

Table A1. Nominal landings of silver hake by stock from 1955-2009.

Year	Northern Stock			Southern Stock			Combined Stock		
	US	DWF	Total	US	DWF	Total	US	DWF	Total
1955	53,361		53,361	13,842		13,842	67,203		67,203
1956	42,150		42,150	14,871		14,871	57,021		57,021
1957	62,750		62,750	17,153		17,153	79,903		79,903
1958	49,903		49,903	13,473		13,473	63,376		63,376
1959	50,608		50,608	17,112		17,112	67,720		67,720
1960	45,543		45,543	9,206		9,206	54,749		54,749
1961	39,688		39,688	13,209		13,209	52,897		52,897
1962	42,427	36,575	79,002	13,408	5,325	18,733	55,835	41,900	97,735
1963	36,399	37,525	73,924	19,359	74,023	93,382	55,758	111,548	167,306
1964	37,222	57,240	94,462	26,518	127,036	153,554	63,740	184,276	248,016
1965	29,512	15,793	45,305	23,765	283,366	307,131	53,278	299,159	352,437
1966	33,569	14,239	47,808	11,212	200,058	211,270	44,781	214,297	259,078
1967	26,489	6,882	33,371	9,500	81,749	91,249	35,989	88,631	124,620
1968	30,873	10,506	41,379	9,074	49,422	58,496	39,947	59,928	99,875
1969	16,008	8,047	24,055	8,165	67,396	75,561	24,173	75,443	99,616
1970	15,223	12,305	27,528	6,879	20,633	27,512	22,102	32,938	55,040
1971	11,158	25,243	36,401	5,546	66,344	71,890	16,704	91,587	108,291
1972	6,440	18,784	25,224	5,973	88,381	94,354	12,413	107,165	119,578
1973	14,005	18,086	32,091	6,604	97,989	104,593	20,609	116,075	136,684
1974	6,907	13,775	20,682	7,751	102,112	109,863	14,658	115,887	130,545
1975	12,566	27,308	39,874	8,441	65,812	74,253	21,007	93,120	114,127
1976	13,483	151	13,634	10,434	58,307	68,741	23,917	58,458	82,375
1977	12,455	2	12,457	11,458	47,850	59,308	23,913	47,852	71,765
1978	12,609		12,609	12,779	14,353	27,132	25,388	14,353	39,741
1979	3,415		3,415	13,498	4,877	18,375	16,913	4,877	21,790
1980	4,730		4,730	11,848	1,698	13,546	16,578	1,698	18,276
1981	4,416		4,416	11,783	3,043	14,826	16,199	3,043	19,242
1982	4,664		4,664	12,164	2,397	14,561	16,828	2,397	19,225
1983	5,312		5,312	11,520	620	12,140	16,832	620	17,452
1984	8,289		8,289	12,731	412	13,143	21,020	412	21,432
1985	8,297		8,297	11,843	1,321	13,164	20,140	1,321	21,461
1986	8,502		8,502	9,573	550	10,123	18,075	550	18,625
1987	5,658		5,658	10,121	2	10,123	15,779	2	15,781
1988	6,789		6,789	9,195		9,195	15,984		15,984
1989	4,648		4,648	13,428		13,428	18,076		18,076
1990	6,377		6,377	13,610		13,610	19,987		19,987
1991	6,055		6,055	10,492		10,492	16,547		16,547
1992	5,306		5,306	10,873		10,873	16,179		16,179
1993	4,364		4,364	12,942		12,942	17,306		17,306
1994	3,899		3,899	12,159		12,159	16,058		16,058
1995	2,594		2,594	12,102		12,102	14,696		14,696
1996	3,619		3,619	12,561		12,561	16,180		16,180
1997	2,802		2,802	12,763		12,763	15,565		15,565
1998	2,045		2,045	12,828		12,828	14,873		14,873
1999	3,444		3,444	10,577		10,577	14,021		14,021
2000	2,592		2,592	9,769		9,769	12,361		12,361
2001	3,391		3,391	9,517		9,517	12,908		12,908
2002	2,593		2,593	5,344		5,344	7,937		7,937
2003	1,808		1,808	6,835		6,835	8,643		8,643
2004	1,049		1,049	7,436		7,436	8,485		8,485
2005	827		827	6,670		6,670	7,497		7,497
2006	903		903	4,629		4,629	5,532		5,532
2007	1,014		1,014	5,345		5,345	6,359		6,359
2008	620		620	5,638		5,638	6,258		6,258
2009	1,038		1,038	6,720		6,720	7,755		7,758

Table A2. Landings of silver hake in metric tons from the northern region by state.

Year	CT	ME	MD	MA	NH	NJ	NY	RI	VA	Unknown	Total
1964		11499		24722				<1		1000	37,222
1965		12625		16887							29,512
1966		13357		20212							33,569
1967		9368		16855				1		265	26,489
1968		13068		17789				<1		16	30,873
1969		8115		7893							16,008
1970		6730		8489				<1		4	15,223
1971		4491		6659				1		7	11,158
1972		1857		4568				1		14	6,440
1973		2503		11502				<1			14,005
1974		1301		5604				1			6,907
1975		544		12022				<1			12,566
1976		185		13284				1		14	13,483
1977		116		12324				<1		15	12,455
1978		527		12054				<1		28	12,609
1979		65		3334				4		12	3,415
1980		245		4448				3		34	4,730
1981		1280		2994	7	2		80		53	4,416
1982		871		3747	16	17		13			4,664
1983		1051		4209	48			4			5,312
1984		1644		6388	64			193			8,289
1985		1131		6691	99			371		5	8,297
1986		876		7496	85			45			8,502
1987		580		4885	72			119		2	5,658
1988		972		4075	69	<1		1673			6,789
1989		342		2794	57			1455			4,648
1990		120		3747	103	<1		2408			6,377
1991		57		3561	78			2359			6,055
1992		46		3165	84			2010			5,306
1993		28		2247	64			2025			4,364
1994		875		2045	92			887			3,899
1995	243	896	<1	1211	80	10	19	135	<1		2,594
1996	318	1452		1144	110		137	459			3,619
1997	131	558		1258	148	5	116	585			2,802
1998	118	76		1153	49	<1	332	317			2,045
1999	540	64		1804	111		380	546			3,444
2000	240	9		1953	163		1	227			2,592
2001	438	14		2199	136		105	499			3,391
2002	251	6		1701	79		106	450			2,593
2003	67	1		1205	83		141	311			1,808
2004	173	1		753	71		31	20			1,049
2005	54	1		644	39		17	71			827
2006	148	<1		538	44		34	140			903
2007	1	<1	3	665	93		24	228			1,014
2008	<1	<1		444	83		<1	21	72		620
2009	10	<1		882	144	<1		1			1,038

Table A3 Landings of silver hake in metric tons from the southern region by state.

	CT	ME	MD	MA	NH	NJ	NY	NC	PA	RI	VA	Unknown	Total
1964				709						1677		24132	26,518
1965				3481						1077		19207	23,765
1966		23		3139						1080		6970	11,212
1967		12		296						552		8640	9,500
1968				579						976		7519	9,074
1969				435						1274		6456	8,165
1970				1304						1629		3946	6,879
1971				179						1318		4049	5,546
1972				525						1219		4229	5,973
1973				53						1397		5154	6,604
1974				6						2337		5408	7,751
1975				52						2400		5989	8,441
1976				70						3249		7115	10,434
1977				4						2469		8985	11,458
1978				298		5021				2981		4479	12,779
1979				62		5356				3776		4304	13,498
1980		2		12		5362				3132		3340	11,848
1981		<1		11		4113				4520		3138	11,783
1982		<1	5	92		3204				6811	80	1971	12,164
1983			15	157		3000				6101	36	2211	11,520
1984			12	2		3720				6620	76	2300	12,731
1985			4	8		4087				5653	25	2066	11,843
1986			1	13		2676	1072			5633	12	165	9,573
1987		1	<1	1		1897	2052			5926	30	214	10,121
1988		<1	3	<1		2765	1900			4483	9	35	9,195
1989	351	1	6	2		3719	4109			5220	20		13,428
1990	238		10	236		3913	3354			5833	26		13,610
1991	385	<1	7	397		1976	2769			4945	14		10,492
1992	572	<1	1	436		943	2693			6226	3		10,873
1993	1088	<1	6	228		1098	5534			4982	5		12,942
1994	857	3	1	86		1214	5055			4918	5	20	12,159
1995	1352	2	2	70	<1	1229	5118			4325	4		12,102
1996	2242	2	1	89	<1	816	5633			3773	5		12,561
1997	1757	7	1	35	<1	981	5319			4661	2		12,763
1998	1643	4	<1	39		701	6081	<1		4353	6		12,828
1999	2404	<1	1	120	<1	336	3879			3836	1		10,577
2000	2573	1	1	307		299	2048	2		4540	<1		9,770
2001	1926	1	1	290	1	361	3248	1		3686	3		9,517
2002	898	14	<1	458	<1	425	1693	2		1855	<1		5,345
2003	1046	<1	<1	1518		68	1891	1		2310	<1		6,835
2004	1207	<1	<1	1917	<1	116	2098	<1	<1	2097	1		7,436
2005	1493	1	<1	1865		140	1100			2073			6,671
2006	1049	1		1132		90	761			1596			4,629
2007	824		<1	796		491	1119			2114			5,345
2008	607	<1	<1	1104		432	1188			2265	42		5,638
2009	302			1579		1070	1233			2535	1		6,720

Table A4. Landings of silver hake in metric tons from the northern region by gear.

Year	LL	OTF	OTS	SGN	OTH	Total
1964	<1	37215		<1	7	37,222
1965		29512		<1	<1	29,512
1966	<1	33551		<1	18	33,569
1967		26488			1	26,489
1968		30871			2	30,873
1969	<1	16008				16,008
1970		15223		<1	<1	15,223
1971	1	11157		<1	<1	11,158
1972	<1	6439		1	<1	6,440
1973	<1	13976		1	28	14,005
1974	<1	6890		11	5	6,907
1975	1	12270	282	13		12,566
1976	3	13405	24	48	3	13,483
1977	3	12368	26	54	4	12,455
1978	1	12471		64	73	12,609
1979	1	3386	1	19	8	3,415
1980	1	4666	5	50	8	4,730
1981	1	4187	175	50	3	4,416
1982	<1	4503	124	27	8	4,664
1983	1	5000	254	29	28	5,312
1984	<1	8035	133	39	81	8,289
1985	<1	7697	464	30	106	8,297
1986	<1	7585	736	49	133	8,502
1987	<1	5008	423	60	167	5,658
1988	<1	6211	395	24	158	6,789
1989	<1	4322	240	38	48	4,648
1990	1	6041	258	73	3	6,377
1991	<1	5756	170	55	73	6,055
1992	1	5078	100	44	82	5,306
1993	2	4195	4	42	121	4,364
1994	<1	3723	21	72	82	3,899
1995	<1	2257	20	56	260	2,594
1996	<1	3516	45	56	2	3,619
1997	<1	2599	131	45	26	2,802
1998	5	1998	9	30	3	2,045
1999	1	3389	16	22	16	3,444
2000	<1	2457	22	41	72	2,592
2001	<1	3293	1	24	73	3,391
2002	<1	2565	<1	20	7	2,593
2003	<1	1753		15	40	1,808
2004	<1	969	<1	26	54	1,049
2005	<1	733	<1	37	57	827
2006		883	1	17	2	903
2007	<1	1005	1	8		1,014
2008	<1	575	3	41	1	620
2009	<1	820	8	200	10	1,038

Table A5. Landings of silver hake in metric tons from the southern region by gear.

Year	LL	OTF	SGN	OTH	Total
1964		26518		<1	26,518
1965		23765		<1	23,765
1966		11212			11,212
1967		9499		01	9,500
1968		9073		1	9,074
1969		8165		<1	8,165
1970		6879			6,879
1971		5546		<1	5,546
1972		5862	1	109	5,973
1973		6593		11	6,604
1974		7747		4	7,751
1975		8440	<1	1	8,441
1976		10430	<1	4	10,434
1977		11457		1	11,458
1978	<1	12746	4	29	12,779
1979		13459	6	33	13,498
1980	<1	11828	6	14	11,848
1981	<1	11772	6	5	11,783
1982		12147	3	14	12,164
1983		11500	14	6	11,520
1984		12689	18	24	12,731
1985		11828	8	6	11,843
1986		9564	3	6	9,573
1987	1	10113	2	5	10,121
1988	<1	9191	1	3	9,195
1989		13422	1	5	13,428
1990		13605	1	4	13,610
1991	<1	10484	2	6	10,492
1992	<1	10872	1	<1	10,873
1993	<1	12927	1	14	12,942
1994	3	11288	1	867	12,159
1995	<1	10731	1	1371	12,102
1996	<1	12543	1	12.81	12,561
1997		12741	1	21	12,763
1998		12786	10	32	12,828
1999	3	10557	2	15	10,577
2000	<1	9755	8	6	9,769
2001	<1	9509	2	6	9,517
2002		5330	3	12	5,345
2003		6818	13	4	6,835
2004	<1	7146	49	241	7,436
2005	60	6211	30	370	6,671
2006	30	4273	68	258	4,629
2007		5053	78	214	5,345
2008	17	4998	143	480	5,638
2009	<1	4735	168	1817	6,720

Table A6. Landings of silver hake in metric tons from the northern region by month.

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	Total
1964	1000	4	<1		<1	360	5168	15031	7953	3999	2405	1202	99	37,222
1965		1	1		12	7	2614	12088	7411	5084	1603	649	41	29,512
1966				<1	<1	60	3868	9305	13307	4237	2185	577	30	33,569
1967	265	<1	1			<1	1179	11176	8279	2813	2183	582	12	26,489
1968	15			<1	1	279	3076	11202	9609	4498	2047	140	6	30,873
1969		<1				24	2308	6563	3701	1677	1278	367	91	16,008
1970	3	5	4	21	21	287	1737	4657	5050	1898	901	554	85	15,223
1971	8	2	1	11	7	7	596	4759	2541	607	1016	1447	156	11,158
1972	14	10	1	1	3	225	240	1332	1231	670	1231	1018	464	6,440
1973		9	9	17	54	138	1078	3478	3326	2356	2188	823	529	14,005
1974		18	2	3	8	140	481	1128	1949	1029	711	1139	299	6,907
1975		43	42	24	37	1487	1092	3521	1875	1137	1921	1117	274	12,566
1976	15	99	693	1091	314	302	520	2517	2832	2820	1303	757	220	13,483
1977	15	46	16	87	1404	544	434	1299	3707	2096	1809	601	397	12,455
1978	27	46	356	53	343	625	358	2630	4846	1364	1066	754	141	12,609
1979	12	21	3	21	81	32	87	679	520	510	539	807	103	3,415
1980	34	29	14	16	17	30	229	519	561	1085	1691	392	113	4,730
1981	53	40	46	73	200	108	221	463	803	693	1037	525	154	4,416
1982		57	24	78	42	81	94	318	1251	984	805	598	332	4,664
1983		98	18	62	199	54	288	709	1205	669	652	729	629	5,312
1984	1	72	22	78	74	40	116	582	1869	1431	1580	1549	875	8,289
1985	5	165	96	290	74	161	347	800	1471	1476	1221	1293	898	8,297
1986	2	324	383	223	124	172	317	1274	1278	1054	1414	1261	676	8,502
1987	1	148	75	103	94	180	235	535	457	1062	948	1289	531	5,658
1988		272	148	158	67	182	388	963	1436	1131	957	751	336	6,789
1989		169	31	29	61	94	210	552	1755	611	651	359	127	4,648
1990		90	46	37	47	46	51	1113	1839	853	921	922	413	6,377
1991		110	52	17	16	22	191	2271	1109	694	802	567	204	6,055
1992	2	123	32	11	1	8	71	1227	1301	856	860	688	126	5,306
1993	3	55	7	19	<1	43	127	1476	1086	495	475	443	135	4,364
1994		52	8	20	30	26	199	758	778	884	614	416	114	3,899
1995	2	9	1	1	1	24	49	387	859	595	441	202	23	2,594
1996		4	1	4	2	48	55	415	1071	965	807	214	33	3,619
1997	1	16	14	31	52	94	73	442	683	686	485	208	16	2,802
1998		4	1	2	26	1	29	371	601	413	232	333	33	2,045
1999		8	1	24	6	1	74	659	926	634	520	507	85	3,444
2000		51	57	117	5	4	85	430	451	372	608	368	43	2,592
2001		70	67	65	3	9	37	450	842	804	461	428	156	3,391
2002		32	21	2	2	1	59	472	630	663	472	197	42	2,593
2003		11	1	<1	<1	9	35	410	668	331	178	153	12	1,808
2004		3	<1	<1	2	16	22	70	263	491	120	43	20	1,049
2005		<1	1	<1	<1	44	38	139	396	151	44	9	4	827
2006		2	12	1	<1	<1	<1	42	456	368	7	11	4	903
2007		<1	<1	8	<1	<1	1	94	310	318	247	22	12	1,014
2008		<1	2	1	7	13	7	108	115	81	107	157	22	620
2009		22	<1	2	2	11	8	251	165	167	50	298	63	1,038

Table A7. Landings of silver hake in metric tons from the southern region by month.

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	Total
1964	24,133	15	10	4	105	308	876	183	177	118	266	183	140	26,518
1965	19,208	22	4	15	481	1670	1768	196	111	38	90	86	76	23,765
1966	6,961	24	40	22	484	1329	782	394	741	78	201	94	62	11,212
1967	8,637	15	6	15	69	77	393	48	47	32	47	64	50	9,500
1968	7,519	22	27	53	36	170	650	136	118	85	120	75	63	9,074
1969	6,455	21	13	20	103	413	434	160	124	187	90	88	57	8,165
1970	3,947	13	23	25	29	1055	750	285	365	201	78	60	48	6,879
1971	4,050	9	11	50	35	101	358	364	245	109	46	36	132	5,546
1972	4,230	78	9	15	20	412	562	145	275	81	6	69	71	5,973
1973	5,154	59	14	18	23	261	322	156	120	75	84	138	180	6,604
1974	5,406	172	186	160	205	366	363	273	42	46	51	77	404	7,751
1975	5,988	313	89	119	169	324	280	158	161	96	132	131	481	8,441
1976	7,117	298	185	129	362	338	399	298	221	329	103	358	297	10,434
1977	8,986	56	36	49	36	270	465	270	297	231	103	170	489	11,458
1978	4,478	871	1018	1124	848	1153	786	134	111	164	264	642	1186	12,779
1979	4,303	1492	779	991	741	798	496	438	357	383	508	839	1373	13,498
1980	3,340	1131	896	737	1095	968	456	300	285	373	443	608	1216	11,848
1981	3,138	1193	382	673	842	1071	1118	533	429	330	340	854	880	11,783
1982	1,972	953	729	1074	590	1359	1642	715	613	505	546	577	889	12,164
1983	2,212	1145	753	599	721	856	979	871	734	743	493	564	850	11,520
1984	2,301	1214	780	1388	976	1153	1258	1300	356	298	493	381	833	12,731
1985	2,067	1318	1079	840	1209	1391	1077	959	465	214	451	269	504	11,843
1986	165	895	429	828	1567	1351	1133	484	452	603	383	350	933	9,573
1987	213	919	815	1219	1199	1359	938	704	877	505	307	246	820	10,121
1988	35	920	1292	1449	1229	1197	1165	395	70	69	242	432	700	9,195
1989	11	1315	1160	1180	1430	1651	1355	1322	390	564	826	998	1226	13,428
1990		1807	1035	1293	1350	1828	1486	881	591	827	584	743	1185	13,610
1991	11	953	1190	974	1498	1675	1240	172	539	591	355	562	732	10,492
1992	104	953	761	1037	1474	1089	1942	780	350	595	660	491	637	10,873
1993	3	598	986	1397	1380	1510	1194	372	604	1181	1437	1356	924	12,942
1994		1154	1041	1237	1156	1170	1294	913	611	1002	1090	720	771	12,159
1995	4	940	1065	1350	1178	1316	1139	1078	780	884	739	816	813	12,102
1996	2	1194	1340	1250	1320	1433	1278	935	402	637	605	1072	1093	12,561
1997	10	1228	1025	1196	1558	1527	1385	899	526	808	772	827	1002	12,763
1998	1	1058	1145	1393	1243	1255	1487	1036	583	1094	858	835	840	12,828
1999		1071	1034	1365	1469	1474	1149	519	467	406	561	452	610	10,577
2000		1032	992	991	910	923	893	749	878	879	486	386	651	9,769
2001	27	1203	955	1088	911	1208	1209	831	632	280	410	362	401	9,517
2002	22	489	845	683	496	823	556	281	135	144	172	323	376	5,345
2003		524	478	560	361	543	766	668	384	901	601	437	613	6,835
2004		528	780	960	681	684	758	753	665	449	397	491	290	7,436
2005		444	409	822	604	635	850	787	512	657	340	282	328	6,671
2006		318	403	595	393	550	559	530	215	192	313	249	313	4,629
2007		339	342	454	373	556	654	469	615	521	330	316	374	5,338
2008		526	389	626	455	530	401	364	516	585	379	493	373	5,638
2009		420	517	619	488	868	677	613	547	627	604	379	362	6,720

Table A8. Nominal landings of silver hake by region and half year.

