

Table B5-1. Gear selectivity parameter estimates for the Serchuk and Smolowitz (1980) and *F/V Tradition* experiments.

(a) Serchuk and Smolowitz (1980) experiment.

Parameter	p=0.5 (fixed)		p estimated	
	Value	Std Err.	Value	Std Err.
a	-4.8032	0.3688	-4.4453	0.2691
b	0.1019	0.0091	0.0811	0.0066
p	0.5000	---	0.5815	0.0085
L50	47.1461	0.9742	54.804	1.4483
IQR	21.5670	1.9202	27.089	2.1878
Ho	model Deviance	136.68	28.61	
	degrees of freedom	24	23	
	significance	9.4495E-18	0.19358978	
Ho	p=0.5 deviance	---	108.07	
	degrees of freedom	---	1	
	significance	---	2.5945E-25	

(b) *F/V Tradition* experiment

Parameter	Raw Data				Adjusted R/V Data	
	p=0.5 (fixed)		p estimated		p estimated	
	Value	Std Err.	Value	Std Err.	Value	Std Err.
a	-21.46947	0.8356	-15.3815	0.2550	-15.2401	0.2520
b	0.317893	0.0128	0.1958	0.0035	0.1943	0.0034
p	0.5	0.0012	0.7509	0.0012	0.6829	0.0013
L50	67.5367	0.2170	78.5699	0.1648	78.4511	0.1507
IQR	6.911827	0.2791	11.2236	0.1994	11.3106	0.1985
Ho	model Deviance	47682.5	6552.2		8292.5	
	degrees of freedom	31	30		30	
	significance	0	0		0	
Ho	p=0.5 deviance	---	41130.26			
	degrees of freedom	---	1			
	significance	---	0			

Table B5-2. Stratified mean sea scallop survey data for Georges Bank, Mid-Atlantic Bight and combined (40+ mm shell height). Calculations include corrections for survey dredge selectivity (NEFSC 1997). Population values were split into recruited and not recruited portions using the piecewise linear commercial dredge selectivity function (NEFSC 1992).

Year	Num/Tow	CV	Num/Tow		Biomass g/Tow	CV	Biomass Not	Fully	Mean Meat Weight (G)
			Num/tow Not Recruited	Fully Recruited			Recruited g/Tow	Recruited g/Tow	
Georges Bank									
1982	133	37%	100	33	869	18%	304	565	6.6
1983	61	21%	24	37	720	16%	97	623	11.9
1984	39	11%	15	23	544	9%	55	490	14.0
1985	65	14%	31	34	706	13%	126	579	10.8
1986	116	13%	79	37	917	9%	269	648	7.9
1987	126	15%	67	58	1,082	13%	245	837	8.6
1988	104	15%	56	48	904	12%	216	688	8.7
1989	111	36%	56	55	943	33%	248	695	8.5
1990	207	22%	129	78	1,340	20%	475	865	6.5
1991	251	30%	200	51	1,246	14%	551	695	5.0
1992	264	38%	185	79	1,638	29%	787	851	6.2
1993	70	28%	47	23	531	17%	204	327	7.6
1994	45	16%	20	25	457	13%	69	388	10.2
1995	120	18%	92	28	747	13%	285	462	6.2
1996	139	16%	70	69	1,332	14%	256	1,076	9.6
1997	100	13%	28	72	1,612	14%	98	1,514	16.1
1998	317	31%	145	172	4,000	37%	508	3,492	12.6
1999	246	17%	67	179	4,306	25%	158	4,148	17.5
2000	888	30%	542	346	8,131	21%	2,243	5,888	9.2
2001	473	13%	147	327	7,010	14%	616	6,394	14.8
2002	397	13%	33	364	8,051	13%	174	7,877	20.3
2003	311	12%	61	250	7,529	14%	231	7,299	24.2
Mid-Atlantic Bight									
1979	43	9%	11	32	728	10%	46	681	16.9
1980	51	12%	27	24	615	7%	62	553	12.1
1981	40	17%	18	22	488	11%	64	423	12.3
1982	40	11%	16	24	508	8%	64	444	12.8
1983	38	9%	20	19	472	8%	65	407	12.3
1984	39	10%	15	24	454	9%	49	406	11.8
1985	93	13%	58	35	734	9%	207	528	7.9
1986	152	8%	89	64	1,186	7%	323	863	7.8
1987	152	8%	94	58	1,039	6%	276	763	6.9
1988	179	10%	78	101	1,683	8%	302	1,381	9.4
1989	216	9%	129	87	1,525	7%	462	1,063	7.1
1990	264	22%	173	91	1,672	17%	702	970	6.3
1991	103	10%	48	55	963	10%	196	767	9.4
1992	53	10%	24	28	543	7%	82	461	10.3
1993	164	11%	138	26	753	8%	391	362	4.6
1994	162	10%	95	67	1,043	8%	326	717	6.4
1995	218	13%	125	94	1,547	11%	567	980	7.1
1996	77	8%	23	53	773	7%	116	657	10.1
1997	54	12%	28	26	533	6%	66	467	9.8
1998	195	17%	145	50	1,101	15%	474	627	5.7
1999	309	21%	173	136	2,281	18%	640	1,641	7.4
2000	389	14%	131	257	4,005	13%	572	3,434	10.3
2001	398	12%	141	257	4,519	13%	523	3,995	11.3
2002	404	11%	112	292	5,122	12%	399	4,723	12.7
2003	864	15%	495	370	7,603	9%	1,297	6,306	8.8

