9926
2017	6.6239	1.2897
2018	8.0427	1.5583
2019	9.5576	1.8117
2020	11.1366	2.0542
2021	12.5944	2.2622
2022	14.2031	2.4731
2023	15.7358	2.6978
2024	17.1222	2.8336
2025	18.3542	2.9330

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	2.7417	3.1186	3.2875	3.6804	4.0934	4.6118	5.1067	5.4862	6.0724
2016	3.3200	3.8031	4.0785	4.5927	5.2094	5.8961	6.6074	7.0743	7.9568
2017	4.0389	4.6750	5.0506	5.7175	6.5235	7.4208	8.3296	8.9160	10.0725
2018	4.8468	5.6505	6.1110	6.9493	7.9480	9.0350	10.0939	10.7631	12.1334
2019	5.7773	6.7398	7.3018	8.2876	9.4667	10.7219	11.9246	12.7053	14.2079
2020	6.7941	7.9063	8.5587	9.7003	11.0496	12.4722	13.8218	14.6704	16.3298
2021	7.7721	9.0096	9.7480	11.0119	12.5130	14.0828	15.5377	16.4540	18.2315
2022	8.8905	10.2746	11.0701	12.4843	14.1187	15.8394	17.4318	18.4085	20.2843
2023	9.9663	11.4499	12.3320	13.8610	15.6438	17.5107	19.2440	20.3384	22.4109
2024	10.9515	12.5823	13.5204	15.1491	17.0428	19.0078	20.8149	21.9073	24.0158
2025	11.9296	13.6433	14.6035	16.3142	18.2893	20.3193	22.1668	23.2965	25.3834

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	0.6010	0.0000
2016	0.4600	0.0000
2017	0.4600	0.0000
2018	0.4600	0.0000
2019	0.4600	0.0000
2020	0.4600	0.0000
2021	0.4600	0.0000
2022	0.4600	0.0000
2023	0.4600	0.0000
2024	0.4600	0.0000
2025	0.4600	0.0000

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010
2016	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2017	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2018	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2019	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2020	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2021	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2022	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2023	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2024	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2025	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600

Landings x 1000 MT

Year	Average	StdDev
2015	0.6010	0.0000
2016	0.4600	0.0000
2017	0.4600	0.0000
2018	0.4600	0.0000
2019	0.4600	0.0000
2020	0.4600	0.0000
2021	0.4600	0.0000
2022	0.4600	0.0000
2023	0.4600	0.0000
2024	0.4600	0.0000
2025	0.4600	0.0000

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010
2016	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2017	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2018	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2019	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2020	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2021	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2022	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600

2023	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2024	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600
2025	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600	0.4600

Total Fishing Mortality

Year	Average	StdDev
2015	0.4120	0.0639
2016	0.2478	0.0446
2017	0.1731	0.0348
2018	0.1309	0.0292
2019	0.0947	0.0224
2020	0.0721	0.0179
2021	0.0587	0.0143
2022	0.0488	0.0114
2023	0.0421	0.0095
2024	0.0374	0.0080
2025	0.0340	0.0070

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.2883	0.3171	0.3337	0.3654	0.4086	0.4495	0.4933	0.5238	0.5967
2016	0.1627	0.1832	0.1956	0.2173	0.2437	0.2748	0.3044	0.3269	0.3798
2017	0.1086	0.1233	0.1326	0.1495	0.1687	0.1941	0.2164	0.2339	0.2822
2018	0.0791	0.0899	0.0971	0.1103	0.1276	0.1469	0.1692	0.1839	0.2217
2019	0.0559	0.0640	0.0691	0.0791	0.0917	0.1067	0.1240	0.1360	0.1644
2020	0.0409	0.0477	0.0517	0.0596	0.0697	0.0818	0.0952	0.1050	0.1270
2021	0.0346	0.0397	0.0427	0.0485	0.0565	0.0664	0.0776	0.0853	0.1030
2022	0.0300	0.0338	0.0361	0.0407	0.0469	0.0548	0.0638	0.0702	0.0844
2023	0.0262	0.0295	0.0315	0.0353	0.0406	0.0471	0.0546	0.0600	0.0715
2024	0.0240	0.0268	0.0284	0.0316	0.0361	0.0416	0.0479	0.0524	0.0623
2025	0.0224	0.0247	0.0262	0.0290	0.0328	0.0377	0.0431	0.0469	0.0553

Witch Flounder ($F_{MSY}=521$)

AGEPRO VERSION 4.2

WITCH 14 SPLIT RUN F UPDATE 2015 (using 32 values) with ssb rho adjustment factor

Date & Time of Run: 19 Jan 2016 16:51

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_WIT_UNIT_83958\ROUND2\2015_WIT_UNIT_MOD_PROJ_WITCH14_SPLIT_RUN_75FMSYCONSTANT521_RHOADJ.INP

First Age Class: 1
 Number of Age Classes: 9
 Number of Years in Projection: 11
 Number of Fleets: 1
 Number of Recruitment Models: 1
 Number of Bootstraps: 1000
 Number of Simulations: 100

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_WIT_UNIT_83958\2015_WIT_UNIT_MOD_PROJ_WITCH14_S
PLIT_RUN_F_BT.BSN

Number of Feasible Solutions: 100000 of 100000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Landings	601
2016	Landings	521
2017	Landings	521
2018	Landings	521
2019	Landings	521
2020	Landings	521
2021	Landings	521
2022	Landings	521
2023	Landings	521
2024	Landings	521
2025	Landings	521

Recruits 1 Fish

Year	Class	Average	StdDev
2015		8954748.6947	4300388.1833
2016		8982504.8981	4297802.6545
2017		8975618.6242	4311259.1751
2018		8969876.3732	4305742.6648
2019		8963520.7716	4299159.1749
2020		8972734.6833	4289523.2256
2021		8960303.1139	4290132.9047
2022		8978626.4649	4296610.9122
2023		8938260.2625	4298497.1294
2024		8972811.6428	4302899.6878
2025		8939856.3832	4293450.2739

Recruits Distribution

Year	Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015		3166346	3386480	3624616	4912543	8231694.5000	12135900.0000	15338200.0000	16265340	17297440
2016		3168428	3402559	3631434	4929752	8273070.0000	12167130.0000	15352810.0000	16268800	17290800
2017		3165776	3391738	3623836	4906361	8254282.5000	12184380.0000	15365960.0000	16273040	17311970
2018		3167531	3398213	3629946	4912972	8237269.5000	12182480.0000	15365590.0000	16267200	17301290
2019		3167366	3411227	3630820	4915273	8214915.5000	12150460.0000	15365990.0000	16268100	17267150
2020		3168475	3406489	3631716	4930757	8259331.0000	12137950.0000	15325370.0000	16266670	17287650
2021		3166947	3411781	3634214	4924932	8240684.0000	12147130.0000	15337100.0000	16261540	17295600
2022		3166670	3399873	3627412	4933257	8265511.5000	12149390.0000	15377140.0000	16272370	17282710
2023		3167243	3401704	3629125	4907196	8173131.5000	12130100.0000	15336070.0000	16264610	17292180
2024		3168274	3406296	3631471	4919932	8240372.0000	12172870.0000	15336080.0000	16269390	17292020
2025		3166629	3396700	3628155	4909007	8202367.0000	12103540.0000	15322420.0000	16264990	17299310