Year	North				South			
	1	2	Unknown	Total	1	2	Unknown	Total
1964	5532	30689	1000	37,222	1318	1067	24,133	26,518
1965	2635	26876		29,512	3960	597	19,208	23,765
1966	3928	29641		33,569	2681	1570	6,961	11,212
1967	1180	25045	265	26,489	575	288	8,637	9,500
1968	3356	27502	15	30,873	958	597	7,519	9,074
1969	2332	13677		16,008	1004	706	6,455	8,165
1970	2075	13145	3	15,223	1895	1037	3,947	6,879
1971	624	10526	8	11,158	564	932	4,050	5,546
1972	480	5946	14	6,440	1096	647	4,230	5,973
1973	1305	12700		14,005	697	753	5,154	6,604
1974	652	6255		6,907	1452	893	5,406	7,751
1975	2724	9843		12,566	1294	1159	5,988	8,441
1976	3019	10449	15	13,483	1711	1606	7,117	10,434
1977	2531	9909	15	12,455	912	1560	8,986	11,458
1978	1781	10801	27	12,609	5800	2501	4,478	12,779
1979	245	3158	12	3,415	5297	3898	4,303	13,498
1980	335	4361	34	4,730	5283	3225	3,340	11,848
1981	688	3675	53	4,416	5279	3366	3,138	11,783
1982	376	4288		4,664	6347	3845	1,972	12,164
1983	719	4593		5,312	5053	4255	2,212	11,520
1984	402	7886	1	8,289	6769	3661	2,301	12,731
1985	1133	7159	5	8,297	6914	2862	2,067	11,843
1986	1543	6957	2	8,502	6203	3205	165	9,573
1987	835	4822	1	5,658	6449	3459	213	10,121
1988	1215	5574		6,789	7252	1908	35	9,195
1989	594	4055		4,648	8091	5326	11	13,428
1990	317	6061		6,377	8799	4811		13,610
1991	408	5647		6,055	7530	2951	11	10,492
1992	246	5058	2	5,306	7256	3513	104	10,873
1993	251	4110	3	4,364	7065	5874	3	12,942
1994	335	3564		3,899	7052	5107		12,159
1995	85	2507	2	2,594	6988	5110	4	12,102
1996	114	3505		3,619	7815	4744	2	12,561
1997	280	2520	1	2,802	7919	4834	10	12,763
1998	63	1983		2,045	7581	5246	1	12,828
1999	114	3331		3,444	7562	3015		10,577
2000	319	2272		2,592	5741	4029		9,769
2001	251	3141		3,391	6574	2916	27	9,517
2002	117	2476		2,593	3892	1431	22	5,345
2003	56	1752		1,808	3232	3604		6,835
2004	43	1007		1,049	4391	3045		7,436
2005	83	743		827	3764	2906		6,671
2006	15	888		903	2818	1812		4,629
2007	9	1003		1,014	2718	2625		5,338
2008	30	590		620	2927	2710		5,638
2009	45	994		1,038	3589	3132		6,720

Table A9. Landings of silver hake by market category from the northern region.

Year	Half 1							Half 2						
	Round	Med	Small	Dressed	Juv	King	Large	Round	Med	Small	Dressed	Juv	King	Large
1964	5350			183				30023			666			
1965	2633			2				26626			225			
1966	3916			11				29510			131			
1967	1179			1				24410			634			
1968	3300			55				26867			634			
1969	2331			<1				13314			362			
1970	2052			23				13095			50			
1971	581			43				10415			113			
1972	471			8				5917			29			
1973	1292			13				12600			99			
1974	648			4				6222			33			
1975	2691			28				9678			168			
1976	3010			8				10447			3			
1977	2530			<1				9847			49			
1978	1779			1				10739			62			
1979	241			4				3125			33			
1980	333			4				4341			19			
1981	667			20		1		3591			28		53	
1982	366			6		3		3986		163	63		74	
1983	414		241	18		46		4047		348	16		183	
1984	199		121	2		81		6436		1234	10		206	
1985	788		232	<1		113		5995		606	61		496	
1986	1147		280	2		114		5826		360	355		418	
1987	680		118	1		35		4234		323	6		260	
1988	1027		167	1		19		5030		344	<1		201	
1989	520		51	<1		22		3818		51	16		166	
1990	258		53	<1		6		5776		17	1		263	
1991	394		5	<1		7		5373		9	<1		263	
1992	236		8			3		4692		40			323	
1993	250		1			1		3913		47			148	
1994	275		49		6	4		2774		521		143	113	
1995	73		5	<1		1		1954		162			36	
1996	84		27			1		2755		442			87	
1997	191		87			2		1825		548			148	
1998	54		3			6		1489		188	16	73	212	
1999	79		35			5		2545		289		236	255	
2000	279		8	<1		31		1890		189			193	
2001	206		5			39		2405		416			302	
2002	94		15			5		1801		501			146	
2003	20		34			2		1177		481			93	
2004	13		8	21		1	<1	359		76	362	24	20	100
2005	71		<1	1		<1	1	363		20	303	<1	4	17
2006	10		1	<1	3	<1	<1	291		110	329	41	12	67
2007	9		<1	1		<1	<1	525	72	169	57	50	20	67
2008	17	<1	2	3	<1	1	3	337	48	18	93	3	13	27
2009	1	<1	<1	4		<1	<1	436	43	3	6		9	35

Table A10. Landings of silver hake by market category from the southern region.

Year	Half 1							Half 2						
	Round	Med	Small	Dressed	Juv	King	Large	Round	Med	Small	Dressed	Juv	King	Large
1964	1243			76				548			519			
1965	3934			26				540			59			
1966	2449			223				1374			196			
1967	557			17				259			28			
1968	909			48				560			37			
1969	980			24				701			4			
1970	1864			32				1028			10			
1971	536			29				925			7			
1972	1037			59				644			4			
1973	676			20				743			11			
1974	1388			63				879			13			
1975	1265			28				1121			38			
1976	1674			38				1574			32			
1977	907			5				1561			<1			
1978	5791			8				2496			5			
1979	5294			3				3897			1			
1980	5282			<1				3225			1			
1981	5028			107		145		3253			1		112	
1982	6153			35		160		3718		<1	8		120	
1983	4928			3		122		3994			36		225	
1984	6491		1	12		265		3407		1	1		252	
1985	6662			19		232		2667		10	<1		185	
1986	6005		50	<1		147		3094		1			110	
1987	6291		22			137		3387		<1			72	
1988	7135		<1			117		1853		1	<1		54	
1989	7922		<1			61		4763			4		71	
1990	8564			4		110		4542		1	<1		127	
1991	7168		3	2		154		2643		4	<1		121	
1992	6856		12	<1		155		3187		14	<1		65	
1993	6897		<1			124		3447		1197	1	75	114	
1994	3606		2533	1	361	229		2529		1672	<1	277	75	
1995	5142		1375	<1	33	385		4091		680	<1		328	
1996	5999		1474	<1	2	335		3070		1369	1	23	283	
1997	4620		2583		61	606		3210		1369	<1		251	
1998	5411		1542		75	552		3159		1756		45	282	
1999	4817		1989		338	418		2108		767		4	128	
2000	3793		1571	2	44	299		2438		1187		<1	403	
2001	4335		1214		6	908		1905		602			355	
2002	2355		1059	<1	178	228		916		413			88	
2003	1917		1064			248		1959		1524			118	
2004	2403	<1	1101	406	54	206	63	1203		566	410	267	162	150
2005	1587		640	746	293	85	109	1303		443	551	344	38	49
2006	1103		701	445	209	86	92	739	<1	405	260	143	53	43
2007	1153	128	582		163	128	218	996	101	759	228	53	126	153
2008	864	240	652	318	14	127	198	731	378	367	288	3	179	132
2009	955	592	472	144		160	228	684	338	730	75	20	117	166

Table A11. Summary of number of silver hake measured by port samplers by market category and half in the northern region.

Year	Round		Small		Dressed		King		Large	
	1	2	1	2	1	2	1	2	1	2
1969	202	2135								
1970	218	1838								
1971	243	2481				218				
1972		1221								
1973	320	3572			614					
1974	191	1409			84					
1975	799	855								
1976	1789	2126								
1977	878	3795								
1978	1217	1808								
1979	103	1362								
1980		775								
1981	98	1577								
1982		2007		117						
1983	210	3003		200						
1984	433	1829		519						
1985	221	1946	515	1130			125	338		
1986	974	3183	290	586						
1987	367	2717		839				324		
1988	691	2400	300	728			201	519		
1989	763	1146	106					100		
1990	466	1467								
1991	634	1232					114	129		
1992	215							262		
1993		886								
1995	348	344	202							
1997		207		209						
1998		514								
1999	100	45						113		
2000	269	407						102		
2001	1255	800	218				263	217		
2002	103		98				76	106		
2003	19	426						95		
2004	134	488		201				93		
2005		100		100				4		
2006	110	521						9	108	293
2007		547						189		344
2008		200						12		
2009	87	100								

Table A12. Summary of number of silver hake measured by port samplers by market category and half in the southern region.

Year	Round		Small		Dressed		Juv		King		Large	
	1	2	1	2	1	2	1	2	1	2	1	2
1969	50											
1970	316											
1971	98	311										
1972	216											
1975		793										
1976	200	1268			61							
1977	1418	685										
1978	1039	378										
1979	882	1321										
1980	2128	1995										
1981	1270	2570								154		
1982	3159	2699							472	190		
1983	4246	2067							256	541		
1984	3302	1716							323	306		
1985	5048	2025		110					344	186		
1986	3565	3118							201	468		
1987	5004	2539							167	182		
1988	4778	2922							87			
1989	3643	2594							167	104		
1990	5147	4069							201	100		
1991	3004	2397							95	198		
1992	2610	1023							96			
1993	1414	900		212					41	100		
1994	1003		303									
1995	1489		308						236			
1997	2535	236	1396	317					1475	157		
1998	2877	1585	411	32			104		781	410		
1999	2563	603	102	536			413		526	396		
2000	919	542	526	410					223	182		
2001	3598	2131	1178	555					2201	1021		
2002	3243	1274	1139	221			121		958	98		
2003	3088	1536	981	1309					713	618		
2004	1888	2129	1177	319					515	1163		
2005	2646	4512	539	517					1980	526		696
2006	5634	3341							632	461	1503	1256
2007	7499	3575		102					1209	614	1833	2585
2008	5432	3828	109						997	964	2376	1331
2009	4013	2890					100		1498	683	1339	1340

Table A13. Summary of number of offshore hake measured by port samplers by market category, half and region.

	North	South		
Year	Round Half 1	Round Half 1	Half 2	King Half 1
1993			103	
1994				
1997		135		
2003				31
2004				337
2005	1			
2006		29		

Table A14. Pooling of silver/offshore hake port length samples to estimate length and species composition of the commercial landings by region and market category.

	North						South						
	Round		King		Large		Round		King		Large		
	Half 1	Half 2	Half 1	Half 2	Half 1	Half 2	Half 1	Half 2	Half 1	Half 2	Half 1	Half 2	
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
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2003													
2004													
2005													
2006													
2007													
2008													
2009													

Table A15: Comparison of estimated and reported offshore and silver hake landings, 2004-2009. Red values reflect revisions from the original working paper. Differences are less than 1%.

	Model based estimate			Dealer reported landings			VTR hail weights			
	Offshore hake	Silver hake	Percent offshore	Offshore hake	Silver hake	Percent offshore	Reporting vessels	Offshore hake	Silver hake	Percent offshore
2004	894	6,566	12.00%	18	6,096	0.30%	371	169	6,124	2.70%
2005	819	5,865	12.20%	9	5,886	0.10%	321	213	6,439	3.20%
2006	459	4,207	9.80%	35	3,973	0.90%	405	121	4,170	2.80%
2007	350	5,006	6.50%	11	4,316	0.30%	384	180	4,677	3.70%
2008	290	5,376	5.10%	19	4,127	0.50%	370	194	4,544	4.10%
2009	331	6,406	4.90%	13	4,328	0.30%	382	139	5,363	2.50%

Table A16. Comparison of alternative methods of landings estimation for silver hake. Bold values reflect hindcasted estimates (bold black fonts are hindcast values using historical landings while the bold red fonts are based on dealer landings).

Year	Nominal	Length-Based	Depth-Based
1955	13842	13255	12891
1956	14871	14241	13849
1957	17153	16426	15974
1958	13473	12902	12547
1959	17112	16387	15936
1960	9206	8816	8573
1961	13209	12649	12301
1962	18733	17939	17446
1963	93382	89425	86966
1964	153554	147048	148312
1965	307131	294117	282942
1966	211270	202318	193000
1967	91249	87383	86163
1968	58496	58157	56120
1969	75561	74891	72817
1970	27512	26832	25642
1971	71890	70506	70459
1972	94354	88178	89047
1973	104593	102078	100176
1974	109863	102396	105904
1975	74253	72164	71706
1976	68741	64608	67395
1977	59308	57160	57550
1978	27132	25834	26655
1979	18375	16398	18052
1980	13546	11684	13295
1981	14826	13429	14316
1982	14561	14152	13634
1983	12140	11860	11499
1984	13143	12955	12531
1985	13164	12820	12468
1986	10123	9697	9500
1987	10123	9552	9219
1988	9195	8950	8017
1989	13428	12995	12656
1990	13610	13020	12784
1991	10492	9740	9731
1992	10873	10531	9912
1993	12942	12487	11517
1994	12159	12181	10851
1995	12102	11992	10810
1996	12561	12134	10925
1997	12763	12548	11413
1998	12828	12558	11499
1999	10577	10417	9667
2000	9769	9472	8918
2001	9517	8884	8585
2002	5344	4888	4773
2003	6835	6281	6363
2004	7436	6965	6566
2005	6670	6395	5865
2006	4629	4584	4207
2007	5345	5067	5006
2008	5638	5582	5376
2009	6720	6595	6406

Table A17. Port Samples (sampling intensity) for Silver hake in the northern and southern regions

NORTH				SOUTH		
Year	Number of Lengths	Commercial Landings (mt)	Lengths per 100mt	Number of Lengths	Commercial Landings (mt)	Lengths per 100mt
1969	2337	24055	10	50	75561	0
1970	2056	27528	7	316	27512	1
1971	2942	36401	8	409	71890	1
1972	1221	25224	5	216	94354	0
1973	4506	32091	14	0	104593	0
1974	1684	20682	8	0	109863	0
1975	1654	39874	4	793	74253	1
1976	3915	13634	29	1529	68741	2
1977	4673	12457	38	2103	59308	4
1978	3025	12609	24	1417	27132	5
1979	1465	3415	43	2203	18375	12
1980	775	4730	16	4123	13546	30
1981	1675	4416	38	3994	14826	27
1982	2124	4664	46	6520	14561	45
1983	3413	5312	64	7110	12140	59
1984	2781	8289	34	5647	13143	43
1985	4275	8297	52	7713	13164	59
1986	5033	8502	59	7352	10123	73
1987	4247	5658	75	7892	10123	78
1988	4839	6789	71	7787	9195	85
1989	2115	4648	46	6508	13428	48
1990	1933	6377	30	9517	13610	70
1991	2109	6055	35	5694	10492	54
1992	477	5306	9	3729	10873	34
1993	886	4364	20	2667	12942	21
1994	0	3899	0	1306	12159	11
1995	894	2594	34	2033	12102	17
1996	0	3619	0	0	12561	0
1997	416	2802	15	6116	12763	48
1998	514	2045	25	6200	12828	48
1999	258	3444	7	5139	10577	49
2000	778	2592	30	2802	9769	29
2001	2753	3391	81	10684	9517	112
2002	383	2593	15	7054	5344	132
2003	540	1808	30	8245	6835	121
2004	916	1049	87	7191	7436	97
2005	204	827	25	11416	6670	171
2006	1041	903	115	12827	4629	277
2007	1080	1014	107	17417	5345	326
2008	212	620	34	15037	5638	267
2009	187	1038	18	11863	6720	177

Table A18. Silver hake discards from the northern region by gear and half. The discards from 1981-1988 (91 for scallop dredge and longline) are hind-cast using the first three years of available data. The otter trawl discards are hind-cast combining mesh-sizes.

	Longline			Large Mesh Otter Trawl			Small Mesh Otter Trawl			Sink Gill Net			Scallop Dredge			Shrimp Trawl		
	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total
1981	0	0	0	417.9	1898.6	2316.4	Na			13.4	53.2	66.6	2.7	28.4	31.1	223.4	0.6	224.0
1982	0	0	0	411.8	2116.1	2527.9	Na			5.9	47.9	53.7	1.6	21.9	23.6	282.0	17.7	299.7
1983	0	0	0	453.9	1783.5	2237.4	Na			6.2	39.8	46.0	1.4	17.2	18.6	285.6	54.1	339.7
1984	0	0	0	379.2	1640.3	2019.4	Na			5.9	52.4	58.3	0.8	10.3	11.1	372.6	130.1	502.7
1985	0	0	0	331.3	1476.8	1808.2	Na			6.4	44.8	51.2	0.6	9.9	10.5	520.1	171.7	691.8
1986	0	0	0	289.6	1159.9	1449.5	Na			7.8	46.9	54.7	1.0	10.6	11.6	634.7	203.5	838.1
1987	0	0	0	243.7	1031.4	1275.1	Na			7.0	47.7	54.6	1.2	20.4	21.6	642.8	112.5	755.4
1988	0	0	0	227.0	982.0	1209.0	Na			7.8	48.6	56.4	1.5	26.0	27.5	379.9	111.7	491.6
1989	0	0	0	56.2	241.6	297.8	183.2	1005.1	1188.3	17.9	34.5	52.4	1.7	29.9	31.6	612.7	159.0	771.7
1990	0	0	0	271.4	415.8	687.2	18.8	611.2	630.0	6.2	81.8	88.0	0.6	31.9	32.5	420.0	130.9	551.0
1991	0	0	0	19.4	372.9	392.3	28.0	486.5	514.5	3.6	40.1	43.8	2.7	3.5	6.2	262.6	31.6	294.2
1992	0	0	0	99.8	271.9	371.8	28.1	555.0	583.0	5.1	37.4	42.4	0.0	5.2	5.2	378.4	48.7	427.1
1993	0	0	0	94.7	165.3	260.1	9.7	179.2	189.0	5.2	55.2	60.4	1.5	58.5	60.0	62.2	108.4	170.6
1994	0	0	0	29.0	15.6	44.7	3.8	63.0	66.8	2.8	41.0	43.8	0.6	0.5	1.1	25.5	58.3	83.8
1995	0.008	0.010	0.019	56.5	64.2	120.7	2.7	17.6	20.2	5.6	23.5	29.1	1.9	5.7	7.6	216.7	239.5	456.1
1996	0.008	0.008	0.016	55.7	9.3	65.1	1.2	19.5	20.7	3.6	52.9	56.5	0.0	2.1	2.1	576.3	105.0	681.3
1997	0.008	0.008	0.017	28.1	28.8	56.8	1.8	14.3	16.1	14.1	13.3	27.4	0.5	6.9	7.4	126.4	15.1	141.5
1998	0.006	0.010	0.016	116.8	21.5	138.3	23.0	269.3	292.3	4.6	4.4	9.0	19.2	17.3	36.6	206.2	11.2	217.4
1999	0.006	0.008	0.015	26.9	143.1	170.0	20.4	395.6	415.9	8.9	9.3	18.2	8.9	10.6	19.5	93.6	2.2	95.8
2000	0.004	0.009	0.013	102.2	83.3	185.5	0.1	0.7	0.9	9.3	15.1	24.4	1.4	2.7	4.1	137.8	2.3	140.1
2001	0.005	0.006	0.011	182.7	221.2	404.0	3.5	14.3	17.7	3.7	8.9	12.6	1.8	1.4	3.2	39.4		39.4
2002	0	0	0	291.6	95.8	387.4	0	103.0	103.0	3.5	5.7	9.2	1.7	2.2	3.9	9.7		9.7
2003	0	0	0	40.5	34.7	75.2	0.3	90.3	90.6	7.3	2.9	10.2	0	4.4	4.4	22.0		22.0
2004	0	0	0	22.1	44.5	66.5	0.1	29.6	29.6	1.2	1.8	2.9	0.1	0.0	0.1	13.4	0.6	13.9
2005	0	0.019	0.019	5.2	35.4	40.6	0.2	9.1	9.3	0.1	0.9	1.0	0.0	0.6	0.6	10.3	0.5	10.7
2006	0	0	0	3.7	17.3	21.1	0	4.9	5.0	0.7	0.4	1.1	0	1.1	1.1	2.5	7.3	9.8
2007	0.002	0	0.002	4.1	14.9	18.9	42.3	669.7	712.0	0.8	0.6	1.5	0.2	1.9	2.1	11.7	2.8	14.5
2008	0	0.002	0.002	12.6	32.2	44.8	8.1	63.6	71.7	1.4	4.7	6.2	0.2	0.1	0.3	35.1	9.0	44.1
2009	0	0	0	13.9	54.5	68.4	11.9	83.7	95.6	2.0	4.3	6.4	0.1	2.7	2.8	14.6	28.3	42.9

Table A19. Silver hake discards from the southern region by gear and half. The discards from 1981-1988 (91 for scallop dredge and longline) are hind-cast using the first three years of available data. The otter trawl discards are hind-cast combining mesh-sizes.

