

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: Selectivity for age 1	0.101	0.015	0.076	0.134
Block 1: Selectivity for age 2	0.323	0.044	0.245	0.414
Block 1: Selectivity for age 3	0.544	0.068	0.410	0.672
Block 1: Selectivity for age 4	0.589	0.074	0.441	0.723
Block 1: Selectivity for age 5	1.000	0.000	0.000	1.000
Block 1: Selectivity for age 6	1.000	—	—	—
Block 1: Selectivity for age 7	1.000	—	—	—
Block 1: Selectivity for age 8	1.000	—	—	—
Block 1: Selectivity for age 9	1.000	—	—	—
Block 1: Selectivity for age 10+	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	0.366	0.161	0.129	0.693
Block 3: Selectivity for age 5	0.175	0.083	0.065	0.395
Block 3: Selectivity for age 6	0.262	0.094	0.120	0.480
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	0.596	0.147	0.308	0.830
Block 4: Selectivity for age 5	0.421	0.104	0.239	0.627
Block 4: Selectivity for age 6	0.474	0.089	0.310	0.643
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	0.000	—	—	—

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

	Estimate	Std. Error	95% CI lower	95% CI upper
Fleet 1 age comp, logistic-normal: σ	31.849	1.082	29.797	34.042
Index 2 age comp, logistic-normal: σ	38.683	5.137	29.819	50.183
Index 3 age comp, logistic-normal: σ	32.806	2.862	27.649	38.924

Table 2. Abundance at age (1000s).

	1	2	3	4	5	6	7	8	9	10+
1968	4850968	1847312	305025	80180	45599	39853	31472	11279	86760	754
1969	2524310	3866450	1388269	216236	56160	28647	25037	19771	7086	54979
1970	2561378	2018421	2935400	1001148	154291	36409	18572	16232	12818	40238
1971	815271	2029707	1488979	2017040	677923	91528	21598	11017	9629	31473
1972	653785	637502	1435031	952624	1264119	352662	47614	11236	5731	21382
1973	678451	513184	456250	937113	610431	682856	190502	25720	6069	14646
1974	1018846	523456	347642	271656	543297	278235	311246	86831	11723	9442
1975	1107535	779544	345265	197911	150023	228031	116780	130635	36445	8883
1976	135065	826929	475567	172385	94809	49467	75188	38506	43074	14946
1977	35200	96198	433951	184339	62769	19626	10240	15564	7971	12011
1978	16348	27295	66218	265425	110034	30061	9399	4904	7454	9569
1979	69025	13138	21061	49072	195067	75003	20491	6407	3343	11604
1980	20470	55371	10078	15454	35679	130563	50202	13715	4288	10004
1981	93219	16458	42783	7486	11386	24424	89376	34365	9388	9784
1982	273547	74333	12386	30402	5257	7184	15411	56397	21684	12098
1983	2303522	217116	55118	8585	20781	3169	4330	9289	33992	20361
1984	57976	1828566	161061	38230	5873	12542	1912	2613	5606	32804
1985	130761	46486	1400605	117893	27723	3913	8357	1274	1741	25593
1986	76698	104055	34756	984360	81805	17142	2420	5167	788	16902
1987	71971	61001	77665	24357	680924	50316	10543	1488	3178	10881
1988	334242	57209	45449	54265	16794	416522	30779	6449	910	8600
1989	603013	262576	41051	29810	34938	9145	226824	16761	3512	5179
1990	117761	470705	184615	26019	18494	17865	4676	115984	8571	4444
1991	272799	89489	303788	101325	13811	7257	7011	1835	45514	5107
1992	154509	209567	59789	176722	57282	6031	3169	3062	801	22107
1993	43472	120946	148669	38471	111441	30113	3171	1666	1609	12043
1994	88763	34241	87514	98892	25149	62275	16827	1772	931	7629
1995	75209	68953	23706	54049	59652	12261	30361	8204	864	4173
1996	284856	58939	49092	15346	34307	31708	6517	16138	4361	2677
1997	96053	214421	36901	25604	7707	12256	11328	2328	5766	2514
1998	39187	70998	126672	17455	11568	2301	3659	3382	695	2472