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	2.5932	0.3526

2016	3.2638	0.5313
2017	4.2806	0.8155
2018	5.5371	1.1526
2019	6.9844	1.4860
2020	8.5408	1.7923
2021	10.0015	2.0427
2022	11.6247	2.2944
2023	13.1811	2.5598
2024	14.6000	2.7185
2025	15.8654	2.8340

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.8344	2.0633	2.1680	2.3457	2.5618	2.8107	3.0526	3.2285	3.5125
2016	2.1396	2.4721	2.6291	2.8778	3.2335	3.5839	3.9598	4.2132	4.7108
2017	2.6255	3.0566	3.2918	3.7138	4.2096	4.7778	5.3503	5.7539	6.4577
2018	3.2616	3.8178	4.1436	4.7305	5.4366	6.2326	7.0755	7.6201	8.6732
2019	4.0080	4.7409	5.1743	5.9401	6.8739	7.9041	8.9438	9.6222	10.9727
2020	4.8624	5.7942	6.3214	7.2801	8.4285	9.6781	10.8902	11.6765	13.2348
2021	5.7426	6.8167	7.4462	8.5725	9.8992	11.3176	12.6719	13.5387	15.2208
2022	6.7758	8.0063	8.7344	10.0215	11.5295	13.1230	14.6095	15.5606	17.3751
2023	7.7599	9.1560	9.9646	11.3903	13.0753	14.8573	16.5158	17.5703	19.6225
2024	8.7755	10.2682	11.1574	12.6973	14.5135	16.4100	18.1573	19.2129	21.2441
2025	9.7129	11.3193	12.2526	13.8907	15.7931	17.7622	19.5611	20.6483	22.7218

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	4.7874	0.7707
2016	5.9213	1.0677
2017	7.2932	1.3877
2018	8.7572	1.6769
2019	10.3227	1.9495
2020	11.9554	2.2108
2021	13.4723	2.4347
2022	15.1459	2.6619
2023	16.7488	2.9020
2024	18.2055	3.0489
2025	19.5063	3.1567

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3.2527	3.6543	3.8386	4.2596	4.7027	5.2591	5.7923	6.2004	6.8299
2016	3.8012	4.3203	4.6165	5.1694	5.8330	6.5716	7.3364	7.8394	8.7882
2017	4.5124	5.1963	5.6003	6.3177	7.1851	8.1506	9.1288	9.7594	11.0040
2018	5.3169	6.1836	6.6784	7.5809	8.6549	9.8246	10.9642	11.6845	13.1594
2019	6.2560	7.2908	7.8957	8.9559	10.2249	11.5752	12.8702	13.7105	15.3258
2020	7.2828	8.4791	9.1809	10.4095	11.8619	13.3933	14.8447	15.7575	17.5460
2021	8.2811	9.6153	10.4083	11.7691	13.3838	15.0738	16.6419	17.6270	19.5388
2022	9.4294	10.9173	11.7730	13.2956	15.0548	16.9076	18.6209	19.6727	21.6883
2023	10.5354	12.1361	13.0864	14.7304	16.6505	18.6588	20.5228	21.6997	23.9265
2024	11.5626	13.3207	14.3305	16.0820	18.1213	20.2341	22.1793	23.3572	25.6218
2025	12.5895	14.4324	15.4691	17.3111	19.4380	21.6213	23.6123	24.8263	27.0725

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	4.1720	0.7172
2016	5.2631	0.9928
2017	6.5384	1.2899
2018	7.8986	1.5584
2019	9.3512	1.8114
2020	10.8671	2.0538
2021	12.2749	2.2616
2022	13.8270	2.4722
2023	15.3138	2.6949
2024	16.6652	2.8312
2025	17.8720	2.9313

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	2.7417	3.1186	3.2875	3.6804	4.0934	4.6118	5.1067	5.4862	6.0724
2016	3.2910	3.7742	4.0499	4.5642	5.1810	5.8680	6.5794	7.0466	7.9291
2017	3.9530	4.5891	4.9649	5.6319	6.4380	7.3355	8.2441	8.8304	9.9873
2018	4.7018	5.5062	5.9668	6.8051	7.8039	8.8909	9.9500	10.6184	11.9890
2019	5.5708	6.5341	7.0962	8.0811	9.2606	10.5150	11.7185	12.4988	14.0001
2020	6.5263	7.6373	8.2893	9.4310	10.7807	12.2031	13.5510	14.3992	16.0604
2021	7.4519	8.6913	9.4289	10.6925	12.1928	13.7625	15.2194	16.1341	17.9101
2022	8.5179	9.8999	10.6945	12.1086	13.7427	15.4637	17.0547	18.0314	19.9024
2023	9.5439	11.0295	11.9125	13.4390	15.2229	17.0878	18.8185	19.9106	21.9788
2024	10.4977	12.1284	13.0670	14.6928	16.5871	18.5487	20.3543	21.4495	23.5526
2025	11.4494	13.1604	14.1232	15.8333	17.8086	19.8365	21.6852	22.8119	24.8981

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	0.6010	0.0000
2016	0.5210	0.0000
2017	0.5210	0.0000
2018	0.5210	0.0000
2019	0.5210	0.0000
2020	0.5210	0.0000
2021	0.5210	0.0000
2022	0.5210	0.0000
2023	0.5210	0.0000
2024	0.5210	0.0000
2025	0.5210	0.0000

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010
2016	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2017	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2018	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2019	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2020	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2021	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2022	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210

2023	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2024	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2025	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210

Landings x 1000 MT

Year	Average	StdDev
2015	0.6010	0.0000
2016	0.5210	0.0000
2017	0.5210	0.0000
2018	0.5210	0.0000
2019	0.5210	0.0000
2020	0.5210	0.0000
2021	0.5210	0.0000
2022	0.5210	0.0000
2023	0.5210	0.0000
2024	0.5210	0.0000
2025	0.5210	0.0000

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010	0.6010
2016	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2017	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2018	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2019	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2020	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2021	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2022	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2023	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2024	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210
2025	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210	0.5210

Total Fishing Mortality

Year	Average	StdDev
2015	0.4120	0.0639
2016	0.2843	0.0518
2017	0.2021	0.0419
2018	0.1543	0.0359
2019	0.1121	0.0278
2020	0.0855	0.0222
2021	0.0695	0.0178
2022	0.0577	0.0141
2023	0.0497	0.0118
2024	0.0440	0.0099
2025	0.0399	0.0085

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.2883	0.3171	0.3337	0.3654	0.4086	0.4495	0.4933	0.5238	0.5967
2016	0.1859	0.2093	0.2237	0.2487	0.2794	0.3154	0.3500	0.3762	0.4376
2017	0.1253	0.1426	0.1536	0.1736	0.1966	0.2273	0.2542	0.2755	0.3355
2018	0.0917	0.1044	0.1131	0.1290	0.1500	0.1737	0.2013	0.2198	0.2678

2019	0.0648	0.0745	0.0807	0.0927	0.1081	0.1267	0.1483	0.1635	0.2000
2020	0.0475	0.0556	0.0604	0.0700	0.0823	0.0972	0.1140	0.1265	0.1550
2021	0.0402	0.0462	0.0499	0.0569	0.0666	0.0788	0.0928	0.1026	0.1255
2022	0.0348	0.0394	0.0422	0.0477	0.0553	0.0649	0.0761	0.0843	0.1027
2023	0.0305	0.0344	0.0368	0.0414	0.0477	0.0557	0.0650	0.0718	0.0865
2024	0.0279	0.0312	0.0331	0.0370	0.0424	0.0492	0.0570	0.0626	0.0751
2025	0.0260	0.0288	0.0305	0.0339	0.0385	0.0445	0.0511	0.0559	0.0664