Combined

1982	83	28%	55	28	676	11%	176	500	8.1
1983	49	13%	22	27	587	10%	80	507	12.1
1984	39	8%	15	24	496	6%	51	445	12.8
1985	80	9%	46	35	721	8%	169	552	9.1
1986	135	7%	84	51	1,061	6%	298	763	7.8
1987	140	8%	82	58	1,059	7%	262	798	7.6
1988	144	8%	68	77	1,320	6%	262	1,058	9.2
1989	167	13%	95	72	1,254	12%	363	892	7.5
1990	237	16%	153	85	1,517	13%	596	921	6.4
1991	172	21%	119	53	1,095	9%	361	734	6.4
1992	151	31%	99	52	1,053	21%	410	643	7.0
1993	120	11%	96	24	650	8%	304	346	5.4
1994	108	9%	60	48	770	7%	206	564	7.2
1995	173	10%	110	63	1,175	9%	436	739	6.9
1996	106	11%	45	61	1,033	9%	181	852	10.3
1997	76	9%	28	48	1,035	10%	81	954	14.9
1998	251	20%	145	107	2,451	29%	490	1,961	10.5
1999	268	14%	124	144	1,978	16%	416	1,562	11.1
2000	621	21%	323	299	5,926	14%	1,350	4,576	10.0
2001	433	9%	144	290	5,678	10%	566	5,112	13.3
2002	401	8%	75	326	6,485	9%	294	6,192	16.2
2003	607	12%	293	314	7,569	8%	801	6,768	12.5

Table B6-1. Fishing mortality estimates.

Georges Bank														
	80-100	100+	SurveyF	CV	Landings	MinEBms	Ebms	CV	CBI	CV	RescaledF	CV	BH-F	MovAvg
1982	14.77	11.40			6448	3124	7811	0.12	0.83	0.15	1.44	0.16	0.50	0.53
1983	22.18	12.03	0.68		4527	3443	8608	0.10	0.53	0.14	0.92	0.15	0.70	0.57
1984	10.52	11.25	1.01		3207	2707	6767	0.10	0.47	0.14	0.82	0.14	0.38	0.49
1985	17.13	12.48	0.46		2976	3204	8011	0.14	0.37	0.17	0.65	0.18	0.61	0.68
1986	15.21	14.85	0.59		4516	3585	8964	0.09	0.50	0.13	0.88	0.14	0.48	0.78
1987	35.75	14.82	0.61		4919	4631	11578	0.13	0.42	0.16	0.74	0.17	0.95	1.04
1988	27.79	12.84	1.27		6123	3806	9515	0.10	0.64	0.14	1.12	0.14	0.89	1.32
1989	35.57	10.20	1.28		5799	3842	9605	0.32	0.60	0.34	1.05	0.34	1.29	1.33
1990	53.88	8.84	1.54		10098	4785	11962	0.22	0.84	0.24	1.47	0.24	1.78	1.27
1991	26.89	12.04	1.55		9382	3844	9611	0.09	0.98	0.14	1.70	0.14	0.92	0.88
1992	32.37	11.29	1.14		8362	4708	11770	0.17	0.71	0.19	1.24	0.20	1.10	0.87
1993	8.72	7.15	1.71		3721	1806	4514	0.10	0.82	0.14	1.43	0.14	0.63	0.68
1994	16.4	7.2	0.69		1138	2145	5363	0.12	0.21	0.16	0.37	0.16	0.87	0.72
1995	10.9	12.1	0.57		1018	2554	6385	0.12	0.16	0.15	0.28	0.16	0.54	0.54
1996	37.86	23.50	-0.12		2120	5950	14874	0.14	0.14	0.17	0.25	0.18	0.74	0.48
1997	24.94	44.45	0.22		2395	8370	20926	0.14	0.11	0.17	0.20	0.18	0.36	0.33
1998	66.74	91.99	-0.38		2118	19308	48271	0.39	0.04	0.40	0.08	0.40	0.34	0.33
1999	59.25	84.69	0.53		5209	22937	57342	0.31	0.09	0.32	0.16	0.33	0.28	0.35
2000	133.52	135.59	-0.04		4569	32560	81401	0.20	0.06	0.23	0.10	0.23	0.36	0.38
2001	151.48	154.86	0.45		4955	35358	88396	0.15	0.06	0.18	0.10	0.19	0.41	0.28
2002	145.32	215.07	0.25		5249	43561	108903	0.13	0.05	0.17	0.08	0.17	0.35	
2003	33.77	207.89	0.45		5048	40360	100901	0.13	0.05	0.17	0.09	0.17	0.08	
<i>Mean8203</i>	<i>44.59</i>	<i>50.75</i>	<i>0.69</i>	<i>0.04</i>	<i>4723</i>		<i>29158</i>		<i>0.40</i>		<i>0.69</i>		<i>0.66</i>	