	Longline			Large Mesh Otter Trawl			Small Mesh Otter Trawl			Sink Gill Net			Scallop Dredge		
	1	2	Total	1	2	Total	1	2	Total	1	2	Total	1	2	Total
1981	0	0	0	2332.4	1176.2	3508.5	Na			0.0	0.1	0.1	6.1	87.9	94.0
1982	0	0	0	2646.2	2069.8	4716.0	Na			0.0	0.1	0.1	3.6	67.9	71.6
1983	0	0	0	2869.3	2026.3	4895.7	Na			0.0	0.1	0.1	3.1	53.3	56.4
1984	0	0	0	3124.7	1864.3	4989.1	Na			0.0	0.2	0.2	1.8	31.9	33.7
1985	0	0	0	2580.7	1369.7	3950.3	Na			0.0	0.1	0.1	1.2	30.7	31.9
1986	0	0	0	2598.7	1822.2	4420.9	Na			0.0	0.2	0.2	2.3	32.9	35.2
1987	0	0	0	2664.5	1643.3	4307.8	Na			0.0	0.2	0.2	2.7	63.2	65.9
1988	0	0	0	2971.7	1570.4	4542.1	Na			0.0	0.2	0.2	3.4	80.5	83.9
1989	0	0	0	31.1	81.0	112.1	5295.8	1085.1	6380.9	0	0	0	12.5	136.8	149.3
1990	0	0	0	2342.0	420.7	2762.6	1211.4	1961.3	3172.7	0	0	0	20.5	237.5	258.0
1991	0	0	0	201.0	993.0	1194.0	539.8	1480.5	2020.3	0	0.1	0.1	12.8	6.8	19.6
1992	0	0	0	443.9	211.2	655.1	244.7	2559.4	2804.1	0.6	2.7	3.3	9.8	7.4	17.2
1993	0	0	0	250.5	15.7	266.2	3144.5	1475.9	4620.4	1.4	3.4	4.8	6.9	346.2	353.1
1994	0	0	0	549.7	11.0	560.7	3067.1	2335.5	5402.7	0.4	0.3	0.7	15.0	12.4	27.4
1995	0	0	0	136.9	5.8	142.7	83.1	1087.9	1171.0	0.2	0.3	0.4	64.5	60.5	125.0
1996	0.058	0.041	0.099	9.2	10.4	19.6	386.0	52.6	438.6	0.2	0	0.2	19.7	12.7	32.4
1997	0.066	0.057	0.123	26.7	341.4	368.2	220.7	0.1	220.8	1.7	0.4	2.1	33.6	14.5	48.1
1998	0.064	0.044	0.108	2.0	0	2.0	322.0	14.2	336.2	0.3	0.2	0.5	2.5	12.5	15.0
1999	0.049	0.023	0.072	0	18.9	18.9	3461.8	29.5	3491.4	0.9	0	0.9	22.1	18.5	40.6
2000	0.033	0.028	0.061	7.4	1.9	9.4	29.7	161.2	190.9	7.6	0	7.6	80.2	44.7	124.9
2001	0.046	0.046	0.092	2.9	0.3	3.2	25.3	152.0	177.4	0	0	0	6.1	5.7	11.8
2002	0	0	0	5.9	1.3	7.2	160.5	96.8	257.3	0.4	0	0.4	11.4	3.6	14.9
2003	0	0	0	3.8	11.0	14.8	137.2	515.7	652.9	1.2	0.0	1.3	1.7	5.2	7.0
2004	0	0	0	25.2	63.9	89.1	380.4	760.5	1141.0	0.4	0	0.4	4.5	9.0	13.5
2005	0	0	0	19.5	31.2	50.7	825.6	685.9	1511.5	0.1	0.2	0.2	3.4	8.4	11.8
2006	0.045	0.028	0.073	8.9	15.7	24.5	95.7	28.0	123.7	0.0	0	0.0	1.0	11.2	12.2
2007	0.140	0.190	0.331	8.0	13.5	21.5	47.5	53.8	101.3	0	0	0	5.3	3.5	8.8
2008	0.165	0.160	0.325	12.6	12.1	24.7	713.7	299.3	1013.1	0.0	0	0.0	3.7	3.5	7.2
2009	0.121	0.209	0.330	33.2	24.9	58.2	185.9	562.2	748.1	0.1	0.0	0.1	14.5	6.3	20.8

Table A20. Offshore hake discards from the northern region by gear and half. The hind-cast discards for offshore hake are zero.

	Large Mesh Otter Trawl			Small Mesh Otter Trawl			Sink Gill Net			Scallop Dredge		
	1	2	Total	1	2	Total	1	2	Total	1	2	Total
1989	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0.023	0.023	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0	0	0
1996	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	6.544	6.544	0	0	0	0	0	0	0	0	0
2001	0	0.065	0.065	0	0	0	0	0	0	0	0	0
2002	0.428	0.028	0.457	0	0	0	0.272	0	0.272	0.016	0.021	0.038
2003	0.028	0	0.028	0	0	0	0	0.085	0.085	0	0.339	0.339
2004	2.169	0.023	2.192	0	0	0	0	0	0	0	0	0
2005	0.168	0.025	0.192	0	0	0	0	0.032	0.032	0	0	0
2006	0	0.520	0.520	0	0	0	0	0	0	0	0	0
2007	0.089	0.630	0.719	0	0	0	0	0.004	0.004	0	0.027	0.027
2008	0.079	0.007	0.086	0	0	0	0	0	0	0	0	0
2009	0.915	4.311	5.226	0.013	0.089	0.102	0	0	0	0	0	0

Table A21. Offshore hake discards from the southern region by gear and half. The hind-cast discards for offshore hake are zero.

	Large Mesh Otter Trawl			Small Mesh Otter Trawl			Sink Gill Net			Scallop Dredge		
	1	2	Total	1	2	Total	1	2	Total	1	2	Total
1989	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	0.064	0.001	0.064
1996	0	0	0	0	0	0	0	0	0	0	0	0
1997	0	0	0	0.019	1.810	1.828	0.028	0	0.028	1.028	0.435	1.463
1998	0	0	0	170.494	0	170.494	0	0	0	3.386	0	3.386
1999	0	0	0	0	1.168	1.168	0	0	0	0	0.571	0.571
2000	0	0.619	0.619	0.183	0.239	0.422	0	0	0	0	0.056	0.056
2001	0	0.065	0.065	0	9.685	9.685	0	0	0	0	0	0
2002	0	0	0	143.674	0	143.674	0	0	0	0	2.563	2.563
2003	0	0	0	0	0	0	0	0	0	2.183	0.015	2.199
2004	0.036	0.030	0.066	2.131	0.909	3.040	0	0	0	1.618	0.219	1.837
2005	0	0	0	0	6.384	6.384	0	0	0	0	0	0
2006	0	0.416	0.416	0	4.109	4.109	0	0	0	0	0.012	0.012
2007	0.510	0.685	1.195	19.386	0	19.386	0	0	0	0	0.036	0.036
2008	0.926	0.176	1.102	0.006	0	0.006	0	0	0	0.001	0.035	0.035
2009	0.440	4.941	5.381	0.025	20.262	20.287	0.050	0	0.050	0	0	0

Table A22. Number of discarded silver hake sampled from the FOP in the northern region by gear type.

	Large Mesh				Small Mesh				Sink Gill Net				Scallop Dredge				Shrimp Trawl			
	Half 1		Half 2		Half 1		Half 2		Half 1		Half 2		Half 1		Half 2		Half 1		Half 2	
	trips	len	trips	len	trips	len	trips	len	trips	len	trips	len	trips	len	trips	len	trips	len	trips	len
1989	2	213	10	779	3	1543	23	6445	-	-	-	-	-	-	-	-	16	3590	4	546
1990	-	-	5	362	1	84	7	1130	1	4	-	-	-	-	-	-	8	1221	-	-
1991	1	31	1	150	-	-	27	8063	2	5	4	10	-	-	-	-	8	1055	-	-
1992	1	1	-	-	1	100	19	3888	4	24	5	22	-	-	-	-	-	-	-	-
1993	2	222	1	70	-	-	2	371	2	19	2	7	-	-	-	-	13	2383	2	224
1994	-	-	1	11	-	-	-	-	-	-	6	63	-	-	1	1	9	446	2	459
1995	3	32	1	48	-	-	1	81	1	1	-	-	-	-	-	-	4	404	5	728
1996	1	1	-	-	-	-	4	343	1	3	3	31	-	-	-	-	9	470	1	149
1997	1	1	2	66	1	20	-	-	-	-	-	-	-	-	1	1	9	739	-	-
1998	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
1999	-	-	-	-	-	-	9	218	1	2	6	85	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	6	60	2	22	-	-	-	-	-	-	-	-
2001	-	-	1	14	-	-	-	-	2	2	2	3	-	-	-	-	-	-	-	-
2002	-	-	11	265	-	-	9	542	3	4	3	7	-	-	-	-	-	-	-	-
2003	13	565	13	255	-	-	5	241	11	229	12	39	-	-	1	113	5	372	-	-
2004	4	9	23	749	1	5	9	325	6	12	22	65	-	-	-	-	3	284	-	-
2005	13	105	17	259	2	5	9	97	1	1	10	66	-	-	1	2	2	66	-	-
2006	9	69	5	30	-	-	4	1028	1	1	1	1	-	-	-	-	-	-	-	-
2007	9	127	15	195	-	-	2	733	3	14	3	4	-	-	-	-	4	444	-	-
2008	5	155	16	255	-	-	1	144	6	7	6	62	1	3	-	-	6	206	-	-
2009	7	34	16	260	-	-	3	180	3	15	1	1	-	-	-	-	-	-	-	-

Table A23. Number of discarded silver hake sampled from the FOP in the southern region by gear type.

Year	Large Mesh				Small Mesh				Sink Gill Net				Scallop Dredge			
	Half 1		Half 2		Half 1		Half 2		Half 1		Half 2		Half 1		Half 2	
	trips	len	trips	len	trips	len	trips	len	trips	len	trips	len	trips	len	trips	len
1989	2	40	1	150	12	2265	10	1659	-	-	-	-	-	-	-	-
1990	2	399	-	-	8	2090	2	95	-	-	-	-	-	-	-	-
1991	-	-	2	29	5	657	7	860	-	-	-	-	-	-	-	-
1992	-	-	-	-	1	20	5	459	1	1	-	-	-	-	-	-
1993	1	127	-	-	-	-	-	-	1	12	-	-	1	2	-	-
1994	2	49	-	-	1	20	5	239	-	-	-	-	2	5	2	6
1995	1	3	1	11	2	73	-	-	-	-	1	3	4	50	-	-
1996	-	-	-	-	4	290	8	494	2	2	-	-	2	31	3	17
1997	-	-	1	216	7	371	1	2	7	69	1	4	2	112	1	1
1998	-	-	-	-	3	656	-	-	-	-	-	-	-	-	-	-
1999	-	-	-	-	2	309	4	97	-	-	-	-	1	2	-	-
2000	-	-	1	19	1	198	3	88	-	-	-	-	3	456	1	1
2001	-	-	-	-	2	160	3	13	-	-	-	-	-	-	-	-
2002	-	-	-	-	3	139	-	-	-	-	-	-	-	-	-	-
2003	-	-	2	2	3	76	3	40	1	2	-	-	2	3	4	140
2004	6	150	16	359	6	293	24	2007	2	4	-	-	1	17	15	224
2005	9	118	12	471	15	1191	11	1346	-	-	-	-	-	-	5	53
2006	7	48	4	24	10	762	15	764	-	-	-	-	-	-	1	1
2007	3	13	7	106	7	130	14	479	-	-	-	-	4	13	2	10
2008	6	38	10	110	6	580	12	626	-	-	-	-	4	31	7	36
2009	2	19	1	1	10	832	30	1998	1	1	-	-	12	91	6	37

Table A24. Number of kept and discarded offshore hake sampled in all gears from the FOP in the northern region.

	Large Mesh Trawl		Sink Gill Net			
	Half 2		Half 1		Half 2	
	Discards		Discards		Discards	
Year	ntrips	numlen	ntrips	numlen	ntrips	numlen
2002			1	19		
2004	1	1				
2005	2	3			1	1
2006	1	9				
2009	1	1				

Table A25. Number of kept and discarded offshore hake sampled in all gears from the FOP in the southern region.

	Large Mesh Trawl		Small Mesh Trawl				Scallop Dredge	
	Half 1		Half 1		Half 2		Half 1	
	Discards		Discards		Discards		Discards	
Year	ntrips	numlen	ntrips	numlen	ntrips	numlen	ntrips	numlen
1997					1	7		
2001	1	1						
2002								
2004					1	8	1	3
2007								
2009			1	1	1	1		

Table A26. Pooling of silver/offshore hake observer length samples to estimate length and species composition of the commercial discards by gear from the north.

	Silver North Large Mesh		Silver North Small Mesh		Silver North Shrimp Trawl		Silver North Sink Gill Net	
	Half1	Half2	Half1	Half2	Half1	Half2	Half1	Half2
1989								
1990								
1991						89+93		
1992					91+93			
1993								
1994								
1995								
1996								
1997								
1998								
1999								
2000					97+03			
2001								
2002						95+96		
2003								
2004								
2005								
2006					05+07			
2007								
2008								
2009								

Table A27. Pooling of silver/offshore hake observer length samples to estimate length and species composition of the commercial discards by gear from the south.

Silver South Large Mesh		Silver South Small Mesh	
	Half1	Half1	Half2
1989			
1990			
1991			
1992			
1993			
1994			
1995			
1996			
1997			
1998			
1999			
2000			
2001			
2002			
2003			
2004			
2005			
2006			
2007			
2008			
2009			

Table A28: Silver hake annual catch in metric tons from the northern stock area.

Year	Domestic	Foreign	Total landings	discards	Total Catch	% discards
1955			53361	0	53361	0%
1956			42150	0	42150	0%
1957			62750	0	62750	0%
1958			49903	0	49903	0%
1959			50608	0	50608	0%
1960			45543	0	45543	0%
1961			39688	0	39688	0%
1962			79002	0	79002	0%
1963			73924	0	73924	0%
1964			94462	0	94462	0%
1965			45279	0	45279	0%
1966			47808	0	47808	0%
1967			33371	0	33371	0%
1968			41379	0	41378.94	0%
1969			24055	0	24054.96	0%
1970			27528	0	27527.97	0%
1971			36398	0	36398.22	0%
1972			25224	0	25223.95	0%
1973	14005	18086	32091	0	32090.95	0%
1974	6,907	13,775	20,682	0	20682	0%
1975	12,566	27,308	39874	0	39874	0%
1976	13,483	151	13634	0	13634	0%
1977	12,455	2	12457	0	12457	0%
1978	12,609	0	12609	0	12609	0%
1979	3415	0	3415	0	3415	0%
1980	4730	0	4730	0	4730	0%
1981	4416	0	4416	2638	7054	37%
1982	4664	0	4664	2905	7569	38%
1983	5312	0	5312	2642	7954	33%
1984	8289	0	8289	2591	10880	24%
1985	8297	0	8297	2562	10859	24%
1986	8502	0	8502	2354	10856	22%
1987	5658	0	5658	2107	7765	27%
1988	6789	0	6789	1785	8574	21%
1989	4648	0	4648	2315	6963	33%
1990	6377	0	6377	1958	8335	23%
1991	6055	0	6055	1256	7311	17%
1992	5306	0	5306	1424	6730	21%
1993	4364	0	4364	686	5050	14%
1994	3899	0	3899	241	4140	6%
1995	2594	0	2594	630	3224	20%
1996	3619	0	3619	824	4443	19%
1997	2802	0	2802	243	3045	8%
1998	2045	0	2045	693	2738	25%
1999	3449	0	3449	742	4190	18%
2000	2592	0	2592	359	2952	12%
2001	3391	0	3391	477	3868	12%
2002	2593	0	2593	513	3106	17%
2003	1808	0	1808	198	2006	10%
2004	1049	0	1049	115	1165	10%
2005	828	0	828	62	890	7%
2006	904	0	904	37	941	4%
2007	1014	0	1014	750	1764	43%
2008	620	0	620	167	788	21%
2009	1042	0	1042	190	1232	15%

Table A29: Silver hake annual catches in metric tons in from the Southern stock area.

Year	Domestic	Foreign	Total landings	discards	Total Catch	% discards
1955			13255	0	13255	0%
1956			14241	0	14241	0%
1957			16426	0	16426	0%
1958			12902	0	12902	0%
1959			16387	0	16387	0%
1960			8816	0	8816	0%
1961			12649	0	12649	0%
1962			17939	0	17939	0%
1963			89425	0	89425	0%
1964			147048	0	147048	0%
1965			294117	0	294117	0%
1966			202318	0	202318	0%
1967			87383	0	87383	0%
1968			58157	0	58157	0%
1969			74891	0	74891	0%
1970			26832	0	26832	0%
1971			70506	0	70506	0%
1972			88179	0	88179	0%
1973	6445	95633	102078	0	102078	0%
1974	7224	95171	102396	0	102396	0%
1975	8204	63961	72164	0	72164	0%
1976	9807	54802	64608	0	64608	0%
1977	11043	46117	57160	0	57160	0%
1978	12168	13666	25834	0	25834	0%
1979	12046	4352	16398	0	16398	0%
1980	10219	1465	11684	0	11684	0%
1981	10672	2756	13429	3502	16931	21%
1982	11822	2330	14152	4654	18806	25%
1983	11254	606	11860	4814	16674	29%
1984	12549	406	12955	4883	17838	27%
1985	11533	1286	12820	3872	16691	23%
1986	9170	527	9697	4332	14029	31%
1987	9550	2	9552	4252	13804	31%
1988	8950	0	8950	4497	13447	33%
1989	12995	0	12995	6573	19568	34%
1990	13020	0	13020	5972	18992	31%
1991	9740	0	9740	3081	12821	24%
1992	10531	0	10531	3446	13977	25%
1993	12487	0	12487	5166	17653	29%
1994	12181	0	12181	5936	18118	33%
1995	11992	0	11992	1402	13394	10%
1996	12134	0	12134	479	12613	4%
1997	12548	0	12548	624	13172	5%
1998	12558	0	12558	526	13084	4%
1999	10417	0	10417	3549	13965	25%
2000	9472	0	9472	329	9800	3%
2001	8884	0	8884	188	9072	2%
2002	4888	0	4888	410	5298	8%
2003	6281	0	6281	604	6884	9%
2004	6965	0	6965	1203	8168	15%
2005	6395	0	6395	1576	7971	20%
2006	4583	0	4583	161	4745	3%
2007	5067	0	5067	146	5212	3%
2008	5582	0	5582	1033	6616	16%
2009	6595	0	6595	839	7434	11%

Table A30 Silver hake annual catch in metric tons for the combined areas.

Year	Domestic	Foreign	Total landings	discards	Total Catch	% discards
1955			66616	0	66616	0%
1956			56391	0	56391	0%
1957			79176	0	79176	0%
1958			62805	0	62805	0%
1959			66995	0	66995	0%
1960			54359	0	54359	0%
1961			52337	0	52337	0%
1962			96941	0	96941	0%
1963			163349	0	163349	0%
1964			241510	0	241510	0%
1965			339396	0	339396	0%
1966			250126	0	250126	0%
1967			120754	0	120754	0%
1968			99536	0	99536	0%
1969			98946	0	98946	0%
1970			54360	0	54360	0%
1971			106905	0	106905	0%
1972			113403	0	113403	0%
1973	20,450	113,719	134,169	0	134169	0%
1974	14,131	108,946	123,078	0	123078	0%
1975	20,770	91,269	112,038	0	112038	0%
1976	23,290	54,953	78,242	0	78242	0%
1977	23,498	46,119	69,617	0	69617	0%
1978	24,777	13,666	38,443	0	38443	0%
1979	15,461	4,352	19,813	0	19813	0%
1980	14,949	1,465	16,414	0	16414	0%
1981	15,088	2,756	17,845	6140.438	23985	26%
1982	16,486	2,330	18,816	7559.343	26375	29%
1983	16,566	606	17,172	7455.982	24628	30%
1984	20,838	406	21,244	7474.685	28718	26%
1985	19,830	1,286	21,117	6433.169	27550	23%
1986	17,672	527	18,199	6686.172	24885	27%
1987	15,208	2	15,210	6359	21569	29%
1988	15739	0	15,739	6282	22021	29%
1989	17643	0	17,643	8888	26530	34%
1990	19397	0	19,397	7930	27327	29%
1991	15794	0	15,794	4337	20131	22%
1992	15837	0	15,837	4870	20707	24%
1993	16851	0	16,851	5852	22703	26%
1994	16080	0	16,080	6178	22258	28%
1995	14586	0	14,586	2032	16618	12%
1996	15753	0	15,753	1302	17055	8%
1997	15350	0	15,350	867	16217	5%
1998	14603	0	14,603	1219	15822	8%
1999	13866	0	13,866	4290	18156	24%
2000	12064	0	12,064	688	12752	5%
2001	12275	0	12,275	665	12941	5%
2002	7481	0	7,481	923	8404	11%
2003	8089	0	8,089	802	8890	9%
2004	8015	0	8,015	1318	9333	14%
2005	7223	0	7,223	1638	8861	18%
2006	5487	0	5,487	199	5686	3%
2007	6081	0	6,081	896	6977	13%
2008	6203	0	6,203	1201	7403	16%
2009	7636	0	7,636	1030	8666	12%

Table A31. Commercial landings at Age (in thousands of fish) of Silver hake in the northern stock.

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	37000	96406	27096	3454	1856	899	123	0	0	240	0	22	185	0
1974	12400	40532	25154	4244	2087	937	54	0	0	52	54	0	81	0
1975	4830	57091	77841	23950	8358	2549	430	117	0	0	0	0	0	0
1976	2016	19716	23193	9460	2422	1501	359	20	0	0	0	0	0	0
1977	1027	7540	21532	14176	3152	472	271	25	9	0	0	0	0	0
1978	1593	7550	6950	10922	13525	2465	311	271	0	7	5	0	0	0
1979	532	2599	2233	1441	1759	2262	419	25	0	0	0	0	0	0
1980	1506	11469	10300	1899	532	437	866	348	49	44	0	3	0	0
1981	4366	9008	7668	3937	689	155	231	185	21	0	0	0	0	0
1982	4679	7989	2937	2864	2773	266	71	471	92	1	2	0	0	0
1983	2944	11947	2801	1447	1924	880	180	51	17	0	0	0	0	0
1984	5183	16108	6503	3325	920	817	8	0	51	0	0	0	0	0
1985	8979	5508	12908	3977	531	713	141	0	0	0	0	0	0	0
1986	3905	15321	3927	4907	1382	516	23	38	0	0	0	0	0	0
1987	851	13368	9831	1456	948	71	3	0	0	0	0	0	0	0
1988	1312	6242	20269	3349	521	624	0	0	0	0	0	0	0	0
1989	3184	5770	10242	2758	344	43	0	0	0	0	0	0	0	0
1990	3528	15845	6989	4840	1140	15	0	0	0	0	0	0	0	0
1991	1186	13900	7701	2537	1074	9	0	0	0	0	0	0	0	0
1992	6149	15882	8256	1206	143	11	2	0	0	0	0	0	0	0
1993	4062	14565	5674	2045	187	8	0	0	0	0	0	0	0	0
1994	2053	10017	6551	1898	38	3	0	0	0	0	0	0	0	0
1995	630	1769	910	1912	531	25	0	0	0	0	0	0	0	0
1996	1842	13844	6984	1026	54	16	0	0	0	0	0	0	0	0
1997	2787	13552	3167	205	101	7	0	0	0	0	0	0	0	0
1998	1033	5539	1842	1001	32	77	0	0	0	0	0	0	0	0
1999	63	4212	3875	2126	244	108	0	0	0	0	0	0	0	0
2000	630	4922	4152	814	273	4	3	0	0	0	0	0	0	0
2001	233	1829	1752	1822	978	241	5	0	0	0	0	0	0	0
2002	441	5674	3600	707	60	74	0	0	0	0	0	0	0	0
2003	189	2634	3742	632	63	31	10	0	0	0	0	0	0	0
2004	1168	2838	1975	191	16	1	1	0	0	0	0	0	0	0
2005	1288	1927	1598	209	32	13	3	0	0	0	0	0	0	0
2006	4839	795	482	511	14	14	0	0	0	0	0	0	0	0
2007	4072	2211	214	218	117	0	0	0	0	0	0	0	0	0
2008	2141	2210	130	61	2	7	0	0	0	0	0	0	0	0
2009	584	2370	1510	346	19	0	1	0	0	0	0	0	0	0

Table A32. Silver hake commercial landings at Age (in thousands of fish) for the southern stock.