Georges Bank Winter Flounder

AGEPRO VERSION 4.2

2015 BRPs: 1,150 cat in 2015 and 75% FMSY (=0.402) during 2016-2018 retro adj for SSB = 0.546

Date & Time of Run: 16 Dec 2015 15:54

Input File Name: C:\NIT2\GARM08\UPDATE2015_PROJ\2015_FLW_GB_94474\2015-2018_75FMSY_RETRO_ADJ_SSB_EQU_0.546_ABC.INP

First Age Class: 1
 Number of Age Classes: 7
 Number of Years in Projection: 4
 Number of Fleets: 1
 Number of Recruitment Models: 1
 Number of Bootstraps: 1000
 Number of Simulations: 100

Bootstrap File Name:
 C:\NIT2\GARM08\UPDATE2015_PROJ\2015_FLW_GB_94474\FINAL_2015_VPA_BOOT.BSN

Number of Feasible Solutions: 100000 of 100000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Removals	1150
2016	Removals	755
2017	Removals	755
2018	Removals	755

Recruits 1000 Fish

Year Class	Average	StdDev
2015	10587.6130	6135.2386
2016	10002.9804	5851.6929
2017	10518.5590	6189.4365
2018	11831.8923	6870.6691

Recruits Distribution

Year Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	2632.2870	3787.9610	4586.2340	6356.8310	9157.5615	13171.2400	18276.4500	22237.7000	31794.1600
2016	2453.6070	3525.7680	4296.0660	5986.2890	8644.6095	12437.8900	17309.4300	21002.4300	30384.9100
2017	2529.6010	3709.8990	4532.4540	6301.6980	9097.3995	13053.0000	18166.0400	22185.3000	32303.9300

2018 2890.7360 4209.0840 5124.0310 7104.1080 10228.0150 14730.0800 20421.3200 24770.1400 35771.4800

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	2.6880	0.6103
2016	2.3685	0.6786
2017	2.6946	0.7468
2018	4.0070	1.4289

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.5233	1.8023	1.9611	2.2526	2.6229	3.0463	3.4650	3.8129	4.3769
2016	1.0480	1.3843	1.5661	1.8883	2.2927	2.7615	3.2402	3.5980	4.2219
2017	1.2631	1.6068	1.8099	2.1728	2.6168	3.1414	3.6759	4.0701	4.7253
2018	1.6063	2.1247	2.4364	3.0202	3.7859	4.7447	5.8349	6.6173	8.4841

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	5.0165	0.8329
2016	6.1481	1.7496
2017	7.4739	2.2193
2018	9.0976	2.7743

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	3.3806	3.7832	4.0236	4.4155	4.9288	5.5112	6.0893	6.5458	7.2128
2016	3.3002	3.8906	4.2559	4.9423	5.8592	7.0271	8.3822	9.3652	11.7244
2017	3.6851	4.5044	4.9930	5.9196	7.1467	8.6535	10.3453	11.5475	14.2567
2018	4.2492	5.3254	5.9558	7.1486	8.7136	10.6101	12.7141	14.1767	17.4555

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	4.2808	0.8233
2016	5.5982	1.6612
2017	7.0386	2.2079
2018	8.6752	2.7667

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	2.6592	3.0759	3.2965	3.6918	4.2012	4.7700	5.3535	5.7640	6.4669
2016	2.8722	3.4420	3.7952	4.4540	5.3280	6.4384	7.7222	8.6486	10.8729
2017	3.2876	4.0931	4.5772	5.4901	6.7109	8.2087	9.8976	11.0990	13.7963
2018	3.8564	4.9205	5.5450	6.7318	8.2855	10.1861	12.2842	13.7419	16.9898

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	1.1500	0.0000
2016	0.7550	0.0000
2017	0.7550	0.0000

2018 0.7550 0.0000

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500
2016	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550
2017	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550
2018	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550

Landings x 1000 MT

Year	Average	StdDev
2015	1.1500	0.0000
2016	0.7550	0.0000
2017	0.7550	0.0000
2018	0.7550	0.0000

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500
2016	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550
2017	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550
2018	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550	0.7550

Total Fishing Mortality

Year	Average	StdDev
2015	0.5631	0.1470
2016	0.4324	0.1613
2017	0.3858	0.1396
2018	0.2714	0.1081

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.3091	0.3620	0.4037	0.4626	0.5451	0.6370	0.7557	0.8320	0.9930
2016	0.1984	0.2434	0.2745	0.3263	0.4018	0.5017	0.6200	0.7168	0.9583
2017	0.1877	0.2212	0.2472	0.2938	0.3603	0.4450	0.5480	0.6311	0.8391
2018	0.1164	0.1464	0.1650	0.2013	0.2517	0.3166	0.3963	0.4603	0.6247

SNE/MA Winter Flounder

AGEPRO VERSION 4.2

2011 SARC 52 SNE WFL: CAT10 Projected FMSY

Date & Time of Run: 16 Dec 2015 15:28

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_FLW_SNEMA_54750\2015_FLW_SNEMA_MOD_AGEPRO_75 FMSYCONSTANT_3YEAR_PROJECTION.INP

First Age Class: 1

Number of Age Classes: 7
 Number of Years in Projection: 4
 Number of Fleets: 1
 Number of Recruitment Models: 1
 Number of Bootstraps: 1000
 Number of Simulations: 100

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_FLW_SNEMA_54750\2015_FLW_SNEMA_MOD_ASAP_MOD
EL_MCMC.BSN

Number of Feasible Solutions: 100000 of 100000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Removals	717
2016	Removals	780
2017	Removals	780
2018	Removals	780

Recruits 1000 Fish

Year	Class	Average	StdDev
2015		19892.1835	10878.2698
2016		18038.9499	9763.9877
2017		15894.4995	8828.0432
2018		19266.8497	11194.0027

Recruits Distribution

Year	Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015		5328.6910	7546.5100	9068.2010	12357.2900	17450.1100	24642.9600	33539.3500	40458.9900	57542.9000
2016		4836.4400	6845.3480	8247.3270	11261.5400	15863.1750	22361.7900	30399.5300	36562.8200	51518.6000
2017		4187.3320	5964.2750	7192.0170	9819.5310	13891.1900	19684.4300	26940.2700	32474.4400	46576.3000
2018		4745.0840	6896.4620	8374.3800	11606.4100	16676.5050	23930.7900	33199.4200	40204.9400	58577.1800

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	5.4816	0.6780
2016	4.8130	0.6202
2017	4.0745	0.6041
2018	5.3451	1.5646

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	4.0549	4.4232	4.6417	5.0130	5.4393	5.9139	6.3759	6.6066	7.2938
2016	3.4788	3.8395	4.0437	4.3940	4.7859	5.2080	5.6227	5.8754	6.3906
2017	2.7968	3.1188	3.3189	3.6637	4.0412	4.4578	4.8705	5.1313	5.6127
2018	2.8703	3.3851	3.6904	4.2732	5.0651	6.0973	7.3184	8.2453	10.5108

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	6.8278	0.7780
2016	6.9101	1.0457
2017	8.1975	1.9335
2018	10.8253	3.1212