Mid-Atlantic Fishing Mortality Estimates

	80-98.5	98.5+	SurveyF	CV	Landings	MinEBms	EBms	CV	CBI	CV	RescaledF	CV	BH-F	MovAvg
1979	10.9	19.1			2888	4326	7210	0.10	0.67	0.14	0.64	0.15	0.38	0.39
1980	7.0	16.2	0.52		1975	3512	5854	0.07	0.56	0.12	0.54	0.12	0.33	0.45
1981	9.0	10.1	0.73		731	2686	4476	0.10	0.27	0.14	0.26	0.14	0.47	0.46
1982	11.3	10.6	0.49		1610	2819	4698	0.08	0.57	0.13	0.55	0.13	0.55	0.55
1983	6.4	10.8	0.61		3109	2582	4304	0.08	1.20	0.13	1.16	0.13	0.36	0.61
1984	14.8	8.2	0.64		3675	2577	4295	0.09	1.43	0.13	1.37	0.13	0.73	0.85
1985	16.9	11.8	0.57		3276	3351	5584	0.07	0.98	0.12	0.94	0.12	0.75	0.99
1986	40.0	15.9	0.49		3359	5480	9133	0.07	0.61	0.12	0.59	0.12	1.06	1.10
1987	40.1	13.6	1.31		7803	4842	8071	0.06	1.61	0.12	1.55	0.12	1.16	1.16
1988	66.4	24.8	0.67		6178	8768	14613	0.07	0.70	0.12	0.68	0.12	1.10	1.24
1989	53.5	16.2	1.63		7973	6748	11247	0.07	1.18	0.12	1.13	0.12	1.22	1.21
1990	49.7	11.7	1.69		6435	6161	10268	0.10	1.04	0.14	1.00	0.14	1.41	1.05
1991	33.5	14.8	1.32		7011	4872	8120	0.11	1.44	0.15	1.38	0.15	1.01	0.85
1992	15.3	10.9	1.39		4955	2928	4880	0.07	1.69	0.12	1.62	0.12	0.73	1.13
1993	12.9	7.5	1.14		2794	2300	3833	0.07	1.22	0.12	1.17	0.12	0.83	1.38
1994	44.5	7.6	0.89		5872	4552	7587	0.08	1.29	0.13	1.24	0.13	1.84	1.58
1995	50.0	13.2	1.27		6318	6224	10373	0.09	1.02	0.13	0.97	0.13	1.48	1.17
1996	39.5	10.1	1.73		4999	4168	6947	0.06	1.20	0.12	1.15	0.12	1.43	1.04
1997	12.6	13.2	1.23		2910	2967	4944	0.06	0.98	0.11	0.94	0.11	0.61	1.00
1998	28.9	11.0	0.75		2948	3980	6633	0.14	0.74	0.17	0.71	0.17	1.10	1.16
1999	87.7	26.9	0.30		4653	10418	17363	0.15	0.45	0.18	0.43	0.18	1.30	1.05
2000	169.9	69.9	0.39		9691	21800	36334	0.13	0.44	0.16	0.43	0.16	1.09	0.86
2001	129.5	114.1	0.64		15812	25365	42274	0.14	0.62	0.17	0.60	0.17	0.76	0.69
2002	147.2	137.2	0.47		17233	29985	49976	0.12	0.57	0.16	0.55	0.16	0.72	
2003	158.8	188.2	0.31		19822	40033	66721	0.09	0.50	0.14	0.48	0.14	0.60	
<i>Mean7903</i>	<i>50.3</i>	<i>31.7</i>	<i>0.88</i>	<i>0.02</i>	<i>6161</i>		<i>14229</i>		<i>0.92</i>		<i>0.88</i>		<i>0.92</i>	