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

	1	2	3	4	5	6	7	8	9	10+
1999	86106	28368	39245	53581	6987	2812	559	889	822	770
2000	1692190	52868	9269	6860	8231	334	135	27	43	76
2001	131322	1282860	33860	5022	3591	3154	128	52	10	46
2002	103243	102941	914164	21952	3193	1914	1681	68	27	30
2003	312516	80573	72326	578739	13601	1629	977	858	35	29
2004	599962	240728	54298	42688	332362	6101	731	438	385	29
2005	214562	455604	155013	29689	22566	129516	2377	285	171	161
2006	583335	158760	270046	73733	13495	6806	39063	717	86	100
2007	84972	409160	79342	96423	24562	2402	1211	6953	128	33
2008	207044	61674	228065	34036	39187	6127	599	302	1734	40
2009	89366	153073	36461	108008	15397	11724	1833	179	90	531
2010	48935	60546	68484	10808	29409	1947	1482	232	23	79
2011	139220	29674	19012	11196	1544	1245	82	63	10	4
2012	91045	88012	10643	3887	2038	99	79	5	4	1
2013	68571	59517	35129	2604	860	181	9	7	0	0
2014	75423	45994	25790	9869	669	98	21	1	1	0
2015	147312	51863	21574	8278	2929	98	14	3	0	0
2016	274983	103027	25680	7584	2711	507	17	2	1	0
2017	29080	198752	56663	10771	3008	649	121	4	1	0
2018	124484	20974	108582	23501	4220	705	152	28	1	0
2019	74100	89552	11364	44407	9069	964	161	35	6	0
2020	87128	54551	52225	5260	19597	2602	277	46	10	2
2021	94573	62950	29965	21860	2081	4672	620	66	11	3
2022	438702	70165	37632	14460	10092	645	1447	192	20	4

Table 3. Total fishing mortality at age.

	1	2	3	4	5	6	7	8	9	10+
1968	0.027	0.086	0.144	0.156	0.265	0.265	0.265	0.265	0.265	0.265
1969	0.024	0.075	0.127	0.138	0.233	0.233	0.233	0.233	0.233	0.233
1970	0.033	0.104	0.175	0.190	0.322	0.322	0.322	0.322	0.322	0.322

