

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
Index 1 fully selected q	0.003	0.000	0.002	0.004
Index 2 fully selected q	0.000	0.000	0.000	0.000
Index 3 fully selected q	0.000	0.000	0.000	0.000
Block 1: Mean Selectivity for age 1	0.110	0.023	0.072	0.164
Block 1: Mean Selectivity for age 2	0.378	0.062	0.266	0.504
Block 1: Mean Selectivity for age 3	0.624	0.071	0.478	0.751
Block 1: Mean Selectivity for age 4	0.703	0.068	0.554	0.818
Block 1: Mean Selectivity for age 5	0.654	0.068	0.512	0.774
Block 1: Mean Selectivity for age 6	1.000	—	—	—
Block 1: Mean Selectivity for age 7	1.000	—	—	—
Block 1: Mean Selectivity for age 8	1.000	—	—	—
Block 1: Mean Selectivity for age 9	1.000	—	—	—
Block 1: Mean Selectivity for age 10+	1.000	0.000	0.000	1.000
Block 2: Selectivity for age 1	1.000	—	—	—
Block 2: Selectivity for age 2	1.000	—	—	—
Block 2: Selectivity for age 3	1.000	—	—	—
Block 2: Selectivity for age 4	1.000	—	—	—
Block 2: Selectivity for age 5	1.000	—	—	—
Block 2: Selectivity for age 6	1.000	—	—	—
Block 2: Selectivity for age 7	1.000	—	—	—
Block 2: Selectivity for age 8	1.000	—	—	—
Block 2: Selectivity for age 9	1.000	—	—	—

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 2: Selectivity for age 10+	1.000	—	—	—
Block 3: Selectivity for age 1	0.000	—	—	—
Block 3: Selectivity for age 2	0.000	—	—	—
Block 3: Selectivity for age 3	1.000	—	—	—
Block 3: Selectivity for age 4	0.470	0.208	0.147	0.820
Block 3: Selectivity for age 5	0.200	0.091	0.075	0.433
Block 3: Selectivity for age 6	0.191	0.068	0.091	0.359
Block 3: Selectivity for age 7	0.000	—	—	—
Block 3: Selectivity for age 8	0.000	—	—	—
Block 3: Selectivity for age 9	0.000	—	—	—
Block 3: Selectivity for age 10+	0.000	—	—	—
Block 4: Selectivity for age 1	0.000	—	—	—
Block 4: Selectivity for age 2	0.000	—	—	—
Block 4: Selectivity for age 3	1.000	—	—	—
Block 4: Selectivity for age 4	0.622	0.163	0.298	0.864
Block 4: Selectivity for age 5	0.397	0.105	0.218	0.608
Block 4: Selectivity for age 6	0.357	0.071	0.233	0.505
Block 4: Selectivity for age 7	0.000	—	—	—
Block 4: Selectivity for age 8	0.000	—	—	—
Block 4: Selectivity for age 9	0.000	—	—	—
Block 4: Selectivity for age 10+	0.000	—	—	—
Block 1: Selectivity RE σ	1.006	0.140	0.766	1.321

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 1: Selectivity RE AR1 ρ (year)	0.311	0.181	-0.070	0.614
Fleet 1 age comp, logistic-normal: σ	23.269	0.816	21.723	24.924
Index 2 age comp, logistic-normal: σ	38.161	5.110	29.352	49.613
Index 3 age comp, logistic-normal: σ	35.776	2.970	30.404	42.099

Table 2. Abundance at age (1000s).