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	5.1994	5.6256	5.8560	6.2925	6.7923	7.3285	7.8503	8.1513	8.8161
2016	4.8895	5.3941	5.6802	6.1915	6.8038	7.5130	8.2540	8.7666	9.9160
2017	4.9787	5.6781	6.0844	6.8621	7.8883	9.1783	10.6706	11.7399	14.3804
2018	5.7522	6.7802	7.4083	8.6411	10.3179	12.4217	14.8615	16.5825	20.7408

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	6.4526	0.7561
2016	6.8651	1.3143
2017	9.5953	2.7890
2018	12.3746	3.7621

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	4.8270	5.2492	5.5183	5.9278	6.4101	6.9398	7.4506	7.7761	8.3421
2016	4.5483	5.0911	5.3992	5.9653	6.6806	7.5559	8.5371	9.2461	10.9408
2017	5.1913	6.0806	6.6179	7.6674	9.1013	10.9607	13.1558	14.7580	18.6590
2018	6.1809	7.4555	8.2146	9.7304	11.7810	14.3349	17.2845	19.3418	24.1428

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	0.7170	0.0000
2016	0.7800	0.0000
2017	0.7800	0.0000
2018	0.7800	0.0000

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.7170	0.7170	0.7170	0.7170	0.7170	0.7170	0.7170	0.7170	0.7170
2016	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
2017	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
2018	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800

Landings x 1000 MT

Year	Average	StdDev
2015	0.7170	0.0000
2016	0.7800	0.0000
2017	0.7800	0.0000
2018	0.7800	0.0000

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.7170	0.7170	0.7170	0.7170	0.7170	0.7170	0.7170	0.7170	0.7170
2016	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
2017	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
2018	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800

Total Fishing Mortality

Year	Average	StdDev
2015	0.1846	0.0217
2016	0.2385	0.0313
2017	0.2456	0.0485
2018	0.1580	0.0521

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.1394	0.1518	0.1585	0.1694	0.1828	0.1979	0.2136	0.2221	0.2430
2016	0.1784	0.1907	0.2005	0.2164	0.2366	0.2563	0.2810	0.2960	0.3233
2017	0.1448	0.1719	0.1866	0.2120	0.2425	0.2752	0.3082	0.3305	0.3777
2018	0.0634	0.0837	0.0965	0.1207	0.1520	0.1885	0.2269	0.2526	0.3080

Redfish

AGEPRO VERSION 4.2

redfish new base model with 2014 data; rho adjusted

Date & Time of Run: 17 Feb 2016 14:02

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_RED_UNIT_75768\2015_RED_UNIT_MOD_BASEAGEPRO75F50INPUT2.INP

First Age Class: 1
 Number of Age Classes: 26
 Number of Years in Projection: 4
 Number of Fleets: 1
 Number of Recruitment Models: 1
 Number of Bootstraps: 100
 Number of Simulations: 10

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_RED_UNIT_75768\2015_RED_UNIT_MOD_BASEAGEPRONA.A.BSN

Number of Feasible Solutions: 1000 of 1000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Removals	5204
2016	F-Mult	0.0282
2017	F-Mult	0.0282

2018 F-Mult 0.0282

Recruits 1 Fish

Year	Class	Average	StdDev
2015	46837145.1505	49266714.6128	
2016	46210294.7437	49849894.9870	
2017	43658323.7680	47513475.1715	
2018	45219715.6736	48147193.3402	

Recruits Distribution

Year	Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	938475.7	1289231	1666707	6081752	32678645	75444440	114426300.0000	139158000.0000	208317300.0000	
2016	957812.9	1101642	1412240	4635840	33433985	67428040	117038700.0000	138592300.0000	227929300.0000	
2017	942482.3	1184036	1518152	4648556	30945725	63663000	105436400.0000	132100200.0000	232512400.0000	
2018	923049.5	1101722	1481421	4277448	31122485	72071270	111376800.0000	136471300.0000	198839000.0000	

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	342.4771	20.4506
2016	368.1066	22.2633
2017	387.8393	23.6658
2018	403.4276	24.9320

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	291.1188	307.6736	312.2461	329.0093	343.1862	355.7200	369.2430	375.7900	385.8615
2016	312.8266	329.8670	334.7682	354.9931	368.5559	383.8065	394.1455	403.1718	414.0317
2017	330.1595	346.7821	353.4052	373.6941	386.9793	404.8119	418.7839	425.3765	436.7380
2018	344.6695	360.3620	367.4870	387.8401	401.2133	422.1337	437.3866	445.8528	457.2986

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	394.8715	23.5805
2016	418.8997	25.5788
2017	434.7837	26.9023
2018	446.8765	28.1494

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	336.4656	353.9342	360.2021	381.3756	395.2966	411.5031	423.5102	431.5851	442.8817
2016	356.5430	374.0395	381.8228	403.6001	418.3203	436.9650	453.8754	459.3432	471.6861
2017	371.7231	388.2014	396.2859	417.9047	432.6198	454.4562	471.5731	481.3631	492.5374
2018	385.9220	398.3574	407.1094	429.5940	444.2686	467.3693	485.4077	495.2703	505.8535

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	382.5757	23.0009
2016	403.4622	24.6439
2017	418.5735	25.9065

2018 430.1337 27.1050

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	325.6064	342.6404	348.7642	369.4198	382.9887	398.8126	410.5008	418.3871	429.4242
2016	343.3966	360.2135	367.7335	388.7134	402.8930	420.8720	437.2454	442.4293	454.3892
2017	357.8894	373.6855	381.5226	402.3109	416.4928	437.4492	453.9405	463.4844	474.1835
2018	371.5140	383.3957	391.8608	413.4808	427.6309	449.8253	467.2070	476.8302	486.7724

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	5.2040	0.0000
2016	10.3156	0.6208
2017	11.0821	0.6811
2018	11.5540	0.7192

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	5.2040	5.2040	5.2040	5.2040	5.2040	5.2040	5.2040	5.2040	5.2040
2016	8.7834	9.2709	9.3967	9.8957	10.3375	10.7726	11.1229	11.3023	11.5842
2017	9.4131	9.9613	10.0836	10.6715	11.0497	11.5971	11.9558	12.2016	12.4909
2018	9.8453	10.3107	10.4958	11.0966	11.5015	12.0535	12.4802	12.7142	13.1748

Landings x 1000 MT

Year	Average	StdDev
2015	5.2040	0.0000
2016	10.3156	0.6208
2017	11.0821	0.6811
2018	11.5540	0.7192

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	5.2040	5.2040	5.2040	5.2040	5.2040	5.2040	5.2040	5.2040	5.2040
2016	8.7834	9.2709	9.3967	9.8957	10.3375	10.7726	11.1229	11.3023	11.5842
2017	9.4131	9.9613	10.0836	10.6715	11.0497	11.5971	11.9558	12.2016	12.4909
2018	9.8453	10.3107	10.4958	11.0966	11.5015	12.0535	12.4802	12.7142	13.1748

Total Fishing Mortality

Year	Average	StdDev
2015	0.0155	0.0009
2016	0.0282	0.0000
2017	0.0282	0.0000
2018	0.0282	0.0000

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.0135	0.0140	0.0142	0.0148	0.0154	0.0161	0.0169	0.0171	0.0174
2016	0.0282	0.0282	0.0282	0.0282	0.0282	0.0282	0.0282	0.0282	0.0282
2017	0.0282	0.0282	0.0282	0.0282	0.0282	0.0282	0.0282	0.0282	0.0282