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

	1	2	3	4	5	6	7	8	9	10+
1971	0.046	0.147	0.247	0.267	0.454	0.454	0.454	0.454	0.454	0.454
1972	0.042	0.135	0.226	0.245	0.416	0.416	0.416	0.416	0.416	0.416
1973	0.059	0.189	0.319	0.345	0.586	0.586	0.586	0.586	0.586	0.586
1974	0.068	0.216	0.363	0.394	0.668	0.668	0.668	0.668	0.668	0.668
1975	0.092	0.294	0.495	0.536	0.909	0.909	0.909	0.909	0.909	0.909
1976	0.139	0.445	0.748	0.810	1.375	1.375	1.375	1.375	1.375	1.375
1977	0.054	0.173	0.292	0.316	0.536	0.536	0.536	0.536	0.536	0.536
1978	0.019	0.059	0.100	0.108	0.183	0.183	0.183	0.183	0.183	0.183
1979	0.020	0.065	0.110	0.119	0.201	0.201	0.201	0.201	0.201	0.201
1980	0.018	0.058	0.097	0.105	0.179	0.179	0.179	0.179	0.179	0.179
1981	0.026	0.084	0.142	0.153	0.260	0.260	0.260	0.260	0.260	0.260
1982	0.031	0.099	0.167	0.180	0.306	0.306	0.306	0.306	0.306	0.306
1983	0.031	0.099	0.166	0.180	0.305	0.305	0.305	0.305	0.305	0.305
1984	0.021	0.067	0.112	0.121	0.206	0.206	0.206	0.206	0.206	0.206
1985	0.028	0.091	0.153	0.165	0.281	0.281	0.281	0.281	0.281	0.281
1986	0.029	0.093	0.156	0.169	0.286	0.286	0.286	0.286	0.286	0.286
1987	0.030	0.094	0.159	0.172	0.292	0.292	0.292	0.292	0.292	0.292
1988	0.041	0.132	0.222	0.240	0.408	0.408	0.408	0.408	0.408	0.408
1989	0.048	0.152	0.256	0.277	0.471	0.471	0.471	0.471	0.471	0.471
1990	0.075	0.238	0.400	0.433	0.735	0.735	0.735	0.735	0.735	0.735
1991	0.064	0.203	0.342	0.370	0.628	0.628	0.628	0.628	0.628	0.628
1992	0.045	0.143	0.241	0.261	0.443	0.443	0.443	0.443	0.443	0.443
1993	0.039	0.124	0.208	0.225	0.382	0.382	0.382	0.382	0.382	0.382
1994	0.053	0.168	0.282	0.305	0.518	0.518	0.518	0.518	0.518	0.518
1995	0.044	0.140	0.235	0.255	0.432	0.432	0.432	0.432	0.432	0.432
1996	0.084	0.268	0.451	0.489	0.829	0.829	0.829	0.829	0.829	0.829
1997	0.102	0.326	0.549	0.595	1.009	1.009	1.009	1.009	1.009	1.009
1998	0.123	0.393	0.660	0.716	1.214	1.214	1.214	1.214	1.214	1.214
1999	0.288	0.919	1.544	1.673	2.840	2.840	2.840	2.840	2.840	2.840
2000	0.077	0.246	0.413	0.447	0.759	0.759	0.759	0.759	0.759	0.759
2001	0.043	0.139	0.233	0.253	0.429	0.429	0.429	0.429	0.429	0.429

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

	1	2	3	4	5	6	7	8	9	10+
2002	0.048	0.153	0.257	0.279	0.473	0.473	0.473	0.473	0.473	0.473
2003	0.061	0.195	0.327	0.355	0.602	0.602	0.602	0.602	0.602	0.602
2004	0.075	0.240	0.404	0.438	0.742	0.742	0.742	0.742	0.742	0.742
2005	0.101	0.323	0.543	0.588	0.999	0.999	0.999	0.999	0.999	0.999
2006	0.155	0.494	0.830	0.899	1.526	1.526	1.526	1.526	1.526	1.526
2007	0.120	0.384	0.646	0.700	1.189	1.189	1.189	1.189	1.189	1.189
2008	0.102	0.326	0.547	0.593	1.007	1.007	1.007	1.007	1.007	1.007
2009	0.189	0.604	1.016	1.101	1.868	1.868	1.868	1.868	1.868	1.868
2010	0.300	0.958	1.611	1.746	2.963	2.963	2.963	2.963	2.963	2.963
2011	0.259	0.825	1.388	1.504	2.551	2.551	2.551	2.551	2.551	2.551
2012	0.225	0.718	1.208	1.309	2.221	2.221	2.221	2.221	2.221	2.221
2013	0.199	0.636	1.070	1.159	1.967	1.967	1.967	1.967	1.967	1.967
2014	0.175	0.557	0.936	1.015	1.722	1.722	1.722	1.722	1.722	1.722
2015	0.158	0.503	0.845	0.916	1.555	1.555	1.555	1.555	1.555	1.555
2016	0.125	0.398	0.669	0.725	1.230	1.230	1.230	1.230	1.230	1.230
2017	0.127	0.405	0.680	0.737	1.251	1.251	1.251	1.251	1.251	1.251
2018	0.129	0.413	0.694	0.752	1.276	1.276	1.276	1.276	1.276	1.276
2019	0.106	0.339	0.570	0.618	1.049	1.049	1.049	1.049	1.049	1.049
2020	0.125	0.399	0.671	0.727	1.234	1.234	1.234	1.234	1.234	1.234
2021	0.099	0.314	0.529	0.573	0.972	0.972	0.972	0.972	0.972	0.972
2022	0.016	0.050	0.084	0.090	0.154	0.154	0.154	0.154	0.154	0.154