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14	Total
1973	3470	164329	134686	55533	13498	3410	1524	0	0	0	0	0	0	0	376669
1974	6213	65952	172266	108329	34225	10484	2576	0	455	0	0	0	0	0	400665
1975	5223	49456	128180	63861	20200	2694	396	0	96	0	0	0	0	0	270243
1976	383	51663	48274	39785	18228	8141	3881	412	0	0	0	0	0	0	170766
1977	2044	16736	62794	35481	14643	5894	5004	1312	0	0	0	0	0	0	143908
1978	1383	20549	18263	26284	11708	3412	458	61	0	0	0	0	0	72	82191
1979	1716	12338	12825	6390	9503	5726	998	197	0	0	0	0	0	0	49693
1980	1793	17101	17433	7962	3778	1793	2257	414	168	1	0	0	0	0	52701
1981	5739	12437	17517	12679	5443	2190	1015	1275	666	0	13	0	0	0	58973
1982	4968	26448	10550	8833	6558	2070	1033	369	299	133	0	0	0	0	61260
1983	7861	19351	11352	5583	2531	1733	816	59	71	273	0	0	0	0	49629
1984	2129	29479	15330	5535	1091	421	346	0	0	0	0	0	0	0	54332
1985	3098	23434	21909	8077	1377	236	311	63	65	0	0	0	0	0	58571
1986	5545	27377	9665	8122	1524	205	21	0	0	0	0	0	0	0	52464
1987	4791	21647	14036	5113	3369	69	0	0	39	0	0	0	0	0	49062
1988	1331	17531	27692	7243	579	27	0	0	0	0	0	0	0	0	54404
1989	1204	20708	38294	10594	1034	182	0	0	0	0	0	0	0	0	72036
1990	716	21207	32891	10819	1793	31	19	0	0	0	0	0	0	0	67475
1991	341	3601	22108	17717	3723	1124	62	0	0	0	0	0	0	0	48677
1992	2318	19170	24496	13147	793	3	0	0	0	0	0	0	0	0	59928
1993	3120	19023	24621	15399	2579	0	0	0	0	0	0	0	0	0	64742
1994	1161	21801	33190	9522	355	0	0	0	0	0	0	0	0	0	66028
1995	1479	17014	27007	16578	436	0	0	0	0	0	0	0	0	0	62513
1996	2220	25222	42727	7537	1229	2	0	0	0	0	0	0	0	0	78937
1997	14558	23930	36763	7045	124	0	0	0	0	0	0	0	0	0	83538
1998	4970	29969	43918	3510	10	0	0	0	0	0	0	0	0	0	84559
1999	2697	32190	37657	3405	94	0	0	0	0	0	0	0	0	0	76042
2000	1089	22309	36529	3064	35	0	0	0	0	0	0	0	0	0	63026
2001	1615	9840	22302	9767	765	36	0	0	0	0	0	0	0	0	44325
2002	832	10883	20010	2696	108	0	0	0	0	0	0	0	0	0	34528
2003	7130	13441	18738	5432	18	0	0	0	0	0	0	0	0	0	45364
2004	2917	11052	27476	5139	21	0	0	0	0	0	0	0	0	0	46611
2005	13692	14352	15447	5051	144	0	0	0	0	0	0	0	0	0	48697
2006	11545	16527	8551	1080	35	1	0	0	0	0	0	0	0	0	37738
2007	10627	17887	5919	1526	171	4	0	0	0	30	0	0	0	0	36167
2008	13215	27207	3266	828	73	0	0	0	0	0	0	0	0	0	44603
2009	6886	31886	8431	807	124	0	0	0	0	0	0	0	0	0	48137

Table A33. Silver hake commercial landings at Age (in thousands of fish) for the combined stock area.

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	40470	260734	161782	58987	15354	4310	1647	0	0	240	0	22	185	0
1974	18614	106484	197420	112573	36311	11421	2630	0	455	52	54	0	81	0
1975	10053	106547	206021	87810	28557	5243	826	117	96	0	0	0	0	0
1976	2399	71378	71467	49245	20650	9642	4239	431	0	0	0	0	0	0
1977	3071	24276	84326	49656	17795	6365	5275	1336	9	0	0	0	0	0
1978	2975	28099	25213	37205	25233	5877	769	333	0	7	5	0	0	72
1979	2248	14938	15059	7831	11262	7988	1417	222	0	0	0	0	0	0
1980	3300	28571	27734	9861	4310	2230	3123	761	216	45	0	3	0	0
1981	10105	21445	25185	16616	6132	2344	1246	1459	687	0	13	0	0	0
1982	9647	34437	13487	11697	9331	2336	1104	839	391	134	2	0	0	0
1983	10804	31298	14153	7030	4454	2613	996	110	88	273	0	0	0	0
1984	7312	45587	21833	8860	2011	1238	355	0	51	0	0	0	0	0
1985	12077	28943	34817	12054	1908	950	451	63	65	0	0	0	0	0
1986	9450	42698	13593	13029	2906	720	44	38	0	0	0	0	0	0
1987	5642	35015	23866	6569	4317	140	3	0	39	0	0	0	0	0
1988	2643	23773	47960	10592	1100	651	0	0	0	0	0	0	0	0
1989	4388	26478	48536	13352	1378	225	0	0	0	0	0	0	0	0
1990	4244	37052	39880	15659	2932	46	19	0	0	0	0	0	0	0
1991	1526	17501	29808	20254	4797	1133	62	0	0	0	0	0	0	0
1992	8467	35052	32751	14353	937	14	2	0	0	0	0	0	0	0
1993	7182	33588	30295	17443	2766	8	0	0	0	0	0	0	0	0
1994	3214	31818	39741	11419	393	3	0	0	0	0	0	0	0	0
1995	2109	18783	27917	18490	967	25	0	0	0	0	0	0	0	0
1996	4062	39066	49711	8563	1283	18	0	0	0	0	0	0	0	0
1997	17344	37482	39930	7250	225	7	0	0	0	0	0	0	0	0
1998	6004	35508	45759	4511	41	77	0	0	0	41	0	0	0	0
1999	2760	36401	41532	5531	338	108	0	0	0	0	0	0	0	0
2000	1719	27231	40680	3878	308	4	3	0	0	0	0	0	0	0
2001	1848	11669	24053	11589	1743	277	5	0	0	0	0	0	0	0
2002	1273	16556	23610	3402	168	74	0	0	0	0	0	0	0	0
2003	7318	16074	22480	6064	80	31	10	0	0	0	0	0	0	0
2004	4084	13890	29450	5330	36	1	1	0	0	0	0	0	0	0
2005	14980	16279	17045	5260	176	13	3	0	0	0	0	0	0	0
2006	16384	17321	9033	1591	48	14	0	0	0	0	0	0	0	0
2007	14698	20099	6133	1744	287	4	0	0	0	30	0	0	0	0
2008	15355	29416	3396	889	75	7	0	0	0	0	0	0	0	0
2009	7469	34256	9941	1153	143	0	1	0	0	0	0	0	0	0

Table A34. Silver hake commercial discards at age (in thousands of fish) for the northern stock.

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	34529	3279	1442	629	44	2	0	0	0	0	0	0	0	0
1990	8113	7223	1550	818	340	23	0	0	0	0	0	0	0	0
1991	7800	4315	1102	277	40	5	0	0	0	0	0	0	0	0
1992	11045	6942	1802	322	48	5	0	0	0	0	0	0	0	0
1993	5725	2262	452	275	79	7	0	0	0	0	0	0	0	0
1994	1894	1067	140	69	11	4	0	0	0	0	0	0	0	0
1995	9688	4188	433	136	25	5	0	0	0	0	0	0	0	0
1996	14927	7047	2159	175	10	4	0	0	0	0	0	0	0	0
1997	2270	2068	242	39	26	8	0	0	0	0	0	0	0	0
1998	4734	4809	1209	245	25	13	0	0	0	0	0	0	0	0
1999	2075	3559	1177	113	25	2	0	0	0	0	0	0	0	0
2000	2610	3434	489	148	40	5	0	0	0	0	0	0	0	0
2001	975	2054	713	304	67	11	0	0	0	0	0	0	0	0
2002	1246	1253	709	479	95	40	0	0	0	0	0	0	0	0
2003	2895	691	142	89	17	4	2	0	0	0	0	0	0	0
2004	536	554	121	39	5	6	0	0	0	0	0	0	0	0
2005	1204	225	76	7	3	2	0	0	0	0	0	0	0	0
2006	542	27	16	23	1	0	0	0	0	0	0	0	0	0
2007	8724	1155	109	66	122	0	0	0	0	0	0	0	0	0
2008	2196	679	26	11	4	1	0	0	0	0	0	0	0	0
2009	2346	348	99	17	4	0	1	0	0	0	0	0	0	0

Table A35. Silver hake commercial discards at age (in thousands of fish) for the southern stock.

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	4958	16357	19820	5162	407	112	0	0	0	0	0	0	0	0
1990	5688	27591	11822	2303	170	6	3	0	0	0	0	0	0	0
1991	3135	11326	6831	1442	204	34	0	0	0	0	0	0	0	0
1992	17293	14333	3295	724	15	0	0	0	0	0	0	0	0	0
1993	11733	14866	8778	5663	1075	0	0	0	0	0	0	0	0	0
1994	1172	13170	15618	5120	117	0	0	0	0	0	0	0	0	0
1995	986	3789	2401	717	35	0	0	0	0	0	0	0	0	0
1996	384	837	2001	382	48	0	0	0	0	0	0	0	0	0
1997	604	1640	1626	159	12	0	0	0	0	0	0	0	0	0
1998	174	841	3176	65	0	0	0	0	0	0	0	0	0	0
1999	113	18144	17372	32	0	0	0	0	0	0	0	0	0	0
2000	340	1188	856	62	3	0	0	0	0	0	0	0	0	0
2001	827	987	274	15	0	0	0	0	0	0	0	0	0	0
2002	490	2019	1878	65	0	0	0	0	0	0	0	0	0	0
2003	1182	1780	1590	115	1	0	0	0	0	0	0	0	0	0
2004	5936	3506	2209	504	12	0	0	0	0	0	0	0	0	0
2005	5577	6210	4992	142	2	0	0	0	0	0	0	0	0	0
2006	441	588	293	46	0	0	0	0	0	0	0	0	0	0
2007	551	364	181	34	6	0	0	0	0	0	0	0	0	0
2008	2841	6586	494	68	5	0	0	0	0	0	0	0	0	0
2009	5572	3479	511	21	6	0	0	0	0	0	0	0	0	0

Table A36. Silver hake commercial discards at age (in thousands of fish) for the combined stock areas.

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1989	39487	19636	21262	5791	451	114	0	0	0	0	0	0	0	0
1990	13801	34814	13372	3121	510	29	3	0	0	0	0	0	0	0
1991	10935	15641	7933	1720	244	40	0	0	0	0	0	0	0	0
1992	28338	21276	5097	1046	63	5	0	0	0	0	0	0	0	0
1993	17458	17128	9230	5938	1154	7	0	0	0	0	0	0	0	0
1994	3067	14236	15758	5189	127	4	0	0	0	0	0	0	0	0
1995	10673	7978	2835	853	61	5	0	0	0	0	0	0	0	0
1996	15311	7884	4160	557	58	4	0	0	0	0	0	0	0	0
1997	2874	3708	1868	197	38	8	0	0	0	0	0	0	0	0
1998	4907	5651	4386	310	25	13	0	0	0	0	0	0	0	0
1999	2188	21703	18548	145	25	2	0	0	0	0	0	0	0	0
2000	2950	4623	1345	210	43	5	0	0	0	0	0	0	0	0
2001	1801	3041	988	319	68	11	0	0	0	0	0	0	0	0
2002	1736	3272	2587	543	95	40	0	0	0	0	0	0	0	0
2003	4077	2471	1732	204	18	4	2	0	0	0	0	0	0	0
2004	6473	4060	2330	543	17	6	0	0	0	0	0	0	0	0
2005	6781	6435	5069	149	5	2	0	0	0	0	0	0	0	0
2006	983	615	309	69	1	0	0	0	0	0	0	0	0	0
2007	9275	1519	291	99	128	0	0	0	0	0	0	0	0	0
2008	5037	7265	519	80	9	1	0	0	0	0	0	0	0	0
2009	7918	3828	611	37	10	0	1	0	0	0	0	0	0	0

Table A37. Silver hake catch at age (in thousands of fish) for the northern stock.

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	37000	96406	27096	3454	1856	899	123	0	0	240	0	22	185	0
1974	12400	40532	25154	4244	2087	937	54	0	0	52	54	0	81	0
1975	4830	57091	77841	23950	8358	2549	430	117	0	0	0	0	0	0
1976	2016	19716	23193	9460	2422	1501	359	20	0	0	0	0	0	0
1977	1027	7540	21532	14176	3152	472	271	25	9	0	0	0	0	0
1978	1593	7550	6950	10922	13525	2465	311	271	0	7	5	0	0	0
1979	532	2599	2233	1441	1759	2262	419	25	0	0	0	0	0	0
1980	1506	11469	10300	1899	532	437	866	348	49	44	0	3	0	0
1981	4366	9008	7668	3937	689	155	231	185	21	0	0	0	0	0
1982	4679	7989	2937	2864	2773	266	71	471	92	1	2	0	0	0
1983	2944	11947	2801	1447	1924	880	180	51	17	0	0	0	0	0
1984	5183	16108	6503	3325	920	817	8	0	51	0	0	0	0	0
1985	8979	5508	12908	3977	531	713	141	0	0	0	0	0	0	0
1986	3905	15321	3927	4907	1382	516	23	38	0	0	0	0	0	0
1987	851	13368	9831	1456	948	71	3	0	0	0	0	0	0	0
1988	1312	6242	20269	3349	521	624	0	0	0	0	0	0	0	0
1989	37713	9049	11684	3387	388	45	0	0	0	0	0	0	0	0
1990	11640	23068	8539	5658	1480	37	0	0	0	0	0	0	0	0
1991	8985	18215	8803	2814	1114	14	0	0	0	0	0	0	0	0
1992	17193	22825	10058	1528	191	16	2	0	0	0	0	0	0	0
1993	9787	16827	6126	2320	266	15	0	0	0	0	0	0	0	0
1994	3948	11084	6691	1966	49	7	0	0	0	0	0	0	0	0
1995	10318	5957	1344	2048	556	30	0	0	0	0	0	0	0	0
1996	16769	20891	9143	1202	64	20	0	0	0	0	0	0	0	0
1997	5056	15620	3409	243	127	15	0	0	0	0	0	0	0	0
1998	5767	10348	3051	1246	57	90	0	0	0	0	0	0	0	0
1999	2138	7771	5052	2240	270	110	0	0	0	0	0	0	0	0
2000	3239	8356	4640	962	313	9	3	0	0	0	0	0	0	0
2001	1208	3883	2465	2126	1045	252	5	0	0	0	0	0	0	0
2002	1687	6927	4309	1185	155	114	0	0	0	0	0	0	0	0
2003	3083	3325	3884	721	80	36	12	0	0	0	0	0	0	0
2004	1704	3392	2095	230	21	7	1	0	0	0	0	0	0	0
2005	2492	2151	1674	216	35	15	3	0	0	0	0	0	0	0
2006	5381	821	498	534	15	14	0	0	0	0	0	0	0	0
2007	12796	3366	324	284	239	0	0	0	0	0	0	0	0	0
2008	4337	2889	156	72	6	8	0	0	0	0	0	0	0	0
2009	2930	2718	1609	363	23	0	1	0	0	0	0	0	0	0

Table A38. Silver hake catch at age (in thousands of fish) for the southern stock.

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	3470	164329	134686	55533	13498	3410	1524	0	0	0	0	0	0	0
1974	6213	65952	172266	108329	34225	10484	2576	0	455	0	0	0	0	0
1975	5223	49456	128180	63861	20200	2694	396	0	96	0	0	0	0	0
1976	383	51663	48274	39785	18228	8141	3881	412	0	0	0	0	0	0
1977	2044	16736	62794	35481	14643	5894	5004	1312	0	0	0	0	0	0
1978	1383	20549	18263	26284	11708	3412	458	61	0	0	0	0	0	72
1979	1716	12338	12825	6390	9503	5726	998	197	0	0	0	0	0	0
1980	1793	17101	17433	7962	3778	1793	2257	414	168	1	0	0	0	0
1981	5739	12437	17517	12679	5443	2190	1015	1275	666	0	13	0	0	0
1982	4968	26448	10550	8833	6558	2070	1033	369	299	133	0	0	0	0
1983	7861	19351	11352	5583	2531	1733	816	59	71	273	0	0	0	0
1984	2129	29479	15330	5535	1091	421	346	0	0	0	0	0	0	0
1985	3098	23434	21909	8077	1377	236	311	63	65	0	0	0	0	0
1986	5545	27377	9665	8122	1524	205	21	0	0	0	0	0	0	0
1987	4791	21647	14036	5113	3369	69	0	0	39	0	0	0	0	0
1988	1331	17531	27692	7243	579	27	0	0	0	0	0	0	0	0
1989	6162	37065	58113	15756	1441	294	0	0	0	0	0	0	0	0
1990	6404	48799	44712	13122	1962	37	22	0	0	0	0	0	0	0
1991	3476	14927	28939	19159	3927	1159	62	0	0	0	0	0	0	0
1992	19611	33504	27791	13871	809	3	0	0	0	0	0	0	0	0
1993	14853	33889	33400	21062	3654	0	0	0	0	0	0	0	0	0
1994	2333	34970	48808	14642	472	0	0	0	0	0	0	0	0	0
1995	2464	20804	29408	17295	471	0	0	0	0	0	0	0	0	0
1996	2604	26059	44729	7919	1277	2	0	0	0	0	0	0	0	0
1997	15162	25570	38389	7204	136	0	0	0	0	0	0	0	0	0
1998	5144	30811	47094	3576	10	0	0	0	0	0	0	0	0	0
1999	2810	50334	55028	3437	94	0	0	0	0	0	0	0	0	0
2000	1429	23497	37385	3126	38	0	0	0	0	0	0	0	0	0
2001	2442	10827	22576	9782	765	36	0	0	0	0	0	0	0	0
2002	1322	12901	21888	2760	108	0	0	0	0	0	0	0	0	0
2003	8312	15220	20327	5547	18	0	0	0	0	0	0	0	0	0
2004	8853	14559	29685	5643	33	0	0	0	0	0	0	0	0	0
2005	19269	20562	20439	5193	147	0	0	0	0	0	0	0	0	0
2006	11986	17115	8844	1126	35	1	0	0	0	0	0	0	0	0
2007	11178	18252	6100	1559	177	4	0	0	0	31	0	0	0	0
2008	16055	33793	3759	896	78	0	0	0	0	0	0	0	0	0
2009	12458	35366	8942	827	130	0	0	0	0	0	0	0	0	0

Table A39. Silver hake catch at age (in thousands of fish) for the combined stock areas.

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	40470	260734	161782	58987	15354	4310	1647	0	0	240	0	22	185	0
1974	18614	106484	197420	112573	36311	11421	2630	0	455	52	54	0	81	0
1975	10053	106547	206021	87810	28557	5243	826	117	96	0	0	0	0	0
1976	2399	71378	71467	49245	20650	9642	4239	431	0	0	0	0	0	0
1977	3071	24276	84326	49656	17795	6365	5275	1336	9	0	0	0	0	0
1978	2975	28099	25213	37205	25233	5877	769	333	0	7	5	0	0	72
1979	2248	14938	15059	7831	11262	7988	1417	222	0	0	0	0	0	0
1980	3300	28571	27734	9861	4310	2230	3123	761	216	45	0	3	0	0
1981	10105	21445	25185	16616	6132	2344	1246	1459	687	0	13	0	0	0
1982	9647	34437	13487	11697	9331	2336	1104	839	391	134	2	0	0	0
1983	10804	31298	14153	7030	4454	2613	996	110	88	273	0	0	0	0
1984	7312	45587	21833	8860	2011	1238	355	0	51	0	0	0	0	0
1985	12077	28943	34817	12054	1908	950	451	63	65	0	0	0	0	0
1986	9450	42698	13593	13029	2906	720	44	38	0	0	0	0	0	0
1987	5642	35015	23866	6569	4317	140	3	0	39	0	0	0	0	0
1988	2643	23773	47960	10592	1100	651	0	0	0	0	0	0	0	0
1989	43875	46114	69798	19143	1829	339	0	0	0	0	0	0	0	0
1990	18045	71866	53252	18780	3442	74	22	0	0	0	0	0	0	0
1991	12461	33142	37742	21973	5041	1172	62	0	0	0	0	0	0	0
1992	36804	56328	37849	15399	1000	19	2	0	0	0	0	0	0	0
1993	24640	50716	39525	23382	3920	15	0	0	0	0	0	0	0	0
1994	6281	46054	55499	16608	521	7	0	0	0	0	0	0	0	0
1995	12782	26761	30752	19343	1027	30	0	0	0	0	0	0	0	0
1996	19373	46950	53871	9120	1341	22	0	0	0	0	0	0	0	0
1997	20218	41190	41798	7447	263	15	0	0	0	0	0	0	0	0
1998	10911	41159	50145	4822	67	90	0	0	0	0	0	0	0	0
1999	4948	58104	60080	5676	364	110	0	0	0	0	0	0	0	0
2000	4668	31853	42025	4087	351	9	3	0	0	0	0	0	0	0
2001	3650	14709	25041	11908	1811	288	5	0	0	0	0	0	0	0
2002	3009	19828	26197	3945	263	114	0	0	0	0	0	0	0	0
2003	11395	18545	24212	6268	98	36	12	0	0	0	0	0	0	0
2004	10557	17950	31780	5873	54	7	1	0	0	0	0	0	0	0
2005	21761	22713	22113	5409	181	15	3	0	0	0	0	0	0	0
2006	17367	17936	9343	1660	49	15	0	0	0	0	0	0	0	0
2007	23974	21618	6424	1843	416	4	0	0	0	31	0	0	0	0
2008	20392	36681	3915	968	84	8	0	0	0	0	0	0	0	0
2009	15388	38084	10552	1190	153	0	1	0	0	0	0	0	0	0

Table A40. Silver hake catch weight at age for the northern stock (kg).

