WHAM output tables

Table 1. Parameter estimates, standard errors, and confidence intervals. Rounded to 3 decimal places.

	Estimate	Std. Error	95% CI lower	95% CI upper
NAA σ (age 1)	1.232000e+00	9.400000e-02	1.061000e+00	1.430000e+00
NAA σ (age 2-10+)	4.210000e-01	1.900000e-02	3.850000e-01	4.600000e-01
NAA residual AR1 ρ age	0.000000e+00	–	–	–
NAA residual AR1 ρ year	0.000000e+00	–	–	–
Index 1 fully selected q	3.000000e-03	0.000000e+00	2.000000e-03	4.000000e-03
Index 2 fully selected q	0.000000e+00	0.000000e+00	0.000000e+00	0.000000e+00
Index 3 fully selected q	0.000000e+00	0.000000e+00	0.000000e+00	0.000000e+00
Block 1: a_{50}	2.110000e+00	9.300000e-02	1.934000e+00	2.299000e+00
Block 1: 1/slope (increasing)	6.260000e-01	3.800000e-02	5.560000e-01	7.040000e-01
Block 2: Selectivity for age 1	1.000000e+00	–	–	–
Block 2: Selectivity for age 2	1.000000e+00	–	–	–
Block 2: Selectivity for age 3	1.000000e+00	–	–	–
Block 2: Selectivity for age 4	1.000000e+00	–	–	–
Block 2: Selectivity for age 5	1.000000e+00	–	–	–
Block 2: Selectivity for age 6	1.000000e+00	–	–	–
Block 2: Selectivity for age 7	1.000000e+00	–	–	–
Block 2: Selectivity for age 8	1.000000e+00	–	–	–
Block 2: Selectivity for age 9	1.000000e+00	–	–	–
Block 2: Selectivity for age 10+	1.000000e+00	–	–	–
Block 3: Selectivity for age 1	0.000000e+00	–	–	–
Block 3: Selectivity for age 2	0.000000e+00	–	–	–
Block 3: Selectivity for age 3	1.000000e+00	–	–	–

Table 1. Parameter estimates, standard errors, and confidence intervals. Rounded to 3 decimal places. *(continued)*

	Estimate	Std. Error	95% CI lower	95% CI upper
Block 3: Selectivity for age 4	6.890000e-01	1.200000e-01	4.240000e-01	8.700000e-01
Block 3: Selectivity for age 5	4.640000e-01	1.490000e-01	2.110000e-01	7.370000e-01
Block 3: Selectivity for age 6	5.160000e-01	2.010000e-01	1.810000e-01	8.380000e-01
Block 3: Selectivity for age 7	0.000000e+00	–	–	–
Block 3: Selectivity for age 8	0.000000e+00	–	–	–
Block 3: Selectivity for age 9	0.000000e+00	–	–	–
Block 3: Selectivity for age 10+	0.000000e+00	–	–	–
Block 4: Selectivity for age 1	0.000000e+00	–	–	–
Block 4: Selectivity for age 2	0.000000e+00	–	–	–
Block 4: Selectivity for age 3	1.000000e+00	–	–	–
Block 4: Selectivity for age 4	6.170000e-01	9.100000e-02	4.300000e-01	7.740000e-01
Block 4: Selectivity for age 5	6.630000e-01	1.120000e-01	4.250000e-01	8.400000e-01
Block 4: Selectivity for age 6	6.440000e-01	1.160000e-01	4.000000e-01	8.300000e-01
Block 4: Selectivity for age 7	0.000000e+00	–	–	–
Block 4: Selectivity for age 8	0.000000e+00	–	–	–
Block 4: Selectivity for age 9	0.000000e+00	–	–	–
Block 4: Selectivity for age 10+	0.000000e+00	–	–	–
Fleet 1 age comp, Dirichlet-multinomial: dispersion (ϕ)	2.071064e+10	4.015968e+08	1.993829e+10	2.151290e+10
Index 2 age comp, Dirichlet-multinomial: dispersion (ϕ)	1.384700e+01	3.880000e+00	7.995000e+00	2.398100e+01
Index 3 age comp, Dirichlet-multinomial: dispersion (ϕ)	8.277000e+00	1.221000e+00	6.198000e+00	1.105300e+01
M RE σ	0.000000e+00	1.000000e-03	0.000000e+00	2.163024e+23

M RE AR1 ρ (year)   -1.0000000e+00   2.200000e-02   -1.000000e+00   1.000000e+00

Table 2. Abundance at age (1000s).