2018 0.0282 0.0282 0.0282 0.0282 0.0282 0.0282 0.0282 0.0282 0.0282

White Hake

AGEPRO VERSION 4.2

White Hake Model 60 F0 100 year projection

Date & Time of Run: 16 Dec 2015 15:37

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_HKW_UNIT_36240\2015_HKW_UNIT_MOD_AGEPRO_75%F
MSY_LONG_RECT_ABC.INP

First Age Class: 1
Number of Age Classes: 9
Number of Years in Projection: 16
Number of Fleets: 1
Number of Recruitment Models: 1
Number of Bootstraps: 1000
Number of Simulations: 100

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_HKW_UNIT_36240\2015_HKW_UNIT_MOD_MCMC.BSN

Number of Feasible Solutions: 100000 of 100000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Removals	1759
2016	Removals	3816
2017	Removals	3686
2018	Removals	3622
2019	F-Mult	0.1410
2020	F-Mult	0.1410
2021	F-Mult	0.1410
2022	F-Mult	0.1410
2023	F-Mult	0.1410
2024	F-Mult	0.1410
2025	F-Mult	0.1410
2026	F-Mult	0.1410
2027	F-Mult	0.1410
2028	F-Mult	0.1410
2029	F-Mult	0.1410
2030	F-Mult	0.1410

Recruits 1 Fish

Year	Class	Average	StdDev
2015	5116830.7405	2192138.8513	
2016	5129824.6918	2200027.9538	
2017	5109358.5325	2191585.1443	

2018	5143161.2510	2214967.4172
2019	5116257.9475	2192548.9261
2020	5117080.7808	2195373.4122
2021	5113388.3068	2197190.9880
2022	5110429.8541	2197109.4388
2023	5122580.2497	2196749.2610
2024	5128127.4239	2204968.7494
2025	5126586.1543	2202964.6722
2026	5101544.8910	2190952.1750
2027	5113884.3274	2198410.6457
2028	5127861.2697	2201626.9036
2029	5125803.6114	2203578.8934
2030	5116411.3201	2197746.4940

Recruits Distribution

Year	Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	2194800	2353814	2743763	3508213	4642735.5	6187416	8041946.0000	9488783.0000	12532250.0000	
2016	2198357	2361042	2753144	3512002	4644558.5	6189262	8057729.0000	9590627.0000	12517290.0000	
2017	2195492	2349324	2736566	3506947	4634568.5	6185226	8032854.0000	9465317.0000	12506760.0000	
2018	2199413	2358865	2752015	3510552	4649295.0	6198411	8089662.0000	9731872.0000	12521390.0000	
2019	2194358	2350152	2739215	3507934	4643658.0	6185943	8035839.0000	9506482.0000	12506320.0000	
2020	2197759	2352480	2741240	3508661	4638572.5	6186260	8047497.0000	9566301.0000	12518070.0000	
2021	2196453	2352718	2734777	3507353	4635833.5	6185772	8028132.0000	9549041.0000	12528460.0000	
2022	2194204	2351077	2730067	3507088	4638265.0	6184852	8046669.0000	9523475.0000	12518060.0000	
2023	2194805	2355580	2748131	3508646	4643417.0	6190200	8039260.0000	9539305.0000	12530710.0000	
2024	2199268	2354108	2746132	3510006	4638760.5	6192297	8083954.0000	9605086.0000	12518870.0000	
2025	2196737	2356221	2741325	3509192	4641882.0	6194987	8069882.0000	9648495.0000	12504230.0000	
2026	2197020	2351563	2736276	3505589	4630580.0	6183174	8011549.0000	9451828.0000	12515660.0000	
2027	2195702	2356437	2741602	3509777	4634319.5	6179087	8047315.0000	9578723.0000	12534920.0000	
2028	2197647	2355510	2749027	3509908	4642322.0	6192474	8068315.0000	9615752.0000	12517270.0000	
2029	2191209	2349927	2743105	3508665	4643077.5	6191924	8068005.0000	9624000.0000	12513030.0000	
2030	2201125	2358170	2749529	3509797	4634165.5	6182331	8046612.0000	9606444.0000	12514470.0000	

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	28.9203	2.9306
2016	29.7553	3.0942
2017	28.9433	3.1858
2018	29.2158	3.2692
2019	30.1786	3.5691
2020	31.3356	3.7837
2021	32.6352	4.0721
2022	33.3817	4.2861
2023	35.0786	4.4822
2024	36.3914	4.8023
2025	37.3217	4.9514
2026	37.9783	5.0231
2027	38.4574	5.0649
2028	38.7938	5.0848
2029	39.0297	5.0905
2030	39.1900	5.0902

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	22.7081	24.4575	25.2728	26.7786	28.8287	30.8564	32.8688	33.9544	35.9492
2016	23.2820	24.9786	25.9154	27.5780	29.6385	31.8270	33.9195	34.9542	37.4357
2017	22.2733	23.9833	24.9452	26.6673	28.8461	31.0964	33.2460	34.2775	36.8034
2018	22.3020	24.0694	25.0990	26.8534	29.1086	31.3891	33.5387	34.7718	37.1130
2019	22.7725	24.6417	25.7204	27.6481	30.0062	32.4815	34.8460	36.3902	39.2923
2020	23.7685	25.5917	26.6943	28.6580	31.0557	33.6946	36.3185	38.0215	41.3398
2021	24.6621	26.5890	27.6906	29.7374	32.2924	35.1671	38.0611	39.9154	43.4495
2022	25.0391	27.0523	28.1972	30.3192	32.9839	36.0529	39.1245	41.0548	44.8528
2023	26.4117	28.4418	29.6549	31.8687	34.6560	37.8815	41.0738	43.0922	47.0291
2024	27.0430	29.2516	30.5597	32.9639	35.9488	39.4212	42.8167	44.9385	49.1451
2025	27.5688	29.9318	31.2913	33.7852	36.9090	40.4423	43.9251	46.1049	50.4333
2026	28.0120	30.4425	31.8451	34.3916	37.5761	41.1459	44.6704	46.8501	51.2086
2027	28.3808	30.8591	32.2691	34.8455	38.0618	41.6424	45.1724	47.3869	51.7706
2028	28.7004	31.1645	32.5893	35.1771	38.3969	41.9958	45.5504	47.7561	52.2470
2029	28.9258	31.3830	32.8043	35.4057	38.6401	42.2319	45.8173	47.9984	52.5001
2030	29.0942	31.5397	32.9822	35.5492	38.8017	42.3829	45.9570	48.2098	52.5938

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	32.2154	3.1384
2016	34.0083	3.2926
2017	33.6866	3.4026
2018	34.2621	3.5856
2019	35.3666	4.0687
2020	36.5298	4.2655
2021	37.9348	4.5387
2022	38.6033	4.7463
2023	40.4355	4.9278
2024	41.8654	5.2750
2025	42.8818	5.4391
2026	43.5992	5.5173
2027	44.1197	5.5601
2028	44.4828	5.5800
2029	44.7395	5.5840
2030	44.9170	5.5843