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	0.1232	0.1730	0.2557	0.4812	0.5760	0.6304	1.3418	0	0	1.1065	0	1.5049	0.8503	0
1974	0.1086	0.2086	0.2856	0.4209	0.5113	0.6522	0.6635	0	0	0.8537	1.4930	0	0.8479	0
1975	0.0845	0.1426	0.2117	0.3529	0.4732	0.7730	0.8541	0.8503	0	0	0	0	0	0
1976	0.0806	0.1519	0.2129	0.3369	0.4962	0.5890	0.6476	1.7126	0	0	0	0	0	0
1977	0.1227	0.1803	0.2294	0.2859	0.4489	0.6075	0.9102	0.8939	0.9586	0	0	0	0	0
1978	0.1167	0.2110	0.2448	0.2883	0.3236	0.4981	0.5365	0.7281	0	0.9017	0.9586	0	0	0
1979	0.1363	0.2126	0.2817	0.3397	0.3510	0.3655	0.4756	1.0956	0	0	0	0	0	0
1980	0.0960	0.1346	0.1689	0.2160	0.3041	0.3532	0.3083	0.4826	1.0829	1.8496	0	2.4460	0	0
1981	0.1099	0.1383	0.1780	0.2258	0.2935	0.3490	0.4612	0.3617	0.3282	0	0	0	0	0
1982	0.1109	0.1630	0.2068	0.3004	0.3150	0.3347	0.3768	0.6137	0.9944	1.5090	1.6687	2.0320	0	0
1983	0.1293	0.1911	0.2906	0.3329	0.3918	0.5613	0.4510	0.2854	0.5359	0	0	0	0	0
1984	0.1242	0.1925	0.2971	0.4626	0.4736	0.7454	1.5651	0	0.3111	0	0	0	0	0
1985	0.1410	0.2052	0.2619	0.3762	0.4645	0.9337	0.6524	0	0	0	0	0	0	0
1986	0.1257	0.2281	0.3306	0.3757	0.5430	1.0947	2.0009	0.3005	0	0	0	0	0	0
1987	0.0903	0.1539	0.2679	0.3407	0.3579	0.6826	1.7468	0	0	0	0	0	0	0
1988	0.1001	0.1409	0.1930	0.3411	0.4072	0.8203	0	0	0	0	0	0	0	0
1989	0.0474	0.1487	0.2174	0.3043	0.4352	1.2695	0	0	0	0	0	0	0	0
1990	0.0648	0.1417	0.2294	0.2869	0.4627	0.8688	0	0	0	0	0	0	0	0
1991	0.0675	0.1498	0.2149	0.2853	1.1251	0.8025	0	0	0	0	0	0	0	0
1992	0.0576	0.1224	0.2228	0.3462	0.7570	1.2611	3.8648	0	0	0	0	0	0	0
1993	0.0603	0.1300	0.2233	0.3077	0.6194	1.5227	2.9826	0	0	0	0	0	0	0
1994	0.0697	0.1318	0.2435	0.3618	1.0404	1.7938	2.3271	0	0	0	0	0	0	0
1995	0.0354	0.0759	0.2045	0.6955	1.1767	1.7207	0	0	0	0	0	0	0	0
1996	0.0210	0.1009	0.1713	0.2751	0.7922	1.3982	3.3621	0	0	0	0	0	0	0
1997	0.0623	0.1262	0.1681	0.2849	0.7734	1.1201	1.5205	0	0	0	0	0	0	0
1998	0.0250	0.1047	0.2592	0.4631	0.6507	1.1736	2.6742	0	0	0	0	0	0	0
1999	0.0157	0.1443	0.3103	0.5187	0.7310	0.9842	1.5045	0	0	0	0	0	0	0
2000	0.0275	0.1180	0.2511	0.4529	0.8244	1.4221	1.4473	0	0	0	0	0	0	0
2001	0.0324	0.1161	0.3010	0.5716	0.9876	1.5147	1.7181	0	0	0	0	0	0	0
2002	0.0762	0.1576	0.2679	0.4301	0.6001	1.1045	2.1307	0	0	0	0	0	0	0
2003	0.0348	0.1338	0.2434	0.5180	0.9793	1.0626	1.5786	2.1307	0	0	0	0	0	0
2004	0.0620	0.1191	0.2631	0.2836	0.9794	2.0800	1.7304	0	0	0	0	0	0	0
2005	0.0466	0.1386	0.2308	0.3075	0.3634	0.3484	1.7543	0	0	0	0	0	0	0
2006	0.1007	0.1784	0.1847	0.2651	1.0386	0.1753	1.8087	0	0	0	0	0	0	0
2007	0.0717	0.1848	0.2308	0.2906	0.2756	1.8087	0.2359	0	0	0	0	0	0	0
2008	0.0667	0.1451	0.2292	0.4476	0.8437	0.7874	1.8087	0	0	0	0	0	0	0
2009	0.0642	0.1589	0.2403	0.5676	0.5001	2.0215	0.4448	0	0	0	0	0	0	0

Table A41. Silver hake catch weight at age for the southern stock (kg).

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	0.1102	0.2002	0.2795	0.3898	0.4967	0.5898	0.5125	0	0	0	0	0	0	0
1974	0.1362	0.1872	0.2263	0.3065	0.3433	0.3767	0.4480	0	0.3271	0	0	0	0	0
1975	0.1363	0.1927	0.2312	0.3531	0.4162	0.4345	0.2943	0	0.4383	0	0	0	0	0
1976	0.1063	0.2132	0.2660	0.4318	0.7257	0.8034	0.8772	0.8802	0	0	0	0	0	0
1977	0.1487	0.2365	0.3146	0.3922	0.5951	0.8713	0.8184	0.9788	0	0	0	0	0	0
1978	0.1434	0.2082	0.2816	0.3553	0.3564	0.6986	0.5444	0.7697	0	0	0	0	0	0.3273
1979	0.1494	0.2159	0.2669	0.3164	0.4980	0.4376	0.6086	0.9545	0	0	0	0	0	0
1980	0.1172	0.1895	0.2163	0.2605	0.2752	0.3078	0.2723	0.3256	0.2761	0.6516	0	0	0	0
1981	0.1187	0.1889	0.2139	0.2490	0.2903	0.3502	0.3504	0.3930	0.4192	0	0.8959	0	0	0
1982	0.1364	0.1902	0.2691	0.2662	0.2856	0.3225	0.3791	0.3954	0.4054	0.4021	0	0	0	0
1983	0.1677	0.2019	0.2752	0.3016	0.3392	0.3186	0.3143	0.2506	0.5700	0.3831	0	0	0	0
1984	0.1522	0.1991	0.2536	0.3985	0.3472	0.4259	0.3178	0	0	0	0	0	0	0
1985	0.1371	0.1749	0.2295	0.3164	0.3773	0.2988	0.2871	0.2739	0.2500	0	0	0	0	0
1986	0.1387	0.1555	0.2190	0.2504	0.2931	0.3239	0.3268	0	0	0	0	0	0	0
1987	0.1338	0.1521	0.2097	0.2763	0.3653	0.3325	0	0	0.2280	0	0	0	0	0
1988	0.0608	0.1476	0.1574	0.2408	0.2785	0.6306	0	0	0	0	0	0	0	0
1989	0.0882	0.1311	0.1716	0.2291	0.3326	0.2510	0	0	0	0	0	0	0	0
1990	0.0742	0.1260	0.1864	0.2558	0.3304	0.4163	0.5621	0	0	0	0	0	0	0
1991	0.0668	0.1196	0.1736	0.2177	0.3123	0.3114	0.3537	0	0	0	0	0	0	0
1992	0.0730	0.1269	0.1761	0.2274	0.2613	1.3141	0	0	0	0	0	0	0	0
1993	0.0688	0.1158	0.1958	0.2369	0.3218	0	0	0	0	0	0	0	0	0
1994	0.0696	0.1472	0.1781	0.2616	0.6066	0	0	0	0	0	0	0	0	0
1995	0.0901	0.1610	0.1869	0.2323	0.6541	0	0	0	0	0	0	0	0	0
1996	0.0822	0.1272	0.1430	0.2696	0.4288	1.5012	0	0	0	0	0	0	0	0
1997	0.0843	0.1312	0.1683	0.2783	0.4143	0	0	0	0	0	0	0	0	0
1998	0.0832	0.1347	0.1533	0.3480	0.8411	0	0	0	0	0	0	0	0	0
1999	0.0699	0.0976	0.1399	0.3240	0.4891	0	0	0	0	0	0	0	0	0
2000	0.0935	0.1388	0.1483	0.2680	0.5868	0	0	0	0	0	0	0	0	0
2001	0.0722	0.1350	0.1717	0.3047	0.6768	1.6357	0	0	0	0	0	0	0	0
2002	0.0773	0.1172	0.1274	0.2928	0.8062	0	0	0	0	0	0	0	0	0
2003	0.0762	0.1333	0.1501	0.2077	0.6676	0	0	0	0	0	0	0	0	0
2004	0.0674	0.1069	0.1529	0.2558	1.0052	0	0	0	0	0	0	0	0	0
2005	0.0991	0.1045	0.1189	0.2738	0.4053	0	0	0	0	0	0	0	0	0
2006	0.0961	0.1252	0.1352	0.2019	0.7299	1.3809	0	0	0	0	0	0	0	0
2007	0.0959	0.1393	0.1884	0.2224	0.5065	1.1264	0	0	0	0.2369	0	0	0	0
2008	0.0907	0.1173	0.2107	0.4058	0.5134	0	0	0	0	0	0	0	0	0
2009	0.0920	0.1242	0.1629	0.4140	0.7106	0	0	0	0	0	0	0	0	0

Table A42 Silver hake catch weight at age for the combined stock areas (kg).

year	age-1	age-2	age-3	age-4	age-5	age-6	age-7	age-8	age-9	age-10	age-11	age-12	age-13	age-14
1973	0.1221	0.1902	0.2755	0.3952	0.5063	0.5983	0.5745	0	0	1.1065	0	1.5049	0.8503	0
1974	0.1178	0.1954	0.2339	0.3108	0.3530	0.3993	0.4525	0	0.3271	0.8537	1.4930	0	0.8479	0
1975	0.1114	0.1659	0.2238	0.3530	0.4329	0.5991	0.5859	0.8503	0.4383	0	0	0	0	0
1976	0.0847	0.1962	0.2488	0.4136	0.6988	0.7700	0.8578	0.9179	0	0	0	0	0	0
1977	0.1400	0.2190	0.2928	0.3619	0.5692	0.8518	0.8231	0.9772	0.9586	0	0	0	0	0
1978	0.1291	0.2089	0.2715	0.3356	0.3388	0.6145	0.5412	0.7358	0	0.9017	0.9586	0	0	0.3273
1979	0.1463	0.2153	0.2691	0.3206	0.4751	0.4172	0.5693	0.9706	0	0	0	0	0	0
1980	0.1075	0.1675	0.1987	0.2519	0.2788	0.3167	0.2823	0.3973	0.4580	1.8180	0	2.4460	0	0
1981	0.1149	0.1676	0.2030	0.2435	0.2906	0.3501	0.3710	0.3890	0.4164	0	0.8959	0	0	0
1982	0.1240	0.1839	0.2556	0.2746	0.2944	0.3239	0.3789	0.5178	0.5435	0.4109	1.6687	2.0320	0	0
1983	0.1572	0.1978	0.2782	0.3081	0.3619	0.4004	0.3391	0.2666	0.5634	0.3831	0	0	0	0
1984	0.1323	0.1968	0.2666	0.4226	0.4050	0.6367	0.3476	0	0.3111	0	0	0	0	0
1985	0.1400	0.1807	0.2415	0.3361	0.4016	0.7757	0.4009	0.2739	0.2500	0	0	0	0	0
1986	0.1334	0.1816	0.2512	0.2976	0.4120	0.8756	1.2022	0.3005	0	0	0	0	0	0
1987	0.1272	0.1528	0.2337	0.2906	0.3637	0.5107	1.7468	0	0.2280	0	0	0	0	0
1988	0.0803	0.1458	0.1724	0.2725	0.3395	0.8123	0	0	0	0	0	0	0	0
1989	0.0531	0.1346	0.1792	0.2424	0.3544	0.3861	0	0	0	0	0	0	0	0
1990	0.0681	0.1310	0.1933	0.2652	0.3873	0.6436	0.5621	0	0	0	0	0	0	0
1991	0.0673	0.1362	0.1832	0.2264	0.4918	0.3172	0.3537	0	0	0	0	0	0	0
1992	0.0658	0.1250	0.1885	0.2392	0.3562	1.2704	3.8648	0	0	0	0	0	0	0
1993	0.0654	0.1205	0.2001	0.2440	0.3420	1.5227	2.9826	0	0	0	0	0	0	0
1994	0.0697	0.1435	0.1859	0.2735	0.6470	1.7938	2.3271	0	0	0	0	0	0	0
1995	0.0459	0.1421	0.1877	0.2813	0.9371	1.7207	0	0	0	0	0	0	0	0
1996	0.0292	0.1155	0.1478	0.2704	0.4462	1.4061	3.3621	0	0	0	0	0	0	0
1997	0.0788	0.1293	0.1683	0.2785	0.5876	1.1201	1.5205	0	0	0	0	0	0	0
1998	0.0524	0.1272	0.1597	0.3778	0.6780	1.1736	2.6742	0	0	0	0	0	0	0
1999	0.0465	0.1038	0.1542	0.4008	0.6685	0.9842	1.5045	0	0	0	0	0	0	0
2000	0.0477	0.1333	0.1597	0.3115	0.7990	1.4221	1.4473	0	0	0	0	0	0	0
2001	0.0591	0.1300	0.1844	0.3523	0.8562	1.5298	1.7181	0	0	0	0	0	0	0
2002	0.0767	0.1313	0.1505	0.3341	0.6847	1.1045	2.1307	0	0	0	0	0	0	0
2003	0.0650	0.1334	0.1651	0.2434	0.9217	1.0626	1.5786	2.1307	0	0	0	0	0	0
2004	0.0665	0.1092	0.1601	0.2569	0.9951	2.0800	1.7304	0	0	0	0	0	0	0
2005	0.0930	0.1077	0.1274	0.2752	0.3973	0.3484	1.7543	0	0	0	0	0	0	0
2006	0.0976	0.1276	0.1379	0.2222	0.8232	0.2517	1.8087	0	0	0	0	0	0	0
2007	0.0830	0.1464	0.1906	0.2329	0.3737	1.1763	0.2359	0	0	0.2369	0	0	0	0
2008	0.0856	0.1194	0.2115	0.4089	0.5376	0.7874	1.8087	0	0	0	0	0	0	0
2009	0.0867	0.1267	0.1747	0.4608	0.6791	2.0215	0.4448	0	0	0	0	0	0	0

Table A43. Survey attributes. The years where age structure is available pertains to silver hake specifically (Some age information is available earlier in the time series for other stocks).

Survey	Index	Years	Precision	Area	depth(m)	Speed (kn)	duration (min)	Height (m)	Changes	Comments
Fall	abundance	1973-2009		GOM, SGB, NGB, SNE, MA	>30	3.8	30	1-2	D85, V~	
	age Structure	1973-2009								
Spring	abundance	1973-2009		GOM, SGB, NGB, SNE, MA	>30	3.8	30	1-2	5, V~, N73-81, V~	
	age Structure	1973-2009								
Shrimp	abundance	1985-2009	?	W.GOM	?	2	15	3	none	no ages
Larval	SSB	1977-2008	IQR~?	SW.GOM-GB	>30	NA		NA	mesh93	
ME-NH	Recruitment	2000-2009	?	Inshore ME	<30	2.5	20	3	none	no ages
Maspring	Recruitment	(1978)1982-2009	?	Inshore MA			15	3	V82	Intermittent ages
Mafall	Recruitment	(1978)1982-2009	?	Inshore MA	<100~	2	15	3		intermittent ages

Table A44. negative log-likelihood, number of model parameters, AIC_c measures for beta-binomial models with the specified relationship of the calibration factor to length fit to silver hake catch data from the 2008 *Albatross IV/Henry B. Bigelow* calibration experiment.

Model	Model	-LL	# parameters	AIC_c	$\Delta (AIC_c)$	AIC_c Weights
1	All stations, constant (no length effect)	9341.745	2	18687.49	494.4465	0
2	Survey, S-S, constant	9322.744	4	18653.49	460.4489	0
3	S,F,S-S, constant model	9305.244	6	18622.5	429.4549	0
4	All stations, logistic model	9186.488	5	18382.99	189.9405	0
5	Survey, S-S logistic	9163.663	10	18347.36	154.3148	0
6	S, F, S-S, logistic	9146.738	15	18323.55	130.5072	0
7	All stations, double logistic model	9115.248	8	18246.52	53.4731	0
8	Survey, S-S, double-logistic model	9089.773	16	18211.63	18.5858	1.00E-04
9	S,F,S-S, double-logistic model	9073.961	24	18196.11	3.0675	0.1774
10	Spring logistic model	9076.506	21	18195.16	2.1138	NA
11	No minimum of ascending logistic for Fall	9073.981	23	18194.14	1.0926	NA
12	No minima for ascending or descending logistic for Fall	9074.917	22	18194	0.9499	NA
13	Spring logistic, no minima for ascending or descending logistic for Fall	9076.527	19	18193.05	0	0.8225

Table A45: NEFSC fall survey indices of minimum swept area abundance for northern silver hake stock in thousands of fish and thousand of metric tons (Note that 2009a are raw Bigelow Values and 2009b are converted Bigelow values to Albatross units)

Year	CV	Age1	Age2	Age3	Age4	Age5	Age6+	B(000mt)
1973	12%	14436.5	17065.9	6506.6	956.3	640.4	384.7	8.818
1974	16%	0.0	0.0	0.0	0.0	0.0	0.0	7.374
1975	17%	35678.7	65288.3	15495.3	4861.7	1785.7	1324.1	17.312
1976	15%	15459.1	33747.8	35380.2	13317.2	2055.5	2303.5	24.070
1977	21%	11894.0	11472.0	19658.5	12447.3	2127.2	519.8	14.381
1978	10%	22603.4	7793.0	4901.3	7013.1	9481.1	2681.8	13.527
1979	14%	54164.4	35852.5	4038.5	1873.8	2241.7	3455.2	13.222
1980	21%	8020.5	27275.0	26790.4	6152.2	2286.6	6611.8	15.460
1981	24%	16369.2	10221.9	11695.4	9707.7	1530.8	2594.7	9.667
1982	38%	32671.9	18255.7	6595.6	6801.4	6221.3	1512.4	13.443
1983	20%	85804.5	59343.2	2440.3	1256.5	1284.5	820.2	18.735
1984	16%	12838.7	15684.7	4775.2	1077.8	396.1	248.0	7.185
1985	12%	84813.3	7705.9	14376.6	2885.3	210.8	51.6	17.718
1986	11%	171009.8	46817.8	6360.4	6077.7	742.5	0.0	27.902
1987	13%	7056.1	88792.7	21521.0	2330.5	1818.8	229.0	20.949
1988	13%	8381.9	13019.5	37131.3	2667.3	319.7	79.6	12.939
1989	14%	115415.1	26960.7	28799.9	2886.6	141.0	17.1	22.539
1990	21%	45324.0	116639.3	29578.5	13340.3	1629.7	0.0	33.397
1991	19%	76098.0	61390.6	21634.0	4048.5	230.2	0.0	22.515
1992	13%	79017.2	80694.6	25106.3	840.5	0.0	0.0	21.925
1993	15%	103221.8	62864.1	9868.4	1885.8	112.1	0.0	16.051
1994	12%	41373.7	78996.9	7439.5	226.2	0.0	0.0	14.644
1995	14%	174259.8	75106.4	18922.2	772.3	0.0	0.0	27.592
1996	14%	30675.8	75793.5	19831.7	1861.6	119.4	39.6	16.191
1997	17%	24796.9	39185.3	11025.0	855.9	53.9	17.8	12.108
1998	20%	437056.4	85750.8	10686.5	1411.6	45.2	86.0	40.462
1999	13%	82209.2	124230.5	3951.8	837.5	106.8	20.1	23.853
2000	13%	216280.5	92445.2	14006.8	860.2	55.4	0.0	28.903
2001	13%	26200.2	111742.1	7411.1	1307.6	224.5	0.0	17.820
2002	12%	55376.4	64790.2	4901.0	628.7	38.3	0.0	17.093
2003	13%	135899.8	34640.5	15642.5	537.1	55.8	0.0	17.745
2004	17%	39525.1	28282.0	3761.0	390.3	36.2	0.0	7.014
2005	16%	8989.2	15479.3	4467.7	170.5	88.6	55.6	3.672
2006	39%	56340.2	4048.3	3011.8	2338.8	0.0	65.1	7.903
2007	12%	163771.4	6655.9	818.1	500.7	444.0	0.0	13.786
2008	13%	73158.4	32141.6	1132.8	208.0	0.0	0.0	11.285
2009a	13%	349370.4	132034.0	55391.2	932.5	1458.7	32.7	67.300
2009b	NA	71712.5	30640.6	13550.5	285.8	357.7	11.9	14.748

Table A46: NEFSC spring survey indices of minimum swept area abundance for northern silver hake stock in thousands of fish and thousands of metric tons (Note that 2009a are raw Bigelow Values and 2009b are converted Bigelow values to Albatross units).