Combined Fishing Mortality Estimates (Number weighted)

	SurveyF	Landings	Ebms	CBI	RescaledF	CV	BH-F	MovAvg
1982		8058	12509	0.64	1.10	0.08	0.52	0.56
1983	0.66	7636	12912	0.59	0.99	0.07	0.60	0.61
1984	0.83	6882	11062	0.62	1.09	0.07	0.55	0.69
1985	0.51	6252	13595	0.46	0.78	0.08	0.67	0.85
1986	0.53	7875	18096	0.44	0.70	0.07	0.83	0.97
1987	0.94	12722	19648	0.65	1.13	0.08	1.05	1.11
1988	0.89	12301	24127	0.51	0.84	0.07	1.02	1.29
1989	1.48	13772	20851	0.66	1.10	0.14	1.25	1.27
1990	1.61	16533	22230	0.74	1.25	0.11	1.61	1.19
1991	1.44	16393	17731	0.92	1.55	0.07	0.96	0.90
1992	1.20	13317	16650	0.80	1.32	0.09	1.02	1.10
1993	1.43	6515	8347	0.78	1.30	0.07	0.73	1.17
1994	0.83	7010	12950	0.54	0.97	0.08	1.55	1.26
1995	1.09	7336	16758	0.44	0.80	0.08	1.25	0.88
1996	0.55	7119	21820	0.33	0.58	0.08	0.99	0.62
1997	0.43	5305	25870	0.21	0.35	0.08	0.41	0.52
1998	-0.20	5066	54904	0.09	0.18	0.17	0.46	0.60
1999	0.43	9862	74705	0.13	0.27	0.14	0.70	0.62
2000	0.12	14260	117735	0.12	0.22	0.11	0.64	0.56
2001	0.52	20767	130670	0.16	0.28	0.09	0.54	0.47
2002	0.34	22482	158878	0.14	0.26	0.09	0.49	
2003	0.38	24870	167622	0.15	0.30	0.08	0.36	
<i>Mean8203</i>	<i>0.76</i>		<i>44530</i>		<i>0.79</i>		<i>0.83</i>	