	1	2	3	4	5	6	7	8	9	10+
1968	9391992	1259783	709083	367129	129744	62653	22041	19157	102790	1360
1969	710331	5560675	1931169	637476	84892	48918	38031	29665	15471	91609
1970	6896320	657907	3655674	990736	191908	48685	33825	39823	38467	54149
1971	1730925	2364250	612770	2319055	791150	136677	33247	23785	21818	61850
1972	659603	693285	1158896	703453	1479027	324970	85638	17347	19232	39271
1973	2033631	1242062	766232	572816	461844	490723	97720	34231	9259	20291
1974	1204292	1011409	703340	241234	271764	242763	248422	57501	14755	10721
1975	3568182	1487527	272314	213341	113386	134109	105211	97729	26255	9218
1976	177801	1135477	560350	146037	89267	47374	66970	53921	36187	20131
1977	100565	223840	436681	180408	35873	27551	16789	21322	13664	12990
1978	36340	37780	99304	189253	80185	27902	16475	7980	21818	30662
1979	201757	104751	14200	40934	98004	59516	24889	9754	6972	24830
1980	47555	146302	43949	14817	33012	66288	33283	12592	7453	18938
1981	582951	56727	73846	21315	13763	29880	44948	18636	8190	11081
1982	588977	133238	18913	52248	7502	13974	22920	44440	13992	22250
1983	3745876	480807	94748	11762	29985	3953	5258	19129	24592	25372
1984	58922	975837	323009	33743	7531	32126	3018	3536	18057	98777
1985	1082058	43682	1200532	205098	18012	4794	20281	1990	2249	61797
1986	175758	362873	73397	787540	152707	13146	3498	17770	1241	34821
1987	160663	176492	131361	48890	644316	91714	11980	2712	11305	18230
1988	553447	106422	53349	45077	39914	395575	75912	8373	2402	19074
1989	304062	252936	79767	37831	35687	13090	461544	25387	4336	11605
1990	138630	321647	269999	43025	32926	23330	6801	271012	12908	6394
1991	96047	143731	296966	114288	27492	18366	15032	5146	129461	6615
1992	174743	137993	52040	160285	86478	13189	8476	7924	3978	75624
1993	149182	92082	59586	36515	112528	52723	9710	4858	7732	39108
1994	351388	51591	112858	85628	23250	80504	23827	4263	2175	13783
1995	364978	178574	20995	81433	53317	14890	53032	16510	2174	5219
1996	229047	214475	129153	9206	55294	41323	9343	30555	8007	2857
1997	241002	158794	101793	46080	5082	25421	19978	5809	17304	4446
1998	61494	190172	74309	54127	20601	2958	13829	12996	2238	5820

Table 2. Abundance at age (1000s). *(continued)*

	1	2	3	4	5	6	7	8	9	10+
1999	85317	63640	97959	48601	25893	8404	1150	5732	4514	2681
2000	930915	122590	43671	51215	19209	9488	2673	464	1625	1661
2001	162854	500562	109390	35163	35308	9027	4373	1310	269	1088
2002	282530	163871	677528	50606	17516	21540	5457	1535	551	564
2003	216763	181530	111740	422394	36326	12277	12724	3238	642	493
2004	690726	317836	56823	48373	242288	16488	5314	4724	2381	473
2005	184382	421438	167574	34282	22906	130186	5894	1712	1093	848
2006	352281	105956	316346	85455	15164	10264	49748	1717	503	541
2007	57588	206895	88563	134410	24880	3912	2710	11328	390	232
2008	263340	77642	132871	30284	38342	4835	929	662	2646	155
2009	300604	185120	31816	58365	8824	11649	954	223	156	693
2010	82655	120674	54983	6947	15704	1808	2855	159	37	136
2011	99874	21488	28265	7872	792	2646	209	338	17	18
2012	54934	116954	7331	7302	1154	124	260	29	45	5
2013	56146	49878	38486	1436	2461	240	24	48	6	10
2014	127779	39388	28391	9950	303	277	39	4	8	3
2015	248058	92381	13919	9046	2977	123	64	10	1	3
2016	347054	113571	22520	6699	4436	1473	46	23	4	1
2017	31776	256481	42358	9475	3035	2095	466	16	8	2
2018	88484	11689	122635	28933	5176	900	671	134	6	3
2019	63791	70046	18844	41904	5417	1519	278	184	41	3
2020	50633	33733	50606	7658	16047	1760	431	77	53	14
2021	38020	40785	17899	13322	2510	2553	387	92	17	14
2022	256121	56565	14242	3205	1223	241	524	69	13	5

Table 3. Total fishing mortality at age.

	1	2	3	4	5	6	7	8	9	10+
1968	0.018	0.057	0.100	0.119	0.123	0.124	0.124	0.124	0.124	0.124
1969	0.016	0.050	0.089	0.105	0.109	0.110	0.110	0.110	0.110	0.110
1970	0.028	0.089	0.156	0.185	0.192	0.194	0.194	0.194	0.194	0.194