Year	CV	Age1	Age2	Age3	Age4	Age5	Age6+	B(000mt)
1973	17%	11417.2	25745.9	2586.8	336.2	113.2	40.7	5.760
1974	21%	80728.8	8416.8	4048.8	1116.6	218.9	153.0	5.789
1975	24%	103639.2	163802.8	17115.2	2873.8	937.9	119.7	18.268
1976	13%	25532.1	57159.3	30964.7	3593.2	1243.0	833.2	17.952
1977	14%	12742.4	12445.0	10823.9	4368.0	873.5	719.0	7.796
1978	26%	10279.1	4439.9	840.5	449.6	448.3	164.6	1.720
1979	23%	20114.1	30356.8	1037.8	288.7	147.6	304.7	3.693
1980	14%	9743.9	44268.4	15180.1	1065.2	305.4	615.4	8.565
1981	15%	24465.0	12678.4	8566.6	2805.3	348.4	144.4	4.607
1982	15%	23899.0	12213.5	3437.4	1493.6	1156.8	286.3	3.047
1983	16%	23320.0	17971.3	1880.7	546.5	766.9	266.6	3.273
1984	22%	8586.5	12281.1	1891.8	403.1	107.6	133.1	2.370
1985	29%	70390.3	7367.8	4209.5	1578.5	456.2	313.3	5.004
1986	20%	162634.1	12302.0	1595.9	1455.1	311.3	182.3	6.321
1987	19%	6462.3	72239.3	7050.9	961.0	460.9	96.7	7.906
1988	16%	1956.9	3583.3	10439.5	1317.5	218.5	97.4	2.641
1989	21%	236852.6	7336.2	1499.6	3118.6	250.1	0.0	7.353
1990	18%	30459.7	19804.3	3243.8	736.5	413.6	41.9	3.363
1991	12%	85192.9	10244.0	2636.3	1228.0	89.9	46.9	2.850
1992	26%	237761.6	91109.7	12132.1	3703.4	189.4	16.0	11.639
1993	25%	80010.3	49913.7	6632.8	2830.6	281.8	0.0	5.513
1994	31%	15457.9	139351.6	22783.5	2405.6	25.3	33.4	11.254
1995	19%	92548.6	113790.1	14160.7	2347.8	125.0	37.0	6.998
1996	19%	7746.6	43529.7	29157.0	2431.9	37.7	45.4	6.436
1997	14%	5291.4	13944.4	7595.3	579.5	172.5	37.7	2.583
1998	12%	156694.2	212364.9	4923.3	1076.5	190.0	47.3	8.357
1999	16%	24723.9	123620.3	11145.9	1487.2	461.6	16.0	8.751
2000	17%	38275.9	357605.0	49393.7	5192.7	557.6	126.7	20.285
2001	13%	8371.0	261511.6	72584.2	6256.4	614.6	65.3	22.309
2002	15%	14365.3	79166.5	30560.5	3707.2	350.3	240.3	7.457
2003	19%	104133.8	160288.7	13610.3	2901.2	166.9	73.6	7.496
2004	19%	10608.0	111844.0	7763.1	2773.9	236.0	33.0	6.541
2005	16%	5128.1	21365.7	7241.4	555.5	36.2	0.0	2.436
2006	13%	18462.6	2344.0	630.8	1038.0	59.5	36.2	0.915
2007	19%	160220.6	12298.6	1249.9	384.1	338.5	43.7	4.716
2008	18%	23538.5	64374.8	1957.3	282.0	28.5	161.6	6.290
2009a	14%	458004.4	131703.7	65939.2	1601.0	304.9	958.9	75.190
2009b	NA	52960.0	27848.6	13993.6	339.8	64.7	203.5	5.673

Table A47: Swept area abundance and biomass for silver hake from the Shrimp survey

Year	Swept Area (nm)	Swept Area Abundance (millions)	Swept Area Upper CI	Swept Area Lower CI	Swept Area Biomass (mt)	Swept Area Upper CI	Swept Area Lower CI
1985	9675	775.78	1218.38	333.18	68474.09	107632.44	29315.49
1986	12022	2242.04	2740.04	1744.04	105899.39	130566.43	81232.65
1987	11595	1151.27	1439.34	863.19	149508.25	187774.65	111241.56
1988	6574	95.94	117.43	74.45	16302.04	19623.88	12980.20
1989	9167	1452.78	1981.00	924.56	82533.48	121208.59	43858.37
1990	9167	761.40	851.82	670.98	92028.43	102836.78	81220.08
1991	10401	852.50	955.33	749.67	62591.40	72070.35	53112.45
1992	8983	1542.04	1827.99	1256.09	82456.75	94660.16	70253.12
1993	10629	1964.33	2160.56	1768.11	85261.32	91638.99	78883.65
1994	6574	399.06	533.46	264.66	32765.14	46107.41	19423.05
1995	6147	554.31	691.27	417.35	30770.35	38115.24	23425.29
1996	6574	506.71	654.17	359.25	34179.38	43632.79	24726.13
1997	6147	154.76	200.29	109.23	10644.45	13005.05	8283.85
1998	7241	2060.04	2831.16	1288.92	72296.68	98166.24	46427.12
1999	8195	741.92	875.53	608.31	46540.63	56341.44	36739.62
2000	8195	1892.18	2206.53	1577.83	81988.72	93634.84	70342.81
2001	7749	617.70	730.27	505.14	46869.83	55068.85	38670.80
2002	8500	1063.57	1149.30	977.84	66092.60	71205.56	60979.64
2003	9167	2324.57	2974.95	1674.18	81179.51	108300.31	54058.72
2004	10788	875.95	1053.75	698.15	42106.37	50668.00	33544.75
2005	10788	244.07	295.65	192.50	17895.40	20879.63	14911.17
2006	7241	136.78	177.41	96.15	9501.46	12106.05	6896.87
2007	9370	773.15	950.45	595.84	32559.34	40137.80	24980.65
2008	9370	575.56	668.92	482.21	27980.69	33357.67	22603.95
2009	9370	286.63	343.30	229.97	16239.62	20030.72	12448.51

Table A48. Fall survey Swept area abundance and biomass with 95% Confidence interval for silver from the Massachusetts Division of Fisheries Fall North Survey

Year	Swept Area (nm)	Swept Area Abundance (millions)	Swept Area Upper CI	Swept Area Lower CI	Swept Area Biomass (mt)	Swept Area Upper CI	Swept Area Lower CI
1978	948	16.03	23.30	8.77	767.75	1373.74	161.79
1979	969	18.10	20.35	15.84	1327.45	1548.98	1105.90
1980	969	15.11	23.96	6.26	1522.93	3150.82	-104.96
1981	969	11.05	13.71	8.38	1450.37	1821.45	1079.30
1982	969	14.38	17.12	11.64	794.94	924.46	665.39
1983	969	8.72	10.10	7.33	845.40	979.33	711.47
1984	969	3.74	4.33	3.15	595.07	723.94	466.18
1985	948	13.93	16.01	11.85	1477.26	1797.31	1157.18
1986	969	32.75	36.69	28.81	2115.96	2435.27	1796.68
1987	933	3.47	4.59	2.35	274.01	328.50	219.51
1988	933	3.57	4.26	2.88	552.66	718.88	386.45
1989	875	9.75	11.30	8.21	695.98	802.75	589.24
1990	969	4.37	5.21	3.52	483.49	610.52	356.44
1991	914	20.69	24.40	16.98	1399.73	1635.34	1164.13
1992	969	59.66	68.32	51.00	1657.29	1974.05	1340.50
1993	969	8.27	9.91	6.64	549.88	656.52	443.21
1994	969	11.89	14.74	9.05	1099.07	1376.58	821.54
1995	969	14.41	17.89	10.93	1041.30	1299.77	782.84
1996	969	10.82	12.89	8.74	1111.37	1274.32	948.41
1997	969	7.99	11.02	4.96	507.48	677.86	337.07
1998	969	12.70	15.58	9.83	666.70	820.48	512.92
1999	969	14.15	19.27	9.02	1210.00	1590.30	829.73
2000	969	21.69	25.38	18.01	2231.55	2596.94	1866.14
2001	969	4.94	6.64	3.24	759.74	1147.77	371.71
2002	969	13.74	15.65	11.82	1018.45	1133.66	903.27
2003	969	10.69	13.45	7.94	718.47	996.69	440.26
2004	969	7.39	10.58	4.20	434.49	527.73	341.27
2005	969	1.77	2.12	1.42	171.75	207.57	135.92
2006	969	5.92	7.16	4.68	508.06	643.22	372.92
2007	948	4.27	4.93	3.60	412.63	500.96	324.29
2008	969	6.09	7.20	4.98	481.80	576.23	387.35
2009	948	7.74	10.18	5.30	651.17	892.02	410.28

Table A49: Spring survey swept area abundance and biomass with 95% Confidence interval for silver from the Massachusetts Division of Fisheries in the northern management area

Year	Swept Area (nm)	Swept Area Abundance (millions)	Swept Area Upper CI	Swept Area Lower CI	Swept Area Biomass (mt)	Swept Area Upper CI	Swept Area Lower CI
1978	930	1.15	1.75	0.55	227.17	357.30	97.03
1979	969	1.76	2.43	1.10	79.41	142.42	16.40
1980	969	2.11	2.87	1.36	268.44	375.11	161.77
1981	969	4.47	6.14	2.81	560.31	1114.59	6.02
1982	969	0.64	0.78	0.51	80.39	100.85	59.94
1983	969	4.73	5.69	3.76	677.13	833.78	520.50
1984	969	1.97	2.46	1.48	299.96	392.84	207.07
1985	969	5.65	7.06	4.24	322.13	469.99	174.26
1986	969	10.12	11.73	8.52	753.77	1069.50	438.04
1987	969	11.83	39.84	-16.17	1470.43	4825.34	-1884.51
1988	969	1.24	1.55	0.94	198.78	244.81	152.75
1989	969	4.00	5.32	2.68	204.22	282.52	125.92
1990	969	1.25	2.90	-0.40	112.26	238.94	-14.41
1991	969	1.56	2.12	1.00	112.19	160.91	63.44
1992	969	3.99	5.62	2.37	386.24	676.58	95.91
1993	969	0.84	1.60	0.07	32.22	44.52	19.93
1994	969	1.96	4.30	-0.38	73.87	117.88	29.85
1995	969	5.44	6.91	3.96	273.60	324.29	222.91
1996	969	1.88	2.36	1.41	70.27	94.60	45.95
1997	969	6.34	10.92	1.76	644.38	1191.00	97.73
1998	969	2.24	3.03	1.45	124.83	191.85	57.84
1999	969	4.91	6.63	3.20	231.43	373.14	89.74
2000	969	13.12	17.61	8.62	1031.18	1478.87	583.48
2001	969	2.86	3.67	2.05	314.19	410.05	218.35
2002	969	4.53	5.68	3.37	406.30	498.86	313.74
2003	969	3.67	4.46	2.88	149.90	182.30	117.50
2004	969	0.95	1.21	0.68	47.19	73.09	21.26
2005	969	1.00	1.26	0.74	52.76	65.98	39.53
2006	969	3.90	5.09	2.72	186.03	313.33	58.73
2007	969	2.36	2.87	1.85	162.57	198.80	126.35
2008	969	2.08	2.61	1.55	138.44	182.98	93.87
2009	969	4.80	6.14	3.45	225.05	256.62	193.51

Table A50: Stratified mean number and weight per tow (kg) for silver hake from the fall and spring Maine_New Hampshire State surveys, 2000-2009

	MENH Fall	MENH Fall	MENH Spring	MENH Spring
Year	Stratified Mean Number/Tow	Stratified Mean Weight/Tow (Kg)	Stratified Mean Number/Tow	Stratified Mean Weight/Tow (Kg)
2000	786.49	34.77		
2001	687.67	52.88	97.74	3.68
2002	476.28	13.47	302.44	13.34
2003	1046.25	49.97	503.71	11.63
2004	413.66	24.85	131.82	5.25
2005	44.93	3.77	43.34	1.91
2006	82.59	7.13	40.47	1.58
2007	605.57	37.14	223.16	5.68
2008	467.93	30.66	145.21	4.67
2009	498.48	25.73	277.21	8.54

Table A51: NEFSC fall survey indices of minimum swept area abundance for southern silver hake stock in thousands of fish and thousand of metric tons (Note that 2009a are raw Bigelow Values and 2009b are converted Bigelow values to Albatross units)

Year	CV	Age1	Age2	Age3	Age4	Age5	Age6+	B(000mt)
1973	20%	10253.2	10947.8	4677.8	1335.2	664.1	61.6	5.622
1974	28%	0.0	0.0	0.0	0.0	0.0	0.0	2.813
1975	27%	13223.3	7848.6	4759.3	1939.8	670.4	340.7	5.912
1976	34%	6303.8	12596.9	6726.9	2316.6	600.6	720.4	6.600
1977	25%	8336.3	3369.7	6678.9	2286.1	520.8	387.0	5.546
1978	19%	20398.5	8995.1	5934.6	5397.9	2441.4	533.0	8.272
1979	16%	6862.6	6226.6	4536.8	2209.3	1604.1	1555.7	5.575
1980	21%	8781.9	3224.5	7869.9	2438.1	1357.2	1344.7	5.386
1981	35%	22241.3	2260.9	3415.8	2392.1	557.5	218.2	3.720
1982	28%	9618.2	7750.3	3109.5	1301.1	589.3	329.1	5.178
1983	32%	25684.2	11599.1	5732.0	1143.2	593.3	345.3	8.510
1984	25%	16431.4	7743.5	3112.5	888.5	52.9	0.0	4.611
1985	26%	53270.5	11520.9	8872.3	4211.0	394.0	0.0	11.760
1986	28%	19161.6	8618.4	1948.4	642.3	216.5	0.0	4.788
1987	36%	17745.5	24635.5	1873.3	559.1	173.9	0.0	6.454
1988	26%	12656.9	28969.2	3205.2	237.7	26.5	0.0	5.903
1989	21%	9082.5	22022.5	7874.4	681.4	124.2	0.0	6.177
1990	33%	4143.3	19925.8	4208.3	1185.5	262.5	0.0	5.004
1991	49%	2058.3	8055.8	3870.3	722.1	26.5	0.0	2.808
1992	31%	12976.8	11667.0	1663.2	150.0	0.0	0.0	3.277
1993	16%	22742.5	18502.6	1894.0	367.9	0.0	0.0	4.215
1994	22%	4162.7	14601.6	1315.1	227.8	0.0	0.0	2.629
1995	41%	36320.2	13168.4	1984.8	109.9	24.2	0.0	5.270
1996	21%	4640.1	6595.1	1365.0	90.1	0.0	0.0	1.480
1997	21%	13166.7	9125.2	1010.5	79.1	0.0	0.0	2.755
1998	36%	4748.0	7988.6	725.1	238.4	0.0	0.0	1.891
1999	30%	21293.8	10837.6	1007.5	84.8	0.0	0.0	2.716
2000	62%	1978.5	10553.8	1038.9	216.2	27.1	0.0	2.395
2001	41%	65534.4	19651.2	991.0	345.7	26.4	0.0	6.743
2002	21%	10754.8	21521.5	609.5	60.9	0.0	0.0	3.893
2003	37%	35866.4	11142.0	1595.5	113.7	0.0	0.0	4.704
2004	18%	65266.9	4749.3	997.2	76.8	0.0	0.0	4.102
2005	20%	21784.7	6852.2	1074.5	54.4	0.0	0.0	3.101
2006	20%	37081.2	5964.6	3335.6	232.1	0.0	0.0	4.680
2007	26%	26012.3	3766.4	512.5	433.1	28.5	45.4	2.895
2008	18%	43819.5	8795.8	1065.7	126.5	0.0	0.0	4.513
2009a	27%	79099.4	50105.0	7161.3	210.2	0.0	0.0	15.826
2009b	NA	16273.2	11362.2	1685.5	54.9	0.0	0.0	3.626

Table A52: NEFSC spring survey indices of minimum swept area abundance for southern silver hake stock in thousands of fish and thousands of metric tons (Note that 2009a are raw Bigelow Values and 2009b are converted Bigelow values to Albatross units)

Year	CV	Age1	Age2	Age3	Age4	Age5	Age6+	B(000mt)
1973	10%	23216.7	28594.1	13686.5	4411.0	461.5	444.3	15.290
1974	19%	104382.4	8053.2	13057.8	7587.7	2534.4	1179.3	11.809
1975	19%	58454.3	17071.7	32399.7	9237.4	2545.3	262.8	18.868
1976	21%	42942.4	20578.0	13881.5	6775.9	1484.6	485.0	14.811
1977	15%	6986.5	6084.6	17959.1	9840.0	1990.1	1401.8	14.036
1978	17%	17383.0	14294.7	7623.8	11028.3	5194.0	1786.2	17.842
1979	17%	17435.4	6898.7	3638.6	1658.1	2540.0	1894.4	7.136
1980	19%	16115.3	13853.7	8564.7	2655.6	845.6	1982.2	9.117
1981	13%	15333.7	8390.5	10064.3	6951.4	3366.6	3090.1	11.434
1982	14%	4534.8	10927.0	3547.2	3527.3	3133.3	2111.3	6.569
1983	15%	9440.1	14156.3	3170.8	2046.4	844.9	1260.4	4.289
1984	21%	8799.5	21514.3	8743.2	2175.9	563.8	582.4	7.559
1985	16%	31074.2	13642.2	14057.3	5059.9	1196.9	579.4	8.800
1986	18%	12520.1	36261.6	8422.4	7110.0	1040.3	181.1	9.055
1987	25%	12185.7	51033.7	19782.4	4940.7	2512.2	175.1	11.658
1988	24%	17296.8	9247.0	21241.4	3235.1	204.0	16.8	5.564
1989	12%	22894.9	17626.4	25833.9	4946.7	240.4	68.9	7.348
1990	33%	11031.5	46469.4	21782.2	3927.5	632.4	72.2	9.685
1991	13%	10555.2	3100.6	14473.5	8034.0	1713.3	465.8	4.755
1992	20%	21388.9	4697.7	5565.6	2077.1	102.6	0.0	1.864
1993	39%	21848.8	39640.3	12190.1	2698.9	505.0	0.0	5.153
1994	22%	2224.8	22240.5	37090.5	1827.8	116.0	0.0	6.089
1995	26%	23867.3	6953.7	14572.8	4287.2	56.3	0.0	3.346
1996	1%	6805.4	44641.9	146495.8	4756.3	163.2	0.0	20.553
1997	13%	6915.1	3822.6	8567.2	1338.3	24.0	0.0	2.142
1998	29%	13695.1	6767.6	11494.4	383.8	0.0	0.0	2.305
1999	21%	41367.2	27313.8	17347.3	890.6	90.7	0.0	5.026
2000	12%	4618.2	5012.6	22022.1	851.5	79.5	0.0	3.443
2001	21%	36543.7	9513.9	16918.2	3099.2	200.3	0.0	3.840
2002	16%	6964.3	14237.4	16791.1	686.3	0.0	0.0	3.074
2003	14%	3226.7	6534.5	4954.0	1134.9	15.2	0.0	1.131
2004	24%	63875.7	11964.3	3883.6	794.6	0.0	0.0	1.547
2005	12%	8959.0	11265.3	15589.3	779.7	58.6	0.0	2.910
2006	39%	37114.2	5765.0	2969.3	414.5	28.4	0.0	1.635
2007	22%	15693.2	12443.0	4701.3	612.2	51.3	0.0	2.759
2008	28%	68912.7	26971.5	1734.5	425.8	41.4	0.0	4.185
2009a	13%	86549.1	202485.5	46310.8	1633.4	82.2	0.0	28.47
2009b	NA	11177.5	42971.2	9828.0	346.6	17.4	0.0	5.975

Table A53: Swept area abundance and biomass with 95% confidence intervals for silver hake from NEFSC winter surveys in the southern management region

Year	Swept Area (nm)	Swept Area Abundance (millions)	Swept Area Upper CI	Swept Area Lower CI	Swept Area Biomass (mt)	Swept Area Upper CI	Swept Area Lower CI
1992	30014	48.76	58.55	38.96	3066.24	3686.45	2445.80
1993	29928	137.05	182.72	91.39	7947.14	11916.37	3977.68
1994	30014	39.13	52.01	26.24	3450.01	4532.11	2367.90
1995	30014	35.74	45.25	26.23	3594.12	4395.56	2792.45
1996	30014	41.20	49.10	33.30	2811.92	3353.32	2270.30
1997	30014	71.73	89.77	53.70	3879.14	5264.59	2493.91
1998	30014	41.50	61.28	21.71	2260.44	2633.90	1886.99
1999	30014	71.04	92.95	49.13	4532.57	5779.64	3285.50
2000	30014	52.49	65.05	39.94	4512.64	5622.70	3402.58
2001	30014	222.80	289.34	156.27	4947.04	5999.59	3894.49
2002	30014	49.52	60.22	38.81	3606.03	4317.89	2894.17
2003	26984	41.11	58.14	24.07	1434.89	1887.44	982.55
2004	30014	215.98	298.19	133.77	4742.90	6318.75	3167.05
2005	29358	39.69	50.62	28.75	1053.75	1301.61	805.89
2006	30014	40.01	52.39	27.62	1467.48	1691.32	1243.40
2007	26984	79.29	152.22	6.35	2066.44	2786.97	1345.90

Table A54: Fall survey swept area abundance and biomass with 95% confidence intervals for silver hake from the Massachusetts Division of Marine Fisheries state survey in the southern management area.