Table B7-1 Length-based yield-per-recruit analysis results

Stock	L_{inf}	K	a	b	M	h_d	d	i	rings	F_{max}	Y_{max}	B_{max}	Comments
GB	152.46	0.3374	-11.6038	3.1221	0.1	90	0.2	0.225	3.5-log	0.189	13.58	95.54	Standard 3.5" ring run
GB	152.46	0.3374	-11.6038	3.1221	0.1	90	0.2	0	3.5-log	0.215	17.59	90.02	No incidental mortality
GB	152.46	0.4	-11.6038	3.1221	0.1	90	0.2	0.225	3.5-log	0.202	15.11	98.44	Fast growth
GB	152.46	0.3374	-11.6038	3.1221	0.1	75	0.2	0.225	3.5-log	0.178	13.24	94.69	Cull size prior to 1999
GB	152.46	0.3374	-11.6038	3.1221	0.05/0.1	90	0.2	0.225	3.5-log	0.184	16.15	116.08	M increases at 120 mm
GB	152.46	0.3374	-11.6038	3.1221	0.1/0.2	90	0.2	0.225	3.5-log	0.282	10.97	55.40	M increases at 120 mm
GB	152.46	0.3374	-11.6038	3.1221	0.1	90	0	0.225	3.5-log	0.202	14.08	93.41	No discard mortality
GB	152.46	0.3374	-11.6038	3.1221	0.1	90	1	0.225	3.5-log	0.147	11.99	107.53	100% discard mortality
GB	152.46	0.3374	-11.6038	3.1221	0.1	90	0.2	0.225	3.5-pl	0.196	13.82	94.42	SARC-23 selectivity curve
GB	152.46	0.3374	-11.6038	3.1221	0.1	90	0.2	0.225	4	0.214	14.14	95.90	Standard 4" ring run
GB	152.46	0.3374	-11.6038	3.1221	0.1	90	0.2	0	4	0.275	19.15	85.30	No incidental mortality
GB	152.46	0.4	-11.6038	3.1221	0.1	90	0.2	0.225	4	0.227	15.73	98.40	Fast growth
GB	152.46	0.3374	-11.6038	3.1221	0.1	75	0.2	0.225	4	0.208	14.05	96.53	Cull size typical prior to 1999
GB	152.46	0.3374	-11.6038	3.1221	0.05/0.1	90	0.2	0.225	4	0.208	16.86	115.85	M increases at 120 mm
GB	152.46	0.3374	-11.6038	3.1221	0.1/0.2	90	0.2	0.225	4	0.325	11.45	57.14	M increases at 120 mm
GB	152.46	0.3374	-11.6038	3.1221	0.1	90	0	0.225	4	0.214	14.23	96.49	No discard mortality
GB	152.46	0.3374	-11.6038	3.1221	0.1	90	1	0.225	4	0.202	13.79	98.57	100% discard mortality
GB	152.46	0.3374	-11.6038	3.1221	0.1	90	0.2	0.225	4	0.227	14.29	93.78	Rotation - 3 closed then ramped fc
GB	152.46	0.3374	-11.6038	3.1221	0.1	75	0.2	0.225	fishery	0.184	13.45	93.38	Fishery Selectivity 79-99
GB	152.46	0.3374	-11.6038	3.1221	0.1	85	0.2	0.225	fishery	0.214	14.27	94.03	Fishery Selectivity 00-03
MA	151.84	0.2997	-12.2484	3.2641	0.1	90	0.2	0.04	3.5-log	0.198	15.99	92.91	Standard 3.5" ring run
MA	151.84	0.2997	-12.2484	3.2641	0.1	90	0.2	0	3.5-log	0.200	16.85	93.07	No incidental mortality
MA	151.84	0.23	-12.2484	3.2641	0.1	90	0.2	0.04	3.5-log	0.182	13.20	86.31	Slow growth
MA	151.84	0.2997	-12.2484	3.2641	0.1	75	0.2	0.04	3.5-log	0.177	15.30	93.60	Cull size prior to 1999
MA	151.84	0.2997	-12.2484	3.2641	0.05/0.1	90	0.2	0.04	3.5-log	0.192	19.44	114.40	M increases at 120 mm
MA	151.84	0.2997	-12.2484	3.2641	0.1/0.2	90	0.2	0.04	3.5-log	0.302	13.19	54.07	M increases at 120 mm
MA	151.84	0.2997	-12.2484	3.2641	0.1	90	0	0.04	3.5-log	0.224	16.84	87.28	No discard mortality
MA	151.84	0.2997	-12.2484	3.2641	0.1	90	1	0.04	3.5-log	0.140	13.57	108.78	100% discard mortality
MA	151.84	0.2997	-12.2484	3.2641	0.1	90	0.2	0.04	3.5-pl	0.208	16.40	90.87	SARC-23 selectivity curve
MA	151.84	0.2997	-12.2484	3.2641	0.1	90	0.2	0.04	4	0.244	17.29	90.44	Standard 4" ring run
MA	151.84	0.2997	-12.2484	3.2641	0.1	90	0.2	0	4	0.265	18.43	86.58	No incidental mortality
MA	151.84	0.23	-12.2484	3.2641	0.1	90	0.2	0.04	4	0.234	14.36	83.89	Slow growth
MA	151.84	0.2997	-12.2484	3.2641	0.1	75	0.2	0.04	4	0.234	17.05	91.24	Cull size typical prior to 1999
MA	151.84	0.2997	-12.2484	3.2641	0.05/0.1	90	0.2	0.04	4	0.239	21.07	110.43	M increases at 120 mm
MA	151.84	0.2997	-12.2484	3.2641	0.1/0.2	90	0.2	0.04	4	0.406	14.59	53.06	M increases at 120 mm
MA	151.84	0.2997	-12.2484	3.2641	0.1	90	0.2	0.04	4	0.265	17.48	87.74	Rotation - 3 closed then ramped fc
MA	151.84	0.2997	-12.2484	3.2641	0.1	N/A	N/A	0.04	fishery	0.198	16.11	91.25	Fishery Selectivity 79-98
MA	151.84	0.2997	-12.2484	3.2641	0.1	N/A	N/A	0.04	fishery	0.260	17.67	88.77	Fishery Selectivity 01-03