	1	2	3	4	5	6	7	8	9	10+
1968	4145598	1862217	390087	101378	58923	46972	34906	13756	91747	1004
1969	2149438	3283549	1389960	280347	72147	42184	32430	24099	9498	64036
1970	2622060	1725980	2498273	995980	196574	51279	26848	20640	15338	46801
1971	959494	2050964	1238942	1692824	664601	132400	32598	17068	13121	39502
1972	783005	749917	1417952	754821	987600	398324	64530	15888	8319	25648
1973	945693	616941	527708	868916	438390	593291	177082	28688	7063	15100
1974	1404376	672763	353185	268061	428795	220149	269007	80292	13008	10049
1975	1417389	978650	363712	165635	121429	198350	90045	110029	32841	9431
1976	172337	880423	469633	158674	70843	52553	80522	36554	44667	17160
1977	37733	116501	407524	166148	52154	24353	13607	20848	9464	16008
1978	19596	27032	72037	237071	95387	30179	13491	7538	11550	14111
1979	89134	15852	21065	53392	172074	70160	19450	8695	4858	16538
1980	21801	70092	11560	14607	36532	118695	46026	12759	5704	14036
1981	82325	17162	51763	8228	10302	25907	81464	31589	8757	13548
1982	269478	59862	11559	34076	5392	6769	16789	52793	20471	14455
1983	2405472	206861	41645	7622	22183	3538	4244	10526	33099	21897
1984	62073	1878356	150234	29072	5271	15427	2379	2854	7079	36986
1985	154879	50162	1455758	109734	20693	3814	9343	1441	1729	26687
1986	85105	123418	37461	1025474	75896	14475	2464	6036	931	18356
1987	85283	67365	91044	26201	706505	52773	9481	1614	3953	12633
1988	362211	65811	46502	58314	16451	448997	31111	5589	951	9778
1989	530569	285679	47173	30336	36868	10605	250528	17359	3119	5987
1990	107178	423762	211206	31426	19347	24173	5269	124465	8624	4524
1991	202856	81348	269582	115295	16369	10373	10618	2314	54673	5775
1992	199689	154874	53182	155320	63993	9296	5053	5173	1127	29449
1993	45479	159335	113582	34443	95099	40615	3896	2118	2168	12815
1994	117145	36443	118622	75141	21512	61644	15747	1511	821	5809
1995	105223	91996	25433	72302	43563	12869	28364	7246	695	3051
1996	337985	80666	61742	15493	42876	26260	6986	15398	3934	2034
1997	121131	248129	47290	30609	7327	20870	10619	2825	6227	2413
1998	40847	91974	154404	23969	14461	3617	7365	3748	997	3049

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

	1	2	3	4	5	6	7	8	9	10+
1999	142465	30837	56773	78825	11508	7212	1370	2791	1420	1533
2000	1720485	108296	18772	26151	32516	5089	1685	320	652	690
2001	102462	1357728	74508	9906	11819	16278	116	38	7	31
2002	68778	82327	1020810	49984	6264	7767	5612	40	13	13
2003	204445	55316	62057	683509	31351	4101	2017	1458	10	7
2004	534883	150787	35885	37996	413138	19097	2392	1177	850	10
2005	189889	416398	98634	17655	16231	193367	2366	296	146	107
2006	583449	150874	297758	58984	9632	9399	42746	523	66	56
2007	104337	404730	69212	92203	16076	2841	1562	7102	87	20
2008	220805	68597	189133	26773	34067	6106	918	504	2294	35
2009	195796	155253	34603	73216	9594	12799	1676	252	138	639
2010	59792	120047	52005	7335	13632	1934	1543	202	30	94
2011	128148	26238	24465	7499	979	1906	209	166	22	13
2012	120728	89555	10967	4851	1067	172	31	3	3	1
2013	54758	82212	35491	2249	771	199	8	1	0	0
2014	77656	37355	38140	12250	713	258	47	2	0	0
2015	137199	56888	19411	12573	3346	219	25	5	0	0
2016	260988	102248	31056	6632	3463	1058	13	1	0	0
2017	31057	193798	57244	12437	2339	1323	203	3	0	0
2018	112398	23602	115262	23647	4353	910	148	23	0	0
2019	72035	83279	13200	46822	8541	1692	192	31	5	0
2020	87652	53534	47728	5750	18535	3589	447	51	8	1
2021	94579	60021	25992	18288	2067	6927	1052	131	15	3
2022	406202	67776	33471	12247	8239	957	2708	411	51	7

Table 3. Total fishing mortality at age.

	1	2	3	4	5	6	7	8	9	10+
1968	0.033	0.092	0.130	0.140	0.134	0.170	0.170	0.170	0.170	0.170
1969	0.019	0.073	0.133	0.155	0.141	0.252	0.252	0.252	0.252	0.252
1970	0.046	0.132	0.189	0.205	0.195	0.253	0.253	0.253	0.253	0.253