Year	Swept Area (nm)	Swept Area Abundance (millions)	Swept Area Upper CI	Swept Area Lower CI	Swept Area Biomass (mt)	Swept Area Upper CI	Swept Area Lower CI
1978	864	0.07	0.19	-0.05	3.68	14.89	-7.50
1979	864	0.23	0.46	-0.01	6.02	8.83	3.21
1980	864	0.19	0.42	-0.03	3.91	5.68	2.13
1981	864	0.89	1.99	-0.22	9.50	21.68	-2.67
1982	864	4.90	9.40	0.40	51.35	94.30	8.38
1983	864	0.04	0.15	-0.06	2.61	10.60	-5.39
1984	864	0.15	0.29	0.00	0.94	1.71	0.18
1985	864	1.04	2.00	0.09	3.26	5.98	0.54
1986	864	12.92	23.81	2.02	126.74	206.35	47.13
1987	864	0.01	0.02	0.00	0.52	2.13	-1.08
1988	864	0.07	0.12	0.01	0.83	1.89	-0.22
1989	864	0.37	0.61	0.13	0.67	1.24	0.11
1990	864	0.22	0.50	-0.05	1.44	3.01	-0.16
1991	864	3.15	6.35	-0.05	8.02	16.29	-0.25
1992	864	0.97	2.45	-0.51	5.84	14.35	-2.67
1993	864	1.47	3.85	-0.92	5.89	15.46	-3.71
1994	864	4.13	9.88	-1.62	38.73	111.94	-34.48
1995	864	6.06	9.59	2.54	50.75	85.90	15.61
1996	864	0.17	0.30	0.04	15.34	26.46	4.20
1997	864	0.43	0.77	0.10	0.61	1.19	0.02
1998	864	0.04	0.07	0.02	0.18	0.31	0.04
1999	864	1.15	2.28	0.02	4.56	9.23	-0.13
2000	864	0.05	0.09	0.02	2.36	4.76	-0.04
2001	864	0.02	0.04	-0.01	0.27	1.06	-0.54
2002	864	0.05	0.09	0.01	0.36	1.08	-0.34
2003	864	1.44	3.51	-0.64	4.40	10.96	-2.16
2004	864	0.12	0.21	0.02	0.25	0.45	0.04
2005	864	0.09	0.19	-0.01	1.19	2.61	-0.25
2006	864	3.95	6.79	1.11	24.64	38.75	10.54
2007	864	0.03	0.10	-0.03	0.04	0.13	-0.04
2008	864	0.02	0.04	0.00	0.34	1.08	-0.43
2009	864	0.05	0.09	0.01	0.22	0.43	0.04

Table A55: Spring survey swept area abundance and biomass with 95% confidence intervals for silver hake from the Massachusetts Division of Marine Fisheries state survey in the southern management area

Year	Swept Area (nm)	Swept Area Abundance (millions)	Swept Area Upper CI	Swept Area Lower CI	Swept Area Biomass (mt)	Swept Area Upper CI	Swept Area Lower CI
1978	864	1.21	1.70	0.73	76.74	122.02	31.45
1979	864	2.03	3.68	0.38	865.62	1653.35	77.90
1980	864	2.76	7.65	-2.14	519.65	2020.38	-981.08
1981	864	0.53	1.11	-0.05	117.60	241.73	-6.56
1982	864	1.04	1.49	0.59	63.41	182.83	-56.02
1983	864	5.26	9.34	1.17	508.33	930.60	86.06
1984	864	8.43	14.06	2.80	1641.33	2646.33	636.33
1985	864	1.54	2.29	0.78	229.06	289.87	168.25
1986	864	1.93	2.35	1.50	157.00	204.44	109.58
1987	864	19.64	34.79	4.49	2106.26	3692.45	520.10
1988	864	2.28	3.92	0.64	138.29	240.07	36.50
1989	864	3.48	4.63	2.33	470.70	633.36	308.07
1990	864	4.40	8.37	0.44	847.82	1743.52	-47.89
1991	864	1.37	5.30	-2.57	312.07	1224.88	-600.75
1992	864	7.45	15.04	-0.15	75.37	133.68	17.05
1993	864	2.84	4.83	0.84	57.64	117.33	-2.07
1994	864	1.02	1.26	0.79	89.00	116.86	61.12
1995	864	0.82	1.92	-0.28	27.34	80.44	-25.79
1996	864	0.91	1.72	0.10	39.33	125.93	-47.26
1997	864	0.36	0.60	0.12	26.42	46.45	6.40
1998	864	1.94	6.80	-2.91	202.02	794.11	-390.08
1999	864	0.95	3.41	-1.50	34.30	123.62	-55.01
2000	864	2.01	7.31	-3.28	93.18	288.39	-102.03
2001	864	0.96	1.20	0.72	23.83	58.14	-10.47
2002	864	0.92	1.10	0.74	113.31	167.85	58.74
2003	864	0.14	0.24	0.03	2.04	4.52	-0.43
2004	864	1.88	6.12	-2.37	17.41	55.89	-21.07
2005	864	0.56	1.52	-0.40	12.62	33.38	-8.13
2006	864	0.78	1.53	0.03	14.15	26.71	1.57
2007	864	6.97	21.75	-7.81	128.69	367.69	-110.30
2008	864	1.45	3.89	-1.00	20.08	55.51	-15.32
2009	864	0.37	1.11	-0.36	26.37	104.73	-51.96

Table A56: Stratified mean number and weight per tow for silver hake from Rhode Island and Connecticut state surveys in the southern management area for both fall and spring

Year	RI Fall	RI Fall	RI Spring	RI Spring	CT Fall	CT Fall	CT Spring	CT Spring
	Stratified Mean Number/Tow	Stratified Mean Weight/Tow (Kg)	Stratified Mean Number/Tow	Stratified Mean Weight/Tow (Kg)	Stratified Mean Number/Tow	Stratified Mean Weight/Tow (Kg)	Stratified Mean Number/Tow	Stratified Mean Weight/Tow (Kg)
1979	3.77	0.20	3.05	0.34				
1980	0.48	0.04	13.73	0.33				
1981	4.10	0.40	1.52	0.28				
1982	1.85	0.03	0.45	0.06				
1983	0.13	0.01	11.65	0.59				
1984	10.14	0.10	8.01	1.20	0.55		7.53	
1985	9.71	0.05	3.24	0.98	0.23		1.83	
1986	29.15	0.29	5.59	0.86	1.65		1.19	
1987	1.63	0.17	3.89	0.53	0.01		2.48	
1988	55.36	0.22	0.00	0.00	0.30		2.25	
1989	0.47	0.04	2.56	0.18	0.60		4.86	
1990	0.12	0.01	2.24	0.33	0.96		5.53	
1991	0.09	0.00	2.54	0.19	0.32		3.87	
1992	0.38	0.03	0.26	0.01	0.48	0.04	2.67	0.20
1993	0.38	0.03	0.38	0.04	0.20	0.02	1.56	0.14
1994	2.28	0.04	0.27	0.03	3.34	0.28	1.73	0.40
1995	1.88	0.02	2.69	0.06	0.22	0.02	4.88	0.36
1996	0.18	0.01	2.11	0.20	0.06	0.01	1.15	0.12
1997	8.25	0.18	28.98	0.84	0.80	0.06	4.32	0.39
1998	0.02	0.00	6.48	0.27	0.07	0.01	4.64	0.48
1999	0.65	0.04	8.91	0.14	0.16	0.03	12.57	0.56
2000	2.02	0.01	4.86	0.20	0.09	0.01	2.28	0.19
2001	0.47	0.02	2.96	0.03	0.07	0.01	7.64	0.54
2002	0.21	0.00	11.19	1.08	0.07	0.01	5.92	0.52
2003	13.09	0.15	0.86	0.01	0.18	0.02	0.76	0.06
2004	2.21	0.05	31.04	0.19	0.18	0.02	2.63	0.16
2005	0.48	0.00	0.16	0.00	0.09	0.01	0.57	0.05
2006	8.05	0.08	8.67	0.43	0.64	0.08	4.75	0.33
2007	0.04	0.00	1.06	0.04	0.04	0.01	0.98	0.10
2008	0.02	0.00	140.13	1.38	0.28	0.03	19.08	1.02
2009	0.90	0.01	0.37	0.01	0.18	0.02	2.30	0.27
2010			11.84	0.15				

Table A57: NEFSC fall survey indices of minimum swept area abundance for combined north and south silver hake stocks in thousands of fish and thousand of metric tons (Note that 2009a are raw Bigelow Values and 2009b are converted Bigelow values to Albatross units)

Year	CV	Age1	Age2	Age3	Age4	Age5	Age6+	B(000mt)
1973	16%	24689.7	28013.8	11184.4	2291.5	1304.6	446.3	14.4
1974	22%	0.0	0.0	0.0	0.0	0.0	0.0	10.2
1975	22%	48902.1	73136.9	20254.6	6801.5	2456.1	1664.8	23.2
1976	25%	21762.9	46344.7	42107.1	15633.7	2656.1	3023.9	30.7
1977	23%	20230.3	14841.7	26337.4	14733.5	2648.0	906.8	19.9
1978	15%	43001.9	16788.1	10835.9	12411.0	11922.5	3214.9	21.8
1979	15%	61027.1	42079.1	8575.3	4083.1	3845.8	5010.9	18.8
1980	21%	16802.4	30499.5	34660.3	8590.3	3643.8	7956.5	20.8
1981	29%	38610.5	12482.9	15111.2	12099.8	2088.4	2812.9	13.4
1982	33%	42290.1	26005.9	9705.1	8102.6	6810.6	1841.5	18.6
1983	26%	111488.7	70942.3	8172.2	2399.7	1877.8	1165.5	27.2
1984	20%	29270.1	23428.2	7887.8	1966.4	448.9	248.0	11.8
1985	19%	138083.8	19226.9	23248.9	7096.3	604.8	51.6	29.5
1986	19%	190171.4	55436.1	8308.8	6720.0	959.0	0.0	32.7
1987	24%	24801.5	113428.3	23394.3	2889.6	1992.8	229.0	27.4
1988	19%	21038.8	41988.7	40336.4	2905.0	346.2	79.6	18.8
1989	17%	124497.6	48983.2	36674.3	3568.0	265.2	17.1	28.7
1990	27%	49467.3	136565.1	33786.9	14525.8	1892.2	0.0	38.4
1991	34%	78156.4	69446.5	25504.4	4770.6	256.7	0.0	25.3
1992	22%	91994.0	92361.6	26769.5	990.5	0.0	0.0	25.2
1993	15%	125964.2	81366.7	11762.4	2253.7	112.1	0.0	20.3
1994	17%	45536.3	93598.5	8754.6	454.0	0.0	0.0	17.3
1995	27%	210580.0	88274.8	20907.1	882.2	24.2	0.0	32.9
1996	18%	35315.9	82388.7	21196.7	1951.7	119.4	39.6	17.7
1997	19%	37963.6	48310.5	12035.5	935.1	53.9	17.8	14.9
1998	28%	441804.4	93739.4	11411.5	1650.0	45.2	86.0	42.4
1999	22%	103502.9	135068.1	4959.3	922.3	106.8	20.1	26.6
2000	37%	218259.1	102999.1	15045.8	1076.4	82.6	0.0	31.3
2001	27%	91734.6	131393.3	8402.0	1653.4	250.9	0.0	24.6
2002	17%	66131.3	86311.7	5510.6	689.6	38.3	0.0	21.0
2003	25%	171766.3	45782.5	17238.1	650.8	55.8	0.0	22.4
2004	18%	104791.9	33031.4	4758.2	467.1	36.2	0.0	11.1
2005	18%	30773.9	22331.5	5542.3	224.9	88.6	55.6	6.8
2006	30%	93421.5	10013.0	6347.4	2570.9	0.0	65.1	12.6
2007	19%	189783.8	10422.3	1330.6	933.8	472.5	45.4	16.7
2008	16%	116977.8	40937.4	2198.6	334.5	0.0	0.0	15.8
2009a	20%	428469.8	182139.1	62552.5	1142.8	1458.7	32.7	83.1
2009b	NA	87985.7	42002.8	15236.1	340.7	357.7	11.9	18.4

Table A58: NEFSC spring survey indices of minimum swept area abundance for combined silver hake stocks in thousands of fish and thousands of metric tons (Note that 2009a are raw Bigelow Values and 2009b are converted Bigelow values to Albatross units)

Year	CV	Age1	Age2	Age3	Age4	Age5	Age6+	B(000mt)
1973	14%	34633.9	54340.0	16273.4	4747.2	574.7	485.0	21.1
1974	20%	185111.2	16470.0	17106.6	8704.3	2753.3	1332.3	17.6
1975	21%	162093.5	180874.5	49514.9	12111.1	3483.3	382.5	37.1
1976	17%	68474.6	77737.3	44846.3	10369.1	2727.6	1318.2	32.8
1977	15%	19728.9	18529.6	28783.0	14208.1	2863.6	2120.8	21.8
1978	21%	27662.1	18734.6	8464.3	11477.9	5642.3	1950.8	19.6
1979	20%	37549.5	37255.5	4676.4	1946.7	2687.7	2199.1	10.8
1980	17%	25859.2	58122.1	23744.8	3720.8	1150.9	2597.6	17.7
1981	14%	39798.7	21069.0	18630.9	9756.7	3715.0	3234.5	16.0
1982	15%	28433.8	23140.4	6984.6	5020.9	4290.1	2397.6	9.6
1983	16%	32760.1	32127.6	5051.4	2592.9	1611.8	1527.0	7.6
1984	21%	17385.9	33795.3	10635.0	2579.0	671.5	715.5	9.9
1985	22%	101464.5	21010.0	18266.8	6638.4	1653.1	892.7	13.8
1986	19%	175154.3	48563.6	10018.2	8565.0	1351.6	363.4	15.4
1987	22%	18648.0	123273.0	26833.3	5901.7	2973.2	271.8	19.6
1988	20%	19253.7	12830.3	31680.9	4552.6	422.5	114.2	8.2
1989	17%	259747.4	24962.6	27333.5	8065.2	490.5	68.9	14.7
1990	26%	41491.2	66273.7	25026.0	4664.0	1046.0	114.1	13.0
1991	13%	95748.1	13344.5	17109.8	9262.0	1803.2	512.7	7.6
1992	23%	259150.4	95807.5	17697.7	5780.5	292.0	16.0	13.5
1993	32%	101859.0	89554.0	18822.9	5529.5	786.8	0.0	10.7
1994	27%	17682.7	161592.1	59874.0	4233.4	141.2	33.4	17.3
1995	22%	116415.8	120743.8	28733.5	6635.0	181.3	37.0	10.3
1996	10%	14551.9	88171.6	175652.8	7188.2	200.9	45.4	27.0
1997	13%	12206.5	17767.0	16162.5	1917.7	196.5	37.7	4.7
1998	20%	170389.3	219132.4	16417.7	1460.3	190.0	47.3	10.7
1999	19%	66091.1	150934.1	28493.2	2377.8	552.3	16.0	13.8
2000	14%	42894.1	362617.6	71415.9	6044.2	637.1	126.7	23.7
2001	17%	44914.7	271025.6	89502.4	9355.7	814.9	65.3	26.1
2002	15%	21329.5	93404.0	47351.6	4393.6	350.3	240.3	10.5
2003	16%	107360.5	166823.2	18564.3	4036.1	182.1	73.6	8.6
2004	21%	74483.6	123808.2	11646.6	3568.4	236.0	33.0	8.1
2005	14%	14087.1	32631.0	22830.6	1335.2	94.8	0.0	5.3
2006	26%	55576.8	8109.0	3600.1	1452.5	87.9	36.2	2.6
2007	20%	175913.8	24741.6	5951.2	996.3	389.8	43.7	7.5
2008	23%	92451.2	91346.3	3691.8	707.8	69.8	161.6	10.5
2009a	14%	544553.5	334189.2	112250.0	3234.4	387.2	958.9	103.7
2009b	NA	64137.5	70819.8	23821.6	686.4	82.1	203.5	11.6

Table A59: Northern silver hake arithmetic fall biomass survey, total catch and relative exploitation index

	Fall SV	Fall SV - Bmass	Northern Landings	Northern Discards	Total Catch	Relative Exploitation Index	Relative Exploitation Index
Year	arithmetic mean kg/tow	3-yr avg	000's mt	000's mt	000's mt	Catch/Fall_SV ~F	3-yr avg ~F
1955			53.36		53.36		
1956			42.15		42.15		
1957			62.75		62.75		
1958			49.90		49.90		
1959			50.61		50.61		
1960			45.54		45.54		
1961			39.69		39.69		
1962			79.00		79.00		
1963	23.10		73.92		73.92	3.20	
1964	4.34		94.46		94.46	21.77	
1965	7.06	11.50	45.28		45.28	6.41	10.46
1966	4.19	5.20	47.81		47.81	11.41	13.20
1967	2.27	4.51	33.37		33.37	14.70	10.84
1968	2.28	2.91	41.38		41.38	18.15	14.75
1969	2.41	2.32	24.06		24.06	9.98	14.28
1970	3.03	2.57	27.53		27.53	9.09	12.41
1971	2.67	2.70	36.40		36.40	13.63	10.90
1972	5.78	3.83	25.22		25.22	4.36	9.03
1973	4.12	4.19	32.09		32.09	7.79	8.60
1974	3.45	4.45	20.68		20.68	5.99	6.05
1975	8.09	5.22	39.87		39.87	4.93	6.24
1976	11.25	7.60	13.63		13.63	1.21	4.05
1977	6.72	8.69	12.46		12.46	1.85	2.66
1978	6.32	8.10	12.61		12.61	2.00	1.69
1979	6.18	6.41	3.42		3.42	0.55	1.47
1980	7.23	6.58	4.73		4.73	0.65	1.07
1981	4.52	5.98	4.42	2.64	7.05	1.56	0.92
1982	6.28	6.01	4.66	2.91	7.57	1.21	1.14
1983	8.76	6.52	5.31	2.64	7.95	0.91	1.22
1984	3.36	6.13	8.29	2.59	10.88	3.24	1.78
1985	8.28	6.80	8.30	2.56	10.86	1.31	1.82
1986	13.04	8.23	8.50	2.35	10.86	0.83	1.79
1987	9.79	10.37	5.66	2.11	7.77	0.79	0.98
1988	6.05	9.63	6.79	1.79	8.57	1.42	1.01
1989	10.53	8.79	4.65	2.32	6.96	0.66	0.96
1990	15.61	10.73	6.38	1.96	8.34	0.53	0.87
1991	10.52	12.22	6.06	1.26	7.31	0.69	0.63
1992	10.25	12.13	5.31	1.42	6.73	0.66	0.63
1993	7.50	9.42	4.36	0.69	5.05	0.67	0.67
1994	6.84	8.20	3.90	0.24	4.14	0.61	0.65
1995	12.89	9.08	2.59	0.63	3.22	0.25	0.51
1996	7.57	9.10	3.62	0.82	4.44	0.59	0.48
1997	5.66	8.71	2.80	0.24	3.05	0.54	0.46
1998	18.91	10.71	2.05	0.69	2.74	0.14	0.42
1999	11.15	11.91	3.45	0.74	4.19	0.38	0.35
2000	13.51	14.52	2.59	0.36	2.95	0.22	0.25
2001	8.33	11.00	3.39	0.48	3.87	0.46	0.35
2002	7.99	9.94	2.59	0.51	3.11	0.39	0.36
2003	8.29	8.20	1.81	0.20	2.01	0.24	0.37
2004	3.28	6.52	1.05	0.12	1.16	0.35	0.33
2005	1.72	4.43	0.83	0.06	0.89	0.52	0.37
2006	3.69	2.90	0.90	0.04	0.94	0.26	0.38
2007	6.44	3.95	1.01	0.75	1.76	0.27	0.35
2008	5.27	5.13	0.62	0.17	0.79	0.15	0.23
2009	6.89	6.20	1.04	0.19	1.23	0.18	0.20

Table A60: Southern silver hake arithmetic fall biomass survey, total catch and relative exploitation index

	Fall SV	Fall SV	Southern Landings	Southern Discards	Total Catch	Relative Exploitation Index	Relative Exploitation Index
Year	Arithmetic mean kg/tow	3-yr avg	000's mt	000's mt	000's mt	Catch/Fall_SV ~F	3-yr avg ~F
1955			13.26		13.26		
1956			14.24		14.24		
1957			16.43		16.43		
1958			12.90		12.90		
1959			16.39		16.39		
1960			8.82		8.82		
1961			12.65		12.65		
1962			17.94		17.94		
1963	4.66		89.43		89.43	19.19	
1964	4.06		147.05		147.05	36.22	
1965	5.28	4.67	294.12		294.12	55.70	37.04
1966	2.64	3.99	202.32		202.32	76.64	56.19
1967	2.44	3.45	87.38		87.38	35.81	56.05
1968	2.73	2.60	58.16		58.16	21.30	44.58
1969	1.26	2.14	74.89		74.89	59.44	38.85
1970	1.35	1.78	26.83		26.83	19.88	33.54
1971	2.21	1.61	70.51		70.51	31.90	37.07
1972	2.13	1.90	88.18		88.18	41.40	31.06
1973	1.70	2.01	102.08		102.08	60.05	44.45
1974	0.85	1.56	102.40		102.40	120.47	73.97
1975	1.79	1.45	72.16		72.16	40.32	73.61
1976	1.99	1.54	64.61		64.61	32.47	64.42
1977	1.68	1.82	57.16		57.16	34.02	35.60
1978	2.50	2.06	25.83		25.83	10.33	25.61
1979	1.68	1.95	16.40		16.40	9.76	18.04
1980	1.63	1.94	11.68		11.68	7.17	9.09
1981	1.12	1.48	13.43	3.50	16.93	15.12	10.68
1982	1.56	1.44	14.15	4.65	18.81	12.06	11.45
1983	2.57	1.75	11.86	4.81	16.67	6.49	11.22
1984	1.40	1.84	12.96	4.88	17.84	12.74	10.43
1985	3.55	2.51	12.82	3.87	16.69	4.70	7.98
1986	1.45	2.13	9.70	4.33	14.03	9.68	9.04
1987	1.95	2.32	9.55	4.25	13.80	7.08	7.15
1988	1.78	1.73	8.95	4.50	13.45	7.55	8.10
1989	1.87	1.87	13.00	6.57	19.57	10.46	8.37
1990	1.52	1.72	13.02	5.97	18.99	12.49	10.17
1991	0.85	1.41	9.74	3.08	12.82	15.08	12.68
1992	0.99	1.12	10.53	3.45	13.98	14.12	13.90
1993	1.28	1.04	12.49	5.17	17.65	13.79	14.33
1994	0.79	1.02	12.18	5.94	18.12	22.93	16.95
1995	1.59	1.22	11.99	1.40	13.39	8.42	15.05
1996	0.45	0.94	12.13	0.48	12.61	28.03	19.80
1997	0.83	0.96	12.55	0.62	13.17	15.87	17.44
1998	0.57	0.62	12.56	0.53	13.08	22.95	22.28
1999	0.82	0.74	10.42	3.55	13.97	17.03	18.62
2000	0.72	0.70	9.47	0.33	9.80	13.61	17.87
2001	2.04	1.19	8.88	0.19	9.07	4.45	11.70
2002	1.18	1.31	4.89	0.41	5.30	4.49	7.52
2003	1.42	1.55	6.28	0.60	6.89	4.85	4.60
2004	1.24	1.28	6.97	1.20	8.17	6.59	5.31
2005	0.94	1.20	6.40	1.58	7.97	8.48	6.64
2006	1.42	1.20	4.58	0.16	4.74	3.34	6.14
2007	0.87	1.08	5.07	0.15	5.21	5.99	5.94
2008	1.36	1.22	5.58	1.03	6.62	4.86	4.73
2009	1.10	1.11	6.60	0.84	7.43	6.76	5.87

Table A61. Summary of catch, NEFSC fall and spring bottom trawl survey indices, replacement ratios and relative fishing mortality rates for silver hake. Catch is based on length-based estimator. Northern and southern stocks are combined.