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	25.5714	27.4239	28.3223	29.9301	32.0991	34.2888	36.4911	37.6294	39.8662
2016	27.0544	28.9035	29.8797	31.6311	33.8774	36.2428	38.4443	39.6296	42.0798
2017	26.4864	28.3517	29.3923	31.2273	33.5607	35.9872	38.1986	39.4744	41.9002
2018	26.6780	28.6217	29.7353	31.6896	34.1399	36.6448	38.9725	40.4125	43.0475
2019	26.9505	29.0414	30.2861	32.4841	35.1526	37.9935	40.6960	42.4405	45.8298
2020	27.9480	30.0395	31.2811	33.5113	36.2289	39.2029	42.1700	44.0600	47.7217
2021	28.9695	31.1541	32.4052	34.7039	37.5643	40.7802	43.9821	45.9969	49.9114
2022	29.2961	31.5327	32.8402	35.2165	38.1898	41.5856	44.9429	47.0507	51.2096
2023	30.7810	33.0798	34.4488	36.9190	40.0049	43.5353	47.0003	49.2077	53.4741
2024	31.4603	33.9901	35.4456	38.1001	41.4211	45.2073	48.9089	51.2172	55.8323
2025	32.0589	34.7125	36.2448	39.0117	42.4523	46.3243	50.1198	52.4926	57.1651
2026	32.6018	35.2777	36.8591	39.6659	43.1826	47.0937	50.8942	53.3152	58.0420
2027	33.0218	35.7304	37.3186	40.1634	43.7135	47.6473	51.4696	53.8933	58.6645
2028	33.2925	36.0827	37.6612	40.5154	44.0770	48.0077	51.8813	54.3257	59.1584
2029	33.5557	36.3216	37.9021	40.7666	44.3298	48.2645	52.1569	54.5588	59.4521

2030 33.7385 36.5145 38.0730 40.9394 44.5082 48.4305 52.3235 54.7921 59.5532

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	32.6850	3.1855
2016	33.0796	3.3117
2017	33.4426	3.4159
2018	34.5542	3.8341
2019	35.7001	4.2230
2020	37.0652	4.4604
2021	38.2909	4.7353
2022	39.2306	4.9198
2023	40.8139	5.1102
2024	42.0247	5.3516
2025	42.8831	5.4686
2026	43.4964	5.5273
2027	43.9366	5.5584
2028	44.2435	5.5699
2029	44.4562	5.5689
2030	44.6081	5.5690

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	25.9472	27.7748	28.7126	30.4110	32.5378	34.7739	37.0326	38.0637	40.6302
2016	26.0916	27.9218	28.9092	30.6865	32.9405	35.3153	37.5134	38.7259	41.1383
2017	26.2263	28.0675	29.1352	30.9762	33.3330	35.7266	37.9620	39.2648	41.6947
2018	26.5824	28.5874	29.7492	31.8348	34.3790	37.0514	39.5757	41.2012	44.2782
2019	27.1531	29.2425	30.4911	32.7111	35.4122	38.3611	41.2557	43.1085	46.7358
2020	28.2272	30.3806	31.6257	33.8938	36.7176	39.8562	42.9884	44.9835	48.8127
2021	28.9781	31.2472	32.5422	34.9131	37.8797	41.2626	44.6083	46.7268	50.8447
2022	29.6293	31.9122	33.2595	35.7194	38.7919	42.3219	45.8113	48.0007	52.2698
2023	30.8022	33.1806	34.6092	37.1710	40.3650	44.0372	47.6454	49.8834	54.3736
2024	31.4433	34.0162	35.5045	38.2125	41.5870	45.4125	49.1578	51.5096	56.1333
2025	32.0028	34.6435	36.1940	38.9909	42.4551	46.3316	50.1354	52.5281	57.2408
2026	32.4379	35.1553	36.7344	39.5587	43.0935	47.0019	50.8287	53.2208	57.9977
2027	32.8493	35.5623	37.1408	39.9826	43.5291	47.4570	51.2996	53.7234	58.5203
2028	33.1067	35.8402	37.4300	40.2871	43.8477	47.7582	51.6432	54.0605	58.9347
2029	33.3409	36.0685	37.6402	40.4835	44.0427	47.9662	51.8404	54.2657	59.0833
2030	33.4513	36.2176	37.7792	40.6423	44.1937	48.1221	51.9952	54.4381	59.2386

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	1.7590	0.0000
2016	3.8160	0.0000
2017	3.6860	0.0000
2018	3.6220	0.0000
2019	3.7325	0.4395
2020	3.9133	0.4476
2021	4.0855	0.5044
2022	4.2190	0.5394
2023	4.4430	0.5740
2024	4.6147	0.6162
2025	4.7355	0.6355

2026	4.8211	0.6448
2027	4.8827	0.6501
2028	4.9261	0.6527
2029	4.9572	0.6539
2030	4.9787	0.6542

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.7590	1.7590	1.7590	1.7590	1.7590	1.7590	1.7590	1.7590	1.7590
2016	3.8160	3.8160	3.8160	3.8160	3.8160	3.8160	3.8160	3.8160	3.8160
2017	3.6860	3.6860	3.6860	3.6860	3.6860	3.6860	3.6860	3.6860	3.6860
2018	3.6220	3.6220	3.6220	3.6220	3.6220	3.6220	3.6220	3.6220	3.6220
2019	2.8108	3.0437	3.1806	3.4193	3.7170	4.0186	4.3103	4.4907	4.8263
2020	3.0011	3.2242	3.3575	3.5970	3.8859	4.1979	4.4999	4.6954	5.0778
2021	3.1004	3.3356	3.4756	3.7279	4.0426	4.3952	4.7566	4.9876	5.4450
2022	3.1743	3.4264	3.5695	3.8340	4.1682	4.5537	4.9440	5.1907	5.6665
2023	3.3391	3.5964	3.7506	4.0328	4.3884	4.7991	5.2113	5.4719	5.9879
2024	3.4214	3.7023	3.8685	4.1746	4.5567	5.0008	5.4404	5.7158	6.2625
2025	3.4919	3.7909	3.9630	4.2806	4.6792	5.1354	5.5832	5.8697	6.4259
2026	3.5500	3.8573	4.0372	4.3620	4.7672	5.2259	5.6816	5.9655	6.5285
2027	3.5984	3.9090	4.0901	4.4185	4.8300	5.2907	5.7457	6.0302	6.5995
2028	3.6352	3.9485	4.1331	4.4610	4.8734	5.3357	5.7943	6.0801	6.6481
2029	3.6638	3.9785	4.1598	4.4916	4.9045	5.3688	5.8286	6.1146	6.6901
2030	3.6848	3.9986	4.1817	4.5110	4.9269	5.3863	5.8496	6.1387	6.7123

Landings x 1000 MT

Year	Average	StdDev
2015	1.7590	0.0000
2016	3.8160	0.0000
2017	3.6860	0.0000
2018	3.6220	0.0000
2019	3.7325	0.4395
2020	3.9133	0.4476
2021	4.0855	0.5044
2022	4.2190	0.5394
2023	4.4430	0.5740
2024	4.6147	0.6162
2025	4.7355	0.6355
2026	4.8211	0.6448
2027	4.8827	0.6501
2028	4.9261	0.6527
2029	4.9572	0.6539
2030	4.9787	0.6542

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	1.7590	1.7590	1.7590	1.7590	1.7590	1.7590	1.7590	1.7590	1.7590
2016	3.8160	3.8160	3.8160	3.8160	3.8160	3.8160	3.8160	3.8160	3.8160
2017	3.6860	3.6860	3.6860	3.6860	3.6860	3.6860	3.6860	3.6860	3.6860
2018	3.6220	3.6220	3.6220	3.6220	3.6220	3.6220	3.6220	3.6220	3.6220
2019	2.8108	3.0437	3.1806	3.4193	3.7170	4.0186	4.3103	4.4907	4.8263
2020	3.0011	3.2242	3.3575	3.5970	3.8859	4.1979	4.4999	4.6954	5.0778
2021	3.1004	3.3356	3.4756	3.7279	4.0426	4.3952	4.7566	4.9876	5.4450