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

	1	2	3	4	5	6	7	8	9	10+
1971	0.046	0.169	0.296	0.339	0.312	0.519	0.519	0.519	0.519	0.519
1972	0.038	0.151	0.290	0.343	0.310	0.611	0.611	0.611	0.611	0.611
1973	0.141	0.358	0.477	0.506	0.489	0.591	0.591	0.591	0.591	0.591
1974	0.161	0.415	0.557	0.592	0.571	0.694	0.694	0.694	0.694	0.694
1975	0.276	0.534	0.630	0.649	0.638	0.702	0.702	0.702	0.702	0.702
1976	0.192	0.570	0.839	0.913	0.868	1.151	1.151	1.151	1.151	1.151
1977	0.134	0.281	0.342	0.355	0.347	0.391	0.391	0.391	0.391	0.391
1978	0.012	0.049	0.100	0.120	0.107	0.239	0.239	0.239	0.239	0.239
1979	0.040	0.116	0.166	0.179	0.171	0.222	0.222	0.222	0.222	0.222
1980	0.039	0.103	0.140	0.149	0.144	0.176	0.176	0.176	0.176	0.176
1981	0.119	0.195	0.218	0.223	0.220	0.234	0.234	0.234	0.234	0.234
1982	0.064	0.163	0.216	0.229	0.222	0.267	0.267	0.267	0.267	0.267
1983	0.047	0.120	0.159	0.169	0.163	0.197	0.197	0.197	0.197	0.197
1984	0.013	0.055	0.114	0.140	0.124	0.301	0.301	0.301	0.301	0.301
1985	0.027	0.092	0.150	0.169	0.157	0.237	0.237	0.237	0.237	0.237
1986	0.034	0.104	0.157	0.173	0.163	0.223	0.223	0.223	0.223	0.223
1987	0.059	0.171	0.246	0.265	0.253	0.328	0.328	0.328	0.328	0.328
1988	0.037	0.133	0.227	0.258	0.239	0.383	0.383	0.383	0.383	0.383
1989	0.025	0.102	0.206	0.250	0.222	0.500	0.500	0.500	0.500	0.500
1990	0.076	0.252	0.405	0.452	0.423	0.623	0.623	0.623	0.623	0.623
1991	0.070	0.225	0.351	0.389	0.366	0.519	0.519	0.519	0.519	0.519
1992	0.026	0.110	0.234	0.291	0.255	0.670	0.670	0.670	0.670	0.670
1993	0.022	0.095	0.213	0.271	0.234	0.747	0.747	0.747	0.747	0.747
1994	0.042	0.160	0.295	0.345	0.314	0.576	0.576	0.576	0.576	0.576
1995	0.066	0.199	0.296	0.323	0.306	0.411	0.411	0.411	0.411	0.411
1996	0.109	0.334	0.502	0.549	0.520	0.705	0.705	0.705	0.705	0.705
1997	0.075	0.274	0.480	0.550	0.506	0.842	0.842	0.842	0.842	0.842
1998	0.081	0.282	0.472	0.534	0.496	0.770	0.770	0.770	0.770	0.770
1999	0.074	0.296	0.575	0.686	0.616	1.254	1.254	1.254	1.254	1.254
2000	0.037	0.174	0.439	0.594	0.492	3.579	3.579	3.579	3.579	3.579
2001	0.019	0.085	0.199	0.258	0.220	0.865	0.865	0.865	0.865	0.865

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

	1	2	3	4	5	6	7	8	9	10+
2002	0.018	0.083	0.201	0.266	0.224	1.148	1.148	1.148	1.148	1.148
2003	0.104	0.233	0.291	0.303	0.296	0.339	0.339	0.339	0.339	0.339
2004	0.050	0.224	0.509	0.651	0.559	1.888	1.888	1.888	1.888	1.888
2005	0.030	0.135	0.314	0.406	0.346	1.309	1.309	1.309	1.309	1.309
2006	0.166	0.579	0.972	1.100	1.021	1.595	1.595	1.595	1.595	1.595
2007	0.219	0.561	0.750	0.796	0.768	0.930	0.930	0.930	0.930	0.930
2008	0.152	0.484	0.749	0.826	0.779	1.093	1.093	1.093	1.093	1.093
2009	0.289	0.894	1.351	1.481	1.402	1.916	1.916	1.916	1.916	1.916
2010	0.624	1.391	1.737	1.814	1.768	2.027	2.027	2.027	2.027	2.027
2011	0.158	0.672	1.418	1.750	1.538	3.920	3.920	3.920	3.920	3.920
2012	0.184	0.726	1.385	1.639	1.479	2.900	2.900	2.900	2.900	2.900
2013	0.182	0.568	0.864	0.948	0.897	1.233	1.233	1.233	1.233	1.233
2014	0.111	0.455	0.910	1.098	0.979	2.145	2.145	2.145	2.145	2.145
2015	0.094	0.405	0.874	1.089	0.951	2.611	2.611	2.611	2.611	2.611
2016	0.098	0.380	0.715	0.842	0.762	1.451	1.451	1.451	1.451	1.451
2017	0.075	0.320	0.684	0.850	0.744	1.990	1.990	1.990	1.990	1.990
2018	0.100	0.381	0.701	0.818	0.745	1.355	1.355	1.355	1.355	1.355
2019	0.097	0.357	0.631	0.727	0.667	1.132	1.132	1.132	1.132	1.132
2020	0.179	0.523	0.759	0.823	0.784	1.027	1.027	1.027	1.027	1.027
2021	0.133	0.384	0.553	0.597	0.570	0.739	0.739	0.739	0.739	0.739
2022	0.022	0.058	0.079	0.084	0.081	0.098	0.098	0.098	0.098	0.098