Year	Catch(mt)	NEFSC Survey		Replacement Ratio		Relative Fishing Mortality	
		Fall (kg/tow)	Spring (kg/tow)	Fall	Spring	Relative F Fall (mt/kg)	Relative F Spring (mt/kg)
1963	163349.2	-999	-999				
1964	241509.6	-999	-999				
1965	339396.2	-999	-999				
1966	250126.1	-999	-999				
1967	120753.6	2.37	-999			50950.9	
1968	99535.6	2.55	2.27			39033.6	43848.3
1969	98946.0	1.71	1.38			57863.2	71700.0
1970	54359.9	2.01	3.07			27044.7	17706.8
1971	106904.6	2.39	1.57			44729.9	68092.1
1972	113402.6	3.57	1.5	1.6183		31765.4	75601.7
1973	134169.2	2.65	3.86	1.0834	1.9714	50629.9	34758.8
1974	123077.9	1.87	3.23	0.7583	1.4192	65817.1	38104.6
1975	112038.5	4.26	7.1	1.7054	2.6833	26300.1	15780.1
1976	78242.5	5.63	6.01	1.9098	1.7410	13897.4	13018.7
1977	69617.0	3.66	4.01	1.0178	0.9240	19021.0	17360.9
1978	38443.1	4	3.59	1.1068	0.7414	9610.8	10708.4
1979	19813.2	3.45	1.99	0.8883	0.4156	5742.9	9956.4
1980	16413.6	3.83	3.24	0.9119	0.7137	4285.5	5065.9
1981	23985.2	2.46	2.95	0.5980	0.7829	9750.1	8130.6
1982	26375.5	3.42	1.76	0.9828	0.5577	7712.1	14986.1
1983	24628.1	5	1.39	1.4569	0.5137	4925.6	17718.1
1984	28718.5	2.17	1.82	0.5975	0.8032	13234.3	15779.4
1985	27549.9	5.41	2.53	1.6025	1.1335	5092.4	10889.3
1986	24885.4	6	2.82	1.6251	1.3493	4147.6	8824.6
1987	21569.2	5.03	3.59	1.1432	1.7393	4288.1	6008.1
1988	22020.8	3.46	1.51	0.7327	0.6214	6364.4	14583.3
1989	26530.4	5.27	2.7	1.1939	1.1002	5034.2	9826.1
1990	27327.0	7.06	2.4	1.4025	0.9125	3870.7	11386.3
1991	20131.4	4.65	1.4	0.8669	0.5376	4329.3	14379.6
1992	20707.1	4.64	2.49	0.9109	1.0733	4462.7	8316.1
1993	22703.3	3.72	1.96	0.7416	0.9333	6103.0	11583.3
1994	22257.7	3.17	3.19	0.6255	1.4566	7021.4	6977.3
1995	16618.0	6.03	1.9	1.2973	0.8304	2755.9	8746.3
1996	17055.2	3.24	4.95	0.7294	2.2623	5264.0	3445.5
1997	16216.6	2.73	0.87	0.6563	0.3002	5940.1	18639.8
1998	15822.4	7.77	1.96	2.0566	0.7615	2036.3	8072.6
1999	18155.6	4.87	2.53	1.0615	0.9829	3728.1	7176.1
2000	12752.0	5.74	4.35	1.1648	1.7813	2221.6	2931.5
2001	12940.6	4.51	4.8	0.9261	1.6371	2869.3	2696.0
2002	8403.7	3.85	1.93	0.7514	0.6651	2182.8	4354.3
2003	8890.3	4.12	1.58	0.7704	0.5074	2157.8	5626.8
2004	9332.8	2.04	1.48	0.4418	0.4872	4574.9	6306.0
2005	8885.7	1.25	0.98	0.3085	0.3465	7108.5	9067.0
2006	5686.9	2.31	0.47	0.7324	0.2182	2461.8	12099.7
2007	6979.7	3.06	1.37	1.1275	1.0637	2281.0	5094.7
2008	7403.4	2.9	1.92	1.1346	1.6327	2552.9	3855.9
2009	8666.0	3.37	2.14	1.4576	1.7203	2571.5	4049.5

Table A62. Summary of AIM results silver hake, both stocks combined, for NEFSC fall and spring bottom trawl surveys and catch estimates based on Sosebee method.

<i>Silver Hake</i>	<i>Fall Survey</i>	<i>Spring Survey</i>
Critical value (observed correlation between replacement ratio and relative F)	-0.019413	-0.214283
Probability of observing correlation < Critical Value	0.97750	0.9200
Relative F at Replacement (mt/kg)	492.9	5651.1
90% Confidence Interval for RelF at replacement	(4.6, 647745)	(483.8, 14560.5)

Table A63. Summary results of Silver hake ASAP model runs.

Model #	1	2	3	4	5	6	7	8	9
Converge	N	Y	Y	Y	Y	Y	Y	Y	Y
Num Est Params	p*	p	p*-8	p-8	p-10	p-18	p-15	p-23	p*
Model	No Split M = 0.4	No Split M=0.15	No Split M = 0.4_Surv_Flat-top_IndexSel	No Split M = 0.15_Surv_Flat-top_Index Sel	Run 2 (3 block Fishery Selectivity)	Run 4 (3 block Fishery Selectivity)	Run5 (2 block Fishery Selectivity)	Run6 (2 Block Fishery Selectivity)	Run 2 (Apply Time and Age variant M from Run 6 to Run1)
Fishery Slectivity	5 blocks (fleet1: 73-88; 89-99; 00-09) (Fleet2: 73-99; 00-09)	5 blocks (fleet1: 73-88; 89-99; 00-09) (Fleet2: 73-99; 00-09)	5 blocks (fleet1: 73-88; 89-99; 00-09) (Fleet2: 73-99; 00-09)	5 blocks (fleet1: 73-88; 89-99; 00-09) (Fleet2: 73-99; 00-09)	3 blocks (fleet1: 73-88; 89-09) (Fleet2: 73-09)	3 blocks (fleet1: 73-88; 89-09) (Fleet2: 73-09)	2 blocks (fleet1: 73-09) (Fleet2: 73-09)	2 blocks (fleet1: 73-09) (Fleet2: 73-09)	5 blocks (fleet1: 73-88; 89-99; 00-09) (Fleet2: 73-99; 00-09)
Overall Objective Fxn	3899	4524	4083	4601	4491	4526	4532	4511	3970
Total Index	1053	1022	1248	1180	1028	1173	1032	1194	1068
Index Age Comp	846	839	786	741	832	735	822	752	815
Total Catch	506	918	627	1025	918	1015	921	1032	511
Catch Age Comp	617	783	606	768	777	762	834	742	630
q_fall	0.13	0.23	0.48	0.62	0.25	0.62	0.17	0.61	0.49
q_spr	0.13	0.23	0.42	0.48	0.24	0.48	0.18	0.47	0.41
Fleet 1 Sel	Strong Dome in the Recent Years	Strong Dome in the Recent Years	Flat Top (1973-1999), Strong Dome (2000-2009)	Flat Top (1973-1999), Moderate Dome (2000-2009)	Strong Dome in the Recent Years	Flat Top Selectivity	Srong Dome	Flat Top Selectivity	Strong Dome
Fleet2 Sel	Dome	Dome	Dome	Dome	Dome	Dome	Dome	Dome	Dome
Fleet3 Sel	NA	Exponential	NA	Exponential	Exponential	Exponential	Exponential	Exponential	NA
Fall_Surv_Sel	Strong Dome	Strong Dome	Fixed- Flat top (Estimated Age 1)	Fixed- Flat top (Estimated Age 1)	Strong Dome	Fixed- Flat top (Estimated Age 1)	Strong Dome	Fixed- Flat top (Estimated Age 1)	Strong Dome
Spr_Surv_Sel	Strong Dome	Strong Dome	Fixed- Flat top, (Estimated Age 1)	Fixed- Flat top, (Estimated Age 1)	Strong Dome	Fixed- Flat top, (Estimated Age 1)	Strong Dome	Fixed- Flat top, (Estimated Age 1)	Strong Dome
Retro_SSB (Rel. Diff)	6-13%	9-44%	49-320%	51-160%	15-72%	44-82%	11-39%	48-70%	7-13%
Retro_Rec (rel Diff)	7-90%	5-14%	19-230%	2-6%	5-16%	1-5%	7-18%	<1 - 4 %	7-90%
Retro_F (Rel Diff)	8-17%	23-53%	40-82%	36-64%	32-62%	26-41%	29-57%	35-46%	8-18%
Comments	4 year Peel. Model did not converge initially but now it is??? Unsure about the inconsistent estimation process	4 year Peel. Strong Dome . Very High SSB (Cryptic Biomass???)	4 Year Peel. Relative to model 4, better overall model fit. Better fit to the catch but poorer fit to the index with stronger retro. Patterns	4 Year Peel. Relative to model 2, less improvement in overall fit, but better fit to the index and catch at age comp. Less improvement to the total catch fit, better retro for Rec, Similar retro for F, and stronger retro for SSB. Less doming in the fishery and SSB estimates appears reasonable in the model	Retro2 (4yr peel). Relative to Model 2, Stronger retro for SSB and F relative to model. Improved overall model fit, less improvement to total index fit but better fit to index age comp. Similar fit to total catch. Better fit to catch at age comp. Q's are similar and strong dome persists	Relative to Model 4, Improved fit in the overall model as well as in the index and catch. Improved Retro Patterns. No Dome in the Fishery	4 year Peel. Relative to Model 2 and 5, less improvement in overall model fit, total catch and total index , but some improvement in the index catch at age. Strong dome, lower q's . Better retro patterns for SSB. Slightly stronger for Rec, but better retro for F relative to Model 5.	4 year Peel. Relative to model 4 and 6, Less improvement in model likelihood with the exception of slight improvement in the firt to the catch at age. Flat top selectivity. Q's are similar to model 4 and 6. Retro Pttarns improve in Rec and SSB and slightly improved reative to model 4.	Relative to 1, No improvement in Retro. Less Improvement in likelihood components except for index age comp.
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Table A64 Silver hake estimated Fishing Mortality at Age for the Combined Areas

Year	age-1	age-2	age-3	age-4	age-5	age-6
1973	0.069	0.621	1.168	1.168	1.168	1.168
1974	0.063	0.564	1.062	1.062	1.062	1.062
1975	0.062	0.551	1.037	1.037	1.037	1.037
1976	0.044	0.393	0.739	0.739	0.739	0.739
1977	0.050	0.444	0.835	0.835	0.835	0.835
1978	0.055	0.488	0.918	0.918	0.918	0.918
1979	0.031	0.275	0.518	0.518	0.518	0.518
1980	0.030	0.266	0.500	0.500	0.500	0.500
1981	0.076	0.526	0.839	0.818	0.735	0.685
1982	0.100	0.689	1.097	1.069	0.958	0.892
1983	0.082	0.570	0.918	0.896	0.811	0.760
1984	0.080	0.569	0.927	0.908	0.829	0.782
1985	0.089	0.646	1.071	1.051	0.972	0.925
1986	0.075	0.535	0.874	0.855	0.782	0.738
1987	0.058	0.394	0.622	0.605	0.539	0.500
1988	0.063	0.429	0.677	0.659	0.587	0.544
1989	0.070	0.429	1.069	1.039	0.920	0.849
1990	0.067	0.429	1.149	1.122	1.013	0.949
1991	0.058	0.408	1.261	1.241	1.161	1.114
1992	0.057	0.395	1.202	1.182	1.102	1.055
1993	0.065	0.451	1.374	1.352	1.261	1.207
1994	0.066	0.444	1.294	1.270	1.172	1.114
1995	0.034	0.286	1.064	1.056	1.025	1.006
1996	0.040	0.360	1.438	1.431	1.406	1.392
1997	0.047	0.440	1.817	1.812	1.789	1.776
1998	0.043	0.400	1.619	1.613	1.588	1.574
1999	0.071	0.531	1.773	1.752	1.666	1.615
2000	0.034	0.330	1.394	1.390	1.378	1.370
2001	0.042	0.409	1.743	1.740	1.726	1.718
2002	0.035	0.311	1.228	1.222	1.199	1.185
2003	0.035	0.318	1.283	1.278	1.258	1.246
2004	0.039	0.323	1.195	1.186	1.150	1.129
2005	0.067	0.526	1.863	1.846	1.775	1.734
2006	0.045	0.450	1.952	1.949	1.939	1.933
2007	0.060	0.562	2.302	2.294	2.263	2.244
2008	0.041	0.364	1.434	1.427	1.398	1.381
2009	0.023	0.200	0.777	0.773	0.756	0.746

Table A65: Silver hake estimates SSB in mt and Rec in 000's of fish for the Combined Areas. Note that age-1 recruits are based o year class

Year	Rec	SSB
1973	501,582	81,836
1974	724,312	62,112
1975	512,547	66,245
1976	524,166	82,865
1977	298,756	62,461
1978	295,999	33,981
1979	412,695	35,678
1980	402,731	39,748
1981	477,966	31,930
1982	448,965	28,607
1983	469,867	27,387
1984	457,895	34,466
1985	750,780	27,876
1986	952,229	41,447
1987	533,575	48,047
1988	426,136	35,024
1989	964,751	26,931
1990	614,801	24,745
1991	597,209	16,527
1992	920,823	15,306
1993	789,319	15,793
1994	531,306	17,249
1995	719,677	15,949
1996	819,880	12,748
1997	311,817	9,728
1998	775,926	10,233
1999	691,649	10,731
2000	879,755	11,485
2001	661,829	10,873
2002	496,505	8,177
2003	839,234	8,372
2004	782,181	8,349
2005	496,877	6,515
2006	653,558	5,545
2007	1,061,500	6,684
2008	856,253	13,472
2009	742,192	23,117

Table A66 Silver hake natural mortality estimates based on predatory consumption (M2) and other sources (M1 = 0.15)

Year	age-1	age-2	age-3	age-4	age-5	age-6
1973	0.394	0.242	0.172	0.154	0.151	0.150
1974	0.417	0.250	0.174	0.155	0.151	0.150
1975	0.209	0.172	0.155	0.151	0.150	0.150
1976	1.575	0.686	0.277	0.176	0.155	0.151
1977	1.233	0.558	0.246	0.169	0.154	0.151
1978	0.594	0.317	0.190	0.158	0.152	0.150
1979	0.860	0.417	0.213	0.163	0.152	0.150
1980	1.549	0.676	0.275	0.175	0.155	0.151
1981	1.424	0.629	0.263	0.173	0.154	0.151
1982	1.119	0.515	0.236	0.167	0.153	0.151
1983	0.862	0.418	0.213	0.163	0.152	0.150
1984	1.488	0.654	0.269	0.174	0.155	0.151
1985	1.296	0.581	0.252	0.171	0.154	0.151
1986	1.053	0.490	0.230	0.166	0.153	0.151
1987	1.281	0.576	0.251	0.170	0.154	0.151
1988	0.826	0.405	0.210	0.162	0.152	0.150
1989	1.239	0.560	0.247	0.170	0.154	0.151
1990	1.563	0.682	0.276	0.175	0.155	0.151
1991	1.099	0.507	0.235	0.167	0.153	0.151
1992	1.344	0.600	0.256	0.171	0.154	0.151
1993	1.369	0.609	0.259	0.172	0.154	0.151
1994	1.086	0.502	0.233	0.167	0.153	0.151
1995	1.086	0.502	0.233	0.167	0.153	0.151
1996	2.169	0.910	0.330	0.186	0.157	0.151
1997	0.571	0.308	0.188	0.158	0.151	0.150
1998	1.082	0.501	0.233	0.167	0.153	0.151
1999	1.307	0.586	0.253	0.171	0.154	0.151
2000	1.636	0.709	0.282	0.177	0.155	0.151
2001	1.722	0.742	0.290	0.178	0.155	0.151
2002	1.484	0.652	0.269	0.174	0.155	0.151
2003	1.763	0.757	0.294	0.179	0.156	0.151
2004	2.141	0.899	0.327	0.186	0.157	0.151
2005	2.444	1.013	0.354	0.191	0.158	0.151
2006	2.328	0.970	0.344	0.189	0.157	0.151
2007	1.879	0.801	0.304	0.181	0.156	0.151
2008	1.579	0.688	0.277	0.176	0.155	0.151
2009	1.174	0.535	0.241	0.168	0.154	0.151

Table A67. Species of consistent silver hake predators. Whether abundances were estimated from recent stock assessments (SA) or swept area (SWA) from surveys are noted, as is the resolution of the diet data (all predators were presented as two year averages). *Pollock was ultimately excluded from the analyses due to an excessive degree of variability in diet composition comprised of silver hake.

Common Name	Species Name	Assessment or Swept Area	Diet Resolution
Spiny dogfish	<i>Squalusa canthias</i>	SWA	2yr
Little skate	<i>Raja ocellata</i>	SWA	2yr
Winter skate	<i>Raja erinacea</i>	SWA	2yr
Thorny skate	<i>Raja radiata</i>	SWA	2yr
Silver Hake	<i>Merluccius bilinearis</i>	SWA	2yr
Atlantic cod	<i>Gadus morhua</i>	SA	2yr
Pollock*	<i>Pollachius virens</i>	SA	2yr
Red hake	<i>Urophycis chuss</i>	SWA	2yr
White hake	<i>Urophycis tenuis</i>	SWA	2yr
Fourspot flounder	<i>Paralichthys oblongus</i>	SWA	2yr
Summer Flounder	<i>Paralichthys dentatus</i>	SA	2yr
Windowpane	<i>Scophthalmus aquosus</i>	SWA	2yr
Bluefish	<i>Pomatomuss altatrix</i>	SA	2yr
Goosefish	<i>Lophius americanus</i>	SA	2yr

Table A68: Age-0 proportion at length derived from the survey age-length keys to adjust consumption estimates for the ASAP model.

Length	North	South	Combined
<5	0.97	0.97	0.97
5-10	0.86	0.66	0.75
11-15	0.32	0.19	0.29
16-20	0.02	0.02	0.02
21-25	0.00	0.00	0.00
26-30	0.00	0.00	0.00
31-35	0.00	0.00	0.00
36-40	0.00	0.00	0.00
41-45	0.00	0.00	0.00

Table A69. Total Consumption and CV of silver hake for both stocks. Consumption units in 000s MT.

Year	Combined	CV
1973	25.8	NA
1974	31.9	NA
1975	4.0	NA
1976	18.7	NA
1977	8.1	0.35
1978	7.1	0.35
1979	30.3	0.35
1980	53.0	0.35
1981	67.0	0.35
1982	77.9	0.68
1983	95.8	0.63
1984	116.9	0.6
1985	142.1	0.75
1986	167.7	0.81
1987	151.6	0.42
1988	54.2	0.47
1989	51.0	0.58
1990	48.2	0.47
1991	38.3	0.48
1992	60.2	0.37
1993	88.2	0.38
1994	66.4	0.61
1995	62.6	0.37
1996	31.5	0.58
1997	12.8	0.5
1998	68.3	0.45
1999	131.3	0.69
2000	129.8	0.39
2001	107.1	0.63
2002	93.3	0.35
2003	101.6	0.35
2004	98.0	0.66
2005	65.0	0.46
2006	52.6	0.43
2007	83.8	0.43
2008	88.0	0.45
2009	71.0	0.45

Table A70 Proportion of all silver hake lengths in all predators of silver hake at size, in 5 cm size classes.

Year	<5	5-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45
1973	0.053	0.263	0.316	0.211	0.053	0	0.105	0	0
1974	0	0.067	0.467	0.2	0.067	0.2	0	0	0
1975	0.667	0.333	0	0	0	0	0	0	0
1976	0.231	0.308	0.231	0.154	0	0.077	0	0	0
1977	0.759	0.034	0	0.034	0.103	0.034	0.034	0	0
1978	0.776	0.096	0.032	0.032	0.016	0.016	0.032	0	0
1979	0.053	0.105	0.316	0.263	0.105	0.053	0.053	0.053	0
1980	0	0.071	0.143	0.214	0.143	0.214	0	0.143	0.071
1981	0.143	0	0	0.143	0.571	0.143	0	0	0
1982	0.094	0.156	0.156	0.125	0.188	0.094	0.156	0.031	0
1983	0	0.054	0.405	0.189	0.216	0.081	0.054	0	0
1984	0.216	0.081	0.054	0.135	0.297	0.162	0.027	0.027	0
1985	0.106	0.187	0.211	0.154	0.203	0.098	0.024	0.008	0.008
1986	0.055	0.097	0.29	0.255	0.166	0.103	0.028	0.007	0
1987	0.06	0.048	0.048	0.145	0.434	0.241	0.024	0	0
1988	0.143	0.446	0.286	0.012	0.042	0.036	0.024	0.006	0
1989	0.08	0.492	0.174	0.148	0.061	0.035	0.01	0	0
1990	0.227	0.241	0.124	0.149	0.188	0.057	0.007	0.007	0
1991	0.157	0.442	0.235	0.078	0.041	0.046	0	0	0
1992	0.129	0.3	0.229	0.194	0.077	0.06	0.011	0	0
1993	0.176	0.127	0.337	0.173	0.15	0.037	0	0	0
1994	0.159	0.37	0.077	0.159	0.183	0.053	0	0	0
1995	0.056	0.222	0.268	0.193	0.18	0.072	0.007	0	0.003
1996	0.09	0.244	0.167	0.141	0.256	0.103	0	0	0
1997	0.183	0.639	0.063	0.042	0.037	0.021	0.005	0	0
1998	0.106	0.229	0.402	0.162	0.067	0.022	0.006	0	0.006
1999	0.047	0.253	0.24	0.197	0.219	0.039	0.004	0	0
2000	0.246	0.192	0.069	0.277	0.177	0.038	0	0	0
2001	0.099	0.441	0.053	0.138	0.211	0.039	0.007	0.013	0
2002	0.108	0.313	0.325	0.06	0.12	0.06	0	0	0
2003	0.095	0.23	0.459	0.135	0.041	0.034	0	0.007	0
2004	0.013	0.227	0.16	0.213	0.28	0.107	0	0	0
2005	0.133	0.167	0.1	0.3	0.267	0.033	0	0	0
2006	0.115	0.462	0.115	0.038	0.192	0.038	0.038	0	0
2007	0.186	0.116	0.209	0.163	0.186	0.093	0.047	0	0
2008	0.075	0.275	0.1	0.125	0.325	0.1	0	0	0
2009	0.036	0.384	0.268	0.08	0.125	0.08	0.027	0	0