2022	3.1743	3.4264	3.5695	3.8340	4.1682	4.5537	4.9440	5.1907	5.6665
2023	3.3391	3.5964	3.7506	4.0328	4.3884	4.7991	5.2113	5.4719	5.9879
2024	3.4214	3.7023	3.8685	4.1746	4.5567	5.0008	5.4404	5.7158	6.2625
2025	3.4919	3.7909	3.9630	4.2806	4.6792	5.1354	5.5832	5.8697	6.4259
2026	3.5500	3.8573	4.0372	4.3620	4.7672	5.2259	5.6816	5.9655	6.5285
2027	3.5984	3.9090	4.0901	4.4185	4.8300	5.2907	5.7457	6.0302	6.5995
2028	3.6352	3.9485	4.1331	4.4610	4.8734	5.3357	5.7943	6.0801	6.6481
2029	3.6638	3.9785	4.1598	4.4916	4.9045	5.3688	5.8286	6.1146	6.6901
2030	3.6848	3.9986	4.1817	4.5110	4.9269	5.3863	5.8496	6.1387	6.7123

Total Fishing Mortality

Year	Average	StdDev
2015	0.0666	0.0069
2016	0.1419	0.0154
2017	0.1416	0.0164
2018	0.1394	0.0166
2019	0.1410	0.0000
2020	0.1410	0.0000
2021	0.1410	0.0000
2022	0.1410	0.0000
2023	0.1410	0.0000
2024	0.1410	0.0000
2025	0.1410	0.0000
2026	0.1410	0.0000
2027	0.1410	0.0000
2028	0.1410	0.0000
2029	0.1410	0.0000
2030	0.1410	0.0000

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.0523	0.0559	0.0578	0.0616	0.0662	0.0714	0.0756	0.0785	0.0843
2016	0.1106	0.1187	0.1224	0.1308	0.1408	0.1521	0.1622	0.1679	0.1810
2017	0.1090	0.1173	0.1211	0.1297	0.1402	0.1521	0.1630	0.1699	0.1838
2018	0.1071	0.1146	0.1189	0.1274	0.1380	0.1502	0.1613	0.1687	0.1827
2019	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2020	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2021	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2022	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2023	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2024	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2025	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2026	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2027	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2028	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2029	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410
2030	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410	0.1410

Pollock

AGEPRO VERSION 4.2

pollock new base with 2014 data; 75% of F40%; rho adjusted

Date & Time of Run: 16 Dec 2015 15:51

Input File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_POK_UNIT_59045\2015_POK_UNIT_MOD_BASEAGEPRO75F40INPUTCONSTANT.INP

First Age Class: 1
Number of Age Classes: 9
Number of Years in Projection: 11
Number of Fleets: 1
Number of Recruitment Models: 1
Number of Bootstraps: 1000
Number of Simulations: 100

Bootstrap File Name:

C:\NIT2\GARM08\UPDATE2015_PROJ\2015_POK_UNIT_59045\2015_POK_UNIT_MOD_BASEAGEPRONA.A.BSN

Number of Feasible Solutions: 100000 of 100000 Realizations

Input Harvest Scenario

Year	Type	Value
2015	Landings	5208
2016	Landings	21312
2017	Landings	21312
2018	Landings	21312
2019	F-Mult	0.3070
2020	F-Mult	0.3070
2021	F-Mult	0.3070
2022	F-Mult	0.3070
2023	F-Mult	0.3070
2024	F-Mult	0.3070
2025	F-Mult	0.3070

Recruits 1 Fish

Year	Class	Average	StdDev
2015		26595243.9414	13141644.5270
2016		26701142.3527	13299892.8732
2017		26635851.9988	13196570.0304
2018		26743999.8702	13303903.2309
2019		26638439.4890	13186035.7413
2020		26708404.3690	13229277.1978
2021		26656548.4493	13241910.1051
2022		26731945.2105	13290487.7090
2023		26743207.7412	13345150.9853
2024		26721447.6552	13212901.9619
2025		26713911.7208	13274076.0636

Recruits Distribution

Year	Class	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015		9202133	11107370	12440490	17239970	25152750	30700830.0000	42061860.0000	60011530.0000	69332930

2016 9164588 11094920 12388680 17247290 25172840 30876990.0000 42116610.0000 60801350.000 69599580
 2017 9149680 11095440 12395340 17234600 25187510 30804540.0000 42082070.0000 60141940.000 69437290
 2018 9179370 11098900 12428210 17278250 25206075 30936040.0000 42129610.0000 60976360.000 69449540
 2019 9183300 11111000 12443740 17284980 25153755 30798850.0000 42086510.0000 59951180.000 69454220
 2020 9174875 11107560 12473800 17324320 25193770 30920760.0000 42101110.0000 60521980.000 69365630
 2021 9145231 11101150 12375960 17257340 25123390 30838860.0000 42104740.0000 60492340.000 69378950
 2022 9170560 11103180 12432660 17250340 25208525 30866470.0000 42119350.0000 60988920.000 69547210
 2023 9163885 11102570 12415010 17258560 25169105 30887480.0000 42130040.0000 61155020.000 69612460
 2024 9157042 11103320 12420110 17328960 25209660 30987690.0000 42096560.0000 60217290.000 69462790
 2025 9181666 11103990 12431170 17279810 25206985 30916170.0000 42100490.0000 60878370.0000 6953348

Spawning Stock Biomass x 1000 MT

Year	Average	StdDev
2015	162.3974	27.0757
2016	180.4338	30.1937
2017	184.4685	33.8847
2018	187.4227	37.3688
2019	185.2988	38.8665
2020	174.9055	33.3929
2021	163.8350	28.6155
2022	156.7818	25.7616
2023	150.3730	23.5464
2024	145.4865	22.1347
2025	141.7353	21.2539

Spawning Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	108.0623	121.1263	129.7422	143.6314	160.5814	179.5220	197.5781	210.3669	233.3485
2016	119.7219	134.4928	144.3500	159.2507	178.5340	199.0392	219.3032	234.2910	263.3815
2017	117.4596	134.0811	144.8917	159.6174	181.8074	205.1508	228.9639	246.6702	280.9357
2018	114.4192	132.5544	143.1362	160.6150	184.1161	210.0114	235.3532	255.2310	298.7832
2019	110.1135	128.8223	139.3822	157.8680	181.6039	208.6532	235.4759	255.2397	296.6981
2020	109.0097	125.8927	135.0518	151.4718	171.9716	194.8697	218.4908	234.5536	269.5667
2021	107.1428	121.2734	129.3694	143.6191	161.5516	181.1671	201.5566	214.5939	242.6201
2022	105.8123	118.3474	125.5777	138.5309	154.7239	172.6469	190.8249	202.5037	226.0688
2023	103.9185	115.2198	121.7817	133.5803	148.4893	165.0760	181.5327	192.3460	212.9268
2024	101.9613	112.5699	118.6640	129.7119	143.4887	159.2819	174.9438	185.0084	204.3577
2025	100.1243	110.2284	115.9918	126.6125	139.8082	154.9467	170.1481	179.8152	198.4521