Table 3. Total fishing mortality at age. *(continued)*

	1	2	3	4	5	6	7	8	9	10+
1971	0.045	0.140	0.248	0.293	0.305	0.307	0.307	0.308	0.308	0.308
1972	0.052	0.162	0.287	0.339	0.352	0.355	0.356	0.356	0.356	0.356
1973	0.087	0.274	0.484	0.573	0.595	0.600	0.601	0.601	0.601	0.601
1974	0.097	0.304	0.538	0.636	0.661	0.666	0.667	0.667	0.667	0.667
1975	0.106	0.332	0.587	0.694	0.721	0.727	0.728	0.728	0.728	0.728
1976	0.137	0.432	0.763	0.903	0.938	0.945	0.947	0.947	0.947	0.947
1977	0.053	0.165	0.292	0.346	0.359	0.362	0.363	0.363	0.363	0.363
1978	0.021	0.066	0.117	0.138	0.144	0.145	0.145	0.145	0.145	0.145
1979	0.034	0.106	0.186	0.221	0.229	0.231	0.231	0.231	0.232	0.232
1980	0.027	0.086	0.152	0.180	0.187	0.189	0.189	0.189	0.189	0.189
1981	0.035	0.109	0.193	0.228	0.237	0.239	0.239	0.239	0.239	0.239
1982	0.030	0.095	0.168	0.198	0.206	0.208	0.208	0.208	0.208	0.208
1983	0.022	0.069	0.122	0.144	0.150	0.151	0.151	0.151	0.151	0.151
1984	0.020	0.064	0.112	0.133	0.138	0.139	0.139	0.139	0.139	0.139
1985	0.026	0.081	0.143	0.169	0.176	0.177	0.178	0.178	0.178	0.178
1986	0.026	0.081	0.143	0.169	0.176	0.177	0.178	0.178	0.178	0.178
1987	0.034	0.108	0.190	0.225	0.234	0.236	0.236	0.236	0.236	0.236
1988	0.046	0.146	0.257	0.304	0.316	0.318	0.319	0.319	0.319	0.319
1989	0.034	0.108	0.191	0.226	0.235	0.236	0.237	0.237	0.237	0.237
1990	0.051	0.159	0.281	0.332	0.345	0.348	0.348	0.349	0.349	0.349
1991	0.045	0.143	0.252	0.298	0.310	0.312	0.313	0.313	0.313	0.313
1992	0.036	0.113	0.199	0.236	0.245	0.247	0.247	0.247	0.247	0.247
1993	0.041	0.129	0.227	0.269	0.279	0.281	0.282	0.282	0.282	0.282
1994	0.046	0.145	0.255	0.302	0.314	0.317	0.317	0.317	0.317	0.317
1995	0.034	0.108	0.190	0.225	0.234	0.235	0.236	0.236	0.236	0.236
1996	0.052	0.165	0.291	0.344	0.357	0.360	0.361	0.361	0.361	0.361
1997	0.065	0.204	0.361	0.427	0.443	0.447	0.448	0.448	0.448	0.448
1998	0.073	0.229	0.405	0.479	0.498	0.502	0.503	0.503	0.503	0.503
1999	0.087	0.272	0.481	0.570	0.592	0.596	0.597	0.597	0.597	0.597
2000	0.051	0.162	0.285	0.338	0.351	0.354	0.354	0.354	0.354	0.354
2001	0.057	0.179	0.317	0.375	0.389	0.392	0.393	0.393	0.393	0.393

Table 3. Total fishing mortality at age. *(continued)*

	1	2	3	4	5	6	7	8	9	10+
2002	0.049	0.155	0.273	0.323	0.336	0.339	0.339	0.339	0.339	0.339
2003	0.064	0.202	0.357	0.422	0.439	0.442	0.443	0.443	0.443	0.443
2004	0.116	0.365	0.644	0.762	0.792	0.798	0.799	0.800	0.800	0.800
2005	0.113	0.355	0.627	0.742	0.771	0.777	0.778	0.779	0.779	0.779
2006	0.158	0.497	0.877	1.038	1.078	1.087	1.089	1.089	1.089	1.089
2007	0.150	0.472	0.834	0.988	1.026	1.034	1.035	1.036	1.036	1.036
2008	0.157	0.492	0.870	1.029	1.069	1.077	1.079	1.079	1.079	1.080
2009	0.216	0.678	1.197	1.416	1.471	1.483	1.485	1.486	1.486	1.486
2010	0.290	0.911	1.609	1.904	1.977	1.993	1.996	1.997	1.997	1.997
2011	0.235	0.738	1.304	1.543	1.603	1.615	1.618	1.618	1.618	1.618
2012	0.190	0.596	1.053	1.246	1.294	1.304	1.306	1.307	1.307	1.307
2013	0.209	0.655	1.158	1.370	1.423	1.435	1.437	1.437	1.437	1.437
2014	0.158	0.495	0.875	1.036	1.076	1.084	1.086	1.086	1.086	1.086
2015	0.103	0.325	0.574	0.680	0.706	0.712	0.713	0.713	0.713	0.713
2016	0.106	0.334	0.590	0.698	0.725	0.731	0.732	0.732	0.732	0.732
2017	0.109	0.343	0.606	0.717	0.745	0.750	0.752	0.752	0.752	0.752
2018	0.117	0.367	0.647	0.766	0.796	0.802	0.803	0.804	0.804	0.804
2019	0.124	0.390	0.688	0.815	0.846	0.853	0.854	0.855	0.855	0.855
2020	0.174	0.545	0.963	1.140	1.184	1.194	1.195	1.196	1.196	1.196
2021	0.234	0.736	1.299	1.538	1.597	1.610	1.612	1.613	1.613	1.613
2022	0.035	0.109	0.193	0.229	0.238	0.240	0.240	0.240	0.240	0.240