JAN-1 Stock Biomass x 1000 MT

Year	Average	StdDev
2015	197.7605	32.3547
2016	214.6243	35.1815
2017	214.8061	37.7509
2018	213.9161	39.7139
2019	210.2134	40.4980
2020	199.3242	34.9728
2021	188.1446	30.3761
2022	181.0590	27.6760
2023	174.6476	25.6150
2024	169.7697	24.3262
2025	166.0318	23.5413

JAN-1 Stock Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	133.7659	147.9740	158.6807	174.6762	195.5002	217.6530	239.8269	255.5565	285.5175
2016	145.6176	162.0321	172.4645	188.9902	212.0991	236.1714	260.6796	278.4421	314.5643
2017	141.0238	158.9685	170.2152	187.5150	211.8303	237.6000	263.7905	283.5442	324.8053
2018	136.4543	155.7993	166.9011	185.8459	210.4352	237.7792	265.2713	285.5649	328.7093
2019	130.5814	150.8060	161.9838	181.7043	206.6395	234.3452	262.7342	282.9438	325.9295
2020	129.8176	147.5486	157.3413	174.6241	196.5069	220.3525	245.1200	261.3239	297.3728
2021	127.6374	142.7062	151.3790	166.6568	185.8710	206.8211	228.0992	241.7948	270.0254
2022	125.8714	139.4688	147.3854	161.3950	178.9430	198.3422	217.5470	230.1045	254.9185
2023	123.7234	136.2185	143.4430	156.4794	172.6182	190.6949	208.7038	220.1984	242.4019
2024	121.4580	133.4558	140.0918	152.5015	167.7666	184.9797	202.1841	213.2535	233.9370
2025	119.6567	131.0139	137.4794	149.2006	164.0849	180.6681	197.5362	208.0026	228.3388

Mean Biomass x 1000 MT

Year	Average	StdDev
2015	206.1753	33.8906
2016	214.9527	36.7310
2017	216.2544	39.4168
2018	212.3001	40.3792
2019	204.3515	37.7286
2020	193.1620	32.5557
2021	183.4024	28.8936
2022	177.4341	26.7621
2023	171.7721	25.0934
2024	167.4921	24.0808
2025	164.2091	23.4798

Mean Biomass Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	139.3040	155.0449	165.3077	181.8458	203.9009	227.6328	250.6162	266.5481	299.5955
2016	142.8476	160.4025	171.5480	188.1693	212.3651	237.1517	262.8043	282.3008	319.7233
2017	139.5193	158.4495	169.6126	188.1924	212.8301	240.0247	267.1818	287.6427	331.9431
2018	133.3191	153.2518	164.3938	183.8669	208.7324	236.5334	264.4550	285.0301	327.9347
2019	129.7843	148.9002	159.3399	177.8336	201.0680	226.8750	253.7220	271.6649	311.2345
2020	128.3484	144.6533	153.8779	170.1772	190.7267	212.9711	235.8246	250.8284	282.6097
2021	125.9364	139.9895	148.2926	162.9220	181.1635	201.3229	221.4672	234.5052	260.6632
2022	124.2425	137.3513	144.7852	158.4056	175.3241	194.1807	212.8955	224.9539	248.4252
2023	121.8098	134.2339	141.2382	153.9468	169.6567	187.4941	205.2235	216.5845	237.9802
2024	119.8696	131.6894	138.2398	150.3690	165.5079	182.5321	199.6580	210.4170	231.3091
2025	118.0921	129.3268	135.8862	147.3996	162.1215	178.7907	195.6476	206.1325	226.9566

Combined Catch Biomass x 1000 MT

Year	Average	StdDev
2015	5.2080	0.0000
2016	21.3120	0.0000
2017	21.3120	0.0000
2018	21.3120	0.0000
2019	28.0517	6.2677
2020	24.7749	4.8475
2021	21.8434	3.8140
2022	19.5978	3.7332

2023	19.3418	3.8416
2024	19.0578	3.8062
2025	18.8373	3.7756

Combined Catch Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	5.2080	5.2080	5.2080	5.2080	5.2080	5.2080	5.2080	5.2080	5.2080
2016	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120
2017	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120
2018	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120
2019	16.3100	19.0172	20.7623	23.6236	27.3083	31.6673	36.2738	39.2498	45.7379
2020	15.5313	17.8257	19.0898	21.3879	24.2739	27.5735	31.0541	33.4637	38.7198
2021	14.5660	16.3233	17.3412	19.1626	21.4358	24.0823	26.9432	28.7748	32.5851
2022	12.8499	14.4047	15.3248	16.9710	19.0585	21.6837	24.8046	26.6576	30.1780
2023	12.3996	14.0078	14.9198	16.6080	18.7761	21.5600	24.6495	26.4928	30.2659
2024	12.2287	13.7734	14.6893	16.3547	18.4854	21.2454	24.3095	26.1622	29.8953
2025	12.0944	13.6036	14.5093	16.1616	18.2590	21.0054	24.1137	25.9506	29.5216

Landings x 1000 MT

Year	Average	StdDev
2015	5.2080	0.0000
2016	21.3120	0.0000
2017	21.3120	0.0000
2018	21.3120	0.0000
2019	28.0517	6.2677
2020	24.7749	4.8475
2021	21.8434	3.8140
2022	19.5978	3.7332
2023	19.3418	3.8416
2024	19.0578	3.8062
2025	18.8373	3.7756

Landings Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	5.2080	5.2080	5.2080	5.2080	5.2080	5.2080	5.2080	5.2080	5.2080
2016	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120
2017	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120
2018	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120	21.3120
2019	16.3100	19.0172	20.7623	23.6236	27.3083	31.6673	36.2738	39.2498	45.7379
2020	15.5313	17.8257	19.0898	21.3879	24.2739	27.5735	31.0541	33.4637	38.7198
2021	14.5660	16.3233	17.3412	19.1626	21.4358	24.0823	26.9432	28.7748	32.5851
2022	12.8499	14.4047	15.3248	16.9710	19.0585	21.6837	24.8046	26.6576	30.1780
2023	12.3996	14.0078	14.9198	16.6080	18.7761	21.5600	24.6495	26.4928	30.2659
2024	12.2287	13.7734	14.6893	16.3547	18.4854	21.2454	24.3095	26.1622	29.8953
2025	12.0944	13.6036	14.5093	16.1616	18.2590	21.0054	24.1137	25.9506	29.5216

Total Fishing Mortality

Year	Average	StdDev
2015	0.0844	0.0143
2016	0.3125	0.0564
2017	0.2670	0.0542
2018	0.2444	0.0550

2019	0.3070	0.0000
2020	0.3070	0.0000
2021	0.3070	0.0000
2022	0.3070	0.0000
2023	0.3070	0.0000
2024	0.3070	0.0000
2025	0.3070	0.0000

Total Fishing Mortality Distribution

Year	1%	5%	10%	25%	50%	75%	90%	95%	99%
2015	0.0572	0.0631	0.0674	0.0741	0.0827	0.0929	0.1026	0.1097	0.1232
2016	0.2047	0.2294	0.2449	0.2723	0.3070	0.3465	0.3852	0.4183	0.4673
2017	0.1602	0.1890	0.2020	0.2278	0.2612	0.3011	0.3367	0.3678	0.4198
2018	0.1399	0.1662	0.1812	0.2051	0.2378	0.2778	0.3137	0.3438	0.4030
2019	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070
2020	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070
2021	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070
2022	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070
2023	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070
2024	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070
2025	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070	0.3070